

CARGILL LIMITED

REGINA CANOLA PROCESSING PLANT TECHNICAL PROPOSAL

NOVEMBER 2021



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EXECUTIVE SUMMARY

INTRODUCTION

Cargill Limited (Cargill) is proposing to construct and operate a canola processing plant, cogeneration plant, and associated infrastructure such as a rail loop and onsite wastewater treatment in the Global Transportation Hub (GTH) of Regina, Saskatchewan (the Project).

WSP has prepared this Technical Proposal to describe the Project, existing environment, potential effects of the Project on Valued Ecosystem Components (VECs), mitigation measures, and engagement strategy. WSP is committed to working with the Saskatchewan Ministry of Environment to ensure the Project is compliant with regulatory requirements and commitments made in this Technical Proposal.

PROJECT PROPONENT

The proponent for the Project is Cargill Limited (Cargill).

Proponent	Cargill Limited
Address	300-240 Graham Avenue, Winnipeg, MB, R3C 4C5
Principle Contact Person	Fady Philippe Title: Project User Email: Fady_Philippe@cargill.com Phone: 780-678-3823

PROJECT DETAILS

The Project will be located at the GTH within the western boundary of the City of Regina. Canola production and processing is a valuable part of Saskatchewan's economy. Saskatchewan is the largest canola-producing province in Canada. The proposed Project will be supporting the agricultural industry through the purchase of canola seed and production of canola meal and canola oil. The Project will process approximately 3,500 metric tonnes (MT) per day of canola seed. The Project occupies 111 hectares with 25 ha of railway track. Spur lines will connect the rail yard to both Canadian National (CN) and Canadian Pacific (CP) rail lines. Site preparation in advance of construction is expected to start in the fall of 2021. Construction will begin in the winter of 2022 with a completion date in late 2023.

SITING CONSIDERATIONS

Cargill required the evaluation of potential sites for the Project to inform their site selection process. Specifically, Cargill required WSP to evaluate components associated with five potential locations. The components included: municipal water, utilities, groundwater, land, environment and culture, transportation, and land development. As a support to this evaluation, a limited Phase I Environmental Site Assessment was started for all sites, and a complete Phase I ESA finished for the selected site (WSP, 2021b). WSP performed this evaluation in the spring of 2021 by completing desktop screenings. The potential location within the GTH was selected and a Project Development Area (PDA) within the GTH was identified.

APPROACH TO ASSESSMENT

The proposed Project is subject to the provincial environmental assessment process and is based on the draft version of the Saskatchewan Ministry of Environment Technical Proposal Guidelines (2021) with an emphasis on the effects assessment. The purpose of the Technical Proposal is to provide information

about the Project and assess potential interactions between the Project and the environment to allow a determination as to whether the Project may be deemed a 'development' under the *Environmental Assessment Act*.

This assessment focuses on the evaluation of the potential interactions between the VECs identified and various Project activities in construction, operation and maintenance, and decommissioning and reclamation phases. The VECs have been determined through environmental desktop and field studies, and engagement with local stakeholders, Indigenous communities, and provincial regulators.

The VECs selected for this assessment include:

- Soil and Water
- Air Quality and Greenhouse Gas
- Noise and Acoustics
- Water Resources
- Vegetation and Land Cover
- Wetlands and Watercourses
- Wildlife and Habitat
- Fish and Fish Habitat
- Heritage Resources
- Land Use & Property Value
- Traditional Land and Resource Use
- Traffic Conditions
- Public Health and Safety
- Community and Local Economy
- Visual Aesthetics

DESCRIPTION OF THE EXISTING ENVIRONMENT

PHYSICAL ENVIRONMENT

The soils in the PDA had variable salinity and pH. The groundwater quality had parameters that exceeded Saskatchewan Environmental Quality Guidelines (SEQG) based on the natural chemistry of the site. The existing air quality for the Project was generally below the Saskatchewan Ambient Air Quality Standards (SKAAQS). The NO₂, particulate matter, and total suspended solids are at higher levels compared to the SKAAQS. Baseline noise levels were considered typical.

BIOPHYSICAL ENVIRONMENT

The Project is located within the Moist Mixed Grassland Ecoregion. No plant or wildlife species of management concern (SOMC) were identified during field surveys within the PDA in 2021. There were also no fish-bearing watercourses or waterbodies within or intersecting the PDA and ecologists did not identify any wetlands in the PDA aside from a drainage ditch and existing stormwater retention pond.

SOCIO-ECONOMIC ENVIRONMENT

Heritage resource screening using the Ministry of Parks, Culture and Sport's Online Developers' Screening Tool indicated the PDA is not heritage sensitive. The GTH is a transportation hub with traffic currently operating at acceptable levels. The GTH is currently well equipped with an emergency response plan implementing emergency services in the area. The Project location is currently part of an already existing industrial park, with the GTH having many industrial businesses already. Land use surrounding the PDA is residential, industrial and cropland. The land use for the Project was previously cultivated and is now zoned and prepared for industrial use.

IDENTIFICATION AND SCREENING OF POTENTIAL EFFECTS AND MITIGATION

All potential interactions between the Project and the VECs were identified. Identification of potential interactions was then followed by the identification of mitigation that can be incorporated into the Project to avoid or reduce potential effects of the Project on the VECs. Where one or more potential interactions between the Project and the VECs were identified, site-specific and industry standard mitigations were proposed.

ENGAGEMENT

The Proponent engaged with municipalities, provincial regulators, and economic development Ministries, local landowners, residents and businesses, Indigenous communities, and members of the public. No major concerns or opposition to the project have been raised to date; however, communications with stakeholders continue.

CONCLUSION

Seven VECs were carried through to formal residual effects characterization and significant determination: Air Quality and Greenhouse Gas, Noise and Acoustics, Vegetation and Land Cover, Wildlife and Habitat, Traffic, Community and Local Economy, and Visual Aesthetics. The assessment of residual effects determined all potential residual effects to be Not Significant. They were not significant due to the implementation of mitigation measures and the Project's ability to meet requirements within the existing regulatory framework. Based on the results of the Technical Proposal, there are no significant residual effects or cumulative residual effects for any of the assessed VECs. The PDA is part of the GTH that is already zoned for industrial facilities and siting of the Project in the GTH helped reduce potential adverse significant effects on all VECs.



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M	Environmental Protection Plan
N	Environmental Monitoring Plan
O	Decommissioning and Reclamation Plan
P	Engagement and Concerns Resolution Plan
Q	Engagement Communications

1 PROPONENT INFORMATION

1.1 Proponent

The proponent for the Project is Cargill Limited (Cargill).

Proponent	Cargill Limited
Address	300-240 Graham Avenue, Winnipeg, MB, R3C 4C5
Principle Contact Person	Fady Philippe Title: Project User Email: Fady_Philippe@cargill.com Phone: 780-678-3823

2 PROJECT DESCRIPTION

Cargill is proposing to construct a canola processing plant, cogeneration plant, and associated necessary infrastructure such as a rail loop and onsite wastewater treatment near Regina, Saskatchewan (the Project). The proposed project will be located in NW-24-17-21 W2M and SW-24-17-21 W2M within the Global Transportation Hub (GTH) west of Regina (Figure 1).

2.1 Project Need

Canola production and processing is a valuable part of Saskatchewan's economy. Saskatchewan is the largest canola-producing province in Canada (Canola Council of Canada, 2021a). Census Division No. 6 (total area is 17,548 km²), which encompasses the City of Regina, Grand Coulee and the Rural Municipality (R.M.) of Sherwood, was the third largest canola producing area in Saskatchewan in 2019 (Statistics Canada, 2021).

Nation-wide, canola processing capacity is expected to expand by 50%, with capital investments expected to surpass \$2 billion (CAD) (Canola Council of Canada, 2021b). The Project is expected to provide canola contract opportunities for local and regional producers. The Project helps Saskatchewan's Growth Plan goal of crushing 75 percent of the canola the province produces by 2030 (Government of Saskatchewan, 2020).

2.2 Project Details

The proposed Project will be supporting the agricultural industry through the purchase of canola seed and production of canola meal and canola oil. The Project will process approximately 3,500 metric tonnes (MT) per day of canola seed. Canola seed will be delivered to the plant via truck or rail from local canola producers. Following processing, canola meal and canola oil will be shipped from the plant via truck or rail.

The Project will include a combined heat and power (CHP) plant which will provide electrical power and steam for process and building services. Power will be generated with a nominally rated 10MW packaged gas combustion turbine.

2.2.1 Utilities

The majority of the utilities for the Project are supplied through agreements with the GTH. The GTH is managing the development of a utilities' hub in the northeast corner of the NW-24-17-21-W2M to provide SaskWater, SaskEnergy and SaskPower connections to the Project site. The City of Regina potable water, raw water and sanitary sewage system have been provided to the Proponent through an agreement with the GTH. The GTH has an existing service agreement with the City of Regina. Cargill has a proposed wastewater management plan to manage outputs to stay within the City of Regina sewage water required biological and chemical requirements. The services agreements for SaskEnergy, SaskPower, and SaskWater (Appendix A) are being negotiated between the service providers and the Proponent. Groundwater will not be used for process or potable water for this project. A summary of the daily utility requirements for the Project to operate are summarized in Table 2-1.

Table 2-1 Daily Utility Requirements

Item	Quantity
Process Water	950 m ³ /day
Potable Water	10 m ³ /day
Wastewater	600 m ³ /day
Power	1,000 kW/day
Natural Gas	4,000 kJ/day

Power from the CHP will be generated with a nominally rated 10MW packaged gas combustion turbine. The combustion turbine will be fuelled by natural gas. Exhaust gases from the combustion turbine will be directed through a single pass heat recovery steam generator (HRSG) to capture waste heat and generate steam. A natural gas duct burner will be installed between the combustion turbine and the HRSG to boost the steam generating capacity of the system.

The plant will also be connected to the local electric grid to allow for backup power from the grid and allow the facility to sell power back to the electric utility when more power is produced than is consumed onsite. The natural gas CHP system provides power and steam to the Project with greater overall efficiency and lower emissions than a traditional approach where power is provided from the local electric grid and there is a separate steam boiler installed onsite. A diverter valve will allow the combustion turbine to bypass the HRSG when necessary for operational and maintenance purposes. This results in two stacks, although most of the time only one stack will be operational. Provisions for stack testing and monitoring will be provided on both stacks. Sound attenuation will be provided to maintain noise levels within acceptable levels. The turbine will come from the manufacturer complete with a sound attenuating enclosure which will reduce sound levels within the utilities building. Each stack will have sound attenuating devices, and the entire turbine enclosure will be within a building which is expected to reduce sound levels to less than 40 decibels at the property line. The CHP plant will be located within the footprint of the processing portion of the Project (Figures 2 and 3).

2.2.2 Physical Components and Dimensions

The Project occupies 111 hectares with 25 ha of track as shown in Figure 2. The Canola Processing Plant site is approximately 1560 m long by 740 m wide. Spur lines will connect the rail yard to both Canadian National (CN) and Canadian Pacific (CP) rail lines.

The main components of the Project include (Figures 2 and 3):

- Rail line
- Access roads
- Parking lot
- Lighting
- Seed storage tanks
- Combined heat and power (CHP) plant
- Truck/rail unloading building
- Oil and meal loadout building
- Degum oil tanks
- Cold building
- Office/warehouse/shop
- Firewater tanks
- Prep building
- Crude oil tank farm
- Hopper tank
- Meal storage tank
- Elevator/receiving Motor Control Centre (MCC)
- Process MCC building
- Skim pit
- Extraction building
- Fans
- Odour scrubbers
- Odour scrubber holding tank
- Scrubber aeration tank
- Wastewater Treatment Plant (WWTP)
- WWTP bioreactor
- WWTP anaerobic tank
- Cooling towers
- Scaling building

Note that a raw water treatment processing facility is proposed for the Project, but it has not been finalized and thus is not included in this report.

2.2.3 Construction

The construction contractor (Graham) will develop and implement a Construction Environmental Management Plan based on the principles outlined in *Environmental Construction Operations (ECO) Plan Framework Municipal Version Instructions for Preparing ECO Plans for City of Calgary and City of Edmonton Construction Projects* (City of Calgary 2020, City of Edmonton, 2020). Aquifer protection will adhere to the Aquifer Protection guidelines outlined in:

- As outlined for Sec. T3.1 in Table 8B.T3: Performance Regulations for Low Sensitivity Aquifer Protection Overlay Zone (Appendix B); Chapter 8, Overlay Zone Regulations, of the City of Regina Zoning Bylaw No. 2019-19 (City of Regina, 2019).
- Aquifer protection as outlined in Section 10 of the GTH Zoning Bylaw 2014-02-01, revised August 2, 2018 (Appendix B, Global Transportation Hub 2018).

The plan will include but not be limited to the following:

- Adequate erosion control protection to mitigate against water and wind erosion and deposition offsite
- Inclusion of spill reporting protocols
- Sufficient number of suitable waste and recycling bins
- Sufficient sanitation facilities for staff and workers
- Designated material laydown and equipment storage areas, including designated equipment refueling and maintenance areas
- Cleared vegetation will be disposed of and not burned onsite
- Construction design and installation of structures will be done to prevent affecting the underlying aquifer which will include the following:
 - Limiting excavations to a maximum depth of 6 metres below ground surface (mbgs)
 - Backfilling boreholes with cuttings and a bentonite seal at the surface
 - Decommissioning and removing any groundwater monitoring wells or piezometers that are damaged, or no longer required under the supervision of a qualified environmental professional. External casings will be removed and sent offsite for re-use, recycling, or disposal. Internal standpipes or piezometers will be filled with bentonite and cut-off at ground level
 - Onsite runoff containment ponds will be designed to minimize seepage into the underlying aquifer

Site preparation in advance of construction is expected to start in the fall of 2021. Construction will begin in the winter of 2022 (Table 2-2). The following main construction activities will occur for the Project:

- site clearing (e.g., removal of vegetation covered seeded by GTH)
- levelling and grading
- abutment fill
- pile driving
- placing formwork and reinforcement for concrete
- pouring concrete foundations
- excavation of trenches and installation of underground piping

- construction of access roads, parking, and lighting
- bridge construction
- construction of control, maintenance, and process buildings, involving the following:
 - structural steel erection (including pre-engineered buildings)
 - piping/ducting/spouting installation
 - equipment setting
 - electrical installation
 - building finishes
 - building furnishings
- construction of tank farms, wastewater treatment, bridges, and other plant facilities, including the following:
 - tank installation
 - structural steel erection (including pre-engineered buildings)
 - equipment installation
 - piping/ducting/spouting installation
 - electrical installation
 - finishes
- rail construction
- grid connection and commissioning
- utility connections and installations

Table 2-2 High Level Construction Timeline for Project

Construction Activity	Estimated Timeline
Early Works Construction Start ¹ .	Q4 2021
Main Access Road Fill Placement Start ¹ .	Q4 2021
Site Pre-construction Work Completed ¹ .	Q1 2022
Rail Construction Start	Q1 2022
Break Ground	Q1 2022
Piling Start	Q1 2022
Foundations Start	Q1 2022
Main Access Road Fill Placement Completed	Q2 2022
Start Underground Piping	Q2 2022
Start First Building	Q2 2022
Site Access Roads Start	Q3 2022
Bridge Construction Start	Q4 2022

Construction Activity	Estimated Timeline
Mechanical Completion	Q4 2023
Bridge Construction Complete	Q3 2023
Main Access Road Paving and Final Construction	Q3 2023
Site Access Roads Complete	Q4 2023
Rail Construction Complete	Q4 2023

1. Preliminary works have no environmental regulatory triggers and require no permits other than those issued by the GTH. All preliminary works are considered reversible based on the existing land use and existing site conditions.

2.2.4 Operations

The operational lifespan of the Project is expected to be up to 100 years, but will be dependent upon a multitude of factors. The Project will process up to 3,500 tonnes per day of canola seed and approximately 1,200,000 MT annually (Table 2-3 and Table 2-4). Canola seed will be delivered to the Canola Processing Plant via truck or rail. After the canola arrives at the Plant site, it is weighed, sampled for seed quality, then unloaded and stored in seed storage tanks. The seed is continuously fed from the seed silos into the process area where it is weighed and cleaned using screens to remove debris.

Table 2-3 Daily Inputs

Substance	Units/day	Description	Fate
Canola Seed	3,500 tonnes	Raw Seed	Crushed/extracted
Enzyme	0.03 m ³	Used for degumming	Residual in wastewater
Hexane Solvent	4 m ³	64% n-hexane	>99% recovered and re-used
50% Citric Acid	0.93 m ³	Used for degumming	Residuals in wastewater
25% Caustic	0.48 m ³	Used for degumming	Residual in wastewater

Table 2-4 Typical Annual Processing Capacity

Total Seed Processed (MT)	Total Meal Processed (MT)	Total Oil Produced (MT)
1,200,000	600,000	500,000

Clean seed is fed into a conditioner where it is heated to soften the seed for flaking. The seed is then pressed through rollers (flakers) that reshape the round seeds into small discs or flakes. Flaked canola seed is heated in a cooker to free the internal oil. The hot treated flakes are fed into screw presses called expellers, where roughly half the oil is squeezed out of the flaked seed. The expelled oil (mixed with fine solids) is discharged to a settling tank for further clarification. The remaining solids are then discharged by the expellers. The solid discharge still contains oil, and a solvent extraction process is used to remove it.

The expelled oil is discharged to a settling tank where heavier solids are removed by gravity. The oil from the settling tank is then fed into centrifuges (decanter) to separate the fine solids from the oil. Solids from the bottom of the settling tank and solids expelled from the centrifuges are added to the pressed cake going to the extraction process. Clarified oil is stored in crude oil tanks prior to a degumming process.

Chemical processing removes oil from the settled or decanted solids (cake) by washing the cake with a solvent comprised of hexane (Table 2-3). The solvent combines with oil from the cake to create a solvent/oil mixture

called “miscella”. The miscella travels through the cake, counter current, gathering a higher concentration of oil until it is discharged to the distillation process. A multi-stage distillation process is used to separate the oil and hexane from the miscella. The canola oil is then sent to the crude oil tanks. The recovered hexane is dewatered and recycled back into the process.

Oil from the crude oil tanks is further processed to remove impurities and gums (degumming) by treatment with caustic, citric acid, enzymes, and water; followed by separation using centrifuges (Table 2-3). The processed oil is then sent through a vacuum dryer to remove any residual water and stored in tanks for outgoing shipment.

Residual “oil-free” cake is sent to a desolventizer toaster where steam is used to remove any residual hexane. The cake or meal is then pelletized for shipping. It is estimated that 600,000 MT of meal will be processed annually (Table 2-4).

Expected waste outputs from the proposed Plant include industrial wastewater, hazardous and non-hazardous waste, and stack emissions.

The Plant will generate approximately 400 – 600 m³ of industrial wastewater per day. Wastewater will be pretreated to meet the discharge requirements specified in the City of Regina Bylaw No. 2016-24 (City of Regina, 2020) then discharged into the GTH sanitary sewer system. Wastewater that does not require pre-treatment before being discharged to the sanitary sewer system includes steam blowdown from the generator, cooling tower blowdown, discharge from the reverse osmosis system and reject water from the ultra-filtration filters.

Non-hazardous wastes are summarized in Table 2-5.

Table 2-5 Non-Hazardous Waste

Waste	Quantity	Disposal Method
Organics (canola chaff)	50,000 - 150,000 kgs/month	Landfill
Cardboard	5,000 – 10,000 kgs/year	Recycled
Paper	25,000 – 30,000 kgs/year	Recycled
Metals	30,000 – 40,000 kgs/year	Recycled
Domestic	45,000 – 55,000 kgs/year	Landfill
Wood	45,000 – 55,000 kgs/year	Landfill
Waste Canola Oil/Organic Solids	70,000 – 300,000 kgs/year	Compost/ Recycling
Wastewater Sludge	400,000 – 700,000 kgs/year	Compost/Landfill
Waste Canola Pellets	Varies – with chaff	Landfill
Waste Oil Filters	2-3 drums/year	Incineration, Recycled, Landfill
Used Oil Absorbent Pads	2-3 drum/year	Incineration, Landfill
Waste Grease (Food Grade)	2-3 drums/year	Incineration, Landfill, Compost
Waste Paint Cans (Aerosol)	Varies	Recycling
Waste Oil	6,000 L/year	Incineration
Used Silica Desiccant	2-3 drums/year	Landfill
Computers, Printers and Accessories	5-10 computers/year	Recycled

2.2.4.1 Traffic

The Project traffic during construction is estimated to peak at approximately 600 staff. During operations there is a total of 75 employees with 50 employees working in the morning shift and 7 in the evening shift. There will be 160 trucks per day (weekdays only 7 am to 9 pm). Trains crossing Dewdney Avenue are expected to be three to four per week or a maximum of three trains per day.

2.2.4.2 Project Safety Signs

A sign will be provided at Cargill's site office as well as at construction contractor and other sub-contractors' site offices with necessary emergency contact information. Safety signs and information will also be installed around the site as required. These signs will be in place during construction of the site and either updated or replaced with other safety information as the site transitions to operation.

2.2.4.3 Maintenance Plans

An assessment will be done to determine the frequency in which maintenance should be done on each piece of equipment and maintenance plans will be developed based on these findings. This will be managed through the work order system which tracks due dates and dates of completion as well as the scope of work. In addition to mechanical maintenance the Proponent is developing plans to manage snow removal, vegetation, and storm water.

2.2.5 Decommissioning

Cargill expects the lifespan of the Project to be measured in terms of decades for the foreseeable future, up to and perhaps surpassing 100 years. However, a multitude of socio-economic and other factors will ultimately determine the longevity of the operations. Cargill envisions a long and productive relationship with GTH, Regina and region and surrounding canola producers. The decommissioning and reclamation of the Project site will follow a decommissioning plan, in addition to the Project's environmental and mitigation measures. Decommissioning of the Project will comply with all applicable federal and provincial regulatory requirements.

Further decommissioning plans are detailed in Section 11.

2.2.6 Schedule

The anticipated schedule for the Proponent has not been finalized. The siting and design for the Project commenced in the spring of 2021. It is expected that the majority of the early work site preparation will be completed at the time of review. The Proponent received early access from the GTH to start early work site preparation where the work was reversible. Site preparation is expected to be completed early spring 2022. Construction is anticipated to begin in the spring of 2022. The Project will be commissioned by the end of 2024 and will have an operational phase of 100 years. Decommissioning and reclamation are expected to be completed in approximately six months after this period. The proposed Project schedule is provided in Table 2-6.

Table 2-6 Proposed Project Schedule

Project Activity	Anticipated Start Date	Anticipated Duration
Siting and Design	Q2 2021	2 years
Early Works Site Preparation	Q4 2021	2 months
Site Preparation	Q1 2022	1 month
Construction	Q1 2022	2 years
Operations and Maintenance	Q4 2024	100 years
Decommissioning and Reclamation	2124	6 months

2.3 Project Location

The Project is located in the GTH at the west end of Rotary Avenue, within Ward 8 of the City of Regina (the City), with Cargo Bay located entirely within the Project footprint (City of Regina, 2021a). The Project Development Area (PDA) is within the NW-24-17-21 W2M and SW-24-17-21 W2M (see Figure 4).

A regional land use map is shown in Figure 5. Major land uses within the subregion are residential, industrial and cropland. Figure 6 shows private residences, existing and proposed developments within 1 km of the PDA. The closest residence is an agricultural residence located on Dewdney Avenues, northeast of the PDA. There is only one other private residence within 1 km of the PDA.

The area west of the PDA is within the Regional Municipality of Sherwood and is zoned as Agricultural District (RM of Sherwood, 2018). The properties north and south of the PDA are within the City of Regina and are zoned as Urban Holding and Railway, respectively (City of Regina, 2021b). The property to the east is within the GTH Industrial Park and includes the following business: GTEC Management and Development Corporation, CP Railway Regina Intermodal Terminal, Loblaw Regina, SLGA warehouse, Emterra Environmental, Fastfrate, Sterling Trucks and Trailer Sales Ltd., and a SK Power substation.

2.3.1 Siting Considerations and Alternatives

The Proponent engaged WSP early in the Project development to support site selection. The Proponent provided the WSP team with a short list of potential sites that included: Crecy East (4 and 6), Crecy West, McCallum, GTH East, and GTH West. All sites are situated in close proximity to the City of Regina and the CN and CP rail lines.

The five short-listed sites were evaluated by WSP based on six overarching Components:

- Municipal Water
- Utilities
- Groundwater
- Land, Environment and Culture
- Transportation
- Land Development

The Components have the potential to significantly constrain the Project development timelines or restrict the Project development as proposed. Each Component was weighted based on the importance to the Project success, while each criterion was weighted by technical experts in relation to the potential effects on Project

scheduling. Sites were evaluated using a multi-criteria assessment (MCA) as outlined below. WSP completed a report detailing the evaluation process and recommendations (WSP, 2021a) that is available in Appendix C. In support of the site selection document, WSP completed a Phase I Environmental Site Assessment (WSP, 2021b).

WSP developed a weighted decision matrix to evaluate and ranked each location based on the Component, as well as the Component criteria for each site. These are provided in Table 2-7.

Table 2-7 Multi-Criteria Assessment and Sub Criteria

Component	Municipal Water	Utilities	Groundwater	Land, Environment and Culture	Transportation	Land Development
Criteria	<ul style="list-style-type: none"> - Available Non-Potable Process Water Supply - Available Potable Water Supply - Available Wastewater Connection 	<ul style="list-style-type: none"> - Available Power Supply - Tie-in Costs (Power) - Power Interconnect Issues / Risks - Power Reliability - Power Rates - Available Natural Gas Supply - Tie-in Costs (Natural Gas) - Natural Gas Interconnect Issues / Risks - Natural Gas Reliability - Supply Reliability 	<ul style="list-style-type: none"> - Groundwater Availability - Groundwater Accessibility - Groundwater Quality - Storage (Groundwater) - Cost 	<ul style="list-style-type: none"> - Species of Management Concern (SOMC) - Fish and Fish Habitat - Wetlands - Heritage - Engagement - Soils and Terrain - Phase I ESA's 	<ul style="list-style-type: none"> - Access to Primary Highway - Access to Secondary Highway - Access to Heavy Rail - Need for Highway Access Approval - At-grade Conflicts - Extent of Access Improvements - Traffic Impact to Vicinity 	<ul style="list-style-type: none"> - Estimated Timelines for Development Approval - Development Complexity - Estimated Development Permit Costs - Zoning

The GTH East and West Sites had the most favourable score overall including the most favourable score for Land, Environment, and Culture. The GTH West Site was chosen by Cargill for the project location.

A Phase I Environmental Site Assessment (ESA) desktop screening was completed for each of the five sights. WSP completed a full Phase I ESA on GTH West Site once it was selected for the Project (WSP, 2021b) available in Appendix D. This included a Site visit and interviews with individuals regarding the site conditions. The report can be found in Appendix D.

2.4 Socio-economics

The Project is owned by Cargill and it is anticipated to create a variety of local jobs throughout the Project life cycle, while contributing to the surrounding communities' economic development. The predicted cost of the Project is \$350 million (CAD). Once in operation, the Project is expected to create 75 full-time positions. Approximately 25% of these roles will be manager type positions, with the remaining opportunities divided between operator, mechanic, and other skilled labour type positions. Additionally, during operation, the Project will source canola seed both locally and provincially, strengthening Saskatchewan's agricultural economy. During the

construction phase, 300-600 people are expected to be working on the Project. Service, skills, and trades required for the Project include:

- Environmental consulting and monitoring
- Railroad management, railcar movement
- Millwright
- Welding and pipefitting
- Steel structural construction
- Civil engineering and surveying
- Electrical engineering
- Road and road pad building
- Foundation construction
- Crane support
- General labourers
- Plant operators
- Site security
- Logistics coordination
- Production management
- Office/toilet rental/waste removal
- Asset management
- Ancillary services, such as snow clearing, janitorial, and weed spraying

The Project is predicted to bring revenue to many local businesses as Project workers purchase meals and supplies, and expense accommodations to conduct work on site. As per Cargill's vision statement to have engaged employees, an enriched community, and be equipped to meet the company's current and future goals, Cargill has a policy to post all open positions internally and externally to ensure that local talent is utilized. Cargill will look to hire locally qualified applicants where possible.

2.5 Ancillary Projects

The Project will be connecting to a utilities hub that includes SaskPower, SaskEnergy and Water (SaskWater and the City of Regina water) provided by the GTH for the Project. The Project will also be connecting to the CN rail line (north of the Project site) and CP rail lines (south of the Project site). The current design of the connecting tracks outside of the GTH have not been finalized. CN and CP are leading the concept design of the connections to the Project site to match the needs of each rail line.

3 REGULATORY CONTEXT

There are a variety of federal, provincial and municipal environmental acts and regulations that apply to the Project. Regulatory requirements include the application and issuance of approvals and permits from applicable regulatory agencies. In addition, there are multiple directives, policies and guidelines that may apply to any project.

Requirements for development are generally dependent upon the project location, environmental features, land use, and proximity to municipalities or existing infrastructure and can often be the most important regulatory considerations. The regulatory requirements for siting tend to relate to existing land uses, environmentally sensitive areas (e.g., grasslands, wetlands, wildlife dens, nests, or critical/important habitats, etc.), and proximity to residences, airports, and other Valued Ecosystem Components (VECs).

The regulatory requirements related to construction generally relate to mitigating negative effects the project may have on the natural and human environments, contamination prevention and treatment, and waste management.

The following sections describe the regulatory framework that apply to the Project.

3.1 Federal

3.1.1 Impact Assessment Act of Canada

On August 28, 2019, the *Impact Assessment Act* (IAA) came into effect, along with related regulations. The *Act* repeals the former *Canadian Environmental Assessment Act, 2012*. The *Impact Assessment Act* (2019) sets out the purpose, required steps, participants, and timelines for impact assessment of proposed projects in Canada that are included in the *Physical Activities Regulations* (2021).

The *Physical Activities Regulations* (2021) set out the types of projects that are 'designated projects' and may require an impact assessment under the *Act* (2019). The Proponent completed a review of the *Regulations* (2021) and determined a canola processing plant with a cogeneration plant, and associated necessary infrastructure such as a rail loop and onsite wastewater treatment project could be a 'designated project' if the Project meets the following criteria as outlined in the *Physical Activities Regulations* (Government of Canada 2021):

- The construction, operation, decommissioning and abandonment of a new fossil fuel-fired power generating facility with a production capacity of 200 MW or more as identified in Section 30 of the *Physical Activities Regulations* (2021).
- The Project's associated rail yard exceeds a total area of 50 ha as outlined in subsection 54(b) of the *Physical Activities Regulations* (2021).

A review of the rail lines and loop was conducted in July of 2021 and the area was measured at under 40 ha. In addition, the cogeneration power plant does not meet the criteria for energy generation that would trigger it as a 'designated project'. The IAA will not be considered further in this Project under the current proposed design.

3.1.2 Species At Risk Act

The *Species at Risk Act* (SARA) provides for the legal protection of wildlife species and the conservation of their biological diversity. The key purposes of SARA include:

- prevention of Canadian indigenous species, subspecies, and distinct populations from becoming extirpated or extinct
- provision for the recovery of Endangered or Threatened species
- encouragement of management of other species to prevent them from becoming at risk

All species classified as being at risk (i.e., Extirpated, Endangered, Threatened and of Special Concern) by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) are addressed under SARA. However, only species listed on Schedule 1 of SARA are protected.

No SARA listed species were observed to inhabit the PDA, nor was any habitat identified in the PDA, or immediately adjacent to the PDA, that could reasonably be expected to support the critical life stages of a SARA listed species. If any species listed by SARA are found on the Project site during any development phase, measures will be taken to mitigate any potential harm to those species.

3.1.3 Fisheries Act

On June 21, 2019, the modernized federal *Fisheries Act* received royal assent and became law and on August 28, 2019 the new regulations came into force. The modernized *Fisheries Act* includes the fisheries protection prohibition against causing death to fish, or the harmful alteration, disruption or destruction (HADD) of fish habitat. Projects that will result in the death of fish or a HADD, require Authorization under sections 34.4(2)(b) and 35(2)(b) of the *Fisheries Act*. Fisheries and Oceans Canada (DFO) interprets HADD as “any temporary or permanent change to fish habitat that directly or indirectly impairs the habitat’s capacity to support one or more life processes of fish.”

Fish, as defined in the *Fisheries Act* (section 2), includes “shellfish, crustaceans, marine animals, the eggs, sperm, spat and juvenile stages of fish, shellfish, crustaceans, and marine animals.” Fish habitat is defined (subsection 2[1]) as “all waters frequented by fish and any other areas upon which fish depend directly or indirectly to carry out their life processes. This includes spawning grounds and nursery, rearing, food supply and migration areas.”

The Project location does not contain and is not adjacent to or contiguous with any potentially fish-bearing waters. Site drainage will be physically isolated from adjacent downstream waterbodies by physical barriers to fish passage. Therefore, the Project will not consider the *Fisheries Act* any further.

3.1.4 Migratory Birds Convention Act

The *Migratory Birds Convention Act* and associated regulation aims to protect migratory birds, their nests, and eggs. The *Act* is applicable on all lands and waterbodies in Canada and to all activities associated with organizations, industries, and individuals. Under section 2 of the *Act*, “migratory bird” means a migratory bird referred to in the Convention, and includes the sperm, eggs, embryos, tissue cultures and parts of the bird. Under Article V of the *Act*, “the taking of nests or eggs of migratory game or insectivorous or nongame birds shall be prohibited, except for scientific or propagating purposes under such laws or regulations as the High Contracting Powers may severally deem appropriate.” The taking of nests or eggs includes loss through the removal of trees or vegetation from a site during the avian breeding season, generally from April 14 to August 28 in the proposed potential project areas (Breeding Bird Zone B4; ECCC, 2018). Note that breeding bird nests identified outside of the breeding season are still protected under the *Act*. Qualified environmental personnel should evaluate projects against the location and season regarding mitigation for breeding birds.

The *Migratory Birds Convention Act* applies to the Project, including the following activities:

- land disturbance (i.e., clearing vegetation, grubbing, stripping, road building)
- infrastructure rehabilitation and decommissioning disturbances (i.e., bridge replacement, building removal)
- sensory disturbance (i.e., noises, lights, and other human activities)
- emergency incidents (i.e., fires, spills, hazardous materials)

It is recommended potentially disturbing activities take place outside the migratory bird breeding window for the area; however, this may not always be possible. The above Project activities may take place during the breeding bird season after a qualified biologist has completed a migratory bird nesting survey in suitable habitats within the PDA and suitable setback distances, and disturbance-free protective setbacks are established around observed nests or young. The nesting survey must be completed within seven days prior to the commencement of Project activities.

3.1.5 Canadian Environmental Protection Act

The *Canadian Environmental Protection Act, 1999* addresses pollution prevention and the protection of the environment and human health to contribute to sustainable development. The *Act* lays out environmental protections, air pollution and water pollution prevention, toxic substance controls, hazardous waste management, and offences and punishments.

The *Canadian Environmental Protection Act, 1999* requirements are typically met by projects in all project phases by adhering to industry best practices and proven mitigation measures. No approvals or applications for the Project are required; however, the *Act* still applies.

3.1.6 Aeronautics Act - Regina Airport Zoning Regulations

The Regina Airport Zoning Regulations under the *Aeronautics Act* aims to regulate the building and maintaining of structures, natural growth and disposal of waste within the immediate vicinity of the Regina Airport. Specifically, the regulation applies to buildings and areas within and directly under the approach and outer limits of the runways. The Project will comply with any height restrictions and lighting as required by the Regina Airport under the *Act* as well as other considerations.

3.2 Provincial

3.2.1 Environmental Assessment Act

The Saskatchewan *Environmental Assessment Act* prescribes the environmental assessment process and aims to ensure that development within the province proceeds with appropriate environmental protections and in a manner understood and accepted by the public. The Environmental Assessment and Stewardship Branch (EASB) of the Saskatchewan Ministry of Environment (MOE) administers the *Act*. The provincial environmental assessment (EA) process is a results-based regulatory approach that enables development in balance with the conservation and sustainable use of natural resources. The Saskatchewan EA process involves three primary steps to guide projects through the approval process:

- Environmental Self-assessment
- Technical Proposal
- Environmental Impact Assessment

This report fulfills the requirement of the Technical Proposal to allow the Minister of Environment to determine whether the Project is likely to be considered a 'development' under section 2(d) of the *Act*. If the proposed project is deemed not to be a 'development', as defined in the *Act*, the project may proceed as proposed, subject to any conditions and applicable regulatory requirements including licenses, permits, leases, and approvals. If the project is determined to be a 'development' by the Minister of Environment, then a formal Environmental Impact Assessment would be required.

3.2.2 Environmental Management and Protection Act

The *Environmental Management and Protection Act, 2010* protects the air, land, and water resources of the province through regulating and controlling potentially harmful activities and substances. The *Act* makes provisions for water pollution control, industrial effluent works, sewage works, waterworks, and regulations of all matters concerning water quality.

An Aquatic Habitat Protection Permit (AHPP) is required for alteration or development in or around the bed, bank, or boundary of watercourses, waterbodies, or wetlands, or for any discharge with potential adverse effects on water. The PDA contains only a man-made drainage system with a stormwater retention pond just outside of the Project boundary. Therefore, the Project will most likely not require an AHPP.

Drainage approvals for changes to drainage patterns in the landscape, changes to the natural storage capacity of wetlands, or the conveyance of surface water are required from the Water Security Agency (WSA) and fall under this *Act*. Drainage approvals for the Project will be required if site preparation requires alteration to current drainage that will have an effect neighbouring properties.

Waste management, hazardous materials storage, and industrial works are also authorized and permitted under this *Act*. If the Project will store hazardous materials or dangerous waste as designated in *the Hazardous Materials and Waste Dangerous Goods Regulations* under the *Act*, an Application to Construct or Upgrade and Operate a Storage Facility to MOE is required along with additional Industrial Approvals.

3.2.3 Heritage Property Act

The Heritage Property Act is the governing legislation to “provide for the Preservation, Interpretation and Development of Certain Aspects of Heritage Property in Saskatchewan.” The Act stipulates that a heritage review by the Heritage Conservation Branch (HCB) is required prior to commencing construction for all ground disturbing development and activity that has the potential to damage heritage property. Section 63 of the Act states, “...where the minister is of the opinion that any operation or activity which may be undertaken by a person is likely to result in the alteration, damage or destruction of heritage property, he may require that person to: (a) carry out an assessment to determine the effect of the proposed operation or activity on that heritage property (b) prepare and submit to the minister a report...(c) undertake any salvage, preservation or protective measures...” Section 67 of the *Act* stipulates that a permit is required for the purpose of collection, researching, or otherwise managing heritage property.

Under the *Act*, all projects that may cause ground disturbance do require a screening of the project areas for potential heritage resources. Screening is typically conducted using the Developers’ Online Development Screening tool. If the screening indicates the site may be heritage sensitive or has not been previously screened, a referral to the HCB is required. The HCB reviews the referral and determines whether a Heritage Resource Impact Assessment (HRIA) is warranted. An HRIA is carried out by a qualified Archaeologist under an Archaeological Resource Investigation Permit obtained from the HCB under the Act. The Archaeologist will summarize the HRIA and provide recommendations to the HCB in a permit report. The HCB reviews the report and determines if further investigation is warranted, if the project may proceed as described, or if the project may not proceed. Projects may not proceed until Clearance is obtained from the HCB.

The Project was screened for heritage resources using the Developers’ Online Development Screening tool. No further heritage work is required because the PDA was deemed not heritage sensitive. In the unlikely event heritage resources are identified during construction, a “chance find” program will be implemented.

3.2.4 Weed Control Act

The purpose of *The Weed Control Act* is to prevent weeds from being introduced into areas that do not contain these species and prevent the spread of new weeds in the province. The *Weed Control Act* aims to protect natural areas such as native grassland, forests, and aquatic habitats from the introduction of these species.

Notification of occurrences of weeds listed as prohibited under Schedule 1, noxious under Schedule 2, and nuisance under Schedule 3 under the *Act* must be given to landowners and occupants of a property and to the Municipality or RM. Steps must be taken by landowners and occupants, under the supervision of a weed inspector, to eradicate prohibited or isolated infestations of noxious weeds, contain and control established infestations of noxious weeds, or control any nuisance weeds.

3.2.5 Wildlife Act

The purpose of *The Wildlife Act* is to protect Saskatchewan wildlife and wild species at risk.

Section 49 of the *Act* deals with the designation and listing of wild species as: Extirpated, Endangered, Threatened, or Vulnerable. Subject to regulations, a recovery plan may be prepared and implemented to protect any designated species. Section 51(1) stipulates activities that are prohibited under the *Act*, including the killing, injuring, possessing, disturbing, taking, capturing, harvesting, genetically manipulating, or interfering with any designated wild species at risk. Under section 21, the Minister may for purposes of propagation, rehabilitation, and scientific purposes, issue a license pursuant to the *Act*. Under the *Act*, the *Wild Species at Risk Regulations* list those wild species at risk that are designated as Extirpated, Endangered, and Threatened.

Section 5(1) stipulates that no person shall disturb the den, house, nest, dam, or usual place of habitation of any wild (animal) species at risk designated as Extirpated or Endangered. A license may be issued to remove or destroy the den, house, nest, dam, or usual place of habitation of any wild (animal) species at risk listed that are causing or is likely to cause damage to property.

Species Detection Survey Permits were received from the Fish, Wildlife and Lands Branch of MOE prior to field surveys. Field surveys adhering to Species Detection Survey Protocols or approved modified survey protocols were completed during the siting and design phase of the Project, such that results of the surveys could be included in the Technical Proposal and construction mitigation measures identified and implemented.

3.2.6 Highways and Transportation Act

The provincial *Highways and Transportation Act* lays out requirements for highways, public improvements, transportation and transportation systems, including but not limited to temporary and permanent closures of highways and public improvements; safety, regulation, and protection of public improvements (e.g., speed limits, signage, permits, loads, etc.); establishment and maintenance of ferries; and suspension, cancellation, and penalties.

Under the *Highways and Transportation Act*, proponents must submit applications to the Ministry of Highways (MoH) for approaches, roadside development (usually within 90 m) and utility development within or along provincial highways.

A traffic impact study of the day-to-day operations is to be submitted to the road authorities identifying the uses, impacts on the adjacent road network generated due to the development, and discussing mitigation measures, if required.

Transportation improvements, if required, within the GTH including the access road to the Project site is being determined through discussions with the GTH.

3.2.7 The Railway Act

Saskatchewan's Railway Act outlines the requirements for Ministerial approval to construct, acquire or alter provincially regulated railways, including private industrial railways. Applicants must send appropriate documentation including preliminary track drawings and details regarding the proposed shipped commodities to the MoH. After this approval is obtained, proponents must then submit a railway safety management plan to the MoH in order to receive authorization to open the railway. The operator of the railway can then apply to the Highway Traffic Board for an Operating Authority Certificate, which authorizes the transportation of the approved commodity. Proponents will also be subject to inspections from a designated railway inspector and must obtain adequate insurance to cover the relevant liability of the commodity being transported.

3.3 Municipal

3.3.1 GTH

The GTH is the regulatory authority for the lands within the GTH boundaries and will provide approvals for various application permits involved with development and construction. The review and approvals consist of but are not limited to reviewing the impact on land use, road systems, and existing and planned infrastructure. The GTH also approves location, size and use of facilities and premises in accordance with the GTH Zoning Bylaw, *The Planning and Development Act*, National Building Code and other applicable legislation.

There are a variety of bylaws, standards and permits that apply to the Project. These include:

- GTH Zoning Bylaw No. 2014-02-01
- Global Transportation Hub Development Standards Manual, May 2017
- Preliminary Site Plan Submission
- Development Permit Application
- Building & Occupancy Permit Application
- Temporary Construction Permit

3.3.2 Regina Zoning Bylaw No. 2019-19

The GTH has regulatory authority over zoning and development within the GTH boundaries and has generalized aquifer protection requirements identified in the GTH Zoning Bylaw. However, Cargill has elected to take a conservative approach in regard to aquifer protection; following the intent of aquifer protection as outlined in Sec. T3.1 in Table 8B.T3: Performance Regulations for Low Sensitivity Aquifer Protection Overlay Zone; Chapter 8, Overlay Zone Regulations, of the City of Regina Zoning Bylaw No. 2019-19 (City of Regina 2019).

3.4 Summary of Applicable Permits and Approvals

Table 3-1 Environmental Permitting and Approvals

Permit/Approval	Regulatory Body	Needed for the Project?
Federal		
Impact Assessment	Impact Assessment Agency of Canada	No
Request for Project Review	Fisheries and Oceans Canada	No
Provincial		
Technical Proposal/Ministerial Determination	MOE	Yes
Aquatic Habitat Protection Permit	MOE	No
Drainage Approval	Water Security Agency	No
Industrial Works Construction Application	MOE	Yes
Approval to Construct or Upgrade and Operate a Storage Facility	MOE	Yes
Heritage Resource Impact Assessment	Heritage Conservation Branch	No
<i>Weed Control Act</i> Notification	Ministry of Agriculture	Yes
Species Detection Survey Permit	MOE	Yes
<i>Highways and Transportation Act</i> Submission	MoH	No
Rail Approval	MoH	Yes
Operating Authority Certificate for Rail	Highway Traffic Board	Yes
Municipal		
Development Permit Application	GTH	Yes
Building and Occupancy Permit	GTH	Yes

4 APPROACH TO ASSESSMENT

The proposed Project is subject to the provincial environmental assessment process and is based on the Technical Proposal Guidelines (MOE, DRAFT June 2021) with an emphasis on the effects assessment. The purpose of the Technical Proposal is to provide information about the Project and assess potential interactions between the Project and the environment to allow a determination as to whether the Project may be deemed a 'development' under the *Environmental Assessment Act*.

This assessment focuses on the evaluation of the potential interactions between the identified Valued Ecosystem Components (VECs) and various Project activities in construction, operation and maintenance, and decommissioning and reclamation. VECs have been determined through environmental desktop and field studies, and engagement with local stakeholders, Indigenous communities, and provincial regulators.

The steps to the assessment include the following:

- Identify issues that may be of concern because of the Project through review of existing information, collection of site-specific baseline information, and input from engagement and consultation
- Identification of VECs that the assessment will focus on
- Define VEC specific spatial and temporal boundaries for the assessment
- Description of the existing environment
- Identification of potential interactions between the Project and VECs
- Identification of mitigation measures to be incorporated into the Project to avoid or reduce potential adverse effects of the Project on VECs. VECs that do not have residual effects after the implementation of mitigation measures will not be carried forward for significance assessment.
- Characterization and significance assessment of residual effects (i.e., effects remaining after the implementation of mitigation measures)
- Evaluate the Project's residual effects in consideration of other activities and projects occurring in the region
- Discuss follow-up monitoring for residual effects that may be required

4.1 Scoping and Bounding

The scoping process identifies the physical, biophysical, and socio-economic VECs that may interact with the proposed Project works, as well as the spatial and temporal boundaries used during the assessment.

The scoping is continually refined as the Project planning progresses, the environmental setting is studied, and information is collected and addressed during engagement activities.

4.2 Valued Components

VECs represent physical, biophysical, and socio-economic properties of the environment determined to be important by the proponent, the public, community groups and stakeholders, the scientific community, Indigenous and Métis communities, and government agencies. The value of a component not only relates to its role in the ecosystem, but also to the value people placed on it. Examples of physical properties that may be considered VECs include air quality, groundwater, and surface water. Aquatic and terrestrial habitats represent biological

properties that may be considered VECs. Access to recreational opportunities and other ecological services or resources can be VECs of the human environment.

The VECs selected for the assessment considered the following:

- presence in the Project area
- the extent to which the Project will interact with the VEC
- the extent that a VEC may be under stress from other past, current, and future developments and activities
- potential sensitivity to effects from the Project
- the extent of values and concerns placed on it
- federal and/or provincial conservation status (i.e., species of conservation concern)

The preliminary list of VECs has been refined based on input from engagement and consultation and consideration of the above. The VECs selected for the assessment are presented in Table 4-1.

Table 4-1 Preliminary Environmental Component Identification

Physical	Biophysical	Socio-economic
Soil and Water	Vegetation and Land Cover	Heritage Resources
Air Quality and Greenhouse Gas	Wetlands and Watercourses	Land Use & Property Value
Noise and Acoustics	Wildlife and Habitat	Traditional Land and Resource Use
Water Resources	Fish and Fish Habitat	Traffic Conditions
		Public Health and Safety
		Community and Local Economy
		Visual Aesthetics

4.2.1 Identified Valued Ecosystem Components

The VECs from Table 4-1 were initially evaluated through further desktop studies, regulatory engagement, Crown Corporation engagement, and baseline inventories conducted for the Project.

This VEC list was further refined based on concerns identified by stakeholders, Indigenous and Métis communities, government agencies, and the general public as identified through the engagement process; generating VECs for assessment.

The Water Resources (in terms of water consumption) was not assessed in the Description of Existing Environment section or in the Assessment and Mitigation Measures section. The SaskWater government agency has already determined that proposed water resource use was predicted to be at a sustainable level and did not require further assessment. See letter from Saskatchewan Water Security Agency dated September 17, 2021 (Appendix A).

The Fish and Fish Habitat EC was not assessed in the Assessment and Mitigation Measures section as no suitable fish habitat was identified in the PDA. Any surface water located in the PDA is physically isolated from any downstream receiving water bodies. The findings are expanded on in Section 6.2.3 and Appendix F.

The Traditional Land and Resource Use has been excluded from the assessment because the land is privately held, is largely denuded of natural vegetation, has been manipulated for the GTH development, is zoned for industrial/commercial development, and the Duty to Consult has not been formally triggered. However, the Proponent has reached out to 11 Indigenous communities to provide introductory materials and to schedule meetings to discuss the project, questions and concerns, and opportunities. To-date, introductory meetings have been hosted with 5 First Nations, with more scheduled in December 2021 and into the New Year.

Based on the above sequence the Proponent has identified physical, biophysical, and socio-economic VECs that were subject to the assessment (Table 4-2). These VECs are addressed throughout this report.

Table 4-2 Identified VECs

Physical	Biophysical	Socio-economic
Soil and Water	Vegetation and Land Cover	Heritage Resources
Air Quality and Greenhouse Gas	Wetlands and Watercourses	Land Use & Property Value
Noise and Acoustics	Wildlife and Habitat	Traffic Conditions
		Public Health and Safety
		Community and Local Economy
		Visual Aesthetics

4.3 Spatial Boundaries

The spatial boundaries for the Project have been defined as the Project Development Area (PDA), Local Assessment Area (LAA), and the Regional Assessment Area (RAA). These three areas were used to assess the Project effects on the surrounding physical, biophysical and socio-economical environments. Each area is defined as follows.

4.3.1 Project Development Area (PDA)

The PDA is the area of direct development which includes all buildings, infrastructure, borrow areas and landscaping. The PDA is essentially the Project footprint.

4.3.2 Local Assessment Area (LAA)

For the purpose of the assessment, a Local Assessment Area (LAA) is defined as the PDA plus a setback distance. The setback distances are variable depending on technical disciplines and VEC being assessed, resulting in LAAs ranging from 0.5 km to 5 km. For example, the LAA for the socio-economic environment is defined as the PDA plus a 5 km buffer to encompass the surrounding communities potentially affected by the Project's activities.

The setback is designed to encompass the maximum spatial extent of direct effects from within the PDA and small-scale indirect effects. Setbacks encompass most of the largest setback distances in the Saskatchewan Activity Restriction Guidelines (ARGs) for Sensitive Species (MOE, 2017) for species that may occur in the surrounding areas. Project effects may be predicted or measured with a higher level of confidence within the LAA than in the RAA.

4.3.3 Regional Assessment Area (RAA)

For the purpose of the assessment, a Regional Assessment Area (RAA) is defined for some of the VECs as the PDA plus a setback distance (larger than the LAA). The RAA allowed an analysis of the potential indirect cumulative effects from the Project and other previous and future developments. The setback distances are variable and dependent on the variables being assessed. The resultant RAAs range from 5 km to the entire province of Saskatchewan. For example, the RAA for the socio-economic environment is defined as the entire province of Saskatchewan since the Project is expected to have effects at the provincial scale.

4.4 Temporal Boundaries

The proposed phases for the Project are the temporal boundaries are based upon the expected construction timeframes, operational expectations and decommissioning. These are presented as follows:

- Construction (2022 to 2024)
- Operation (2024 to 2124)
- Decommissioning and reclamation (2124 and beyond).

Like spatial boundaries, the temporal boundaries used in the assessment considers the properties of each physical, biophysical, and socio-economic VEC. For some VECs, residual effects will be assessed for all phases of the Project and not for each specific phase. For example, effects to vegetation begin when site clearing, and preparation activities are being completed and continue through decommissioning and restoration until the effect is reversed or the effect is considered irreversible and permanent. For other VECs such as air quality, certain phases of the Project may generate peak changes to the measurable parameters of the VEC and therefore, the assessment of changes considers each specific Project phase.

4.5 Identification and Screening of Potential Effects and Mitigation

The first step is to identify all potential interactions between the Project and VECs. Identification of potential interactions is then followed by the identification of mitigation that can be incorporated into the Project to avoid or reduce potential adverse effects of the Project on VECs. Mitigation has been developed for the Project according to the following hierarchy:

- 1 Avoidance of adverse effects (siting, design)
- 2 Reduction of adverse effects (siting, design, implementation of mitigation measures)
- 3 Compensation of adverse effects (when and if required)

Identification and screening of all Project and VEC interactions is presented in Section 6. Interactions where mitigation can be used to avoid an effect will not be evaluated further in the assessment because the mitigation will remove the interaction and result in no change to a VEC. Interactions where mitigation reduces potential effects, but the changes to a VEC are small, will also not be evaluated further because they are not expected to result in significant effects to a VEC. Where mitigation cannot remove an interaction and residual effects to a VEC are expected, further analysis will be required (Sections 7 through to 11). For interactions where positive effects are anticipated, opportunities will be determined for maximizing the positive effects.

5 DESCRIPTION OF THE EXISTING ENVIRONMENT

This section provides a description of the existing environmental conditions for the physical, biophysical, and socio-economic VECs that may be influenced by the Project. The information provided in this section is based on existing secondary data sources, databases, and mapping available for the location, in addition to the results of 2021 field studies completed for the Project. Information presented in this section pertains to the PDA, the LAA and RAA for each VEC where applicable.

This section has supplemental information available in the uploaded appendices. Table 5-1 outlines what report and where it can be found in the appendix for each VEC.

Table 5-1 Identified VECs Supplemental Reports and Appendix

VECs	Reports	Appendix
Physical		
Soil and Water	Baseline Soil and Groundwater Report Environmental and Heritage Baseline	Appendix E Appendix F
Air Quality and Greenhouse Gas	Air Quality Assessment	Appendix G
Noise and Acoustics	Noise Impact Assessment	Appendix H
Visual Aesthetics	Day Visual Effects Assessment Light and Night Visual Effects Assessment	Appendix I Appendix J
Biophysical		
Vegetation and Land Cover	Environmental and Heritage Baseline	Appendix F
Wetlands and Watercourses	Environmental and Heritage Baseline	Appendix F
Wildlife and Habitat	Environmental and Heritage Baseline	Appendix F
Socio-economic		
Heritage Resources	Environmental and Heritage Baseline	Appendix F
Land Use & Property Value	N/A	N/A
Traffic Conditions	Construction Traffic Review Traffic Impact Assessment	Appendix K Appendix L
Public Health and Safety	N/A	N/A
Community and Local Economy	N/A	N/A

For each VEC, the following sections outline the study methods and existing environment.

5.1 Physical Environment

The physical environment is defined as the area's unique landforms, slopes, runoff, soil types, subsurface stratigraphy, depth to groundwater, geophysical and atmospheric components. In addition, this section also includes information on the existing ambient noise, and visual aesthetics of the area surrounding the Project.

5.1.1 Soil

5.1.1.1 Methods

DESKTOP INVESTIGATION

A desktop review of site-specific soil and terrain conditions was completed for the LAA. Information for soil association distribution (map units) and soil characteristics along the LAA was obtained from the Saskatchewan Land Resource Unit (SLRU) information published by Agriculture and Agri-Food Canada (SLRU, 2004; 2009). The review of the SLRU digital soil resource information was used to identify dominant soil types, texture, salinity, erosion potentials, landform/surface expression, and slope classes. This information can be used to support the development of soil conservation practices for the Project and identify areas that may require additional mitigation during construction (e.g., erosion and sediment control measures or special soil handling requirements).

FIELD INVESTIGATION

A standard soil investigation, including borehole drilling, logging and soil sampling was undertaken within the PDA to determine baseline soil conditions.

A track-mounted drill rig conducted the borehole drilling. Soil classification was completed for each drilling location based on properties detailed by the Unified Soil Classification System (ASTM International, 2017).

Soil samples were collected in 0.5 m increments from ground surface to the bottom of each borehole and were submitted to ALS for laboratory analyses of the following parameters: texture, detailed salinity, metals, BTEX (benzene, toluene, ethyl-benzene and xylene) and hydrocarbon fractions F1- F4. These analyses were then compared to Saskatchewan's Environmental Quality Guidelines (SEGQ) (MOE, 2021).

During drilling, field screening included measuring volatile organic compounds using an Eagle 2 Gas Monitor and measuring soil electrical conductivity using a FieldScout Direct Soil Electrical Conductivity (EC) Meter.

5.1.1.2 Results

DESKTOP INVESTIGATION

The PDA is located within the Brown Soil Zone of the Canadian Prairies. Table 5-2 details the soil map units and associated soil characteristics in the PDA.

Table 5-2 Soil Map Units and Associated Soil Characteristics within the PDA

Soil Association	Map Unit	Parent Material	Dominant/Subdominant Soils	Dominant Surface Texture	Surface Expression	Slope Class	Wind Erosion Potential	Water Erosion Potential	Salinity
Regina	Ra 1	Lacustrine	Orthic Vertisol	Heavy clay	Undulating	Very Gentle (0.5 to 2%)	Moderate	Very Low	0-3% of the map area is affected by salinity (S)(A)
	Ra 2	Lacustrine	Orthic Vertisol	Heavy clay	Undulating	Very Gentle (0.5 to 2%)	High	Very Low	0% of the map area is affected by salinity

Source: SLRU (2004; 2009)

Notes: (S) indicates that saline soils occur on the sides of hills and slopes well above any slough or depression, (A) indicates that saline soils occur throughout the bottoms of depressions and sloughs (AAFC, 1998).

Soil in this area is susceptible to wind erosion.

FIELD INVESTIGATION

The field portion of the soil investigation occurred from July 7 to 9, 2021. Fourteen boreholes were drilled to depths of approximately 6 mbgs, and two boreholes were drilled to approximately 12 mbgs (Figure 3 found in Appendix E).

The Baseline Soil and Groundwater Report (Appendix E) summarizes the complete findings of the soil investigation.

SOIL LITHOLOGY

Lithological descriptions for each borehole and photographs are presented in the borehole logs found in Appendix E.

As most of the site has been previously disturbed, there is limited topsoil remaining. The soil lithology encountered within the PDA included topsoil from surface to approximately 0.13 mbgs underlain by silty clay and clayey silt. In the southwest corner of the PDA, a sandy silt was encountered at BH21-10 at 9.2 mbgs and changed to wet sand at 11.2 mbgs. In the northeast corner of the PDA, sandy silt was encountered at BH21-01 at 8.5 mbgs and changed to a clayey sand at 11.2 mbgs.

SOIL QUALITY

Full analytical results for inorganic and organic parameters are presented in Appendix E (Table 1 and 2). Laboratory analytical reports are provided in Appendix E. BH21-03, BH21-04, BH21-05, BH21-06, BH21-08, BH21-10, BH21-13 and Stockpile #2 had Saskatchewan Environmental Quality Guidelines (SEQG) exceedances for EC (>4 dS/m), pH (<6.0 or >8.0) or both parameters. Salinity is a potential contaminant of concern within the PDA. Increased salinity may be caused by de-icing chemicals used on roadways, or from historical activities that occurred within the PDA. There are no environmental guidelines for chloride, sodium, and calcium in soil; however, the presence of these substances directly affects the values for EC and SAR (Alberta Environment, 2001). Concrete structures may be affected by the presence of chlorides or sulphates in the soil.

The analyzed results from the stockpiles (Appendix E; Table 1) indicate that the soil is similar in quality to the soil samples collected from the boreholes and therefore, can be re-used in the PDA.

The EC values that exceed environmental guidelines indicates there are naturally occurring elevated concentrations of ions in the soil. These ions include chloride, calcium, magnesium, sodium, and sulphate. Additionally, the baseline analytical results indicate the soil within the PDA has an existing pH slightly higher than the guideline values; this is an indication of the natural chemistry of the PDA and does not indicate potential adverse effects.

5.1.2 Water

5.1.2.1 Methods

FIELD INVESTIGATION – WATER

To better understand the Project Site's hydrogeology and to obtain baseline data, groundwater monitoring wells were installed during the borehole drilling field program.

After installation and a period of stabilization, static water levels were measured with an interface probe.

Hydraulic conductivity testing was completed where sufficient water volume was available. Data was collected using vented transducers equipped with direct read cables.

To obtain representative groundwater samples, a maximum of three well-volumes of groundwater, was removed from each well prior to sampling. This allowed new water from the adjacent soil to enter the well.

Temperature, pH, electrical conductivity (EC), dissolved oxygen (DO), and oxidation-reduction potential (ORP) values were recorded during sample collection as field test results.

Surface water samples were also collected within the PDA to determine baseline surface water quality.

5.1.2.2 Results

FIELD INVESTIGATION

Of the fourteen boreholes drilled during the soil investigation, eight were completed as groundwater monitoring wells (depicted P21-#) as seen in Figure 3 found in Appendix E. Six wells were completed to 6 mbgs and the other two were completed to 12 mbgs as a nested set.

The Baseline Soil and Groundwater Report (Appendix E) summarizes the complete findings of the water investigation.

Groundwater testing and monitoring were conducted from August 31 to September 1, 2021. Only the two deep groundwater monitoring wells (P21-2D and P21-6D) produced enough water for sample collection. See Appendix E (Table 3 and 4) for groundwater monitoring well completion details and field test results, respectively.

GROUNDWATER QUALITY

Analytical results for the groundwater monitoring wells are presented in Appendix E (Tables 5-8). The full laboratory analytical reports are provided in the appendices of The Baseline Soil and Ground Report (Appendix E). The following routine and indicator parameters exceeded SEQG guidelines (values listed in parentheses) for either P21-2D or P21-6D:

- Total Dissolved Solids (TDS) (>500 mg/L)
- Chloride (>120 mg/L)
- Sulphate (>100 mg/L)

- Sodium (>200 mg/L)
- Manganese (>0.05 mg/L)

The analytical results from future environmental monitoring activities will be compared to the baseline values identified during this assessment, as well as the applicable environmental guidelines. Depending on the existing site conditions, baseline values for certain parameters may be above the applicable guidelines; this is an indication of the natural chemistry of the PDA and does not indicate potential adverse effects.

Samples for hydrocarbons were taken at both wells that produced samples, and all analysis was below laboratory detection or not detected (Appendix E; Table 6).

The total metal and dissolved metal parameters that were above the most stringent SEQG guidelines for industrial land use coarse-grained soils are highlighted in Appendix E (Table 7 and 8). Metals observed in the groundwater were consistent with those observed in the soil samples and are indicative of naturally occurring mineralization in the groundwater.

SURFACE WATER QUALITY

Four surface water samples were collected on September 1, 2021. The surface water samples were taken from the southeast collection pond (SWS1), after the last culvert (SWS2), the standing water at the soil pile (SWS3) and northeast of the Site (SWS4) (Figure 3 found in Appendix E).

Analytical results for the surface water are presented in Appendix E (Tables 5, 7, and 8). The full laboratory analytical reports are provided in the appendices of The Baseline Soil and Ground Report (Appendix E). Selected results are noted below.

- The chloride concentration in sample SWS4 was 111 mg/L which is above the SEQG of 100 mg/L. Chloride concentrations in the other surface water samples were less than 20 mg/L.
- The fluoride concentrations in the surface water samples ranged from 0.111 to 0.209 mg/L. The most stringent SEQG for fluoride is 0.12 mg/L.
- Concentrations of aluminum, cadmium, iron, and manganese were above the most stringent SEQG in the surface water samples analyzed.
- The zinc concentration in sample SWS1 was 0.0354 mg/L which is above the most stringent SEQG of 0.03 mg/L.

Surface water quality is expected to fluctuate in the future based on Project activities and will be influenced by runoff/precipitation water quality. Analytical results from future environmental monitoring activities conducted within the PDA will be compared to the baseline values identified during this assessment. Depending on the existing site conditions, baseline values for certain parameters may be above the applicable guidelines; this is an indication of the natural chemistry of the PDA and does not indicate potential adverse effects.

5.1.3 Air Quality and Greenhouse Gas

5.1.3.1 Methods

The air quality assessment (AQA) evaluated the potential air quality effects associated with emissions from the normal operations of the Canola Processing Plant (the Project). The emission sources from the Project were identified and quantified, including the GHG for normal operations. The emissions were then modelled and the air quality predictions were compared to the *Saskatchewan Ambient Air Quality Standard (SKAAQS)*. The air quality

study area was a 40 km x 40 km domain size that extended far enough to include the regional emission sources in the City of Regina for the cumulative assessment. For further details on the assessment see AQA Report (Appendix G).

The MOE has established the SKAAQS based on an evaluation of scientific, social, technical, and economic factors. The SKAAQS represent a range of averaging periods that address potential short-term (1-hour and 24-hour) and long-term (annual) exposure responses. The SKAAQS (Government of Saskatchewan, 2021) that are relevant to this assessment are presented in Table 5-3.

Table 5-3 Saskatchewan Ambient Air Quality Standards

Substances	Averaging Period	SKAAQS ($\mu\text{g}/\text{m}^3$)
Sulphur Dioxide (SO_2)	1-hour	450
	24-hour	125
	Annual	20
Nitrogen Dioxide (NO_2)	1-hour	300
	24-hour	200
	Annual	45
Carbon Monoxide (CO)	1-hour	15000
	8-hour	6000
Particulate matter less than 2.5 micrometer in diameter ($\text{PM}_{2.5}$)	24-hour	28 ^{a)}
	Annual	10
Particulate matter less than 10 micrometer in diameter (PM_{10})	24-Hour	50
Total suspended particulates (TSP)	24-hour	100
	Annual	60
Hydrogen Sulphide (H_2S)	1-hour	15
	24-hour	5
Hexane	1-hour	21000 ^{b)}
	24-hour	7000 ^{b)}

Notes:

Data Source: Table 20: Saskatchewan Ambient Air Quality Standards (Government of Saskatchewan, 2021)

a) year average of the annual 98th percentile of the daily 24-hour average concentrations

b) Ambient air quality standard for hexane has not been established in Saskatchewan. The Alberta Ambient Air Quality Objectives (AAAQO; Government of Alberta, 2019) were used instead.

To assess the cumulative effects on air quality, a search of the National Pollutant Release Inventory (NPRI) was conducted to identify industrial sources in the study area. Six industrial sources were included that range from industrial activities such as wastewater treatment, landfill, steel manufacturing, refineries, and terminals.

The Project is within the Southeastern air dispersion modelling zone defined by the MOE. The regional background values recommended in the Saskatchewan Air Quality Modelling Guideline (SKAQMG) for the Southeastern air dispersion modelling zone were used as baseline ambient levels for the substances with

available values. For H₂S, the background ambient concentrations were from the measurements at the nearby Pense station, and the background concentration of hexane were from the passive sampling at the Regina station. Emission effects from the existing industrial sources and un-identified sources are expected to be represented by the baseline values. The baseline ambient air concentrations are generally well below the SKAAQS. However, it should be noted that the background ambient concentrations for the: annual average NO₂, the 24-hour average PM₁₀, and TPM are at the levels of 42%, 72% and 65% of their respective SKAAQS. The background ambient concentrations are provided in Table 5-4.

Table 5-4 Background Ambient Concentrations

Substances	Averaging Period	Background Ambient Concentrations		SKAAQS (µg/m ³)
		(µg/m ³) ^{a)}	Percentage of SKAAQS	
SO ₂	1-hour	2.6	0.6%	450
	24-hour	2.6	2.1%	125
	Annual	0.0	0.0%	20
NO ₂	1-hour	41.4	14%	300
	24-hour	37.6	19%	200
	Annual	18.8	42%	45
CO	1-hour	687	5%	15000
	8-hour	687	11%	6000
PM _{2.5}	24-hour	8.3	30%	28
	Annual	3.7	37%	10
PM ₁₀	24-hour	36.3	73%	50
TSP	24-hour	64.8 ^{b)}	65%	100
	Annual	12.3 ^{b)}	21%	60
H ₂ S	1-hour	1.2 ^{c)}	8.0%	15
	24-hour	1.0 ^{c)}	20%	5
Hexane	1-hour	2.4 ^{d)}	0.01%	21000
	24-hour	1.0 ^{d)}	0.01%	7000

Notes:

- a) 90th percentile for the 1-hour and 24-hour averaging periods, and 50th percentile for the annual averaging period; values from southeastern region in the SKAQMG.
- b) Calculated based on background ambient PM₁₀ and PM_{2.5} concentrations as well as published ratios of PM₁₀/TSP and PM_{2.5}/TSP (Brooks et al. 1997).
- c) From ambient measurements at the Pense Station.
- d) From passive sampling at the Regina Station.

The Project's processing plant will include the following operations:

- Seed Processing
 - Canola seed receiving, handling, storage, and preparation.
- Solvent extraction
 - Solvent (hexane) extraction of canola oil
- Oil Production
 - Oil/solvent separation, oil processing and storage and loadout
- Meal Production
 - Meal pelletizing, storage, handling, and loadout
- Railyard locomotive operation
- Cogeneration (cogen) operation for power and steam generation for the plant use

The substances of concern associated with the Project are summarised in Table 5-5 along with the potential primary air emissions.

Table 5-5 Substances of Concern

Substance	Potential Primary Air Emissions
Particulates of: PM _{2.5} PM ₁₀ TSP	Particulates are expected during the seed receiving, seed handling, seed storage, seed preparation, meal pelletizing and load out as well as from the combustion exhausts and road dust from the plant delivery truck route (paved).
SO ₂	Emissions from the exhausts of natural gas fired cogen, diesel locomotive and delivery trucks
NO _x	Emissions from the exhausts of natural gas fired cogen, diesel locomotive and delivery trucks. NO _x includes nitrogen dioxide (NO ₂) and nitric oxide (NO). Among the substances of NO _x , NO ₂ is a specific concern and has ambient air quality standards established.
CO	Emissions from the exhausts of natural gas fired cogen, diesel locomotive and delivery trucks.
Hexane	Emissions from hexane solvent used for oil extraction from the processing plant (point sources and fugitive emissions).
H ₂ S	H ₂ S is a natural substance in canola seed and is released during the crushing and extraction processes. H ₂ S is captured during the process and removed in the Prep Scrubber and Odour Scrubbers.

Air emissions during the Project normal operation were assessed in the below cases:

- Baseline Case is to assess the air quality associated with the emissions from the existing regional sources and background ambient concentrations.
- Project Only Case is to assess the potential changes in air quality associated with the emissions from the Project alone under the Project's normal operations.
- Application Case is to assess the cumulative effects of the emissions from the Project's normal operations and the emissions from the regional sources, plus the ambient background concentrations.

5.1.3.2 Results

For SO₂, the emissions from the Project are only 0.02% of the total emissions in the study area and are negligible relative to the emissions from the regional sources. The air dispersion model predictions for the Project Only Case are less than 0.2% of their respective SKAAQS. The model predicted no changes in the ambient SO₂ concentrations in the cumulative effects of the Project (Application Case) from the Baseline Case. While elevated concentrations were predicted in the Application and Baseline cases, the predictions are due to emissions from the regional sources in the City of Regina, and the Project contributions are negligible.

For NO₂, emissions from the Project are about 5% of the total emissions in the study area (if assuming all NO_x is NO₂). Ozone limiting method was used in the conversion of the modelled NO_x to NO₂. All the predicted NO₂ concentrations are within the SKAAQS, and there are no or negligible changes in ambient NO₂ concentrations in the Application Case from the Baseline Case. The maximum point of impingements (MPOIs) in the Application Case are similar to the Baseline Case and are near a regional source in the City of Regina. The Project effect on the ambient NO₂ concentrations is limited to the immediate vicinity of the Project; beyond this area the Project effect is insignificant.

For CO, emissions from the Project are 3% of the total emissions in the study area. All the CO concentrations are predicted to be less than one fifth of the SKAAQS. There are no or negligible changes of the CO concentrations in the Application Case from the Baseline Case. The predicted concentrations are mainly contributed by the regional sources in the City of Regina as well as the background ambient concentrations, and the Project contribution is negligible.

For PM_{2.5}, emissions from the Project are 4% of the total emissions in the study area. All the predicted PM_{2.5} concentrations are within the SKAAQS, and there are no or negligible changes in the ambient PM_{2.5} concentrations in the Application Case from the Baseline Case. The Project effect on the PM_{2.5} is predicted in the immediate vicinity of the Project; beyond this area the Project effect is insignificant.

For PM₁₀, emissions from the Project are 6% of the total emission in the study area. Although values were predicted to be above the SKAAQS in the Application Case, there is no or negligible change in the Application Case from the Baseline Case in the maximum predictions. The elevated predictions are due to regional sources in the City of Regina and the background ambient concentration (the background ambient 24-hour PM₁₀ concentration is already 72% of the SKAAQS). The Project effect on the PM₁₀ concentrations is predicted in the immediate vicinity of the Project; beyond this area the Project effect is insignificant.

For TSP, emissions from the Project are 6% of the total emissions in the study area. The annual TSP concentrations in the Application Case are predicted to be well within the SKAAQS, although the concentrations are increased by 29% from the Baseline Case. The 24-hour TSP in the Application Case are predicted to have a minor increase from the Baseline Case (4%) but is above the SKAAQS. The Project effect is in the vicinity of the Project, where the elevated 24-hour predictions are within 130 m from the Project boundary. The background ambient concentration (which is 65% of the SKAAQS) and the regional sources in the City of Regina are the main contributors to the elevated values, especially for the receptors in the City of Regina where the Project effect is minor and insignificant.

For H₂S, emissions from the Project are 5% of the total emissions in the study area. Although the maximum predicted H₂S concentrations are above the SKAAQS in the Application case, there is no change in the Application Cases from the Baseline Case. H₂S emission from the City of Regina Wastewater Plant dominate the elevated H₂S predictions. The Project effect on the special receptors is minor and insignificant (less than 4% in the Project Only Case).

For hexane, the Project is a dominant source of hexane emissions in the study area. The maximum hexane concentrations in the Application Case are predicted to have significant changes from the Baseline Case, however all the maximum predictions are within 2.5% of the ambient criteria (AAAQO). At the special receptors, there is no change in the Application Case from the Baseline Case. The Project effect on the hexane concentration at the special receptors is negligible.

In a summary, the air dispersion modelling generally predicted no or negligible to minor changes in air quality due to the cumulative effects of the project, except for the annual TSP and hexane which have substantial changes. The Project effects are predicted in the immediate vicinity of the Project. Beyond this area, the Project effects quickly decreased to insignificant levels. Although some elevated values are predicted for SO₂, H₂S, PM₁₀, and 24-hour TSP concentrations, the regional sources and/or background ambient concentrations contribute significantly to those predictions.

Lastly, the Project GHG emissions are about 0.11% and 0.012% of the 2019 provincial and Canada totals, respectively. The current surface setting of the PDA is mainly disturbed with some grasslands, which is considered to have a low carbon footprint. Once construction is complete, it is anticipated that carbon sink features will be established in terms of vegetation and landscaping.

5.1.4 Noise and Acoustics

5.1.4.1 Methods

A Noise Impact Assessment was completed to assess the potential noise impact of the proposed Canola Processing Plant onto the nearby noise sensitive land uses. The noise assessment adapted the guidelines provided in the Alberta Energy Regulator's *Directive 038: Noise Control* (2007), as well as the recommendations indicated in the World Health Organization's (WHO) Guidelines for Community Noise (Berglund et al., 1999).

Noise sources were identified based on the latest design drawings and were modelled using a predictive analysis using the commercially available software package Cadna/A, a computerized implementation of the algorithms contained in the ISO 9613 "Acoustics – Attenuation of Sound during Propagation Outdoors". The modelling takes into account source sound power levels, distance attenuation, source-receptor geometry, ground and air (atmospheric) attenuation, and temperature and humidity effects on noise propagation.

Noise sensitive land uses were identified based on the aerial imagery and site observations. A baseline noise study was completed on July 27 to 30, 2021 to quantify the existing acoustical environment of the Study Area. The baseline sound levels are considered the existing sound levels typically expected in the absence of the proposed Facility and were used to establish the permissible sound level limits.

5.1.4.2 Results

Based on the latest available information at the time of the preparation of the Noise Report, the assessment indicated that the predictable worst-case noise impact from the proposed facility will meet the permissible sound level limits at the nearby noise sensitive land uses without the need for additional noise mitigation measures other than those indicated in the design drawings.

5.2 Biophysical Environment

The biophysical environment is the culmination of all biotic factors, including wildlife and vegetation. In this section, the current biological environment is detailed.

The Project is located within the Moist Mixed Grassland Ecoregion, which is comprised of a broad plain with deep, scenic valleys and subdued, hilly uplands. The ecoregion correlates with a semiarid climate and dark brown soils. In its natural state, the Moist Mixed Grassland Ecoregion is characterized by wheatgrasses (e.g., *Elymus* sp., *Pascopyrum* sp.), speargrasses (*Achnatherum* sp., *Hesperostipa* sp.), and short grasses such as blue grama (*Bouteloua gracilis*) growing in mixed stands (Acton et al., 1998). Sedges (*Carex* spp.) and June grass (*Koeleria macrantha*) are also an important component of Moist Mixed Grassland communities, with June grass being particularly abundant in areas of lacustrine clay soils. Agriculture has modified the natural landscape with approximately 80% of the ecoregion subject to cultivation.

A desktop environmental screening and subsequent field surveys were completed by WSP. A summary of methods and key findings are detailed in the following sections. The complete Environmental and Heritage Baseline is presented in Appendix F.

For the purposes of this Technical Proposal, Species of Conservation Concern (SOCC) are identified as plant or wildlife species that are ranked by the Saskatchewan Conservation Data Centre (SKCDC) as S1 or S2; protected by the Saskatchewan *Wildlife Act*; listed by COSEWIC as Threatened, Endangered, or Special Concern; and/or protected by the federal *Species at Risk Act*.

It should be noted that in the *Environmental Heritage and Baseline Screening* report (WSP, 2021c) the species of management concern (SOMC) are recorded rather than SOCC. The SOMC include all the SOCC in addition to SKCDC S3 ranked species and species provincially identified in the Saskatchewan Activity Restriction Guidelines for Sensitive Species (SKCDC, 2021a; 2021b; 2021c; MOE, 2017). For the purposes of this report, WSP has focused on SOMC.

5.2.1 Vegetation and Land Cover

5.2.1.1 Methods

DESKTOP SCREENING

Preliminary desktop screenings were conducted to identify previous occurrences of plant Species of Management Concern (SOMC) which includes SOCC in addition to SKCDC S3 ranked species and species provincially identified in the Saskatchewan Activity Restriction Guidelines for Sensitive Species. The preliminary desktop screening included the following:

- Simplified vegetation cover types were mapped based on available aerial imagery and a review of the Southern Digital Landcover Classification (Government of Saskatchewan, 2020a). Vegetation cover types were mapped with a 0.5-km buffer around the PDA. Digitization using ArcGIS 10.2 platform at 15,000 scale was used to create a dataset.
- A 300 m buffer for screening plant species was used to inform and compile a comprehensive list of historical plant SOMC that have potential to occur within the PDA using the HABISask online mapping application via the SKCDC website.
- A review of provincially tracked species found within the Regina Plain Ecosite was completed to inform of potential SOMC that could interact with or occur in the PDA.

- A review of reported occurrences of weed species, listed under the provincial *Weed Control Act*, using the iMapInvasives platform operated by the SKCDC, was completed within the PDA.

FIELD SURVEYS

WSP conducted two field visits to confirm landcover and to complete vegetation surveys. A preliminary site assessment occurred on May 6, 2021 and a rare plant survey/weed assessment was conducted on June 30, 2021 and September 14, 2021. The rare plant survey followed the Government of Saskatchewan's Vascular Plant Survey Protocol (2021).

5.2.1.2 Results

DESKTOP SCREENING

The results from the desktop screening indicated the PDA consists mainly of cultivated land that has been further modified for industrial use through grading. The PDA is currently seeded to a grassland mix to help maintain the topsoil. This provides lower quality wildlife habitat when compared to natural habitat types. The site is unlikely to provide suitable habitat for plant or wildlife SOMC.

Although no plant SOMC have been historically documented within the PDA, a total of 71 provincially tracked plant SOMC have been documented within the Regina Plain Ecosite, indicating that there is potential for these species to occur within the PDA (SKCDC, 2021a). The Environmental and Heritage Baseline report, attached to Appendix F, provides detail on the tracked plant SOMC.

Historical regulated weed species were not documented within the 300 m setback distance of the PDA.

FIELD SURVEYS

The three site visits confirmed that the PDA was predominantly industrial land containing tame vegetation species.

Two trained WSP botanists did not identify any plant SOMC during either of the two site visits. The botanists did not identify any weeds listed as Prohibited under the *Weed Control Act*; however, nine Noxious species were identified, and four Nuisance species were identified. Full results of the vegetation survey can be found in the Environmental and Heritage Baseline report in Appendix F.

5.2.2 Wetlands and Watercourses

5.2.2.1 Methods

DESKTOP SCREENING

The wetlands were mapped in the PDA with a 500 m buffer making up the Wetland Local Assessment Area (LAA). The 500 m buffer includes the Saskatchewan Activity Restriction Guidelines for Sensitive Species (MOE, 2017) for potential rare plant habitat (300 m for SARA and 30 m for S1-S3) and potential Northern leopard frog habitat (500 m). An experienced Ecologist reviewed multiple years of aerial imagery to identify and classify possible wetland areas within the Wetland LAA (Appendix F, Table 3.2). Wetland extent was estimated using wet season imagery and classification was completed using dry season imagery, according to protocols used by Stewart and Kantrud (1971). Wetland boundaries and other surface water features were captured and digitized at 3,000 scale using the ArcGIS 10.2 platform.

FIELD SURVEYS

As part of the vegetation surveys, a subset of wetlands and watercourses were surveyed, classified and delineated according to Classification of Natural Ponds and Lakes in the Glaciated Prairie Region (Stewart & Kantrud, 1971). Information collected on-site was applied to refine the wetland mapping and provide site-specific, descriptive information on the habitats present in the PDA.

5.2.2.2 Results

DESKTOP SCREENING

In the Wetland LAA, 36 wetlands (Class II and III) were mapped including man-made wetlands (drainages and stormwater retention ponds) as shown in Figure 4.2-2 found in Appendix F.

FIELD SURVEYS

The field visit on June 30, 2021 confirmed that the PDA had been levelled in anticipation of industrial construction. The Ecologists did not identify any wetlands in the PDA aside from a drainage ditch and attached stormwater retention pond (Appendix F; Figure 4.2-2). Class III wetland indicator species were the dominant vegetation type in the center of the drainage ditch (Stewart and Kantrud, 1971).

The Ecologists verified the classification and boundaries of a Class II wetland and Class III wetland in the CP owned land south of the PDA. The Ecologists also confirmed the class of a wetland (Class II) on privately owned cropland along the roadside north of the PDA.

5.2.3 Fish and Fish Habitat

5.2.3.1 Methods

Aerial imagery was evaluated to identify permanent, intermittent, or seasonal connectivity with known fish-bearing watercourses or waterbodies. A review of existing information sources was completed to determine the potential for fish presence and fish SOMC that may interact with the PDA and within 100m of the PDA (Saskatchewan Parks and Renewable Resources, 1991; SKCDC, 2021d).

5.2.3.2 Results

Based on the desktop review and findings from several field visits during the summer of 2021, there are no fish-bearing watercourses or waterbodies within or intersecting the PDA. Overall, there were no identified concerns related to permitting or potential mitigation measures required for fish and fish habitat.

5.2.4 Wildlife and Habitat

A desktop review and applicable baseline wildlife field surveys were completed in accordance with terms and conditions of the MOE-issued Research Permit 21SD154, and applicable survey protocols (Government of Saskatchewan, 2020b; 2020c).

5.2.4.1 Desktop Screening

METHODS

The PDA plus a 1-km buffer (Wildlife LAA) was used to complete a desktop review of previously detected wildlife SOMC and potential habitat for SOMC that may interact with the Project. A search of the SKCDC HABISask online database identified previous records of wildlife SOMC (SKCDC, 2021e). A review of satellite aerial imagery

was used to identify potential habitat within the PDA. A qualified Wildlife Ecologist reviewed the reports and assessed the habitat potential within the PDA to support wildlife SOMC.

RESULTS

Two known wildlife SOMC have been previously documented within the Wildlife LAA: barn swallow (*Hirundo rustica*) and bobolink (*Dolichonyx oryzivorus*). Further screening using the SKCDC HABISask database identified a total of 10 other wildlife SOMC which have the potential to interact with the Project if suitable habitat exists (SKCDC, 2021e). These species included American badger (*Taxidea taxus taxus*), Northern leopard frog (*Lithobates pipiens*), and eight avian species; Baird's sparrow (*Centronyx bairdii*), bank swallow (*Riparia riparia*), burrowing owl (*Athene cunicularia*), common nighthawk (*Chordeiles minor*), horned grebe (*Podiceps auratus*), loggerhead shrike (*Lanius ludovicianus excubitorides*), Northern harrier (*Circus hudsonius*), and short-eared owl (*Asio flammeus*) (Appendix F).

Potential habitat for ground-nesting birds (seeded grassland) and water-dependent birds and amphibians (existing stormwater pond and drainage channel) was identified within and adjacent to the PDA. As a result, baseline field surveys were conducted for amphibians and breeding birds to further assess the status of wildlife SOMC potentially occupying habitat within the PDA.

5.2.4.2 Amphibian Surveys

METHODS

Surveys for amphibians were conducted on May 6, May 31, and June 9, 2021 to assess the potential presence and habitat use of amphibians in and adjacent to the PDA. Surveys for amphibians followed the Amphibian Auditory Survey Protocol (MOE, 2020c). Three surveys were conducted during the breeding period of potential amphibian species and each survey coincided with a minimum air temperature as ambient temperature is one of the most important factors influencing amphibian breeding behaviour (MOE, 2020c). One survey station was established within the PDA adjacent to the existing stormwater pond and associated drainage channel (Figure 3.3-1 in Appendix F). Surveys were conducted 30 minutes after sunset and lasted for a minimum of three minutes as the surveyor listened for all amphibian vocalizations. Incidental observations of all wildlife observed during field surveys were collected. Surveys were not conducted under weather conditions less than 0 °C, during precipitation events, or when winds were greater than 20 km/h.

RESULTS

Amphibian surveys identified two amphibian species: boreal chorus frog (*Pseudacris maculate*) and wood frog (*Lithobates sylvaticus*). Individuals were observed in the existing stormwater pond and drainage channel adjacent to the PDA. All observations are summarized in the Environmental and Heritage Baseline report in Appendix F. No amphibian SOMC were detected during field surveys including no evidence of northern leopard frog which was identified as a potential amphibian species in the desktop screening (SKCDC, 2021e).

5.2.4.3 Breeding Bird Surveys

METHODS

Surveys for breeding birds were completed on June 10 and June 25, 2021 to assess bird species occurrence and habitat use in the PDA. Field surveys were separated by a minimum of 10 days to allow for observation of species with early- and late-season breeding periods and at least one of the surveys was completed between May 23 and June 15 to coincide with peak singing activity. Surveys for breeding birds followed the Grassland Birds Survey Protocol (MOE, 2020b). Two point-count locations, spaced approximately 800 m apart, were established within

the PDA (Figure 3.3-2 in Appendix F). Each point-count survey lasted for 5 minutes at each point-count location as the surveyor listened for bird vocalizations and scanned the area for visual sightings. Incidental observations of all wildlife observed during field surveys were collected. Surveys were not conducted under weather conditions less than 0 °C, with greater than very light precipitation, or when winds were greater than 20 km/h.

RESULTS

Breeding bird point-count surveys detected a total of 20 avian species occupying habitat within the PDA: 7 ground-nesting species and 13 water-dependent species (Appendix F). All avian species detected are summarized in the Environmental and Heritage Baseline report in Appendix F. Avian SOMC were not detected during field surveys, including no evidence of barn swallow or bobolink which were previously reported in the PDA. Suitable breeding habitat was also not identified for the eight avian species identified as potentially expected in the desktop screening (SKCDC, 2021e).

5.3 Socio-economic Environment

The socio-economic environment is defined as the changes to the social and economic environment (positive and negative) that arise from Project activities. This section outlines the existing conditions of the local communities in terms of potential jobs and contracts, the inputs that will be purchased locally, the proponent's policy on the hiring of local employees for both labour and managerial positions, and community infrastructure (e.g. schools, housing, medical facilities).

The following VECs were used to evaluate the socio-economic environment for the Project: heritage resources, land use and property values, traffic conditions, public health and safety, and community and local economy. For the purposes of this assessment, the Local Assessment Area (LAA) will include the PDA plus a 5 km buffer and the Regional Assessment Area (RAA) will include the PDA plus the entire Province of Saskatchewan. Traffic conditions were evaluated solely by the intersections confirmed by MoH based on their understanding of the Project (LAA) and to account for the anticipated direct local effects created from the Project's activities.

5.3.1 Heritage Resources

To support compliance with requirements under *The Heritage Property Act*, WSP completed a desktop screening of the PDA for heritage resources (WSP, 2021c). Two quarter-sections included in the PDA were screened (NW-24-017-21 W2M and SW-24-017-21 W2M) using the Developers' Online Screening Tool (DOST) and by applying knowledge of archaeological resources in the PDA. Quarter-sections deemed Heritage Sensitive or requiring further screening would be referred to the HCB.

Neither of the two quarter-sections submitted were deemed heritage sensitive. HCB, therefore, does not have heritage concerns for the Project and heritage resources will not be considered further in this assessment.

5.3.2 Land Use and Property Value

The land uses within the socio-economic LAA are residential, industrial and cropland. Included within the LAA is the GTH, the RM of Sherwood No. 159, and the town of Grand Coulee (located approximately 2.5 km southwest of the PDA). The City of Regina is located approximately 6 km east of the PDA. Within the LAA, there are twenty residences, most of which are agricultural. This total does not include those residences within Grand Coulee. The nearest dwelling is an agricultural residence located approximately 20 m across the road from the Project's northeast corner along Dewdney Avenue. As a result of the Project's proximity to the identified residences, land use and property value have been identified as VECs.

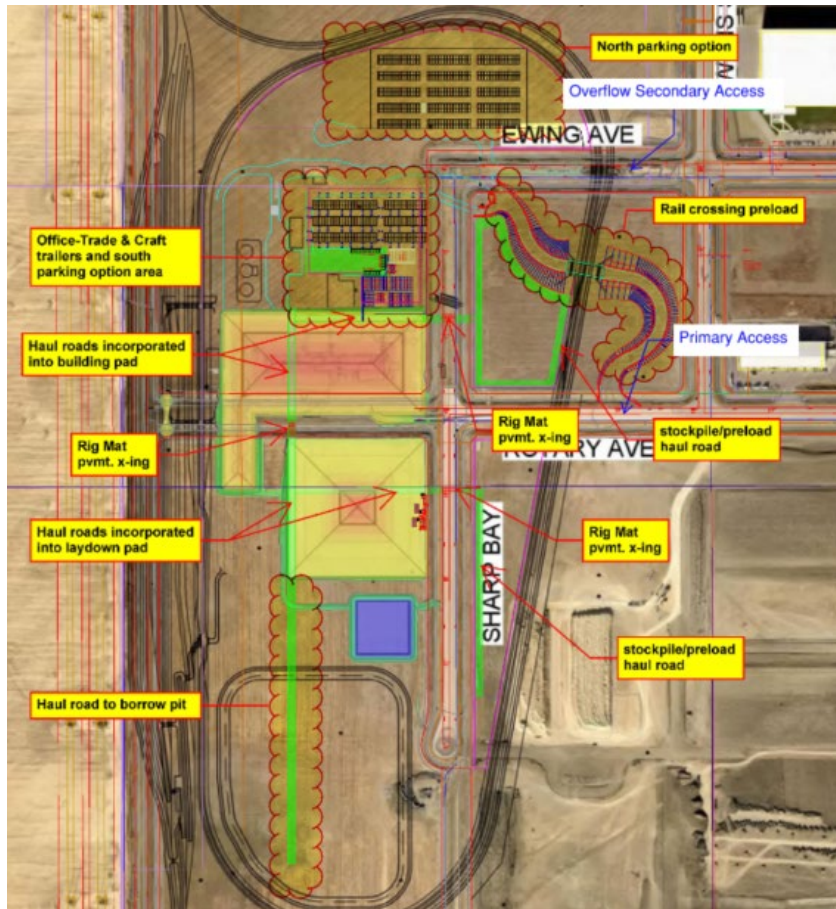
According to Statistics Canada (2017a, 2017b, 2017c), the estimated average value of a dwelling in Saskatchewan in 2016 was \$318,917. The estimated average dwelling value in the RM of Sherwood was \$613,232 (192% higher than the provincial average value); \$446,664 in Grand Coulee (140% higher); and, \$376,493 in the City of Regina (118% higher) (Statistics Canada 2017a, 2017b, 2017c). These property values include the value of the land that the dwelling is on, the dwelling itself, and any other structures located on the property (Statistics Canada, 2017a).

The Project will be privately-owned by Cargill for industrial use. Currently, the GTH has a tentative agreement with Cargill regarding purchase of the land set for December 2021. Upon decommissioning, the area will be restored back to a pre-construction industrial land capability.

5.3.3 Traffic Conditions

Early works for the Project are currently ongoing and expected to be completed by end of 2021. During construction activities, workers and trucks delivering materials will use the west leg of the Owens Street and Rotary Avenue intersection. An overflow access point will be provided at Owens Street and Ewing Avenue during peak workforce demands.

The following figure illustrates the Early Works Planning, provided by Cargill.



Early Work Planning – Construction Period (Source: Cargill)

The main construction activities are expected to begin early 2022 and completed by end of 2023. The onsite work force will vary during this period. The workforce is estimated to peak at 600 people with 170-200 deliveries by heavy vehicles per day. Table 5-6 outlines initial estimated peak workforce population by quarter as provided by Graham Construction (Contractor).

Table 5-6 Main Works Workforce

Time Period	2022 Q1	2022 Q2	2022 Q3	2022 Q4	2023 Q1	2023 Q2	2023 Q3
Peak On-site Workforce	75	200	300	400	500	600	400

Material deliveries via heavy vehicles are expected to occur throughout the day. It is estimated that at peak this will consist of 150 smaller heavy vehicles per day, 20-50 larger heavy vehicles per day and 10 specialized over mass / over size vehicles during the entire construction timeframe. All heavy vehicles will be directed to use the Regina Bypass and Rotary Avenue interchange for all other directions except the west (Dewdney Avenue).

Construction will occur over a blended 12-hour shift per day from 6:00 a.m. to 6:00 p.m. seven days per week, with potential for some night shifts if required to maintain the construction schedule. It is important to note that since the workforce for each shift has not been determined, the analysis was completed assuming that all workers will start and end their shift within the same shift for the worst-case scenario.

Immediately adjacent to the Project site, SaskPower is currently developing a logistics and warehousing complex for their southern Saskatchewan operations. SaskPower construction activities (December 2021 to November 2023) for their Phase 1 development will coincide with the Project's site construction.

The construction activities are short duration work and will only last for two years. The assessment focused on determining the required improvements for the construction period, if any, based on:

- vehicle movements
- truck routes
- parking
- potential short-term effects on adjacent road network traffic operations

The assessment was completed using the following assumptions:

- Workers traffic (passenger vehicles) may utilize Dewdney Avenue or Rotary Avenue to access the site while the truck traffic will be routed through Rotary Avenue interchange (to north or south) or Dewdney Avenue to the west. There will be no heavy vehicle traveling through the city (Dewdney Avenue to the east).
- All Cargill construction traffic would utilize the primary access on Rotary Avenue west of the Owens Street and Rotary Avenue intersection as a conservative estimate. The overflow access west of the Owens Street and Ewing Avenue intersection was not included in the assessment as the provision of this access would distribute traffic more evenly due to the north staff parking lot which may result in traffic destined to the north utilizing the overflow access to access Dewdney Avenue. Note that the completion of the analysis would identify whether or when the overflow access will be required.
- A 1.25 passenger per vehicle occupancy rate was used to convert the workforce / workers into traffic volumes. This means that the majority of the workers will drive to site individually.

- The analysis assumed that all workers would enter / exit the site at the same time while typically contractors, engineers, office staff and other workers would access the site at different hours and / or enter the site as needed.
- Truck volumes are distributed evenly from 6:00 a.m. to 6:00 p.m. with each truck entering and exiting during the same hour.

The Level of Service (LOS) is key determining the operational effectiveness of an intersection. Table 5-7 presents the LOS criteria for unsignalized (stop-controlled) intersections, as outlined in the Highway Capacity Manual (HCM).

Table 5-7 Level-of-Service Criteria

Level-of-Service	Unsignalized Intersection Delay (seconds)
A	≤ 10
B	>10 – 15
C	>15 – 25
D	>25 – 35
E	>35 – 50
F	>50

At maximum Cargill construction activities of 600 workforce and SaskPower construction, all key intersections are expected to operate at acceptable conditions except the Rotary Avenue and Fleming Road intersection which would operate at LOS F during the morning work shift hour. It is important to note that the analysis assumed all Cargill traffic will use the primary access through the Rotary Avenue and Fleming Road intersection and that all workers will enter the site within the same hour. The overflow access was not included for the worst-case scenario.

A sensitivity analysis was completed to determine the maximum workforce can be accommodate prior to needing the overflow access at the Owens Street and Ewing Avenue intersection. In addition to SaskPower construction traffic, it was identified that the intersection can accommodate up to 500 Cargill construction workforce entering the site within the same hour prior to experiencing significant delays.

The following key findings are identified upon the completion of the construction traffic assessment (Appendix K):

- All key intersections are expected to experience acceptable delays for the majority of Cargill construction periods until construction activities reach their peak. It is important to note that peak construction activities will only occur over three to six months and will occur outside of commuter peak hours; thus, resulting in minimum impacts on commuter traffic operations.
- The Cargill overflow access (Owens Street and Ewing Avenue intersection) will not be required until construction activities reach their peak of 500 staff or more. It is important to note that the analysis assumed that all workers from Cargill and SaskPower site will enter / exit the site at the same time resulting in constrained traffic operations at the Rotary Avenue and Fleming Road intersection. Typically, contractors, engineers, office staff and other workers would access the site at different hours and / or enter the site as needed. If the actual work shift schedules are staggered and construction traffic does not reach 520 vehicles within the same hour, the overflow access will not be required to alleviate the constrained operations at the Rotary Avenue and Fleming Road intersection.

- A required peak onsite staff parking supply of 505 spaces has been identified; however, this could be reduced if car parking construction is staged and actual surveyed vehicle occupancy is found to exceed 1.25 people per vehicle. Vehicle occupancy can be increased by utilizing buses or encouraging carpooling by assisting employees to arrange shared rides.

It is recommended that construction traffic demand be monitored (during peak construction activities) and the following mitigation measures considered if there are significant effects on traffic operations on the adjacent road network:

- Encourage carpooling to site and utilization of the Rotary Avenue interchange.
- Schedule or stagger work shifts outside of commuter peak hours (7 a.m. – 9 a.m. and 4 p.m. – 6 p.m.) where feasible.
- Coordinate with SaskPower to identify potential periods of simultaneous peak activity and collaborate on potential mitigations (i.e., stagger work shifts) where feasible.
- Construct the overflow access to alleviate traffic demand at the Rotary Avenue and Fleming Road intersection if hourly traffic entering the Cargill site exceeds 520 vph.
- Schedule truck deliveries outside of commuter peak hours where feasible.

5.3.4 Traffic Conditions for Full Build-Out Day-to-Day Operations

5.3.4.1 Methods

WSP completed a Traffic Impact Assessment (Appendix L) for the day-to-day operation of the proposed development following full build-out. WSP has confirmed the scope of work with the MoH. The completion of this traffic study was conducted based on the current available information. If required, future updates may be completed.

The TIA focused on the impacts on traffic operations at the following key intersections:

- Dewdney Avenue / West Bypass Terminal
- Dewdney Avenue / East Bypass Terminal
- Dewdney Avenue / Fleming Road
- Dewdney Avenue / Owens Street
- Rotary Avenue/ Owens Street
- Rotary Avenue / Fleming Road

Site-generated volumes from the Project were estimated based on the actual uses including number of staff per shift and truck deliveries. The site is expected to generate approximately 440 trips per day (220 inbound and 220 outbound trips). The majority of the traffic will occur during shift turn over at approximately 180 trips (90 trips at each shift change). The remaining trips will be truck trips dispersing throughout the day.

Future traffic volumes were forecasted for the background (without Project traffic) and total (with Project traffic) forecast scenarios. The background forecast volumes are a combination of population growth and available information on adjacent developments which in this case include SaskPower, other GTH future developments, Red Leaf Pulp, and Westerra developments.

Following the scope of work from the MoH, capacity analysis was completed for:

- the existing 2021 baseline traffic conditions
- 2024 (full build-out) background and total forecast scenarios
- 2034 (full build-out + 10 years) background and total forecast scenarios

5.3.4.2 Results

The result of the Traffic Impact Assessment included:

- The Dewdney Avenue interchange intersections currently operate at acceptable conditions with minimal delays (LOS B or better) and queuing. These intersections are expected to continue to operate acceptably (LOS D or better) for the 2024 scenarios during both site shift hours. The southbound left-turn movement at the west terminal is expected to decline to fail (LOS E/F) for both the 2034 background and total forecast scenarios during both hours. The maximum 95th percentile queue length for the southbound left-turn movement is 33 m (approximately 5 vehicles). It is important to note that the southbound left-turn operations for the 2034 scenarios are heavily based on the rate of the background developments and may vary depending on the timing and density of those developments.
- All study intersections within and immediately adjacent to the GTH (along Dewdney Avenue and Rotary Avenue) currently operate at acceptable levels with minimal delays (LOS B or better) and queuing. These intersections are expected to continue to operate acceptably (LOS D or better) for all future forecast scenarios during both site shift hours. It is important to note that capacity analysis was completed using the current lane arrangements and traffic controls. With the additional improvements identified within the GTH studies (traffic signals at key intersections and twinning of Dewdney Avenue), it is anticipated that the operation of all intersections will improve within and immediately adjacent to the GTH.

Traffic signal warrants were completed for the Dewdney Avenue interchange for both the east and west terminals. Traffic signals are not warranted at both terminals for the 2024 scenarios and only warranted at the west terminal for the 2034 background and total forecast scenarios. Similarly, the future forecast volumes are heavily based on the rate of the background developments and may vary depending on the timing and density of those developments. It is recommended that MoH continuously monitor this intersection, and the signal warrant analysis be updated as the anticipated developments continues to grow in the area to determine if and when traffic signals are warranted.

A high-level assessment using the Transport Canada cross-product was completed for the proposed crossing on Dewdney Avenue on the western border of the site. It is important to note that the final location of the proposed crossing has not been selected yet. As per Transport Canada standards, a minimum of 30m spacing is required between an intersection or access and the nearest rail of the grade crossing with a design speed greater than 25 km/h (15 mph). Grade-separated crossing is not warranted for all scenarios. Active crossing with warning system is not warranted for the 2034 Project assuming only the Proponent will use the crossing (max. of 4 trains per week or 0.6 trains per day). A warning system may be warranted if the Red Leaf Pulp development train is to utilize this crossing as well (max. of 18 trains per day). There would need to be 9 or more trains per day to warrant an increase in the level of control at the rail crossing at the anticipated total forecast traffic volumes. An update of the cross-product warrant and additional assessment should be completed once additional information on the use and location of the crossing are available.

5.3.5 Public Health and Safety

As per Cargill's statement, "Nothing matters more than the safety and wellbeing of our people," (Cargill Limited, 2021), health and safety is their top priority. During all phases of the Project the workers health and safety will be protected by meeting requirements under Saskatchewan's *Occupational Health and Safety Regulations, 2020*. Cargill uses the following safety measures to ensure those safety standards are met:

- Safety training provided to all employees
- Cargill-specific training required for all contractors
- Required registration with third-party safety auditing service (e.g. Avetta) for all contractors and sub-contractors
- Daily tailgate meetings with safety discussions
- Hazard and near miss identification reporting system
- Development and use of Standard Operating Procedures
- Pre-job hazard assessments for non-routine tasks
- Implementation of Cargill-specific permits for hazardous work including working from heights, hot work, crane utilization, confined space entry
- Presence of safety coordinators onsite
- "Root Cause" analysis reporting for any incidents or significant near misses
- Deployment of 12 LIFEsavers that identify the major hazards and minimum requirements for the highest risk activities
- Safety action item tracking
- Implementation of a Human Organizational Performance approach to safety
- Lockout-tagout program with hazard-based isolation

Consideration of emergency response is another aspect of high importance to the Proponent for its employees' and the general public's safety. Fire emergency response services will be provided by the Regina Fire & Protective Services through an agreement with the GTH (P. Malach, pers. comm., November 22, 2021). The Project is located within the #4 Regina Fire & Protective Services District, and fire emergency response times are expected to take 11- 12 minutes (note that response times are subject to change) (P. Malach, pers. comm., November 22, 2021). Police services will be provided by the White Butte detachment of the Royal Canadian Mounted Police (RCMP) (P. Malach, pers. comm., November 22, 2021). Additionally, health services within the GTH are provided by the Regina Qu'Appelle Health Region (P. Malach, pers. comm., November 22, 2021).

There is a total of three hospitals and 20 medical clinics within the City of Regina. The nearest hospital to the Project is Pasqua Hospital located approximately 10 km east of the PDA within the City of Regina. Listed below are the closest additional public health and safety facilities, all found within the City of Regina:

- Regina General Hospital is located approximately 14 km east of the PDA
- Transcona Medical Clinic is located approximately 10 km northeast of the PDA
- Meadow Primary Health Care Centre is approximately 10 km east of the PDA

- Regina Police Service station is located approximately 13 km east of the PDA

5.3.6 Community and Local Economy

The Project is located approximately 6 km west of the City of Regina, the second largest city in Saskatchewan with a metropolitan population of 236,481 (Statistics Canada, 2017c). Regina's population has grown 11.8% in the period of 2011 to 2016, but unemployment has increased from 4.8 to 5.8% within that timeframe (Statistics Canada, 2017c; Statistics Canada, 2013a). The surrounding area consists of the RM of Sherwood, which has an approximate population of 970 (Statistics Canada, 2017a). The town of Grand Coulee, located 2.5 km southwest of the Project, has an approximate population of 650 (Statistics Canada, 2017b).

Within the City of Regina, the average household income is \$104,401 (Statistics Canada, 2017c). The industry sectors with the largest labour forces within Regina are healthcare and social assistance (12.7%), retail (11.3%), public administration (9.4%), and construction (8.5%) (Statistics Canada, 2017c). The city offers many amenities including four public recreational centres, many parks, playgrounds and athletic fields, nine libraries, three shopping malls, and five natural areas. Regina has a total of 55 schools and several post-secondary institutions including the University of Regina, and local campuses of the First Nations University of Canada and Saskatchewan Polytechnic.

The RM of Sherwood has an average household income of \$126,743 (Statistics Canada, 2017a). The industry sectors with the largest labour forces within the RM are retail (21.5%), agriculture (14.0%), and public administration (9.7%) (Statistics Canada, 2017a).

Grand Coulee had 202 private dwellings as of 2016 and has an average household income of \$152,656 (Statistics Canada, 2017b).

Canola production and processing is a valuable part of Saskatchewan's economy. Saskatchewan is the largest canola-producing province in Canada, accounting for 55% of total production in 2020 (Canola Council of Canada, 2021a). In 2019, Saskatchewan farmers produced 11,089,000 metric tonnes of canola (Statistics Canada, 2021). Census Division No. 6 (total area is 17,548 square km), which encompasses the City of Regina, Grand Coulee and the RM of Sherwood, is the third largest canola producing area in Saskatchewan, producing 1,021,700 metric tonnes of canola in 2019 (Statistics Canada, 2021).

In 2020, canola exports (seed, oil and meal) were worth \$11.9 billion (CAD) (Canola Council of Canada, 2021a). In 2019, Saskatchewan's canola exports (seed, oil and meal) were worth \$4.766 billion (CAD) (SaskCanola, 2021a). With four existing canola processing plants, Saskatchewan is also the provincial leader in canola processing (SaskCanola, 2021a). Nation-wide, canola processing capacity is expected to expand by 50%, with capital investments expected to surpass \$2 billion (CAD) (Canola Council of Canada, 2021b).

The Project is expected to provide many canola contract opportunities for producers within the LAA and RAA. Additionally, the Project is expected to provide 75 full-time processing positions. Overall, the Project is expected to strengthen Saskatchewan's agricultural and local economies.

5.3.7 Visual Aesthetics

5.3.7.1 Day Visual Aesthetics

METHODS

A local assessment area (LAA) of two (2) kilometres (km) and a regional assessment area (RAA) of five (5) km was established and 26 viewpoint receptors were identified. Viewpoint receptors are locations within the RAA with potential for the viewscape to be affected by visual changes associated with the Project in a way that may meaningfully affect stakeholders. Viewpoint receptors generally include permanent or seasonal residences such as hotels/motels, nursing/retirement homes, rental residences, hospitals, and campgrounds or sites of social or cultural importance such as schools, gravesites, and places of worship. The viewpoint receptors selected for this assessment are consistent with this practice and are representative of the communities surrounding the Project.

Of the total 26 viewpoint receptors, the 13 with highest potential to be affected by the Project were selected for this assessment. The assessment was conducted using viewscales from the selected viewpoint receptors.

A viewscape refers to the daytime landscape in a given direction from a viewpoint receptor. A viewscape includes all visible features in the foreground (0-2 km from an observer) and background (distances greater than 2 km) discernable by observers (Niagara Escarpment Commission, 2020; Bouchard and Boudart, 2005). For the purposes of this assessment, all viewscales are directed toward and include the PDA.

Field surveys to capture photographs of the viewscales from the 13 potentially affected viewpoint receptors were conducted September 6 to 8, 2021. The results of the field surveys were used to assess the existing visual conditions (EVC) and visual sensitivity class (VSC) of each viewpoint receptor (BC Ministry of Forests [BC MoF], 1997; BC MoF, 2001). Potentially significant effects to the visual environment represented by buildings, infrastructure, industrial activities, etc. were identified and simulated from five (5) sensitive viewpoint receptors using the photographs captured during field surveys. EVC and VSC ratings were then determined for the 13 viewpoint receptors under Project conditions.

RESULTS

The results of the EVC assessment show that the viewscales for 12 of the 13 viewpoint receptors evaluated in this assessment (all but Viewpoint Receptor 1) are already considered to be Modified under existing conditions, where human-caused alterations are dominant but have natural appearing characteristics. Of these 12, two (2) are considered Maximally Modified, where human-caused alterations are dominant and out of scale (Viewpoint Receptors 4 and 13).

The results of the VSC assessment show that Viewpoint Receptor 2 had a VSC rating of Class 2, indicating high sensitivity to human-caused visual alteration. The area is considered very important to observers and there is a high probability that the public would be concerned if the viewscape was significantly altered.

Viewpoint Receptors 1, 6, and 12 had a VSC rating of Class 3, indicating moderate sensitivity to human-caused visual alteration. These areas are considered important to observers and there is a probability that the public would be concerned if the viewscape was significantly altered.

Viewpoint Receptors 7, 8, 9, 10, and 13 had a VSC rating of Class 4, indicating low sensitivity to human-caused visual alteration. These areas are moderately important to observers and there is a possibility that the public would be concerned if the viewscape was significantly altered.

Finally, Viewpoint Receptors 3, 4, 5, and 11 had VSC ratings of Class 5, indicating very low sensitivity to human-caused visual alteration. These areas may be somewhat important to observers and there is a small possibility that the public would be concerned if the viewscape was significantly altered.

Full results of the existing conditions can be found in the Day Visual Effects Assessment report in Appendix I.

5.3.7.2 Night Visual Aesthetics

METHODS

Prior to conducting field inventories, WSP identified all sensitive human receptors that could be affected by increased nighttime artificial light in the PDA, including significant artificial light emitters. A total of 13 inventory stations were selected to complete the field inventories.

In order to describe the current light environment conditions in the study area, field surveys were conducted during the night of September 7 to 8, 2021. This field campaign allowed for spot measurements of sky clarity, intrusive light as well as photos of the surrounding night landscape.

RESULTS

Most of the study area, including the PDA, is in an area of high luminosity coming from city of Regina. The stations located west and south of the PDA are in an area of medium luminosity.

These results shows that there is very little, or no intrusive light (at ground level) currently emitted towards the receiving stations and at the PDA

Major sources of artificial light, visible in the night landscape, mainly come from the Highway 11 and nearby roads, Loblaw Regina and the CP Railway Regina Intermodal Terminal. Full results of the existing conditions can be found in the Light and Night Visual Effects Assessment report in Appendix J.

6 IDENTIFICATION AND SCREENING OF POTENTIAL EFFECTS AND MITIGATION

As described in Section 4, the first step in the assessment is to identify all potential interactions between the Project and VECs. Identification of potential interactions is then followed by the identification of mitigation that can be incorporated into the Project to avoid or reduce potential effects of the Project on VECs. This step is completed to streamline the assessment so that the assessment is focused on those interactions identified to result in residual effects after applying mitigation. Screening of project activities and potential interactions are summarized in Table 6-1.

Interactions for each preliminary VEC follow Table 6-1 with Characterization of residual effects carried forward in Section 7 when residual effects are present.

Table 6-1 Potential Interactions Between the Project Activities and VECs during Project Phases

	Construction								Operation and Maintenance				Decommissioning and Reclamation			Standard practices and mitigation measures eliminate residual effects	VEC carried through to significance determination
	Vegetation Removal and Site Clearing	Leveling and Grading	Pile Installation	Concrete Foundations	Utilities and Underground Piping	Access Roads, Bridges, Parking and Rail	Canola Processing and Maintenance Buildings	Accidents and Malfunctions	Canola Processing and Maintenance Buildings	Access Roads, Bridges, Parking and Rail Traffic	Inspections and Maintenance	Accidents and Malfunctions	Infrastructure Demolition	Site Reclamation	Accidents and Malfunctions		
Physical VECs																	
Soil and Water	Yes	No
Air Quality and Greenhouse Gas							Yes	Yes
Noise and Acoustics	Yes	Yes
Biophysical VECs																	
Vegetation and Land Cover	Yes	Yes
Wetlands and Watercourses	Yes	No	
Wildlife and Habitat	Yes	Yes	
Socio-Economic VECs																	
Heritage Resources	.	.													Yes	No	
Land Use & Property Value						Yes	No	
Traffic Conditions	Yes	Yes	
Public Health and Safety							.				.			.	Yes	No	
Community and Local Economy	Yes	Yes	
Visual Aesthetics	Yes	Yes	

6.1 Mitigation Measures

Where one or more potential interactions between the Project and VECs are identified, site-specific and industry standard mitigations are proposed. Where possible, mitigation measures are incorporated into the Project design and implemented to avoid or reduce potential adverse effects.

The key mitigation options available for the Project are site selection, construction techniques, timing of construction activities, and monitoring. The Project site has been intentionally selected out of five potential locations to avoid native prairie, wetlands, sensitive environmental features, and unique habitats. The site already has established infrastructure provided by the GTH.

Cargill has committed to the development of a site-specific Construction Environmental Management Plan (CEMP) that will include all mitigation measures to be employed during construction. The CEMP will include individual EPP plans for each VEC consisting of VEC-specific mitigation measures included in Section 6.2 through 6.4.

In addition, a Site Specific EPP has been developed for the operations phase of the Project (Appendix M). Decommissioning will also require mitigation measures and these will conform to industry standards at the time of decommissioning.

6.2 Physical VECs

6.2.1 Soil and Water

6.2.1.1 Potential Effects on Soil

The potential effects on soils, terrain, and geophysical aspects of the environment by the Project include:

- Changes in soil quantity
- Changes in soil quality (i.e., agricultural capability)

Potential effects on soils, terrain, and geophysical aspects of the environment for each Project activity are presented in Table 6-2.

Table 6-2 Project Activities and Potential Effects on Soil during the Project

Project Phases			Project Activity	Potential Effects	
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Changes in Soil Quantity	Changes in Soil Quality
•			Site clearing and vegetation removal	✓	✓
•			Leveling and grading	✓	✓
•			Pile installation	-	✓
•			Concrete foundations	-	✓
•		•	Utilities and underground piping	✓	✓
•	•		Access roads, bridges, parking and rail	-	✓
			Canola processing and maintenance buildings	-	-
	•		Inspection and maintenance	-	✓

Project Phases			Project Activity	Potential Effects	
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Changes in Soil Quantity	Changes in Soil Quality
•	•	•	Accidents and malfunctions	✓	✓
			Infrastructure demolition	-	-
		•	Site reclamation	✓	✓

Notes:

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.2.1.2 Mitigation Measures for Soil

Industry standard mitigations and site-specific measures will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on soil aspects of the environment. The EPP will list all planned mitigation measures. Table 6-3 lists key mitigation measures for the protection of soil quantity and quality.

Table 6-3 Mitigation Measures for Soil

Potential Effect(s)	Mechanism	Mitigation Measures
Change in soil quantity Change in soil quality	Topsoil loss	<ul style="list-style-type: none"> - An EPP will be developed and implemented to support regulatory compliance and achieve best practices. The EPP will include a Soil Management Plan - Topsoil and subsoil will be stripped and stored separately to avoid mixing - Topsoil will be stripped and stored for use in future reclamation activities - Soil stockpiles will be stored in low-profile piles to reduce erosion - Soil stockpiles will be seeded or covered to reduce erosion - Exposed soils within the PDA will be re-vegetated to reduce erosion - Topsoil will be replaced during reclamation. Topsoil should be replaced to a uniform depth on all portions of the PDA that were stripped to match the surrounding areas - Topsoil replacement will be completed when the soil condition is suitable (e.g., dry conditions) - During reclamation, appropriate erosion and sediment control measures will be implemented, as needed, until revegetation of the topsoil is complete
Changes in soil quantity	Wind and/or water erosion	<ul style="list-style-type: none"> - An EPP will be developed and implemented to support regulatory compliance and achieve best practices. The EPP will include a Soil Erosion Contingency Plan - Erosion control measures, such as wind barriers or tackifiers, will be implemented as needed where soils are exposed - Soil stockpiles will be stored in low-profile piles - Soil stockpiles will be seeded or covered - Areas with rutting or erosion will be re-graded - Revegetation will be initiated as soon as possible after decommissioning and removal of Project components

Potential Effect(s)	Mechanism	Mitigation Measures
Changes in soil quality	Contamination	<ul style="list-style-type: none"> – If requested by the landowner, soil sampling will be completed pre-construction to identify soils with high salinity – During construction and reclamation, areas with high salinity will be handled specifically to avoid mixing saline soils with non-saline soils, as needed – The EPP will include contamination prevention and response plans (e.g., Spill Contingency Plan) to be implemented – All Project vehicles must be equipped with spill containment and clean-up supplies – Adequate secondary containment will be provided for all on-site storage of hydrocarbons and other hazardous materials – If contaminated soils are encountered during construction, a contingency plan will be implemented, and contaminated soils will be removed and disposed of accordingly – All vehicles and equipment will be well-maintained and will arrive at the Project site clean and free of leaks, soil, or vegetative debris
Changes in soil quality	Compaction or rutting	<ul style="list-style-type: none"> – During construction, contingency measures will be implemented as per the EPP to avoid compaction or rutting during adverse weather – Vehicles will use existing roads as much as possible – Soil compaction will be limited to the PDA – Areas with rutting or erosion will be re-graded – During reclamation, if compaction has occurred, the areas may be deep ripped to alleviate compacted soils prior to topsoil replacement
Changes in soil quality	Introduction of soil borne diseases or invasive plants	<ul style="list-style-type: none"> – The EPP will include a Weed Management Plan to be implemented to prevent and reduce the spread of weeds and invasive plants – Soils will be stored on-site, and erosion protection measures will be implemented – All vehicles and equipment will be well-maintained and will arrive at the Project site clean and free of leaks, soil, or vegetative debris – Develop and implement a vehicle/equipment cleaning and sanitation procedure to prevent introduction of soil borne disease (e.g., club root) – If additional soils are required for reclamation, only clean soils will be brought in

6.2.1.3 Potential Effects on Water

The potential effects on surface water and groundwater aspects of the environment by the Project include:

- Changes in surface water quality
- Changes in aquifer water quantity

Potential effects on water for each Project activity are presented in Table 6-4.

Table 6-4 Project Activities and Potential Effects on Water during the Project

Project Phases			Project Activity	Potential Effects	
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Changes in Water Quality (Surface)	Changes in Water Quality (Aquifer)
•			Site clearing and vegetation removal	✓	-
•			Levelling and grading	✓	-
•			Pile installation	✓	✓
•			Concrete foundations	✓	-
•		•	Utilities and underground piping	✓	✓
•	•		Access roads, bridges, parking and rail	✓	-
			Canola processing and maintenance buildings	-	-
	•		Inspection and maintenance	✓	-
•	•	•	Accidents and malfunctions	✓	✓
			Infrastructure and demolition	-	-
		•	Site reclamation	✓	-

Notes:

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.2.1.4 Mitigation Measures for Water

Industry standard mitigations and site-specific measures will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on water aspects of the environment. The EPP will list all planned mitigation measures. Table 6-5 lists key mitigation measures for the protection of water quality.

Table 6-5 Mitigation Measures for Water

Potential Effect(s)	Mechanism	Mitigation Measures
Change in Surface Water Quality	Sedimentation	<ul style="list-style-type: none"> - An EPP will be developed and implemented to support regulatory compliance and achieve best practices. The EPP will include a Water Management Plan - Soil stockpiles will be seeded or covered to reduce erosion - Exposed soils within the PDA will be re-vegetated to reduce erosion - Topsoil movement will be completed when the soil condition is suitable (e.g., dry conditions) - During reclamation, appropriate erosion and sediment control measures will be implemented, as needed, until revegetation of the topsoil is complete

Potential Effect(s)	Mechanism	Mitigation Measures
Change in Surface Water Quality	Contamination	<ul style="list-style-type: none"> – The CEMP will include contamination prevention and response plans (e.g., Spill Contingency Plan) to be implemented – During operation the operational EPP will be followed to control run off and sample as required prior to release into GTH stormwater management system – All Project vehicles must be equipped with spill containment and clean-up supplies – Adequate secondary containment will be provided for all on-site storage of hydrocarbons and other hazardous materials – Ongoing monitoring of groundwater quality and flows will be conducted throughout construction
Change in Ground Water Quality	Pile Installation and Contamination	<p>The Project will adhere to the aquifer protection guidelines outlined in:</p> <ul style="list-style-type: none"> – Sec. T3.1 in Table 8B.T3: Performance Regulations for Low Sensitivity Aquifer Protection Overlay Zone (Appendix B); Chapter 8, Overlay Zone Regulations, of the City of Regina Zoning Bylaw No. 2019-19 (City of Regina, 2019). – Aquifer protection as outlined in Section 10 of the GTH Zoning Bylaw 2014-02-01, revised August 2, 2018 (Appendix B, Global Transportation Hub 2018). <p>Aquifer protection measures will include but not be limited to the following:</p> <ul style="list-style-type: none"> – Inclusion of spill reporting protocols – Sufficient sanitation facilities for staff and workers – Limiting excavations to a maximum depth of 6 metres below ground surface (mbgs) – Backfilling boreholes with cuttings and a bentonite seal at the surface – Decommissioning and removing any groundwater monitoring wells or piezometers that are damaged, or no longer required under the supervision of a qualified environmental professional. External casings will be removed and sent offsite for re-use, recycling, or disposal. Internal standpipes or piezometers will be filled with bentonite and cut-off at ground level

6.2.1.5 Assessment of Residual Effects on Soil and Water

Project activities could result in a change in soil, surface water and groundwater due to erosion and sedimentation, contamination, rutting and pile installation. After mitigation measures are implemented, no residual effects are anticipated because mitigation will remove the interaction and result in no measurable change to the VEC.

A cumulative effects assessment for Soil and Water has not been completed because no residual effects on the VEC are anticipated. Project contributions to cumulative effects on Soil and Water aspects of the environment are not considered measurable.

6.2.2 Air Quality and Greenhouse Gas

6.2.2.1 Potential Effects on Air Quality

The potential effects of air quality by the Project include:

- Change in air emissions, including greenhouse gas emissions

Potential effects on atmospheric conditions for each Project activity are presented in Table 6-6.

Table 6-6 Project Activities and Potential Effects on Air Quality

Project Phases			Project Activity	Potential Effects
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Change in air Quality
			Site clearing and vegetation removal	-
			Levelling and grading	-
			Pile installation	-
			Concrete foundations	-
			Utilities and underground piping	-
	•	•	Access roads, bridges, parking, and rail	✓
	•	•	Canola processing and maintenance buildings	✓
			Inspection and maintenance	-
•	•	•	Accidents and malfunctions	✓
			Infrastructure demolition	-
			Site reclamation	-

Notes:

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.2.2.2 Mitigation Measures for Air Quality

Industry standard mitigations will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on air quality. The EPP will list all planned mitigation measures. Table 6-7 lists key mitigation measures for the protection of air quality.

Table 6-7 Project Activities and Potential Effects on Air Quality

Potential Effect(s)	Mechanism	Mitigation Measures
Changes in air emissions, including greenhouse gas emissions	Vehicle and heavy equipment emissions	<ul style="list-style-type: none"> – Construction vehicles and equipment will be maintained in good working order without modification from manufacturers specifications. – Project personnel will avoid excessive idling of vehicles. Vehicles will be turned off when not in use unless required for effective operation

Potential Effect(s)	Mechanism	Mitigation Measures
Changes in air emissions	Dust	<ul style="list-style-type: none"> – Dust suppressants (e.g., water, calcium chloride) will be applied during the Project as required to reduce dust – Watering for dust will not result in the formation of puddles or rutting by vehicles and equipment – Project personnel will work with the GTH to identify and rectify possible dust control issues in the vicinity of the Project
Changes in air emissions, including greenhouse gas emissions	Canola Processing	<ul style="list-style-type: none"> – Cargill will implement industry standard practices as well as proprietary operational measures to reduce atmospheric emissions to within regulated guidelines. – Regular air quality monitoring and regulatory reporting will be completed as determined by industrial permitting

6.2.2.3 Assessment of Residual Effects on Air Quality

CONSTRUCTION

Project activities that include the use of vehicles and heavy equipment which result in emissions of greenhouse gases. Project activities that result in dusty conditions (e.g., removal of vegetation, grading) may affect the atmospheric conditions in the Local Assessment Area. After mitigation measures are implemented, no adverse residual effects are anticipated due to construction because mitigation will remove the interaction.

Air Quality VEC for Construction has not be carried forward for further assessment.

OPERATIONS

Based on similar operating facilities and processes it is anticipated that there may be infrequent residual adverse effects on air quality during canola processing. These may occur due to accident or malfunction of established mitigation measures and procedures. It is anticipated that these incidences will be adverse in direction, moderate in magnitude, local in extent, infrequent in frequency, of short duration, reversable, and unlikely. Air quality has been carried forward towards characterization and significance determination.

A cumulative effects assessment for atmospheric conditions has not been completed because no adverse residual long term effects on atmospheric conditions are anticipated.

ODOUR

Odour is not identified as a VEC as odour itself is not a regulated environmental condition.

Odour nuisances are difficult to evaluate as perceptions of odour for each individual are characterized by personal preferences, opinions, experiences, and variability in our olfactory systems. Examples of Cargill operations from which nuisance odours could originate include, but are not limited to, waste water treatment, animal manure, chemical additives (e.g., fish oil), rendering operations, damaged or degraded grain or oilseeds, use of process chemicals, and other process stack/vent emissions.

Some odours may be directly attributed to emissions from processing and will be mitigated through using established scrubbing technology as well as proprietary operational procedures. These measures are intended to maintain air emissions from the Project within regulatory guidelines and is demonstrated to successfully do this in the Technical Proposal.

Cargill Ltd. will establish an Odour Abatement Plan once operations have commenced which will include preventative, site-specific methods for eliminating or reducing nuisance conditions, including odour, where there is

a reasonable possibility of the Project and/or changes creating a nuisance event. This plan includes a Cargill Environmental Nuisance Identification and Mitigation Job Aid and communication tracking procedures.

See Cargill Limited Operations Plan, Canola Processing Plant (WSP, 2021) submitted as part of the Industrial Approvals Application, Transaction Number 10054918 for in-depth details.

Although important, odour has not been carried through as a VEC as it cannot be quantitatively modelled or measured at this time. Odour is covered under the air quality assessment under emission guidelines as well as under operational plans in the submitted Industrial Approvals.

6.2.3 Noise and Acoustics

6.2.3.1 Potential Effects from Noise and Acoustics

The potential effects on noise by the Project include:

- Noise disturbance to humans and wildlife

Potential effects on noise for each Project activity are presented in Table 6-8.

Table 6-8 Project Activities and Potential Effects from Noise During the Project

Project Phases			Project Activity	Potential Effects
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Noise Disturbance to Humans and Wildlife
•			Site clearing and vegetation removal	✓
•			Levelling and grading	✓
•			Pile installation	✓
•			Concrete foundations	✓
•		•	Utilities and underground piping	✓
•	•	•	Access roads, bridges, parking, and rail	✓
•	•	•	Canola processing and maintenance buildings	✓
			Inspection and maintenance	-
			Accidents and malfunctions	-
		•	Infrastructure and demolition	✓
		•	Site reclamation	✓

Notes:

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.2.3.2 Mitigation Measures for Noise and Acoustics

Industry standard mitigations and site-specific measures will be implemented during construction, operations, and maintenance, and decommissioning and reclamation to reduce or avoid effects from noise. The EPP will list all planned mitigation measures. Table 6-9 lists key mitigation measures for noise.

Table 6-9 Mitigation Measures for Noise

Potential Effect(s)	Mechanism	Mitigation Measures
Noise disturbances to humans and wildlife	Construction and decommissioning activities and vehicles	<ul style="list-style-type: none"> – Construction and decommissioning activities will be restricted to daytime hours where feasible – Noise emissions will conform to all applicable municipal bylaws and requirements. – Vehicles will conform with all federal and provincial regulatory requirements for mufflers and emissions without modification – Vehicles and equipment will be maintained in good working order – Project personnel will avoid excessive idling of vehicles. Vehicles will be turned off when not in use unless required for effective operation – Health Canada recommends the long-term average day-night sound level (Ldn) be below 57 dB[A] at the closest residence. An Ldn of 57 dB[A] is expected to be within the threshold for widespread complaints for construction noise (US EPA, 1974)
Noise disturbances to humans and wildlife	Operational noise	<ul style="list-style-type: none"> – Initial siting of the Project is located 600 m from the nearest home – A Complaint Resolution Plan will be provided to allow residents to raise any concerns they may have regarding noise – The inverters and transformer will be located central to the site with panel rows blocking much of the sound propagation – All onsite equipment will conform to federal, provincial, and municipal regulatory standards, be kept in good working order and be maintained regularly

6.2.3.3 Assessment of Residual Effects from Noise and Acoustics

The Project is expected to generate noise during construction, operation, and decommissioning phases. These noises are not constant and can produce impulsive and variable sounds at different noise levels, which could create heightened annoyance levels in the surrounding community.

General construction activities include those associated with vegetation clearing, road building, foundations, building and facilities, all of which require machinery with variable noise levels. General operations include the crushing of canola seed and processing of canola oil and meal as well as transportation of seed and finished products. General decommissioning activities will include removal of roads, buildings, foundations, and other Project infrastructure. These activities will likely involve the use of backhoes, concrete mixers and pumps, dump trucks, excavators, light-duty pick-up trucks and pile drivers. The associated sound levels predicted for this machinery is presented in Table 6-10.

Table 6-10 Noise Levels Associated With Construction Equipment

Equipment	Max dB[A]
Backhoe	78
Concrete Mixer	79
Concrete Pump	81
Dump Truck	76
Excavator	81
Pick-up Truck	75
Pile Driver- Steel H Piles	110

Source: Washington State of Transportation (WSDot, 2017)

WSDoT (2017) guidelines for decibel addition were used to determine maximum expected noise levels. Although it is not expected that all equipment would be running at the same time, 110 dB[A] was identified as the highest expected noise during combined construction activities. The environment in which the project construction will occur is considered a soft environment with normal unpacked earth. The normal unpacked earth and topography will facilitate attenuation of noise emissions at shorter distances. Table 6-11 identifies the noise levels predicted to be observed at distances from the construction site determined using WSDoT (2017) guidelines.

Table 6-11 Worst-case Construction Noise Impact to the Surrounding Environment Calculated using WSDoT (2017) Guidelines Assuming Sound Levels in a Soft Environment Attenuate at 7.5 dB[A] per Doubling of Distance

Distance (m)	General Construction Noise dB[A]	Pile Driving Activities
15.2	86	110
30.5	78.5	102.5
61	71	95
122	63.5	87.5
244	56	80
488	48.5	72.5
975	41	65

Many noise scales refer to 70 dB[A] as an arbitrary base of comparison where levels above 70 dB[A] can be considered annoying to some people (Purdue University, 2017). As indicated in Table 6-11, at 61 m distance from the construction site, noise levels are approximately 70 dB[A], similar to that of a car travelling at 100 km/h and just at the threshold of possible annoyance (Purdue University, 2000). Construction noise is not expected to be highly annoying beyond 61 m from the construction site as noise levels at this distance have already attenuated to approximately 70 dB[A].

Mitigation measures will further reduce potential effects of noise on humans and wildlife. However, residual effects of the Project on noise levels are anticipated to be adverse in direction, moderate (construction)/low (operations) in magnitude, localized, frequent, medium-term, reversible, and unlikely. We anticipate there to be residual effects during construction due to pile driving requirements after mitigation measures are implemented.

Thus, noise and acoustics has been carried through to Section 7 for characterization of residual effects and significance determination.

6.3 Biophysical VECs

6.3.1 Vegetation and Land Cover

The potential effects on vegetation by the Project include:

- Introduction or spread of weed species

Potential effects on vegetation for each Project activity are presented in Table 6-12.

Table 6-12 Project Activities and Potential Effects on Vegetation and Land Cover During the Project

Project Phases			Project Activity	Potential Effects
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Introduction and/or Spread of Weed Species
•			Site clearing and vegetation removal	✓
•			Levelling and grading	✓
•			Pile installation	✓
•			Concrete foundations	✓
•		•	Utilities and underground piping	✓
•	•	•	Access roads, bridges, parking, and rail	✓
•			Canola processing and maintenance buildings	-
			Inspection and maintenance	-
•	•	•	Accidents and malfunctions	✓
		•	Infrastructure demolition	✓
		•	Site reclamation	✓

✓ = Interactions between the Project activity and the VEC may cause an effect.

- = Interactions between the Project activity and the VEC are not expected.

6.3.1.1 Mitigation for Vegetation and Landcover

Industry standard mitigations and site-specific measures will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on vegetation. The EPP will list all planned mitigation measures. Table 6-13 lists key mitigation measures related to vegetation and land cover.

Table 6-13 Mitigation Measures for Vegetation and Landcover

Potential Effect(s)	Mechanism	Mitigation Measures
Introduction or spread of weed species	Vehicle/equipment travel	<ul style="list-style-type: none"> – All vehicles and equipment will arrive on-site clean and free of soil or vegetative debris – Develop and implement a vehicle/equipment cleaning procedure – Vehicles/equipment will be inspected. Dirty vehicles/equipment will not be allowed on-site until it has been cleaned as per the cleaning procedure – More stringent inspections of equipment coming from outside the region will be conducted
Introduction or spread of weed species	Vegetation clearing, site grading, and reclamation	<ul style="list-style-type: none"> – The EPP will include a Weed Management Plan to be implemented to avoid and reduce the spread of weeds. The Plan will support compliance with The <i>Weed Control Act</i> – Pre-construction weed surveys will be completed on the PDA, access road and temporary workspaces – Weed infestations will be addressed as per corrective actions (e.g., spraying, pulling, mowing) identified in the Weed Management Plan prior to vegetation clearing and grading – Revegetation will be initiated as soon as possible after decommissioning and removal of Project components

6.3.1.2 Assessment of Residual Effects on Vegetation and Landcover

Project activities have potential to introduce or spread weed species within the PDA and Local Assessment Area (setback distance of 0.3 km). The Project is located on previously cultivated land that is currently industrial where weed growth is common. During the vegetation assessments, nine noxious and four nuisance weed species were identified in the PDA. It is expected that weed species will be present throughout the life cycle of the Project. The Weed Management Plan will reduce the introduction and spread of weeds.

After mitigation measures are implemented, residual effects on Vegetation are anticipated to be adverse in direction, immediate in extent, low in magnitude, medium-term, reversible, and likely. Thus, Vegetation has been carried through to characterization of residual effects and significance determination. These residual effects are considered minor and not significant.

6.3.2 Wetlands and Watercourses

6.3.2.1 Potential Effects on Wetlands and Watercourses

The potential effects on wetlands and watercourses by the Project include:

- Change in wetland and watercourse abundance and distribution

Potential effects on wetlands and watercourses for each Project activity are presented in Table 6-14.

Table 6-14 Potential Activities and Potential Effects on Wetland and Watercourse during the Project

Project Phases			Project Activity	Potential Effects
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Change in Wetland and Watercourse Abundance and Distribution
•			Site clearing and vegetation removal	✓
•			Levelling and grading	✓
			Pile installation	-
			Concrete foundations	-
			Utilities and underground piping	-
•		•	Access roads, bridges, parking, and rail	✓
			Canola processing and maintenance buildings	-
			Inspection and maintenance	-
•	•	•	Accidents and malfunctions	✓
			Infrastructure demolition	-
		•	Site reclamation	✓

✓ = Interactions between the Project activity and the VEC may cause an effect.

- = Interactions between the Project activity and the VEC are not expected.

6.3.2.2 Mitigation Measures for Wetlands and Watercourses

Industry standard mitigations will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on the existing manmade drainage and stormwater retention pond. As no wetlands were observed in the PDA, no regulatory permits will be required. The EPP will list all planned mitigation measures. Table 6-15 lists key mitigation measures related to wetlands and watercourses.

Table 6-15 Mitigation Measures for Wetlands and Watercourses

Potential Effect(s)	Mechanism	Mitigation Measures
Change in wetland and watercourse abundance and distribution	Site clearing, grading, and levelling	<ul style="list-style-type: none"> - Erosion control measures (e.g., silt fencing, erosion control matting) will be employed to reduce or avoid the movement of soil into surface water, as needed - Surface Water Management Plan and Erosion Control Plans will be drafted and implemented

6.3.2.3 Assessment of Residual Effects on Wetlands and Watercourses

Development within the PDA will result in no loss of wetlands during the construction and operation phases. However, implementation of mitigation measures will prevent or reduce potential adverse effects of the Project on the manmade drainage within the PDA and stormwater retention pond adjacent to the PDA in the Local Assessment Area.

After mitigation measures are implemented, there are no anticipated residual effects. Wetlands and Watercourses will not be carried forward for additional assessment.

6.3.3 Wildlife and Habitat

The potential effects on wildlife and wildlife habitat by the Project include:

- Mortality risk
- Habitat loss and/or alteration
- Wildlife displacement (i.e., degradation of wildlife habitat quality due to sensory disturbance and disruption of wildlife movement)

Potential effects on wildlife and wildlife habitat for each Project activity are presented in Table 6-16.

Table 6-16 Potential effect on Wildlife and Wildlife Habitat for each Project Activity

Project Phases			Project Activity	Potential Effects		
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Mortality Risk	Habitat Loss and/or Alteration	Wildlife Displacement
•			Site clearing and vegetation removal	✓	✓	✓
•			Levelling and grading	✓	-	✓
•			Pile installation	✓	-	✓
•			Concrete foundations	✓	-	✓
•		•	Utilities and underground piping	✓	✓	✓
•	•	•	Access roads, bridges, parking, and rail	✓	✓	✓
•			Canola processing and maintenance buildings	✓	✓	✓
	•		Inspection and maintenance	-	-	✓
•	•	•	Accidents and malfunctions	✓	✓	✓
		•	Infrastructure demolition	✓	-	-
		•	Site reclamation	✓	-	-

✓ = Interactions between the Project activity and the VEC may cause an effect.

- = Interactions between the Project activity and the VEC are not expected.

6.3.3.1 Mitigation Measures for Wildlife and Wildlife Habitat

Industry standard mitigations and site-specific measures will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on wildlife and wildlife habitat. The EPP will list all planned mitigation measures. Table 6-17 lists key mitigation measures for the protection of wildlife and wildlife habitat.

Table 6-17 Mitigation Measures for Wildlife and Wildlife Habitat

Potential Effect(s)	Mechanism	Mitigation Measures
Mortality risk	Ground Disturbance Collisions with Project vehicles, equipment, or infrastructure	<ul style="list-style-type: none"> - Complete all site clearing and vegetation removal activities outside the approximate nesting bird window for migratory birds identified for the Project location (mid-April to end of August; EC, 2020). If completing all site clearing outside of this window is not possible, a migratory bird nesting survey must be conducted prior to the initiation of Project activities and any new activities in areas that have not been cleared or disturbed within 7 days - Confirmed or suspected bird nests, eggs, and/or young will be protected by a suitable setback distance, determined by a qualified Biologist, until the nest is no longer confirmed active by a qualified biologist (i.e., young have left the nest; predated, etc.). - The Project will adhere to the Saskatchewan ARGs for Sensitive Species when these species or features are encountered (Government of Saskatchewan, 2017). - Setbacks will be established around animal residences (e.g., dens, burrows) to be avoided during construction - The Contractor will erect and maintain signage and/or fencing to delineate setbacks and prevent Project vehicles or equipment from entering the protected areas - Speed limits will be implemented on the Project site to reduce the risk of collisions with wildlife - Project personnel will be encouraged to yield to wildlife observed along roads - Car-pooling to site will be encouraged to reduce the number of vehicles - If wildlife is observed during work, if possible, animals will be given the opportunity to escape the work area - Temporary fencing will be erected around hazards such as trenches when conditions warrant - The need for operational personnel on-site during sensitive wildlife time periods will be minimized (e.g., during breeding bird season) - Terms and conditions of permits and approvals will be adhered to - The EPP will include a Wildlife Management Plan
Mortality risk	Stranding/ inability to take off	<ul style="list-style-type: none"> - Operations and maintenance staff will be trained to identify wildlife that may be injured or stranded - Local wildlife rehabilitation organizations and/or veterinarians will be contacted to assist with wildlife rehabilitation, where appropriate - Dogs will not be permitted on site by personnel
Habitat loss and/or alteration	Construction and decommissioning activities	<ul style="list-style-type: none"> - The Project is responsibly sited in an industrial area consisting of seeded grassland habitat that is managed. The site is also within the GTH which has already experienced fragmentation due to infrastructure, roads, utilities, and land conversion. - The Project siting has avoided sensitive habitats, designated lands, Important Bird Areas, etc. - Construction activities will be minimized along the drainage channel and existing stormwater pond to avoid interactions with amphibians as much as possible.

Potential Effect(s)	Mechanism	Mitigation Measures
		<ul style="list-style-type: none"> - The design of the Project has minimized the required footprint - Decommissioning and reclamation will result in the Project Area being returned to either seeded grassland or land suitable for re-development in the GTH. - The Project will adhere to the Saskatchewan ARGs for Sensitive Species (MOE, 2017) - If the Contractor encounters animal residences (e.g., dens, burrows, nests) during Project activities, they will contact a qualified Biologist and/or the MOE for advice before proceeding - Setbacks will be established around animal residences (e.g., dens, burrows) to be avoided during construction - The Contractor will erect and maintain signage and/or fencing to delineate setbacks and prevent Project vehicles or equipment from entering any defined protected areas - Existing roads will be used to the extent possible to reduce the need for additional linear disturbances - The EPP will support regulatory compliance and achieve industry best practices
Wildlife Displacement	Sensory disturbances from construction, operation, and decommissioning activities	<ul style="list-style-type: none"> - Vehicles and equipment will be maintained in good working order and properly muffled - Project personnel will avoid excessive idling of vehicles. Vehicles will be turned off when not in use unless required for effective operation - The need for operational personnel on-site during sensitive wildlife time periods will be minimized (e.g., during breeding bird season) - Lighting for infrastructure will be reduced, down-shielded, and controlled by proximity sensors, where possible - Energy efficient bulbs that are only as bright as required will be used, where possible
Wildlife displacement	Disruption to wildlife movement	<ul style="list-style-type: none"> - Car-pooling will be encouraged to reduce the number of vehicles on-site - Existing roads will be used to the extent possible to reduce the need for additional linear disturbances - All materials that might attract wildlife (e.g., human food, garbage, petroleum products) will be stored in closed containers and in areas that wildlife cannot access - Feeding, baiting, luring, or destruction of wildlife will be prohibited - Fencing of the project area will be completed to reduce the risk of wildlife entering or becoming stranded

6.3.3.2 Assessment of Residual Effects on Wildlife and Wildlife Habitat

Potential habitat for amphibians and water-dependent birds (drainage channel and existing stormwater retention pond) and ground-nesting birds (seeded grassland) was identified within and adjacent to the PDA. Field surveys for amphibians and breeding birds identified two amphibian species (boreal chorus frog and wood frog), 13 water-dependent bird species, and 7 ground-nesting bird species. The PDA was sparsely populated by the two amphibian species detected and no amphibian SOCC were observed. The PDA is dominated by industrial seeded grassland, which provides low quality nesting habitat for birds; no avian SOMC were detected. The surface waters

associated with the drainage ditch and pond may continue to provide habitat for foraging, breeding and/or rearing grounds for amphibians and water-dependent bird species.

Project activities and infrastructure from the Project have the potential to increase the risk of wildlife mortality, habitat loss and/or alteration, and wildlife displacement through sensory disturbances and/or disruption of wildlife movement. However, with the implementation of mitigation measures, the Project is not anticipated to result in significant residual effects on local amphibian or bird populations.

MORTALITY RISK

Some Project activities may result in wildlife mortality. For example, vegetation clearing, and earthworks have the potential to interact with nest, dens, and burrows. Furthermore, project activities near the stormwater retention pond may interact with amphibians that are present and Project infrastructure that is constructed may influence flight behaviour by birds within the PDA. However, after mitigation measures are implemented, there are no anticipated residual effects related to mortality risk. Mortality will not be carried forward for additional assessment. A cumulative effects assessment for mortality was not completed as there are no expected project related residual effects.

HABITAT LOSS AND/OR ALTERATION

Wildlife habitat will be lost, altered, or fragmented by the Project. The Project has been placed in an ecologically degraded site to result in the least amount of conflict with wildlife and their habitat. Existing landcover in the PDA is industrial seeded grassland which provides low quality habitat for wildlife species. The area is also highly fragmented due to past agricultural practices, industry, road networks, and railways.

The introduction or spread of weed species due to development activities has the potential to result in degradation of habitat. However, the Project is located on industrial land where weed growth in disturbed areas is already prevalent. Wildlife in the area are unlikely to be affected further by the introduction or spread of weed species resulting from the Project. It is expected that weed species will be present throughout the life cycle of the Project.

After mitigation measures are implemented, residual effects on wildlife and habitat due to habitat loss, alteration, or fragmentation are anticipated to be adverse in nature, low in magnitude, immediate in extent, infrequent, long-term, reversible, and unlikely. These residual effects are considered not significant and are negligible in nature given the existing habitat conditions within and surrounding the PDA.

WILDLIFE DISPLACEMENT

Wildlife may be displaced because of sensory disturbances or disruptions to wildlife movements that reduce habitat effectiveness.

Sensory disturbances associated with the Project include noise and light. The LAA and RAA routinely experiences noise and light disturbances associated with residences, agricultural equipment, large vehicle traffic, trains, and other industry. It is possible that wildlife in the region may be acclimatized to sensory disturbances. Regardless, the Project is not expected to generate ambient noise beyond acceptable limits. Disruptions to wildlife movements may include increased traffic and attractants. Mitigation measures, such as adherence to speed limits and proper handling and removal of waste, will reduce residual effects on wildlife displacement.

After mitigation measures are implemented, residual effects from wildlife displacement are anticipated to be adverse in direction, low in magnitude, local in extent, infrequent, long-term, reversible, and unlikely. These effects are considered not significant and are negligible in nature given the existing habitat conditions within and surrounding the PDA.

6.4 Socio-economic VECs

6.4.1 Heritage Resources

Generally, construction activities that cause ground disturbance, including stripping, grading and excavation, have the potential to adversely effect heritage resources. However, no effects to heritage resources are expected because of the Project. According to the Ministry of Parks, Culture and Sport's Developers' Online Screening Tool, the PDA is not heritage sensitive.

Heritage resources are not considered further in this assessment.

If heritage resources are encountered during Project activities, an Accidental Finds Protocol will be implemented such that work will not continue in the area until an Archaeologist and the HCB have been contacted and a path forward is identified.

6.4.2 Land Use and Property Value

6.4.2.1 Potential Effects on Land Use and Property Value

The potential effects on land use and property value by the Project include:

- Change in land use
- Change in property values

Potential effects on land use and property value for each Project activity are presented in Table 6-18.

Table 6-18 Project Activities and Potential Effects on Land Use and Property Value during the Project

Project Phases			Project Activity	Potential Effects	
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Change in Land Use	Change in Property Values
			Site clearing and vegetation removal	-	-
			Levelling and grading	-	-
			Pile installation	-	-
			Concrete foundations	-	-
			Utilities and underground piping		-
•			Access roads, bridges, parking, and rail	✓	✓
•	•		Canola processing and maintenance buildings	✓	✓
			Inspection and maintenance	-	-
			Accidents and malfunctions	-	-
			Infrastructure demolition	-	-
		•	Site reclamation	✓	✓

Notes:

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.4.2.2 Mitigation Measures for Land Use and Property Value

Industry standard mitigations will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on land use and property value. The EPP will list all planned mitigation measures. Table 6-19 lists key mitigation measures addressing land use and property value.

Table 6-19 Mitigation Measures for Land Use and Property Value

Potential Effect(s)	Mechanism	Mitigation Measures
Change in land use	Site clearing, grading, installation of the Project, and site reclamation	<ul style="list-style-type: none"> – An EPP will be developed and implemented, including a Soil Management Plan, to support site reclamation to allow the PDA area to be returned to pre-existing land use or other approved land use at the end of the Project life cycle
Change in property values	Installation and operation of the Project, and site reclamation	<ul style="list-style-type: none"> – Engagement was undertaken to gather feedback from landowners in the area – Ongoing education will aim to provide factual, relevant information to alleviate potential concerns of local residents – The Project was responsibly sited in a cultivated area adjacent to an existing power substation near light industrial developments. Existing aesthetics are not unique to the local or regional area – The Project has been setback from existing residences – Decommissioning and reclamation will result in the Project Area being returned to cultivated land

6.4.2.3 Assessment of Residual Effects on Land Use and Property Value

The PDA will experience a long-term change in land use from cultivation to a canola processing plant. Upon decommissioning and reclamation, the PDA will likely be returned to industrial/commercial use given its location in the GTH. Land use on properties in the Local Assessment Area will not be affected. With the implementation of mitigation measures in the EPP, no residual effects to land use are expected.

Project activities may have the potential to adversely affect property values in the Regional Assessment Area, mainly due to aesthetic concerns; however, the project location is amongst other industrial land uses and part of the GTH. Therefore, after the implementation of mitigation measures, no residual effects to property values in the Regional Assessment Area are expected due to the Project.

Land Use and Property Value will not be carried forward for additional assessment.

A cumulative effects assessment for land use and property values has not been completed because no residual effects on the VEC are anticipated.

6.4.3 Traffic Conditions

6.4.3.1 Potential Effects on Traffic Conditions

The potential effects on traffic conditions by the Project include:

- Increase in vehicular traffic

Potential effects on traffic conditions for each Project activity are presented in Table 6-20.

Emissions, noise, and potential contamination resulting from Project vehicles have been considered in other VECs and will not be addressed in this section. This assessment focuses solely on the Project's effect on traffic conditions.

Table 6-20 Project Activities and Potential Effects on Traffic Conditions during the Project

Project Phases			Project Activity	Potential Effects
Site Preparation and Construction	Operation and Maintenance	Decommissioning and Reclamation		Increase in vehicular traffic
.			Site clearing and vegetation removal	✓
.			Levelling and grading	✓
.			Pile installation	✓
.			Concrete foundations	✓
.	.	.	Utilities and underground piping	✓
.	.	.	Access roads, bridges, parking, and rail	✓
.	.	.	Canola processing and maintenance buildings	✓
	.		Inspection and maintenance	✓
.	.	.	Accidents and malfunctions	✓
		.	Infrastructure demolition	✓
		.	Site reclamation	✓

- ✓ = Interactions between the Project activity and the VEC may cause an effect.
- = Interactions between the Project activity and the VEC are not expected.

6.4.3.2 Mitigation Measures for Traffic Conditions

Industry standard mitigations will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects on traffic conditions. The EPP will list all planned mitigation measures. Table 6-21 lists key mitigation measures for traffic conditions.

Table 6-21 Mitigation Measures for Traffic Conditions

Potential Effect(s)	Mechanism	Mitigation Measures
Increase in vehicular traffic	Use of vehicles and/or heavy equipment	<ul style="list-style-type: none"> – Oversized loads will be delivered during times of lowest traffic to mitigate traffic jams, where feasible – All Project vehicles will adhere to legal load limits on Saskatchewan roads, including spring weight restrictions – Car-pooling to site will be encouraged – The Proponent will consult with the MoH if required, as early as possible regarding access permits and approvals required for the construction of the Project – Vehicle movements will follow traffic control guidelines, including speed limits – Schedule or stagger work shift outside of commuter peak hours (7 – 9 am and 4 – 6pm), where feasible – Coordinate with SaskPower to identify potential periods of simultaneous peak activity and collaborate on potential mitigations (i.e., stagger work shift) where feasible.

6.4.3.3 Assessment of Residual Effects on Traffic Conditions

Project activities could result in increased vehicular traffic particularly during construction, and operation phases. After mitigation measures are implemented, residual effects are anticipated to be neutral in direction, low in magnitude, regional in spatial extent, frequent, long-term, reversible, and likely. The residual effects are predicted to be not significant.

While the construction activities may generate higher traffic volumes than the day-to-day operations, it is important to note that construction phase will only occur over two years or less, particularly when peak activities will occur over even shorter period. A review of the GTH traffic study indicates that the GTH has planned additional improvements to accommodate traffic demand within the GTH.

6.4.4 Public Health and Safety

Developments, if not managed correctly, have the potential to adversely affect public health and safety. Cargill intends to follow all federal, provincial, and municipal mandated Occupational Health and Safety legislation as well as all provincially legislated environmental requirements and licensing. In addition, Cargill and subcontractors during construction will be required to follow Cargill's HSE policies and be vetted through the Avetta online safety portal.

Public Health and Safety is highly regulated in the context of this Project. No adverse effects to public health and safety are expected from the Project. Public Health and Safety has not been carried forward for further assessment.

6.4.5 Community and Local Economy

The potential effects of the Project on community and local economy are positive in direction. The Project will provide employment opportunities during construction, operation and maintenance, and decommissioning and reclamation.

It is predicted the Project will create approximately 75 full-time positions. Employment and/or contracting opportunities may arise related to, but not limited to, the following:

- Environmental consulting and monitoring
- Railroad management, railcar movement
- Millwright
- Welding and pipefitting
- Steel structural construction
- Civil engineering and surveying
- Electrical engineering
- Road and road pad building
- Foundation construction
- Crane support
- General labourers
- Plant operators
- Site security

- Logistics coordination
- Production management
- Office/toilet rental/waste removal
- Asset management
- Ancillary services, such as snow clearing, janitorial, and weed spraying

The Proponent will use local services and products, when possible. Throughout the Project life cycle, money will be spent in the region on hiring local Contractors, accommodations/lodging, meals, and other items. Positive effects on community and local economy are expected and are predicted to be positive in direction, moderate in magnitude, regional in extent, continuous, long-term in duration, reversible and highly likely.

Community and local economy have been carried forward to Characterization of Residual Effects and significance rating as a positive Project effect.

6.4.6 Visual Aesthetics

6.4.6.1 Potential Effects on Day Visual Aesthetics

The potential effects on daytime visual aesthetics by the Project include:

- change in visual aesthetics conditions (day landscape)

Potential effects on daytime visual aesthetics for each Project activity are presented in Table 6-22.

Table 6-22 Project Activities and Potential Project Effects on Daytime Visual Aesthetics

Project phases			Project activity	Potential effects
Site Preparation and Construction	Operation and maintenance	Decommissioning and reclamation		Change in daytime visual aesthetics
•			Site clearing and vegetation removal	✓
•			Leveling and grading	✓
•			Pile installation	✓
•			Concrete foundations	✓
•			Utilities and underground piping	✓
•	•	•	Access roads, bridges, parking, and rail	✓
•	•	•	Canola processing and maintenance buildings	✓
			Inspection and maintenance	-
			Accidents and malfunctions	-
		•	Infrastructure demolition	✓
		•	Site reclamation	✓

Notes:

✓ = Interactions between the Project activity and the VEC may cause an effect.

- = Interactions between the Project activity and the VEC are not expected.

6.4.6.2 Potential Effects on Night Visual Aesthetics

The potential effects on visual aesthetics at night by the Project include:

- change in visual sensory conditions (sky clarity and intrusive light)
- change in visual aesthetics conditions (night landscape)

Potential effects on visual aesthetics at night for each Project activity are presented in Table 6-23.

Table 6-23 Project Activities and Potential Effects on Visual Aesthetics at Night during the Project

Project phases			Project activity	Potential effects	
Site Preparation and Construction	Operation and maintenance	Decommissioning and reclamation		Change in visual sensory conditions (sky clarity and intrusive light)	Change in visual aesthetics (night landscape)
•			Site clearing and vegetation removal	✓	-
•			Leveling and grading	✓	-
•			Pile installation	✓	-
•			Concrete foundations	✓	-
•			Utilities and underground piping	✓	-
•	•		Access roads, bridges, parking, and rail	✓	✓
	•		Canola processing and maintenance buildings	✓	✓
			Inspection and maintenance	-	-
			Accidents and malfunctions	-	-
		•	Infrastructure demolition	✓	-
		•	Site reclamation	✓	-

Notes:

✓ = Interactions between the Project activity and the VEC may cause an effect.

- = Interactions between the Project activity and the VEC are not expected.

6.4.6.3 Mitigation Measures for Visual Aesthetics (Day and Night)

The most significant measure to mitigate potential Project effects related to the visual environment was taken during the site selection process for the Project. The PDA site was selected because it significantly affects the viewscape of the fewest possible viewpoint receptors while meeting the client's criteria for proximity to the City of Regina.

Industry standard mitigations and site-specific measures will be implemented during construction, operations and maintenance, and decommissioning and reclamation to reduce or avoid effects to both daytime and nighttime visual aesthetics.

Table 6-24 lists key mitigation measures for visual aesthetics (Day and Night).

Table 6-24 Mitigation Measures for Visual Aesthetics (Day and Night)

Potential effect(s)	Mechanism	Mitigation measures
Day		
Change in visual aesthetics	Installation and operation of plant and infrastructure (e.g., buildings)	<ul style="list-style-type: none"> – The Project was responsibly sited in a cultivated area within the GTH with the greatest distance possible between the PDA and all potentially affected viewpoint receptors. – The Project has been setback from existing residences. – Decommissioning and reclamation will result in the Project Area being returned to cultivated land or industrial/commercial use which is currently present in the GTH. – Limit clearing and retain as much vegetation as possible to provide visual screens. – Inobtrusive, industrial materials and colours will be used to not disrupt the industrial landscape pattern within the GTH
Night		
Change in visual sensory conditions	Installation and operation of plant and infrastructure (e.g., buildings) Use of machinery and mobile lighting equipment at night	<ul style="list-style-type: none"> – Light poles will be reduced in height where feasible. – Lighting colour will be changed to a softer light (reduced Kelvins) in lamps from the original design – Turn off lighting equipment when not in use in situations where safety or security will not be compromised. – Lighting will be planned to provide the level of light required for worker safety and equipment security while minimizing light spillover.
Change in visual aesthetics	Installation and operation of plant and infrastructure (e.g., buildings) Presence of fixed light equipment	<ul style="list-style-type: none"> – Project was responsibly sited in a cultivated area within the GTH adjacent to an existing power substation near light industrial developments. – The Project has been setback from existing residences. – Decommissioning and reclamation will result in the Project Area being returned to cultivated land or industrial/commercial use which is currently present in the GTH. – Limit clearing and retain as much vegetation as possible to provide visual screens. – The lighting will be planned to ensure a level of light required for the safety of the workers and the safety of the equipment while minimizing the luminous level. – The emission of light towards the sky will be limited by using luminaires that produce a sober and uniform lighting that will meet operational lighting needs. Luminaires will not produce any emissions above 90 degrees. – Reduce building contrast levels by using finishes with low reflectance levels and colours that match natural landscapes. Where possible, structures on the site will be dark in colour to absorb light reflection.

6.4.6.4 Assessment of Residual Effects on Day Visual Aesthetics

Assessment of the day visual aesthetics identified 2 receptors with residual effects after the implementation of proposed mitigation measures: viewpoint receptors (VR) 4 and 13. Based on the results of the EVC and VSC analyses, the other 11 viewpoint receptors were not considered to be significantly affected by Project effects to the visual environment.

Residual effects for VR 4 are anticipated to be neutral in direction, low in magnitude, local in spatial extent, continuous, long-term, reversible, and very likely. The residual effects have been determined to be not significant.

Residual effects for VR 13 are anticipated to be adverse in direction, low in magnitude, local in spatial extent, continuous, long-term, reversible, and very likely. The residual effects have been determined to be significant.

Increased industrial, human-caused alterations to the visual environment related to the Project could adversely affect the visual environment for VR 4 but the effects are not considered to be significant when the low sensitivity and existing industrial zoning of the viewpoint receptor are considered.

Increased industrial, human-caused alterations to the visual environment related to the Project are anticipated to adversely affect the visual environment for VR 13 and the effects are considered to be significant. Despite this, no further mitigation measures are recommended. This is because site selection was the primary mitigation measure for reducing visual effects of the Project. The site that affected the fewest viewpoint receptors was selected, therefore, to relocate the PDA risks significant visual residual effects to more VRs than only VR13.

6.4.6.5 Assessment of Residual Effects on Night Visual Aesthetics

SKY CLARITY

The modelling of the lighting plan proposed for the Project shows that the light levels generated by the Project and emitted towards the sky are low in winter. The maximum light emissions are located above the north part of the Site. The level of light emitted to the night sky outside the PDA are similar to a full moon which can generate between 0.5 to 1 lux (unit used for illumination). The level of light emitted to the sky are relatively lower during the summer period.

Due to very little anticipated light emitted to the sky by the Project component, pre-existing lower sky clarity because of existing light sources (in the vicinity of and from Regina), and the proposed mitigation measures, adverse effects on sky clarity will be limited to the Project site. No detectable change from existing conditions should be visible to human perception beyond the PDA. A very minor effect is anticipated on the sky clarity and star visibility in the PDA.

A slight halo of light will be visible in the sky. The halo will be more visible when clouds are present since they reflect the artificial night light emitted by the ground. However, it should merge with the reflection of the Regina light already visible for points of view located west of the Project.

Residual effects of Project on sky clarity are anticipated to be neutral in direction, low of magnitude, local in spatial extent, frequent, long-term, reversible and likely. These residual effects have been determined to be not significant.

Installation of lighting at the plant could result in a change in sensory conditions for sky clarity in the Regional Assessment area; however, the effects are not considered to be significant when mitigation factors are considered.

INTRUSIVE LIGHT

The modelling of the lighting plan proposed for the Project shows that the light levels on the ground on the Project site are low in winter and localized at a very close distance from their point of emission. The light level is much higher at specific locations close to the light tower surrounding the Project site. The light levels at the PDA perimeter are relatively low but higher at the west boundary in the winter. This indicates that intrusive light emission is present there and a certain level of light will be emitted towards some wetlands found in the area. The level of light at ground level is relatively stable during winter and summer at the Project site; however, they are relatively lower during summer at the edge of the PDA, which means less intrusive light affects the wetlands during this time.

Due to very little anticipated light emitted at ground level at the Project site, the mitigation measures presented previously (and even if intrusive light emission is present at the west end limit and a certain light emission will be emitted towards wetlands), the intrusive light effect will be limited at the Project site. A very minor effect on habitat and fauna is anticipated outside the developed site and neighbouring areas at the Project site; however, the light levels are relatively lower during the summer at the edge of the PDA, which means that wildlife using wetland habitat in these areas will be less affected by intrusive light (ie. mating, foraging, shelter).

The sector of the Project site will still be representative of a dark environment. There are no residential receptors close enough to experience direct or indirect effects related to intrusive light. Therefore, human health, well-being and quality of life are not expected to be affected by the intrusive light.

Residual effects of Project on intrusive light are anticipated to be neutral in direction, low in magnitude, local in spatial extent, frequent, long-term, reversible and unlikely. These residual effects have been determined to be not significant.

NIGHT LANDSCAPE

It is likely that part of the light sources associated with the Project will be seen where direct line of sight is possible in the foreground, or behind actual visual physical items that block the view (topography, vegetation, buildings).

The night landscape simulations shows that light coming from the Project site should be directly visible but will hardly modify the night landscape since many visible light sources mainly coming from the city of Regina, Loblaw Regina and CP Railway Regina Intermodal Terminal are already visible on the outskirts.

Residual effects of Project on night landscape are anticipated to be neutral in direction, low of magnitude, local in spatial extent, frequent, long-term, reversible and likely. These residual effects have been determined to be not significant.

6.5 Project and VEC Interactions

The construction, operation, decommissioning and reclamation phases of the Project have the potential to affect the physical, biophysical, and socio-economic environment. Following the description of Project activities in Section 2 and the Existing Environmental Setting in Section 5, the interaction of Project activities with VECs were identified and assessed. Table 6-1 summarizes the potential interactions between Project activities and each identified VEC. Potential effects from the Project on VECs and mitigation measures have been identified through evaluation of baseline information, technical expertise, previous experience, literature reviews, regulatory engagement, and input received from Cargill, the public, stakeholders, and Indigenous communities via engagement. A detailed analysis of changes to physical, biophysical, and socio-economic components are only completed for those interactions where mitigation cannot remove an interaction and residual effects to a VEC are expected.

7 RESIDUAL EFFECTS

7.1 Characterization

Residual effects are characterized by Direction, Magnitude, Spatial Extent, Frequency, Duration, Reversibility and Likelihood. These characterizations are further classified and used to describe residual effects predicted for the Project. The ecological and social context in which potential effects may occur are considered. The characterizations and classifications are used to describe the nature and type of effect on the VECs. The residual effects classification is then used to determine the environmental significance of Project effects to the VECs. The definitions of these criteria that will be used are presented below.

DIRECTION

Direction is a measure of the potential for a Project effect to have a positive, negative, or neutral affect on a VEC.

- Positive: A VEC is positively influenced by Project interactions. This is most readily observed for Socioeconomic VECs.
- Neutral: There is no measurable benefit or negative effect on a VEC. It is possible to have both a negative and positive effect in some circumstances that may lead to a net-Neutral outcome.
- Adverse: A residual adverse effect that affects a whole stock, population, habitat or ecosystem, or resource.

MAGNITUDE

Magnitude is a measure of the intensity of a residual effect, or the degree of change caused by a Project on a VEC relative to the existing conditions. The natural variability and resiliency of a VEC to change is considered. Geographic extent and duration of an effect is important in classifying magnitude for a VEC. For magnitude, the criteria are defined as follows:

- High: A residual environmental effect that affects a whole stock, population, habitat, ecosystem or resource outside the range of natural variation. The effect may be near or exceed the resilience limits of a population or community, such that communities do not return to pre-Project levels for multiple generations. For human VECs, the residual effect is expected to substantially enhance or interfere with existing conditions in communities in the local area and beyond.
- Moderate: A small, measurable residual environmental effect that affects a portion of a population or habitat, ecosystem, or resource. The effect is often rapid and unpredictable, is temporarily outside the range of natural variability, but can be returned to pre-Project levels in one generation or less. For human VECs, the residual effect is noticeable and may be potentially beneficial or detrimental to individuals and communities in the local area but not beyond.
- Low: A negligible residual environmental effect that affects a specific local group, habitat, ecosystem, or resource. The effect can be returned to pre-Project levels in one generation or less, within natural variation. For human VECs, the residual effect is limited to a slight effect or nuisance to individuals or communities in the local area.
- None: No discernable change to a VEC.

SPATIAL EXTENT

Spatial extent refers to the extent of the area affected and is related to the spatial distribution and movement of a VEC. When considering spatial extent in the determination of magnitude, it is important to understand that regional and larger scale effects are less severe than those within the local scale. Spatial extent is broken into immediate, local, regional scale, and beyond and defined as follows:

- Immediate scale effects are those associated with direct effects from the Project footprint within the PDA such as loss of habitat, species or feature.
- Local scale effects are those largely associated with direct effects from the Project (e.g., potential sound attenuation or air quality). These are limited to the Local Assessment Area.
- Regional scale effects are those that are associated with incremental and cumulative changes from the Project and other developments but are restricted to the Regional Assessment Area.

FREQUENCY

Frequency refers to how often a residual effect will occur but is not to be confused with the frequency of the activity that causes a residual effect. Frequency is explained by identifying when the source of change and residual effect occurs. Frequency is broken into the following categories:

- Single Event – a single discrete event
- Infrequent – isolated or confined to a discrete period
- Frequent – occur repeatedly over the assessment period
- Continuous – occurs continuously over the assessment period

DURATION

Duration is defined as the amount of time from the beginning of a residual effect to when that effect on a VEC is reversed. Duration is the result of two factors, the amount of time between the start and end of a project activity that causes stress on a VEC and the time required for the effect to be reversible. Some effects are reversible shortly after the stress has been removed (e.g., changes in the distribution of some wildlife species following the removal of noise after decommissioning and restoration), while others may take longer to be reversed (e.g., the change in abundance of some species until revegetation has occurred). In some cases, a prediction of duration may be well beyond the temporal boundary of the Project. It is not known when those effects may be reversed, and a VEC may never return to a state that was unaffected by the Project. In these cases, the likelihood of reversibility is so low that the effect is classified as permanent. Duration is broken into the following categories:

- Short-term – the residual effect is reversible at the end of construction
- Medium-term – the residual effect is reversible at the end of operation of the project
- Long-term – the residual effect is reversible within a defined length of time. The predictive length of time of the effect is reversible after decommissioning and restoration
- Permanent – the residual effect is predicted to influence a VEC indefinitely. This is applied when an effect is determined to be irreversible.

REVERSIBILITY

Reversibility is considered the likelihood that the Project will no longer affect a VEC and the ability of a VEC to return to an equal or improved condition once the interaction with the Project has ended. Reversibility is influenced by the resilience of the VEC to imposed stresses and the degree of existing stress on that VEC. A project can either be reversible or irreversible. Reversible is applied to short- medium- and long-term duration residual effects where the Project no longer causes changes to a VEC. Irreversible is applied when the residual effect is predicted to influence a VEC indefinitely or the duration of an effect is unknown.

LIKELIHOOD

Likelihood is a generalized term that refers to the probability that a causal event that results in a residual effect on a VEC is likely to occur. A causal event includes, for example, accidents or malfunctions or other unintentional (or intentional) events. Likelihood is broken down into four categories:

- None – Event cannot occur due to the siting or engineering design, i.e. the removal of the root cause that may lead to an event. This event can never occur.
- Unlikely – Event or effect may occur only in exceptional circumstances, i.e. partial or catastrophic failure of an industry proven mitigation measure, accidents and malfunction scenarios, unusual weather events.
- Likely – Will probably occur in many circumstances.
- Very Likely – Event is expected to occur in most circumstances, history, context and knowledge provides enough information to confidently predict a causal event.

The residual effects characterization and classifications are summarized in Table 7-1.

Table 7-1 Residual Effects Characterization

Characterization	Description	Classification of Characterization
Direction	The nature of the residual effect	<ul style="list-style-type: none"> – Positive – Neutral – Adverse
Magnitude	The intensity of change expected in a VEC relative to existing conditions	<ul style="list-style-type: none"> – High – Moderate – Low – None
Spatial Extent	The geographic extent in which the residual effect may occur	<ul style="list-style-type: none"> – Immediate – Local – Regional
Frequency	How often the residual effect may occur	<ul style="list-style-type: none"> – Single event – Infrequent – Frequent – Continuous

Characterization	Description	Classification of Characterization
Duration	The time required for the residual effect to no longer be perceivable or measurable	<ul style="list-style-type: none"> – Short-term – Medium-term – Long-term – Permanent
Reversibility	The degree to which the residual effect can be reversed after the Project activity ceases	<ul style="list-style-type: none"> – Reversible – Irreversible
Likelihood	The likelihood that a residual effect will occur	<ul style="list-style-type: none"> – None – Unlikely – Likely – Very likely

7.2 Determination of Significance

For adverse residual effects, the evaluation for the individual criteria will be combined into an overall rating of significance as follows:

- **Significant:** Potential effect could jeopardize the long-term sustainability of the resource and result in a decline of a resource in terms of quality/quantity, such that the effect is considered sufficient in magnitude, extent, frequency, and duration, or is being considered irreversible. Then additional research, monitoring, and/or recovery initiatives are considered.
- **Not Significant:** Potential effect may result in a localized or short-term decline in a resource during the life of the Project and should be negligible to the overall status of the resource.

For effects of the Project to have a significant effect on VECs, individuals would have to be affected to the extent that there would be a permanent adverse change to survival and reproduction at the population level.

7.3 VEC Residuals Effects Characterization and Significance

Seven VECs were carried through to residual effects characterization and significant determination: Air Quality and Greenhouse Gas, Noise and Acoustics, Vegetation and Land Cover, Wildlife and Habitat, Traffic Conditions, Community and Local Economy, and Visual Aesthetics. The assessment of residual effects has determined all potential residual effects to be NOT Significant (Table 7-2). They are Not Significant due to the implementation of mitigation measures, they have low to moderate magnitude, are predominantly local in spatial extent, are ultimately reversible, and managed through the existing provincial and municipal regulatory framework.

AIR QUALITY AND GREENHOUSE GAS

Adverse effects are expected to only be the result of inadvertent accidents and malfunction where implemented mitigation measures have failed. It is anticipated that these failures will be rare and further mitigated through operational planning and procedures, as well as potential upgrades as technology progresses over time. These will be of low to moderate magnitude, local in extent, infrequent, of short-term duration, reversible, and unlikely. It is expected that residual effects will be odour related and still meet emission requirements.

NOISE AND ACOUSTICS

Adverse effects that Noise may have on the receiving environment is largely limited to the construction phase of the Project during pile driving activities. This is anticipated to be of high magnitude, but short duration. This is an expected noise level in the receiving environment and is typical for construction in this region of Regina due to unstable soils. Noise levels during operations will be typical of an industrial operation and expected in the GTH which was developed for such activities.

VEGETATION AND LANDCOVER

After mitigation measures are implemented, residual effects are anticipated to exist for Vegetation and Landcover VEC, specifically for weeds. Effects are to be low in magnitude, immediate in extent, frequent, long-term in duration, and unlikely. These residual effects are considered minor and Not Significant provided an ongoing weed and vegetation management plan is implemented.

WILDLIFE AND HABITAT

Wildlife and Habitat adverse effects are limited to habitat loss and wildlife displacement within the PDA. Although the habitats identified onsite are unlikely to support SOMC and the landscape surrounding the Project is agricultural or commercial in nature, there is a small likelihood that the PDA will provide habitat for nesting migratory birds, small mammals and amphibians. Some marginal habitat will be returned once construction and landscaping is complete. Effects are temporal and are considered Not Significant due to the quality and quantity of habitat currently in the PDA.

TRAFFIC CONDITIONS

Adverse effects on traffic will largely be at the construction stage of the Project when contractors and materials are required daily onsite. During operations, rail traffic will be scheduled appropriately with rail loop design helping to mitigate any potential issues at local road crossings. Truck traffic will increase once operations begin. The GTH is already sited as a transportation hub for the province and is expected to handle traffic levels. Therefore, this VEC is considered Not Significant.

COMMUNITY AND LOCAL ECONOMY

Community and Local Economy was the only VEC to have a net positive effect. There will be relatively large economic inputs to the local and regional economies during construction, however, this will be of shorter duration. The creation of 75 full time employment opportunities as well as the use of local contractors for various maintenance and upgrade activities over the life of the facility is of moderate magnitude, but of long duration. There are also net positive gains at the provincial level for tax revenue, however this value was not incorporated into any qualitative assessment as the values are confidential.

VISUAL AESTHETICS

Adverse effects on Visual Aesthetics was determined to be Not Significant based on the entirety of the assessment of both day and nighttime visual aesthetics. Visual aesthetics is subjective in nature which complicates characterization. The Visual Aesthetics VEC will be a long duration (permanent for as long as the plant is operating and into the decommissioning and maintenance phases) and of low magnitude. There is existing infrastructure surrounding the Project site that minimize the effects on this VEC at the Project LAA level (Regina Ring Road, rail lines, and GTH tenants with lit structures). Cargill has committed to mitigation measures such as preliminary changes to lighting design that have reduced the effects on the surrounding receptors during nighttime hours. This VEC has a residual effect after mitigation measures due to the proximity of a single residence north of the Project.

Table 7-2 VEC Residual Effects Characterization and Significance

VEC	Direction	Magnitude	Spatial Extent	Frequency	Duration	Reversibility	Likelihood	Significance after Application of Mitigation Measures
Air Quality and Greenhouse Gas	Adverse	Moderate	Local	Infrequent	Short Term	Reversible	Unlikely	Not Significant
Noise and Acoustics	Adverse	Moderate (construction) Low (operations)	Local	Frequent	Medium Term	Reversible	Unlikely	Not Significant
Vegetation and Landcover	Adverse	Low	Immediate	Frequent	Long Term	Reversible	Likely	Not Significant
Wildlife and Habitat	Adverse	Low	Local	Infrequent	Long Term	Reversible	Unlikely	Not Significant
Traffic Conditions	Neutral	Low	Regional	Frequent	Long Term	Reversible	Likely	Not Significant
Community and Local Economy	Positive	Moderate	Regional	Continuous	Long Term	Reversible	Likely	Significant
Visual Aesthetics	Adverse	Low	Local	Continuous	Long Term	Reversible	Likely	Not Significant

8 CUMULATIVE EFFECTS ASSESSMENT

Cumulative environmental effects refer to effects predicted to result from the residual effects that could reasonably be expected to act in combination with the potential residual effects of other past, present, or known future projects or activities within the Regional Assessment Area. As non of the residual effects for the Project are considered significant these were not carried forward to a formal cumulative effects assessment. However, we have provided a Project Activity Inclusion List (Table 8-1) as well as commentary on each VEC that was carried forward to the VEC characterization and significance determination stage to validate the findings.

The Project and Activity inclusion list includes all known projects and physical activities which may have residual effects that could overlap spatially or temporally with the Project. The list includes any future projects that have been publicly announced and details were available for the assessment. Table 8-1 presents projects and activities in the Regional Assessment Area that have been identified for inclusion in any cumulative effects assessment as of November 2021.

Table 8-1 Project and Activity Inclusion List

Project/Activity	Existing	Ongoing	Future	Description
Agricultural activity and land conversion	•	•	•	The Project is located in a region substantially altered by land conversion from native vegetation to cropland, hay-land, and pastureland. Agricultural activities in the Regional Assessment Area are ongoing.
Oil and gas activity	•	•	•	Oil and gas pipelines, and other infrastructure exist within the Regional Assessment Area. Information regarding future plans for oil and gas development in the area were not available. However, it is assumed oil and gas activity will continue in the area.
Highways, gravel roads, access roads	•	•	•	There are numerous existing roads within the Regional Assessment Area. These roads have fragmented the landscape for many decades. Ongoing vehicular traffic results in direct mortality of animals via collisions.
Rail lines	•	•	•	There are existing, utilized railroads within the Regional Assessment Area. Railroads have contributed to fragmentation of the landscape for many decades. Railway activities and traffic are ongoing.
Transmission lines and substation	•	•	•	Existing transmission lines, substations, and utility corridors are established in the Regional Assessment Area. These contribute to habitat fragmentation as well.
Regina Future Long-term Growth	•	•	•	The City of Regina Growth Plan map identified future long-term development to 500k population located within the Regional Assessment Area. Typical urban development exists, is ongoing, and is likely to continue in the future.
Light industrial and commercial developments	•	•	•	The City of Regina Growth Plan map identified New Employment Area developments north of Dewdney Avenue and West of Regina Bypass within the Regional Assessment Area. These activities will begin and continue in the future.

Project/Activity	Existing	Ongoing	Future	Description
GTH	•	•	•	GTH Industrial Park was established prior to the Project and has the following businesses: GTEC Management and Development Corporation, CP Railway Regina Intermodal Terminal, Loblaw Regina, SLGA warehouse, Emterra Environmental, Fastfrate, Sterling Trucks and Trailer Sales Ltd., and a SK Power substation.
SaskPower (in GTH)	•	•	•	SaskPower is currently developing a logistics and warehousing complex for their southern Saskatchewan operations. Functions on site include product warehousing and distribution, administration, SaskPower safety group operations base, and some limited public interface. Coinciding with Cargill site construction, SaskPower Phase 1 construction is scheduled between end of 2021 to end of 2023 and Phase 2 be completed by late of 2025. This will generate additional traffic volumes on the adjacent road network during both construction and day-to-day operations.
Other GTH developments		•	•	The full build-out phase of the GTH subdivision is expected to be completed by 2040, which will consist of various industrial-type uses. This will generate additional traffic volumes on the adjacent road network. Depending on the type of developments, there may be additional effects on noise, emissions, smell and site lines as well.
Red Leaf Pulp development		•	•	Red Leaf Pulp development, located north of Dewdney Avenue and west of Range Road 2211, converts wheat straw to pulp. The construction of the new site is expected to commence early 2022. This will generate additional traffic volumes on the adjacent road network during both construction and operational phases. In addition to traffic, this type of development typically produces effects on noise, emissions, smell and site lines as well.
Westerra	•	•	•	Westerra development, consists of residential and commercial uses, is located between Pinkie Road and Courtney Street. Phase 1 of the development is completed. Westerra is expected to full build-out by 2040. This will generate additional traffic volumes on the adjacent road network.
Grand Coulee	•	•	•	Grand Coulee is a bedroom community located approximately 10 minutes west of Regina and within the Regional Assessment Area. Activities will continue to grow as the community population increases.
Sakimay First Nation development			•	The City of Regina has advised that the Sakimay First Nation is looking to develop the subdivision located between Pinkie Road and the Regina Bypass. However, no additional information is available on the timeline and types of uses at this time. At minimum, this will generate additional traffic volumes on the adjacent road network.

AIR QUALITY AND GREENHOUSE GAS

In a summary, the air dispersion modelling generally predicted no or negligible to minor changes in air quality due to the cumulative effects of the project, except for the annual TSP and hexane which have substantial changes. The Project effects are predicted in the immediate vicinity of the Project. Beyond this area, the Project effects quickly decreased to insignificant levels. Although some elevated values are predicted for SO₂, H₂S, PM₁₀, and 24-hour TSP concentrations, the regional sources and/or background ambient concentrations contribute significantly to those predictions.

Lastly, the Project GHG emissions are about 0.11% and 0.012% of the 2019 provincial and Canada totals, respectively. The current surface setting of the PDA is mainly disturbed with some grasslands, which is considered to have a low carbon footprint. Once construction is complete, it is anticipated that carbon sink features will be established in terms of vegetation and landscaping.

NOISE AND ACCOUSTICS

A cumulative effects assessment for noise has taken into consideration noise associated with the projects and activities in the project inclusion list, including ongoing agricultural activities, vehicle traffic, rail traffic, existing substation, and urban development. The humans and wildlife occurring in the area are likely already acclimatized to noise disturbances typical of existing operations. The residual effects of the Project combined with the existing noise in the area is not expected to result in significant increases to the noise level in the Regional Assessment Area. Therefore, no significant cumulative effects on humans or wildlife from noise are expected.

VEGETATION AND LAND COVER

A cumulative effects assessment for vegetation and land cover has taken into consideration the projects and activities in the project inclusion list. The assessment indicates the Project is sited in a region where the cumulative effects of agriculture, urban development, light industrial and commercial development have affected the landscape for many decades. Given the Project is sited on cultivated land with modified vegetative cover, the contribution of the Project to existing cumulative effects on natural land cover in the area would not be significant. Project contributions to cumulative effects on vegetation and land cover through the potential introduction or spread of weed species are not considered significant.

WILDLIFE AND HABITAT

A cumulative effects assessment for wildlife and habitat has considered the projects and activities in the inclusion list. The Project is in a region where the existing cumulative effects of agriculture, urban development, light industrial and commercial development, have already contributed to decreases in wildlife habitat. The residual effects of the Project on wildlife and habitat related to habitat loss or alteration are predicted to be negligible; and wildlife displacement are predicted to be negligible. Therefore, Project contributions to the cumulative effects on wildlife and habitat are expected to be minor and not significant.

TRAFFIC CONDITIONS

A cumulative effects assessment for traffic conditions has taken into consideration traffic associated with the projects and activities on the project inclusion list, including ongoing agricultural activities, urban development, and highway travel. The minor residual effects of the Project combined with the existing traffic conditions in the area are not expected to result in significant increases in traffic for the RAA. Therefore, no significant cumulative effects on traffic condition are expected.

COMMUNITY AND LOCAL ECONOMY

A cumulative effects assessment for community and local economy was not conducted as the residual effects are positive in nature and a detailed study of this nature is beyond the scope of this Technical proposal. It is expected that existing, ongoing, and future developments will have a long-term positive effect on the local and regional economies.

DAY VISUAL AESTHETICS

A cumulative effects assessment for the Project was completed for the Regional Assessment Area based on the Project and activities in the project inclusion list. Project infrastructure is anticipated to contribute to human-caused alteration of the visual environment; however, the siting of the Project will be in an area that has been previously zoned for industrial use including existing business and infrastructure. Considering the cumulative effects of other projects and activities in the inclusion list, the contributions of the Project to cumulative effects on the visual environment in the RAA are anticipated to be not significant.

NIGHT VISUAL AESTHETICS

A cumulative effects assessment in the Regional Assessment Area was completed based on the Project and activities in the project inclusion list. Installation of lighting at the plant could result in a change in sensory conditions for sky clarity in the Regional Assessment Area, however, the siting of the Project will be in an area that has been previously zoned for industrial use including existing business and infrastructure. Considering the cumulative effects of other projects and activities in the inclusion list, and anticipation of additional projects being located west and north of the Project location the contributions of the Project to cumulative effects on the visual environment are anticipated to be not significant.

The assessment indicates no significant adverse residual effects are anticipated for the VECs as a result of the Project. Cumulative effects assessments determined Project contributions to cumulative effects on the VECs in the Regional Assessment Area are not predicted to be significant.

9 ACCIDENTS AND MALFUNCTIONS

Accidents and malfunctions are events or conditions that are not planned as a part of Project activities. Accidents and malfunctions could occur due to abnormal operating conditions, component deterioration, equipment failure, human error, acts of nature, etc. Many accidents and malfunctions may be avoided or mitigated through proper siting, good design and equipment selection, environmental management planning, and emergency response planning.

Based on professional judgment and previous experience, the following accidents and malfunctions are considered in this assessment:

- 1** Hazardous materials spills or leakage
 - a** spills of hydrocarbons or other chemicals used on site may occur during construction and decommissioning, and to a lesser extent operations and maintenance
 - b** excessive emissions may occur infrequently when there is an equipment or process failure
- 2** Vehicle accident
 - a** Project vehicles could be involved in accidents, including single vehicle accidents, multiple vehicle accidents, and collisions involving wildlife
- 3** Fire
 - a** Project components, equipment, facilities, and vehicles could experience fire

These accidents and malfunctions have the potential to affect the following VECs:

- 1** Soil and Water
- 2** Air Quality and Greenhouse Gas
- 3** Wildlife and Habitat
- 4** Vegetation and Landcover
- 5** Wetlands and Watercourses

Mitigation measures will be developed and implemented through the EPP. With the implementation of prevention and response measures, no potential residual effects of accidents and malfunctions on VECs are expected.

Cumulative effects are not considered for accidents and malfunctions in this assessment.

10 MONITORING

The monitoring measures outlined below offer a high level summary based on mitigations outlined in Section 6 and/or regulatory requirements:

- Vehicles and equipment associated with the construction phase will be inspected to ensure they are clean and free of soil and vegetation debris.
- During construction, environmental monitoring will confirm that topsoil, subsoil and soils identified as highly saline are stored separately using best management practices.
- Groundwater monitoring will occur during the construction phase to determine whether construction activities are affecting the underlying aquifer. A detailed Groundwater Monitoring Program will start approximately one year after the Plant commences operation. Additional groundwater monitoring wells will be installed around the process area and monitored annually for indicator parameters, and every five years for other parameters. Further details are provided in the Environmental Monitoring Plan (Appendix N).
- Implementation of a Soil Monitoring Program, which will supplement the data collected by the Groundwater Monitoring Program. The program will be implemented approximately one year after the Plant commences operations. Selected locations surrounding the main process area will be sampled annually for salinity and hydrocarbons. In addition, areas where spills have occurred will be sampled and analyzed for selected parameters relevant to the spilled materials. Further details are provided in the Environmental Monitoring Plan (Appendix N).
- Wastewater will be pretreated to meet the discharge requirements specified in the City of Regina Bylaw No. 2016-24 (City of Regina, 2020), then discharged into the GTH sanitary sewer system. The quantity of effluent discharged to the sanitary sewer system will be measured daily and tracked monthly. Weekly samples will be collected and analyzed to determine the quality of the effluent. Further details are provided in the Environmental Monitoring Plan (Appendix N).
- Runoff from operating areas of the Plant will be stored in a stormwater pond, tested to verify compliance with specified criteria, then either released onsite or to the surrounding watershed via the GTH stormwater management system. Runoff that is released onsite may be used for irrigation, dust control or other similar activities. Further details are provided in the Environmental Monitoring Plan (Appendix N).
- Monitoring of the new stormwater pond to evaluate and assess bird use and bird species is recommended to identify appropriate mitigation measures should the pond be attracting large numbers of birds or potential wildlife SOMC (WSP, 2021d).
- Establish an Ambient Air Monitoring Program, as outlined in the EPP (Appendix M). This program will include a short term (1 year) assessment of air quality near the Plant to observe trends from odorous substances in air quality and to evaluate on-site emission reduction equipment. H₂S, wind direction, wind speed, ambient temperature, dew point and relative humidity will be measured, with one station upwind and one station downwind of the Plant. The stations may be removed at the discretion of Cargill and after the 12-month consecutive monitoring program has been completed. One report summarizing the results from the 12-month program will be submitted to the MOE, 6 weeks after the last sampling events.

11 DECOMMISSIONING AND RECLAMATION

The proposed plant location is on privately owned land that has been substantially disturbed during preliminary GTH development activities such as land clearing, drainage changes, roadway construction and infrastructure such as water, sewer and telecommunications installation. The Project location is already zoned for commercial and industrial development. Cargill intends to operate the plant indefinitely, and there are no plans to decommission the plant in the foreseeable future, however a decommissioning and reclamation plan is a regulatory requirement.

WSP has prepared a Decommissioning and Reclamation Plan (D&R Plan) for the Project (Appendix O). A high-level summary of anticipated requirements is outlined in the following text.

If the Plant ceases operations, the steps necessary to allow the site to be re-used or repurposed in a safe and environmentally responsible manner will be implemented. Infrastructure that is valuable to future industrial uses of the site will remain in place. This infrastructure may include but is not limited to silos, building shells, roads, rail lines, water and wastewater treatment, and runoff control facilities. Future land use of the site is foreseen as being industrial.

The main focus and assumptions of the D&R Plan includes:

- Identify infrastructure and features required for future activities at the Project site, and
- Describe the activities required to decommission, remediate and reclaim the Project site
- Most of the buildings and equipment may remain in place depending on future land use. Contaminated soil and sources of potential environmental effects will be removed.
- Existing site grading and stormwater management facilities will be left in place.
- Items that can be recycled, re-used, donated, or sold will be removed from the Project site and will include furniture, raw materials, chemicals, finished products, inventory, spare parts, and packaging.

The following are the key activities that will be undertaken as part of the decommissioning process:

- **Emptying, Cleaning, and Purging:** Anything that is not required for future activities on the Project site will be identified.
- **Dismantling:** Equipment, infrastructure, tanks, and vessels that are no longer required. It is assumed that buildings and most of the process equipment within the buildings will remain on the Project site.
- **Recycling and Disposal on Non-hazardous Material:** This includes wiring, circuit boards, utility and process equipment, structural steel and cladding, concrete, and asphalt.
- **Recycling and Disposal of Hazardous Material:** This material will be stored separately and transported
- **Environmental Mitigation and Remediation Measure:** An environmental assessment will be conducted to identify areas where hazardous materials or contamination is present. Appropriate remediation measures will be implemented if required and ongoing environmental sampling and monitoring will be completed to verify its effectiveness.
- **Public Involvement:** Cargill will work with the appropriate stakeholders, including regulatory agencies, to identify appropriate uses for the Plant site, and encourage re-development in an environmentally responsible manner.

Note that decommissioning and reclamation will be conducted within the regulatory framework at the time of decommissioning and follow all applicable requirements at that time.

12 ENGAGEMENT

The Proponent understands the importance of public support and understanding of the Project. The proponent actively solicited input from the local general public, targeted stakeholders, and Indigenous communities and businesses during the Summer and Fall of 2021 through letters, emails, one-on-one meetings, and a virtual engagement session. These activities are summarized below.

Engagement will continue throughout the project lifecycle and an ongoing engagement plan is provided in Appendix P. The Proponent continues to identify stakeholders and will update the engagement plan as the project progresses.

12.1 Engagement Activities

12.1.1 Municipal, Provincial, and Federal Engagement

In September and October of 2021, the Proponent met with officials from the following municipalities:

- City of Regina (Mayor, October 9, 2021)
- Rural Municipality of Sherwood (Reeve, September 16, 2021)
- Rural Municipality of Edenwold (Reeve, Administrator and Chief Operating Officer, September 21, 2021)
- Town of Grand Coulee (Mayor, September 15, 2021)

A summary of the meetings is provided in Appendix Q. All municipal government officials were supportive of the project due to the increase in economic and employment opportunities, though concerns were raised about increased truck traffic on local roads. The Proponent has explored these concerns via the Traffic Impact Assessment (Appendix L).

The Proponent was assigned a provincial government liaison via the Ministry of Trade and Export Development who has supported communications with the Government of Saskatchewan. Subsequently, the Proponent has engaged with representatives from the Ministry of Trade and Export Development (minimum bi-weekly) and the MOE (September 13, 2021), as well as with the MLA for Regina Pasqua (September 16, 2021), the riding in which the project is located. Traffic was noted as a potential concern and the Proponent was advised to have a communication plan to address public and stakeholder concerns and questions throughout the remainder of the project. A copy of this plan can be found in Appendix P. Municipal and provincial government stakeholders were also invited to attend a virtual open house session in October 2021 (details of the open house session are in Section 12.1.4

Due to the federal election in fall of 2021 and the subsequent delay of Parliament session, the Proponent has not yet had the chance to meet with the Members of Parliament for both Moosejaw-Lake Centre-Lanigan and Regina-Lewan. Requests for meetings in the new year will be sent by early December 2021.

12.1.2 Targeted Stakeholders

Targeted stakeholders identified in the communication and engagement strategy included tenants and leadership of the GTH, Indigenous communities, non-governmental organizations and local residents, landowners and businesses. The Proponent hosted a meeting with Economic Development Regina (President & CEO) on September 15, 2021 and no concerns were raised. Residents and businesses within 5kms of the site were sent an introductory letter about the project, as an invitation to attend a virtual open house, and an invitation to visit the

project website. Other targeted stakeholders, including Nature Regina, were also invited to the session. The virtual open house was hosted on October 4 from 4-6pm and included a presentation from the project team and the opportunity for participants to share questions and concerns. A total of 52 people not associated with the project attended the session. More details about the open house can be found in Section 12.1.4.

12.1.3 Indigenous Community Engagement

The Proponent is committed to building strong relationships with Indigenous communities throughout the project life cycle. In August 2021, the Proponent mailed introductory letters to 11 First Nations and Métis groups (a copy of this letter can be found in Appendix Q). Indigenous groups were identified by proximity to the project location (reserve, urban reserve) or by recommendation from other Nations who were contacted. Indigenous communities who were contacted via letter and subsequent email and telephone follow up include:

- Carry the Kettle Nakoda Nation
- Cowessess First Nation
- George Gordon First Nation
- Muskowekwan First Nation
- Nekaneet First Nation
- Ochapowace Nation
- Piapot First Nation
- Star Blanket Cree Nation
- Zagime Anishnabek First Nation
- Métis Nation Saskatchewan
- Métis Nation Western Region 3

Letters were mailed to leadership and follow up communications included emails and calls to leadership and/or the appropriate portfolio holder or lands or economic development director/manager. The above-listed Indigenous communities and their associated economic development corporations (where recommended by the Nation) were invited to meet one-on-one with the Proponent to discuss the project, questions and concerns, and opportunities, and were also invited to attend the open house session on October 4, 2021. The proponent has hosted introductory meetings with 5 First Nations and First Nation economic development corporations with more scheduled into December 2021 and the New Year. The Proponent has met with representatives of the following First Nations:

- Carry the Kettle Nakoda Nation
- Cowessess First Nation
- Nekaneet First Nation
- Piapot First Nation
- Star Blanket Cree Nation

All have indicated they would like to schedule, or have already scheduled, follow up discussions. The meetings have focused on economic development opportunities and partnerships for project construction and long-term

strategies, including employment, training, and contracting opportunities post-construction. Additionally, George Gordon Development Ltd, owned by George Gordon First Nation, has scheduled a meeting with the Proponent on November 30th, 2021. Other First Nation-owned businesses currently in conversation with the Proponent include: Red Dog Holdings (owned by Star Blanket Cree Nation) and New Horizons First Nation Administration (owned by Nekaneet First Nation). Communication logs for all contacted Indigenous groups can be found in Appendix Q. The General Contractor for pre-construction services, Graham Construction, began contacting local Nation-owned and other Indigenous businesses in October 2021 to discuss procurement and contracting opportunities during the pre-construction phase.

No concerns pertaining to land use or Aboriginal Right or Title have been raised by the Nations contacted thus far. However, please note that following the introductory meeting in October 2021 and subsequent electronic communications, the Proponent is awaiting written response from Carry the Kettle Nakoda Nation. Carry the Kettle Nakoda Nation indicated in the introductory meeting that there is a lack of long-term economic opportunities for Indigenous communities. The Proponent is working with the General Contractor and interested Indigenous communities to identify contracting, employment, and procurement opportunities throughout the project lifecycle.

Throughout the Indigenous engagement process, 14 additional Indigenous groups and businesses have been identified as having a potential economic interest in the project. The Proponent will continue building connections with Indigenous communities. An ongoing engagement and concern resolution plan is included in Appendix P.

12.1.4 Public

The project has been widely advertised to the public via media releases and associated articles, as well as a public virtual open house. At least 27 news articles about the project have been published across a variety of news sources. A list of articles can be found in Appendix Q. The open house was hosted on October 4, 2021 from 4-6pm and was conducted to inform public and stakeholders about the project and to provide an opportunity to ask questions and provide feedback either directly to the project team, and/or via the online survey or email contact. The Proponent was available to answer questions about the project and canola processing in general, and WSP staff were available to answer questions about the environmental studies and permitting. A total of 468 landowners, businesses, and residents, including all residents in the Town of Grand Coulee, were identified within 5km of the project via Canada Post's Precision Tracker and were mailed the project introduction and open house invitation letter through a Mail Campaign. Of the 107 people registered for the session, 52 people attended. Additionally, the open house invitation was available on the project website for two weeks prior to the session and was advertised in the Town of Grand Coulee newsletter and to local media via a calendar alert. A survey was provided at the end of the session and remains on the website for people to evaluate whether the materials are helpful to their understanding of the project and whether they have any additional comments about the engagement materials or the project. Of the 10 survey respondents, 90% understood the project better following the materials presented, 80% felt that they were comfortable sharing their input, and 80% felt that their questions were adequately addressed in the session. A summary of the survey results are located in Appendix Q. No major concerns were raised at the open house and summary of the questions and Proponent responses can be found in Section 12.3.1, with more information in Appendix Q.

A second public engagement session is planned for January or February 2022. Depending on COVID-19 restrictions, the session will either be in-person or virtual. Regardless, materials from this session will be made available on the project website. The Proponent also intends to have on-site cameras during construction so that the public can view the construction progress.

Project information continues to be available on the project website, as is a survey where the public can submit comments about the project and an email address where the public can submit questions or comments. To-date,

the website has received approximately 9000 hits, though some of those can be attributed to the Proponent and their partners.

12.2 Engagement Products

12.2.1 Website

The Proponent has established a project website that provided access to the virtual open house in October and which houses project information (the same that was provided for the open house) and frequently asked questions, as well as the email contact for additional questions or concerns. As the project progresses, the website will be updated with additional information such as:

- Project updates
- Notices for upcoming information sessions
- Construction schedules and activity updates
- Media and press releases
- Additional frequently asked questions and responses

The project website can be found at www.cargillregina.ca.

12.2.2 Posters and Hand-outs

Project information materials were developed for the open house and include project description, location map, and a summary of the environmental and technical studies and outcomes associated with the project. Due to the COVID-19 pandemic, hand-outs and posters were not distributed in public places but are instead located on the website. PDF copies of the materials have also been provided to individuals who have contacted the Proponent requesting information about the project. Additionally, letters were mailed to identified stakeholders and businesses in advance of the open house, which directed them to the project website and associated materials. Copies of the open house posters (virtual boards) and invitation letter are in Appendix Q.

12.2.3 Newsletters

An invitation to the open house, as well as the project website, was published in the Town of Grand Coulee's September 2021 newsletter. The Proponent will continue to partner with local newsletter distributors as newsletters present an effective way to communicate with the public and special interest groups.

12.2.4 Newspaper Advertisements and Articles

News releases were sent to media outlets in April 2021 (via Canada Newswire) and in August 2021 (local distribution and to trade media). A media calendar alert for the virtual open house was released in September 2021. At least 27 news articles have been published about the project across various media outlets (Appendix Q). The media calendar alert also published the project website, where people can find more information about the project and can access the project survey and contact information.

12.3 Identified Issues and Proponent Responses

The Proponent is committed to building long-lasting relationships with neighbours, businesses, and Indigenous communities. Concerns and questions about the project are being addressed through public open houses, the

project website, and direct communication via email, phone, and one-on-one meetings. Comments and questions stemming from these communications are summarized in Appendix Q (Indigenous and Stakeholder Communication Logs). Frequently asked questions and answers, available on the project website, are provided below.

12.3.1 Frequently Asked Questions and Responses

Frequently asked questions and Proponent responses relevant to the technical submission are summarized in the Table 12-1. A copy of the Frequently Asked Questions document from the virtual open house, which located on the website, can be found in Appendix Q.

Table 12-1 Summary of Frequently Asked Questions and Proponent Responses Relevant to the Technical Proposal

Questions	Proponent Responses
How is Cargill engaging with Indigenous communities and what are the opportunities for them?	We are currently hosting individual meetings with Nations and Indigenous economic development groups to understand their interest in the project and to look at what business opportunities are available. We want to work collaboratively with Indigenous groups and identify employment opportunities, along with procurement opportunities during construction and for the long-term operations of the plant. It is a priority for Cargill to ensure that we engage in meaningful discussions with communities as this project moves forward.
How much of the seed does Cargill intend to come in by truck versus rail? And what does that mean in terms of daily or weekly truck count?	The anticipated truck count is approximately 140-160 trucks a day of inbound canola seed, which we can consider an average with daily variation.
Is the investment in this Saskatchewan plant based on Canadian clean fuel standards?	The growth in canola oil both as a sustainable crop for edible oils and as a potential input for lower carbon intensive fuels both contributed to this decision. We continue to see growth in canola oil for food, which is a key driver of this project, but there is a potential fuel market both domestically, in North America, and overseas.
Where will the water for the plant come from? What are the water and wastewater needs and are we confident that the city will be able to provide that need?	The process water will come from SaskWater through existing supply and infrastructure. There will be some construction in the Global Transportation Hub (GTH) to access our site. We do not use potable water for processing. After review, SaskWater has confirmed the volume of non-potable water required for this plant is available and the supply is reliable. Similarly, capacity for the volume of wastewater to be handled through existing infrastructure has been reviewed and confirmed with the GTH and the City of Regina.
How will wastewater be handled?	Wastewater will be pretreated to meet the discharge requirements specified in the City of Regina Bylaw No. 2016-24 (City of Regina, 2020) then discharged into the GTH sanitary sewer system.
Will daytime and nighttime visualizations from Rotary Avenue will be provided and shared?	We plan to publish those when they are available. At this time, we don't have any photo simulations from inside of the Global Transportation Hub on Rotary Avenue.
How tall will the facility be?	The highest point at the facility (approximately 52.3m) is the connection point between the two meal storage tanks. The tanks will be approximately 37.4m tall. The tallest building will be approximately 27.4m tall.

Questions	Proponent Responses
What are the expected noise levels (decibels)?	Noise will vary depending on distance from the plant. During operation, the turbine enclosure will be within a building which is expected to reduce sound levels to less than 40 decibels at the property line
Some industrial process emissions can be visible and some are less obvious. Will your facility process emissions be visible?	Any visible plumes will be steam. The plume contains majority water vapor, air and natural gas combustion products which are primarily CO ₂ and water vapor. Particulates emissions from the natural gas fueled Cogen stack are trace amount and invisible. The particulate matter at the expected emission levels will not be visible.
Does this plant have the ability to crush soybeans as well as canola?	The plant is designed solely with the capability to crush canola. Given the growth in demand around oil, along with the top-producing growers and agronomic practices in place in Saskatchewan, we are focusing on canola in this facility.
Will you have wireless cameras on site for the public to follow construction?	We believe that wireless cameras are a great idea for people across Canada to see the construction progress. We will talk to our contractor partners so that we can have a visual of the site that allows people to follow the progress.
If approximately 140-160 inbound trucks are delivering raw seed, what is the expected county for outbound traffic carrying product?	The outbound trucks carrying product will be minimal; the majority of product will leave the facility via rail. We will, however, be looking into leveraging inbound carriers of seed to ship outproduct wherever possible We are also working closely with railways to create as efficient a site as possible to manage the flow of inbound and outbound cars. Part of being efficient means that the cars that are coming in are potentially sent back out with product.
What mitigation measure will you put in place to deter truck traffic on Range Road 2212?	We will make every effort to mitigate traffic impacts. We will complete the traffic assessment and work with our farm customers and with trucking partners to mitigate traffic concerns. From experience with our facilities in Clavet and Camrose, continuous communications and reinforcement with our trucking partners and farmer customers are required to ensure everyone is clear on which route should be used to enter our site. The traffic assessment will help determine the best routes and other potential routes that may be taken, to better understand potential traffic impacts and the best mitigation strategies.

12.3.2 Ongoing Engagement and Concern Resolution plan

The Proponent conducted a series of engagement activities in the summer and fall of 2021 and will continue to engage with the public, stakeholders, and Indigenous communities as the project progresses. An ongoing engagement plan, including a concern resolution plan, can be found in Appendix P. The plan identifies methods of communication for each stakeholder group, upcoming engagement activities, and details how stakeholders, public, and Indigenous communities can find information about the project and how the Proponent intends on resolving concerns.

12.3.3 Community Liaison Committee

A Community Liaison Committee acts as an advisory board to a project proponent by providing input on existing or potential concerns the community may have with the respect to a given project. Should ample interest or concern arise for the Project, the formation of a Community Liaison Committee will be considered. To-date, the concerns raised have been minor and the proponent has been able to answer those concerns.

12.4 Engagement Summary

In the summer and fall of 2021, the Proponent engaged with municipalities, provincial regulators and economic development Ministries, local landowners, residents and businesses, Indigenous communities, and members of the public. Common questions arose about traffic, water and wastewater management, noise, and economic opportunity (employment, procurement, contracting, supply). No major concerns or opposition to the project have been raised and all questions have been addressed by the Proponent via the provision of more information and the completion of technical assessments and studies. However, the Proponent is awaiting a written response from Carry the Kettle Nakoda Nation and has not included concerns from the Nation at this time.

Engagement activities will continue throughout the project life cycle. An ongoing engagement plan can be found in Appendix P.

13 CONCLUSIONS

Based on the results of the Technical Proposal, there are no significant residual effects or cumulative residual effects for any of the assessed VECs. The PDA is part of the GTH that was already zoned for industrial facilities. The siting of the Project helped reduce potential adverse significant effects with regards to VECs.

The Self-Assessment tool is used to summarize the main results of the Technical Proposal. The Self-Assessment tool is provided as one of the first steps in the Environmental Assessment Process. The purpose of the Self-Assessment tool is to provide the proponent with guidance in determining whether the proposed project is likely to be a development as defined under *Environmental Assessment Act* (MOE, 2014).

The results in this Technical Proposal were used to help answer the six questions asked in the Self-Assessment. Table 13-1 lists the six questions with the corresponding yes/no answer.

Table 13-1 Technical Proposal Self-Assessment-Regina Canola Processing Plant-Cargill

Is the Proposed Project a 'Development'?	Yes	No	Regulated Through Permits & Approvals
1. Is the proposed project likely to have an effect on any unique, rare, or endangered feature of the environment?		✓	
2. Is the proposed project likely to substantially utilize any provincial resource, and, in so doing, pre-empt the use, or potential use, of that resource for any other purpose?		✓	
3. Will the proposed project cause the emission of any pollutants or create by-products, residual or waste products, which will require handling and disposal in a manner that is not regulated under any other Act or regulation?		✓	Yes
4. Is the proposed project likely to cause widespread public concern about potential environmental changes?		✓	
5. Is the proposed project likely to involve new technology that is concerned with resource utilization and that may induce significant environmental change?		✓	
6. Is the proposed project likely to have a significant impact on the environment or necessitate a further development which is likely to have a significant impact on the environment?		✓	

Notes: Table duplicated from: MOE, 2014 *Technical Proposal Guidelines*

WSP answered 'no' to all six questions in the Self-Assessment with the rationale for these conclusions provided in the following:

QUESTION 1

The proposed Project location is in previously disturbed land, comprised predominantly of industrial seeded grasslands. Habitat in the PDA and LAA was low quality and not likely to support plant and wildlife SOMC. WSP did not identify any SOMC during field assessments of the PDA. The wetlands were limited to a man-made drainage and stormwater retention pond in the PDA.

QUESTION 2

The main inputs for the proposed Project include canola seed, non-potable water, natural gas and electricity. These utilities will be provided through the Global Transportation Hub. The source of the water (provided by SaskWater) is a source already determined to be sustainable (Appendix A). Water used at the plant will be re-used throughout processing of canola and treated onsite prior to disposal. Industrial waste-water will be pre-treated to meet the discharge requirements specified in the City of Regina Bylaw. The Project will include a cogeneration plant that will generate power and utilize captured heat for other necessary processes in the plant including electricity production. Excess power will be sold back to SaskPower.

QUESTION 3

The proposed plant will create hazardous and non-hazardous waste, all of which can be safely disposed of under existing provincial regulations.

Air dispersion modelling generally predicted no or negligible to minor changes in air quality due to the cumulative effects of the project, except for the annual TSP and hexane which have substantial changes. The Project effects are predicted in the immediate vicinity of the Project. Beyond this area, the Project effects quickly decreased to insignificant levels. Although some elevated values are predicted for SO₂, H₂S, PM₁₀, and 24-hour TSP concentrations, the regional sources and/or background ambient concentrations contribute significantly to those predictions.

Lastly, the Project GHG emissions are about 0.11% and 0.012% of the 2019 provincial and Canada totals, respectively.

QUESTION 4

In the summer and fall of 2021, the Proponent engaged with municipalities, provincial regulators and economic development Ministries, local landowners, residents and businesses, Indigenous communities, and members of the public. A second public engagement session is planned for January or February 2022 and Project information continues to be available on the Project website. The Project website offers a survey where the public can submit comments about the Project. Engagement activities will continue throughout the Project life cycle.

The proponent has mailed introductory letters to 11 First Nations and Métis groups and has hosted introductory meetings with five First Nations and First Nation economic development corporations with more scheduled into December 2021 and the New Year. Discussions at these meetings have focused on economic development opportunities and partnerships for project construction and long-term strategies, including employment, training, and contracting opportunities post-construction.

No major concerns or opposition to the project have been raised to date. The results of those engagement sessions have been positive. Cargill has looked to integrate changes where possible based on any concerns brought forward during the engagement process. Cargill made the commitment to change their lighting design based on concern from the engagement process. Communications with stakeholders continue.

QUESTION 5

The technology that will be used for the proposed Project is industry standard, of which is not expected to induce significant environmental change. An Industrial Works and Construction Application will be submitted separately and includes all the equipment that will be used in the plant.

QUESTION 6

The Project will be connecting to existing facilities and utilities. The GTH is developing a utilities hub that includes SaskPower, SaskEnergy and Water (SaskWater and the City of Regina water). The connection to the CN rail line (north of the Project site) and CP rail lines (south of the Project site) is being facilitated by the CN and CP. CN and CP are leading the concept design of the connections to the Project site to match the needs of each rail line. The current design of the connecting tracks outside of the GTH have not been finalized. The Cargill Regina Canola Processing Plant will not require the construction of further developments that have the potential to affect the environment.

This Technical Proposal focuses on the evaluation of the potential interactions between identified VECs and various Project activities in construction, operation and maintenance, and decommissioning and reclamation. The VECs have been determined through environmental desktop and field studies, and engagement with local stakeholders, Indigenous communities, and provincial regulators. Physical, bio-physical, and socio-economic VECs were identified and defined.

The VECs selected for the assessment considered the following:

- presence in the PDA
- the extent to which the Project will interact with the VEC
- the extent that a VEC may be under stress from other past, current, and future developments and activities
- potential sensitivity to effects from the Project
- the extent of values and concerns placed on it
- federal and/or provincial conservation status (i.e., species of conservation concern)

Seven VECs were carried through to formal residual effects characterization and significant determination: Air Quality and Greenhouse Gas, Noise and Acoustics, Vegetation and Land Cover, Wildlife and Habitat, Traffic, Community and Local Economy, and Visual Aesthetics. The assessment of residual effects has determined all potential residual effects to be NOT Significant. They are not significant because of the implementation of mitigation measures and they meet requirements within the existing regulatory framework.

Air Quality and Greenhouse Gas adverse effects are expected to only be the result of inadvertent accidents and malfunction where implemented mitigation measures have failed. It is anticipated that these failures will be rare and further mitigated through operational planning and procedures.

Adverse effects that Noise may have on the receiving environment is largely limited to the construction phase of the Project during pile driving activities. This is anticipated to be of high magnitude but short duration. This is an expected noise level in the receiving environment and is typical for construction in this region of Regina due to unstable soils. Noise levels during operations will be typical of an industrial operation and expected in the GTH which was developed for such activities.

After mitigation measures are implemented, residual effects are anticipated to exist for the Weeds and Landcover VEC. These residual effects are considered minor and Not Significant provided an ongoing weed and vegetation management plan is implemented.

Wildlife and Habitat adverse effects are limited to habitat loss and wildlife displacement within the PDA. There is a small likelihood that the PDA will provide habitat for nesting migratory birds, small mammals and amphibians. Some marginal habitat will be returned once construction and landscaping is complete. Effects are temporal and are considered Not Significant due to the quality and quantity of habitat currently in the PDA.

Traffic adverse effects will largely be at the construction stage of the Project when contractors and materials are required daily onsite. During operations rail traffic will be scheduled appropriately with rail loop design helping to mitigate any potential issues at local road crossings. Truck traffic will increase once operations begin. The GTH is already sited as a transportation hub for the province and is expected to handle traffic levels.

Community and Local Economy was the only VEC to have a net positive effect. There will be relatively large economic inputs to the local and regional economies during construction however this will be of shorter duration. The creation of 75 full time employment opportunities as well as the use of local contractors for various maintenance and upgrade activities over the life of the plant is a positive effect for the community and local economy. There are also the net positive gains at the provincial level for tax revenue, however this value was not incorporated into any qualitative assessment as the values are confidential.

Adverse effects on Visual Aesthetics was determined to be Not Significant based on the entirety of the assessment of both day and nighttime visual aesthetics. Visual aesthetics is a very subjective VEC which is difficult to quantify. There is existing infrastructure surrounding the Project location that minimizes the effect on the viewscape (Regina Ring Road, rail lines, and GTH tenants with lit structures). Cargill has already committed to mitigation measures such as preliminary changes to lighting design that have reduced the effects on the surrounding lands during nighttime hours.

14 REFERENCES

- Acton, D. F., Padbury, G. A., and Stushnoff, C.T. (1998). *The Ecoregions of Saskatchewan*. Canadian Plains Research Centre, University of Regina. Hignell Printing Limited.
- Alberta Energy Regulator (2007). *Directive 038: Noise Control*. Retrieved November 25, 2021 from: <https://www.aer.ca/regulating-development/rules-and-directives/directives/directive-038>
- Alberta Environment (2001). *Salt Contamination Assessment and Remediation Guidelines*. Environmental Sciences Division, Environmental Service. Pub. No. T/606
- Alberta Environment (2009). *Soil Monitoring Directive*. Climate Change, Air, and Land Policy Branch. ISBN: 978-0-7785-8121-5.
- ASTM International (2017). *Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System*. ASTM D2487-17e1). ASTM International.
- Berglund, B., Lindvall, T., Schwela, D.H. & World Health Organization (1999). *Guidelines for Community Noise*.
- British Columbia Ministry of Forests, Forest Practices Branch (1997). *Visual Landscape Inventory: Procedures and Standards Manual*. Culture Task Force, Resource Inventory Committee.
- British Columbia Ministry of Forests, Forest Practices Branch (2001). *Visual Impact Assessment Guidebook*. 2nd ed. For. Prac. Br., Min. For., Victoria, B.C
- Bouchard, M.A. and M. Boudart (2005). *Landscape Integration and Harmonization Assessment Guide: Wind Farm Siting Project on Public Land*. Government of Quebec.
- Canadian Council of Ministers of the Environment (2016). *Guidance Manual for Environmental Site Characterization in Support of Environmental and Human Health Risk Assessment*. Volume 1 Guidance Manual (PN 1551 ISBN 978-1-77202-026-7 PDF).
- Canadian Standards Association (2001). *Z768-01 (R2016) -Phase I Environmental Site Assessment*. Canadian Standards Association. 2016 Reaffirmation of the November 2001 Publication. CSA International. Pub. No. CSA Z768-01 (R2016).
- Canadian Transportation Agency (2019). *How to Apply for Approval to Construct a Railway Line: A Guide For Federally Regulated Railway Companies*. <https://www.otc-cta.gc.ca/eng/publication/how-apply-approval-construct-a-railway-line-a-guide>
- Canola Council of Canada (2021a). *Canola industry: at a glance*. Retrieved October 25, 2021 from <https://www.canolacouncil.org/markets-stats/>
- Canola Council of Canada (2021b). *Processing Industry*. Retrieved October 25, 2021 from <https://www.canolacouncil.org/about-canola/processing-industry/>
- Cargill Limited (2021). *Workplace Safety*. Cargill. <https://www.cargill.com/about/workplace-safety>
- City of Calgary, City of Edmonton (2020). *Environmental Construction Operations (ECO) Plan Framework Municipal Version Instructions for Preparing ECO Plans for City of Calgary and City of Edmonton Construction Projects*. The City of Calgary, Environmental & Safety Management, under the terms of the ECO Plan Framework Memorandum of Understanding (EXT 03 – ECO MOU).
- City of Regina (2019). Bylaw No. 2019-19. *Zoning Bylaw, Part 8B AP – Aquifer Protection Overlay Zone*.

- City of Regina (2020). Bylaw No. 2016-24. *Wastewater and Storm Water Bylaw 2016, including amendments to March 20, 2020*.
- City of Regina (2021a). *Ward Map*. <https://www.regina.ca/city-government/city-council/wards>
- City of Regina (2021b). *Zoning Bylaw*. Retrieved September 13, 2021 from <https://www.regina.ca/bylaws-permitslicences/bylaws/regina-zoning-bylaw/>.
- Environment and Climate Change Canada (2018). *Nesting Periods*. Retrieved May 2021 from <https://www.canada.ca/en/environment-climate-change/services/avoiding-harm-migratory-birds/general-nesting-periods/nesting-periods.html>.
- Fennell, J., & Bentley, L. R. (1998). Distribution of Sulfate and Organic Carbon in a Prairie Till Setting: Natural Versus Industrial Sources. *Water Resources Research*, 34(7), 1781-1794.
- Global Transportation Hub (2021). *Permit Applications*. Global Transportation Hub. <https://thegth.com/regulatory/permit-applications>
- Government of Alberta (2019). *Alberta Ambient Air Quality Objectives*. <https://open.alberta.ca/dataset/0d2ad470-117e-410f-ba4f-aa352cb02d4d/resource/4ddd8097-6787-43f3-bb4a-908e20f5e8f1/download/aaqo-summary-jan2019.pdf>
- Government of Saskatchewan (2014). *Saskatchewan Environmental Code*. First Edition. Saskatchewan Ministry of Environment.
- Government of Saskatchewan. (2017) *Activity Restriction Guidelines for Sensitive Species*. Regina, Saskatchewan.
- Government of Saskatchewan (2020). *Saskatchewan's Growth Plan – The Next Decade of Growth (2020-2030)* <https://www.saskatchewan.ca/government/budget-planning-and-reporting/plan-for-growth>
- Government of Saskatchewan (2020a). *Saskatchewan Digital Landcover*. Retrieved May 2021 from <https://geohub.saskatchewan.ca/datasets/a287612147ab4f0a9863148f76170f00/about>.
- Government of Saskatchewan (2020b). *Species Detection Survey Protocol: 9.0 Grassland Birds Surveys*. April 2020. Saskatchewan Ministry of Environment, Fish, Wildlife and Lands Branch.
- Government of Saskatchewan (2020c). *Species Detection Survey Protocol: 1.0 Amphibian Auditory Surveys*. April 2020. Saskatchewan Ministry of Environment, Fish, Wildlife and Lands Branch.
- Government of Saskatchewan (2021). *Species Detection Survey Protocol: 20.0 Vascular Plant*. February 2021 Update. Saskatchewan Ministry of Environment, Fish, Wildlife and Lands Branch.
- Government of Saskatchewan (2021). *Saskatchewan Environmental Quality Guidelines: Tables 20 and 21*. <https://envrbrportal.crm.saskatchewan.ca/Pages/SEQS/Table20-SEQS-SAAQS.pdf>
- Global Transportation Hub (2018), Bylaw No. 2014-02-1. *Zoning Bylaw* (revised August 2, 2018).
- Health Canada (2019). *Guidelines for Canadian Drinking Water Quality: Guideline Technical Document – Manganese*. <https://www.canada.ca/content/dam/hc-sc/documents/services/publications/healthy-living/guidelines-canadian-drinking-water-quality-guideline-technical-document-manganese/pub-manganese-0212-2019-eng.pdf>
- Niagara Escarpment Commission. (2020). *Visual Impact Assessment Technical Criteria*. Government of Ontario.
- Purdue University (2000). *Noise Sources and Their Effects*. Available at: <https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm>

- Purdue University (2017). *Noise Sources and Their Effects*.
<https://www.chem.purdue.edu/chemsafety/Training/PPETrain/dblevels.htm>
- RM of Sherwood (2018). *Zoning Bylaw Maps No. 18/17*.
<https://rmofsherwood.ca/wpcontent/uploads/2019/03/Zoning-Bylaw-Bylaw-No.-18-17-Maps.pdf>.
- Saskatchewan Conservation Data Centre (2021a). *Saskatchewan Vascular Plant Tracked Taxa List (Jan 2021)*.
Regina, Saskatchewan. www.biodiversity.sk.ca/SppList.htm
- Saskatchewan Conservation Data Centre (2021b). *Saskatchewan Invertebrate Tracked Taxa List (Jan 2021)*.
Regina, Saskatchewan. www.biodiversity.sk.ca/SppList.htm
- Saskatchewan Conservation Data Centre (2021c). *Saskatchewan Vertebrate Tracked Taxa List (Jan 2021)*.
Regina, Saskatchewan. www.biodiversity.sk.ca/SppList.htm
- Saskatchewan Conservation Data Centre (2021e). *HABISask: Hunting, Angling, and Biodiversity Information of Saskatchewan Online Mapping Application*. Retrieved February 2021 from
<https://gisappl.saskatchewan.ca/Html5Ext/?viewer=habisask>.
- Saskatchewan Parks and Renewable Resources (1991). *Fish distribution in Saskatchewan*. Saskatchewan Parks and Renewable Resources, Fisheries Branch Technical Report 91-7.
- Saskatchewan Ministry of Environment (2017). *Activity Restriction Guidelines for Sensitive Species*. Fish, Wildlife and Lands Branch.
- Saskatchewan Land Resource Unit (2004). *SKSISv2, Digital Soil Resource Information for Agricultural Saskatchewan, 1:100,000 scale*. Agriculture and Agri-Food Canada.
- Saskatchewan Land Resource Unit (2009). *Saskatchewan Map Units, Detail 1:100,000 Soil Survey Information. Internal Unpublished Document*. Agriculture and Agri-Food Canada.
- Saskatchewan Ministry of Environment (2014). *Technical Proposal Guidelines*. Retrieved May 2021 from
[https://pubsaskdev.blob.core.windows.net/pubsask-prod/89133/89133-
eaTechnicalProposalGuidelinesDec2015.pdf](https://pubsaskdev.blob.core.windows.net/pubsask-prod/89133/89133-
eaTechnicalProposalGuidelinesDec2015.pdf).
- Saskatchewan Ministry of Environment (DRAFT June 2021). *Technical Proposal Guidelines*. Direct issue from the Ministry of Environment.
- Saskatchewan Ministry of Environment (2021). *Saskatchewan Environmental Quality Guidelines*. Retrieved September 2021 from <https://envrbrportal.crm.saskatchewan.ca/seqg-search/>.
- Saskatchewan Canola Development Commission (2021). *The Canola Industry*. Retrieved October 25, 2021 from
<https://www.saskcanola.com/about/industry.php>
- Statistics Canada (2013a). *Regina, CMA, Saskatchewan (Code 705) (table)*. National Household Survey (NHS) Profile. 2011 National Household Survey. Statistics Canada Catalogue no. 99-004-XWE. Ottawa.
<http://www12.statcan.gc.ca/nhs-enm/2011/dp-pd/prof/index.cfm?Lang=E>
- Statistics Canada (2017a). *Sherwood No. 159, RM [Census subdivision], Saskatchewan and Division No. 6, CDR [Census division], Saskatchewan (table)*. Census Profile. 2016 Census. Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>
- Statistics Canada (2017b). *Grand Coulee, VL [Census subdivision], Saskatchewan and Division No. 6, CDR [Census division], Saskatchewan (table)*. Census Profile. 2016 Census. Statistics Canada Catalogue no.

- 98-316-X2016001. Ottawa. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>
- Statistics Canada (2017c). *Regina [Census metropolitan area], Saskatchewan and Saskatchewan [Province] (table). Census Profile. 2016 Census.* Statistics Canada Catalogue no. 98-316-X2016001. Ottawa. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/index.cfm?Lang=E>
- Statistics Canada (2021). *Table 32-10-0002-01 Estimated areas, yield and production of principal field crops by Small Area Data Regions, in metric and imperial units.* <https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=3210000201>
- Stewart, R.E and Kantrud, H.A. (1971). *Classification of Natural Ponds and Lakes in the Glaciated Prairie Region.* Bureau of Sport Fisheries and Wildlife. U.S. Fish and Wildlife Service. Resource Publication 92.
- United States Environmental Protection Agency (1974) Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with Adequate Margin of Safety. EPA/ONAC Report No. 550/9-74-004..
- Washington State Department of Transportation (2017). *Construction Noise Impact Assessment.* https://www.wsdot.wa.gov/sites/default/files/2018/01/18/Env-FW-BA_ManualCH07.pdf.
- WSP (2021a). *Site Selection-Project Queen, Industrial Food Processing Facility Near Regina, SK.* May 2021.
- WSP (2021b). *Phase I Environmental Site Assessment, GTH West Project Queen.* July 2021
- WSP (2021c). *Environmental and Heritage Baseline.* November 2021
- WSP (2021d). *Bird Hazard Risk Analysis of Cargill's Proposed Stormwater Pond located within the Bird Hazard Zone surrounding the Regina International Airport.* November 2021.

ACTS AND REGULATIONS

- Physical Activity Regulations, SOR/2019-285, *Impact Assessment Act*, S.C. 2019, c. 28, s. 1.
- Species at Risk Act, S.C. 2002, c. 29 SOR/2021-205
- Fisheries Act (R.S.C., 1985, c. F-14) – 2019, c. 14, ss. 58.2(1), (2)
- Migratory Birds Convention Act, 1994 (S.C. 1994, c. 22)
- Canadian Environmental Protection Act, 1999, (S.C. 1999, c. 33)
- Aeronautics Act (R.S.C., 1985, c. A-2)
- Environmental Assessment Act, S.S.A. 1908, Chapter E-10.1. Government of Saskatchewan.
- Environmental Management and Protection Act, 2010, Chapter E-10.22. Government of Saskatchewan
- The Heritage Property Act, S.S., 1979-1980, Chapter H-2.2. Government of Saskatchewan
- Occupational Health and Safety Regulations, 2020. Chapter S-15.1 Reg 10, *The Saskatchewan Employment Act*, ss 3-83 and 9-12.
- Weed Control Act, S.S., 2010, Chapter W-11.1. Government of Saskatchewan
- The Wildlife Act, S.S., 1979, Chapter W-13.1. Government of Saskatchewan
- The Highways and Transportation Act, S.S., 1997, Chapter H-3.01. Government of Saskatchewan
- The Railway Act, Chapter R-1.2. 1989. Government of Saskatchewan.

City of Regina, Zoning Bylaw 2019-19

Global Transportation Hub, GTH Zoning Bylaw No. 2014-02-01

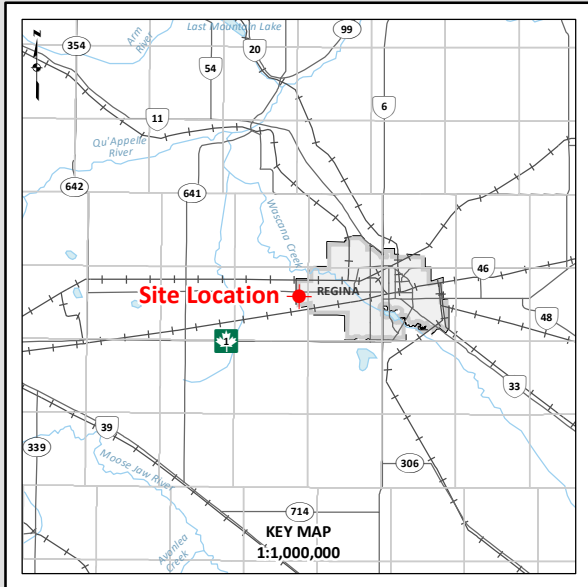
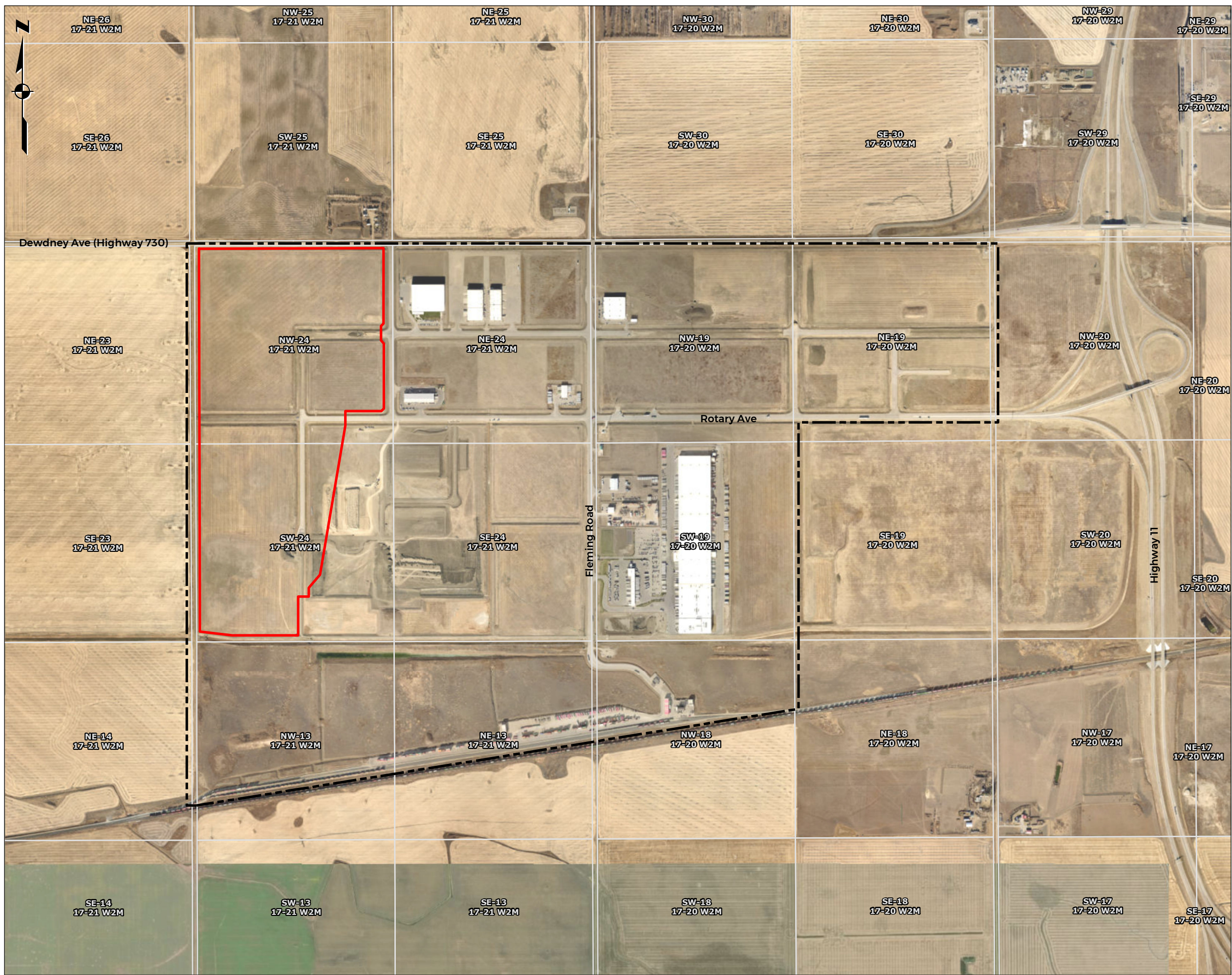
Global Transportation Hub, Development Standards Manual, May 2017

FIGURES



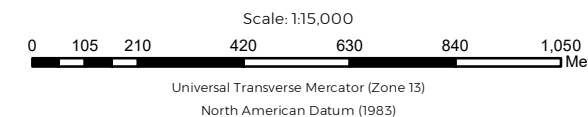
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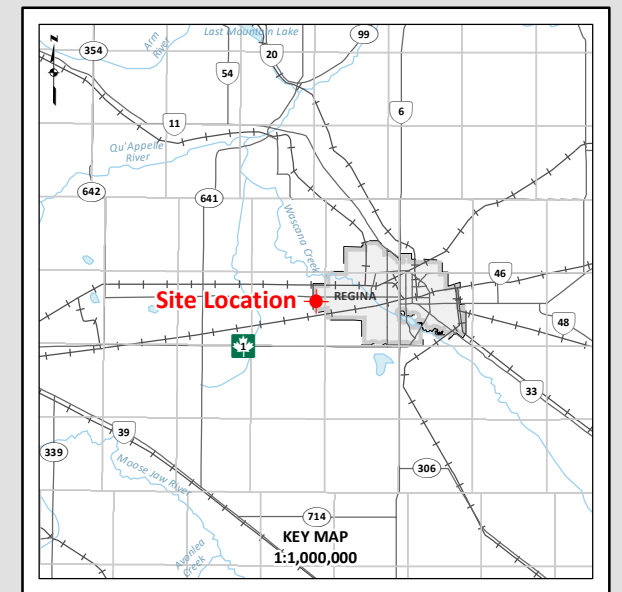
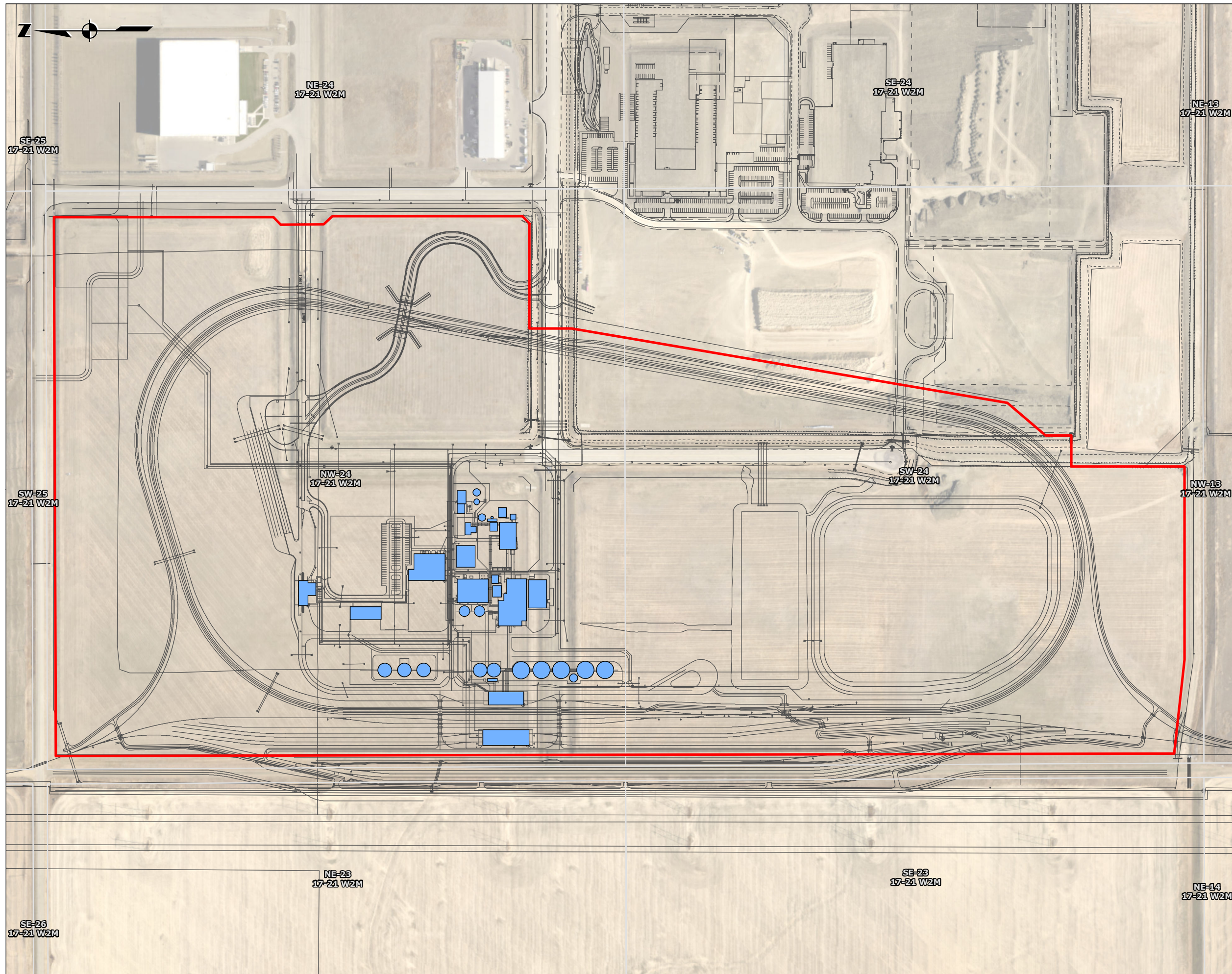


- Legend**
- Project Development Area
 - GTH Industrial Park

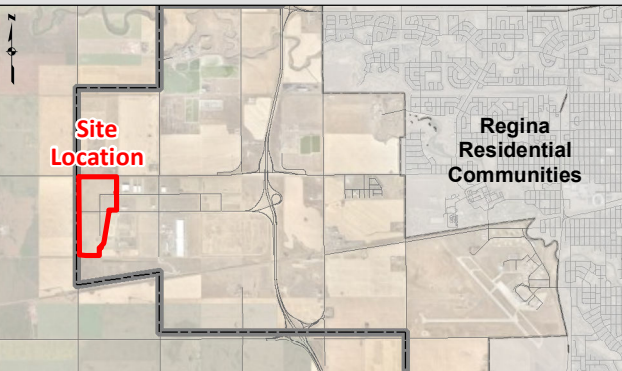
Site Location
Regina Canola Processing Plant
NW-24-017-21 W2M, SW-24-017-21 W2M



Notes: Data provided by Altalis; Natural Resource Canada; ESRI

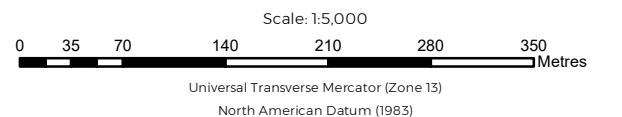


- Legend**
- Project Development Area
 - Building / Tank



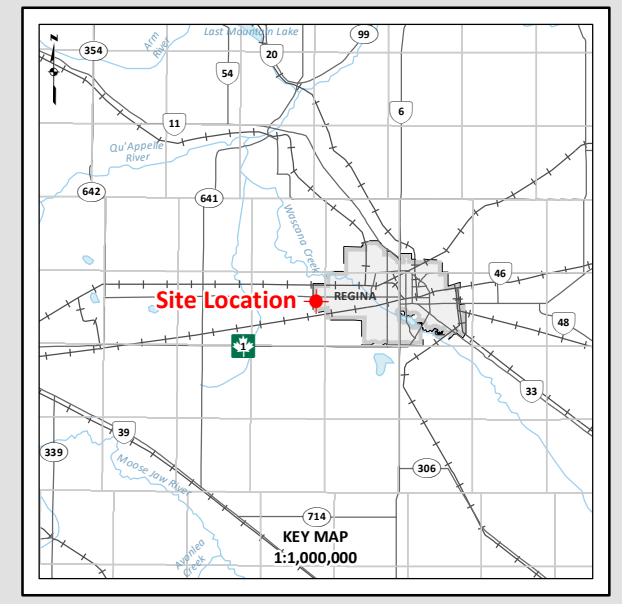
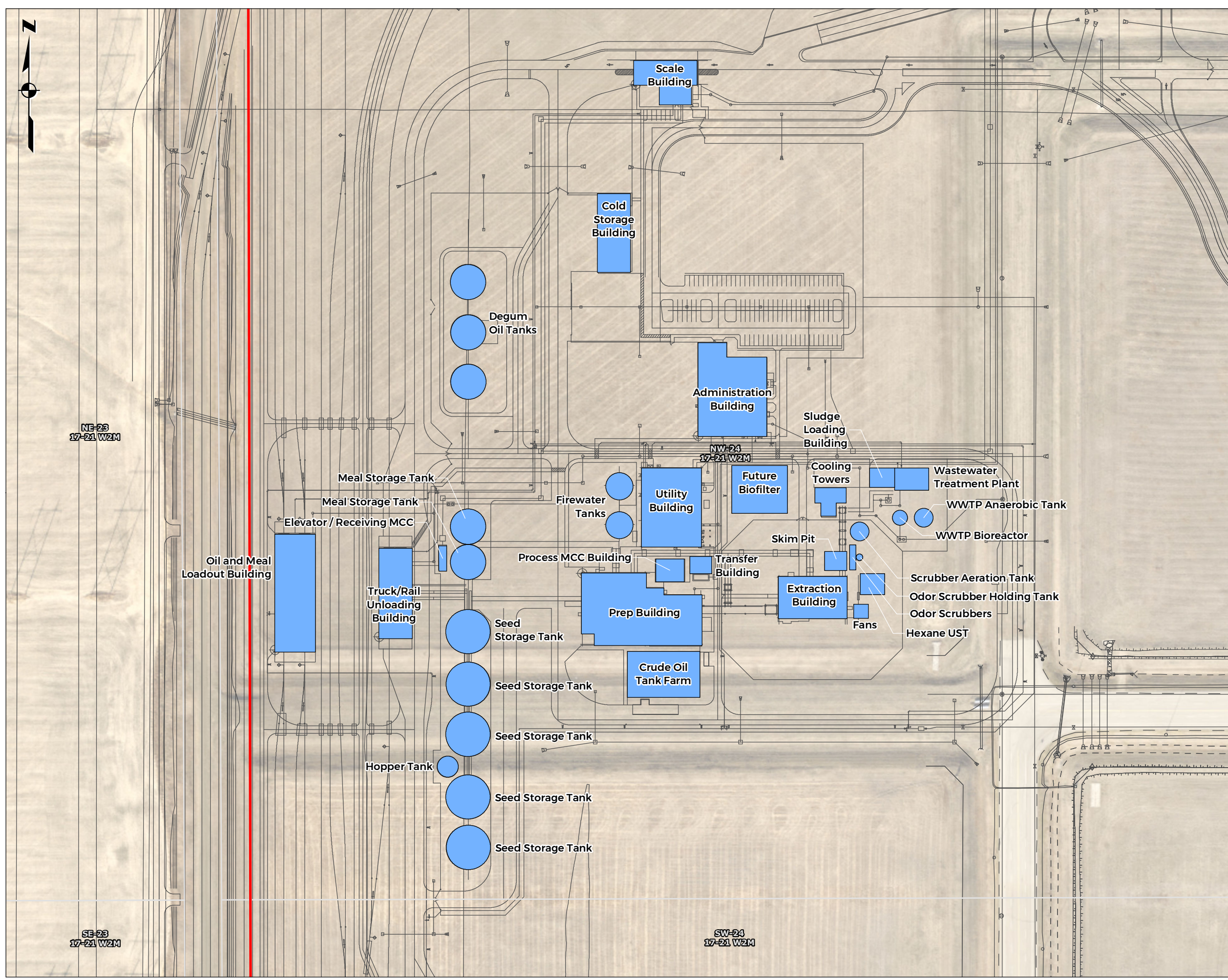
Cargill Technical Proposal
Figure 2

Site Layout
Regina Canola Processing Plant
NW-24-017-21 W2M, SW-24-017-21 W2M



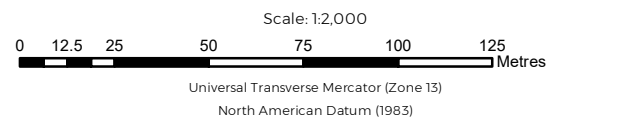
wsp Report By: KW WSP Job #: 211-04327-00
 Drawn by: JH Date: July 9, 2021
 Reviewed By: AK Office: Saskatoon

Notes: Imagery Source: ESRI Imagery Service

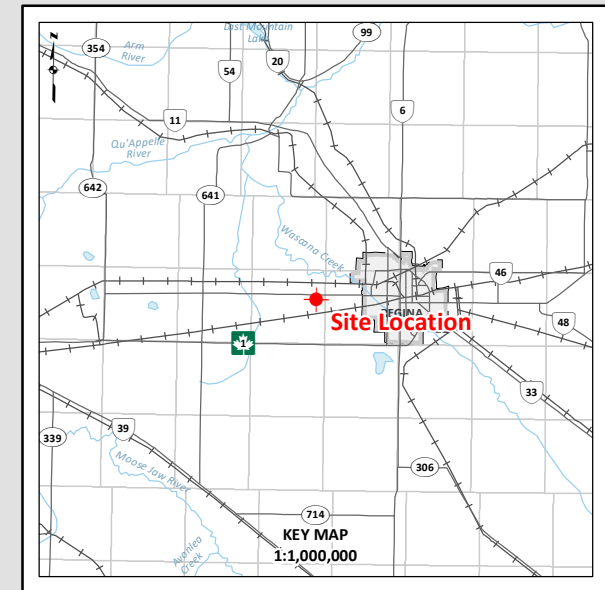
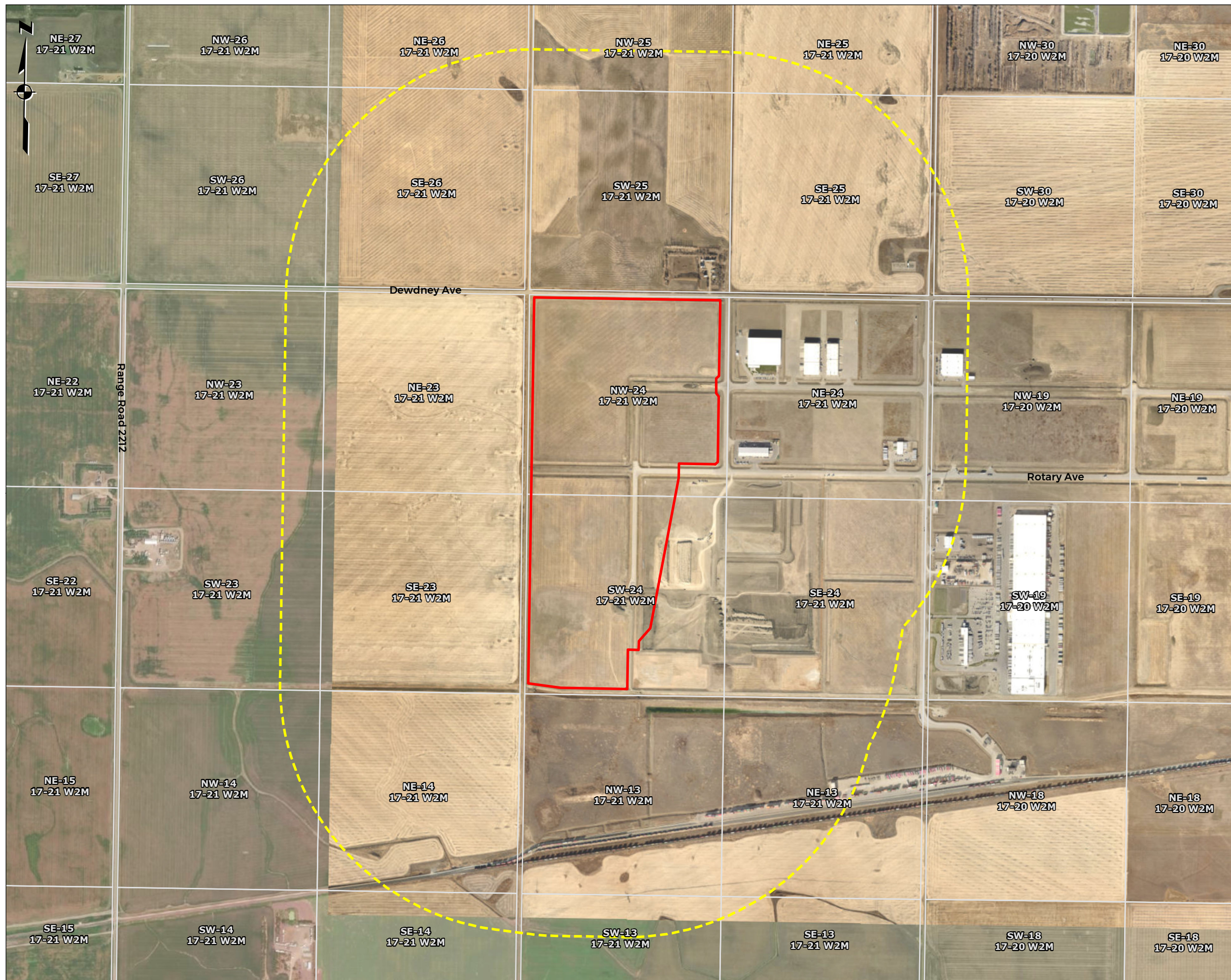


- Legend**
- Project Development Area
 - Building / Tank

Detailed Site Layout
Regina Canola Processing Plant
NW-24-017-21 W2M, SW-24-017-21 W2M

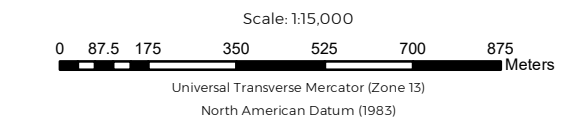


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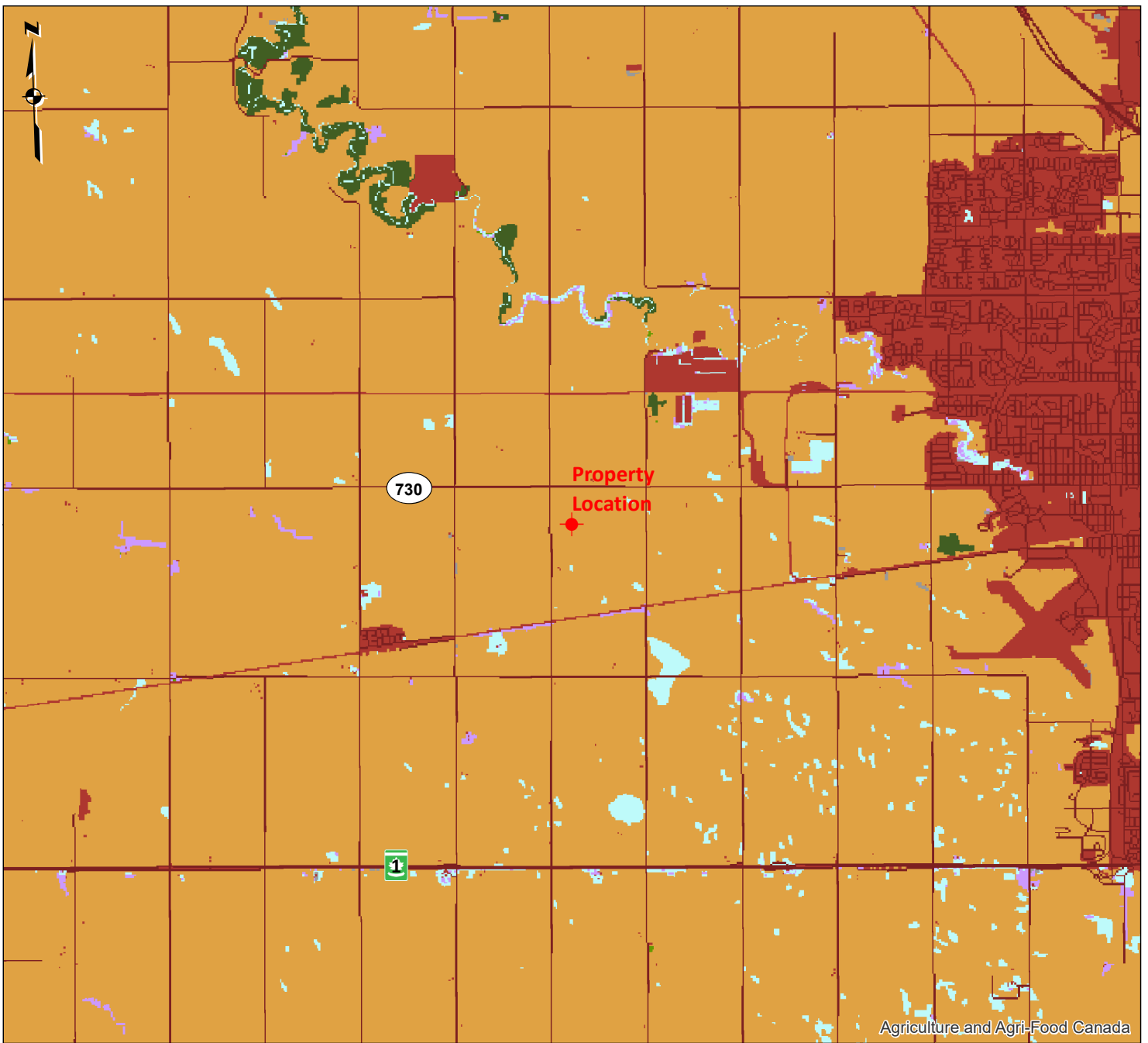


- Legend**
- Project Development Area
 - Local Assessment Area

Project Description Area
Regina Canola Processing Plant
NW-24-017-21 W2M, SW-24-017-21 W2M



Notes: Imagery Source: ESRI Imagery Service



Legend


Activity

 Property Location

Land Use


 Settlement


 Roads

 Water

Land Use

 Forest

 Cropland

 Wetland

Scale: 1:100,000



Universal Transverse Mercator (Zone 13)
North American Datum (1983)

Notes: Information as depicted is subject to change, therefore WSP assumes no responsibilities for discrepancies at time of use. Green Area interpreted from the Government of Alberta 2016 Land-use Framework Planning Regions Map.



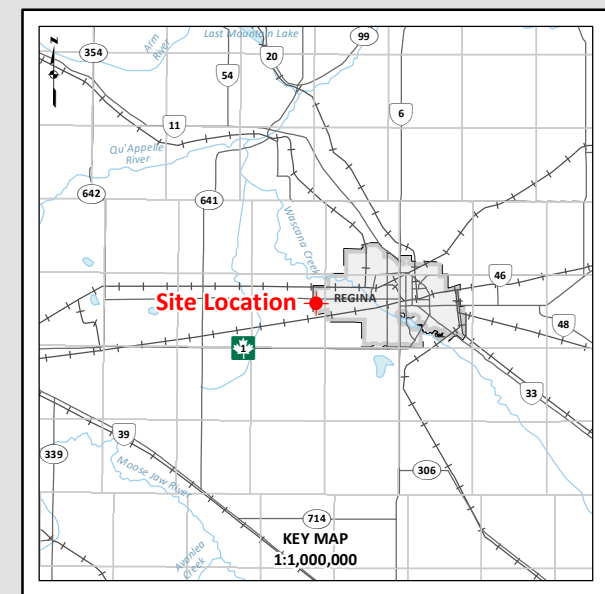
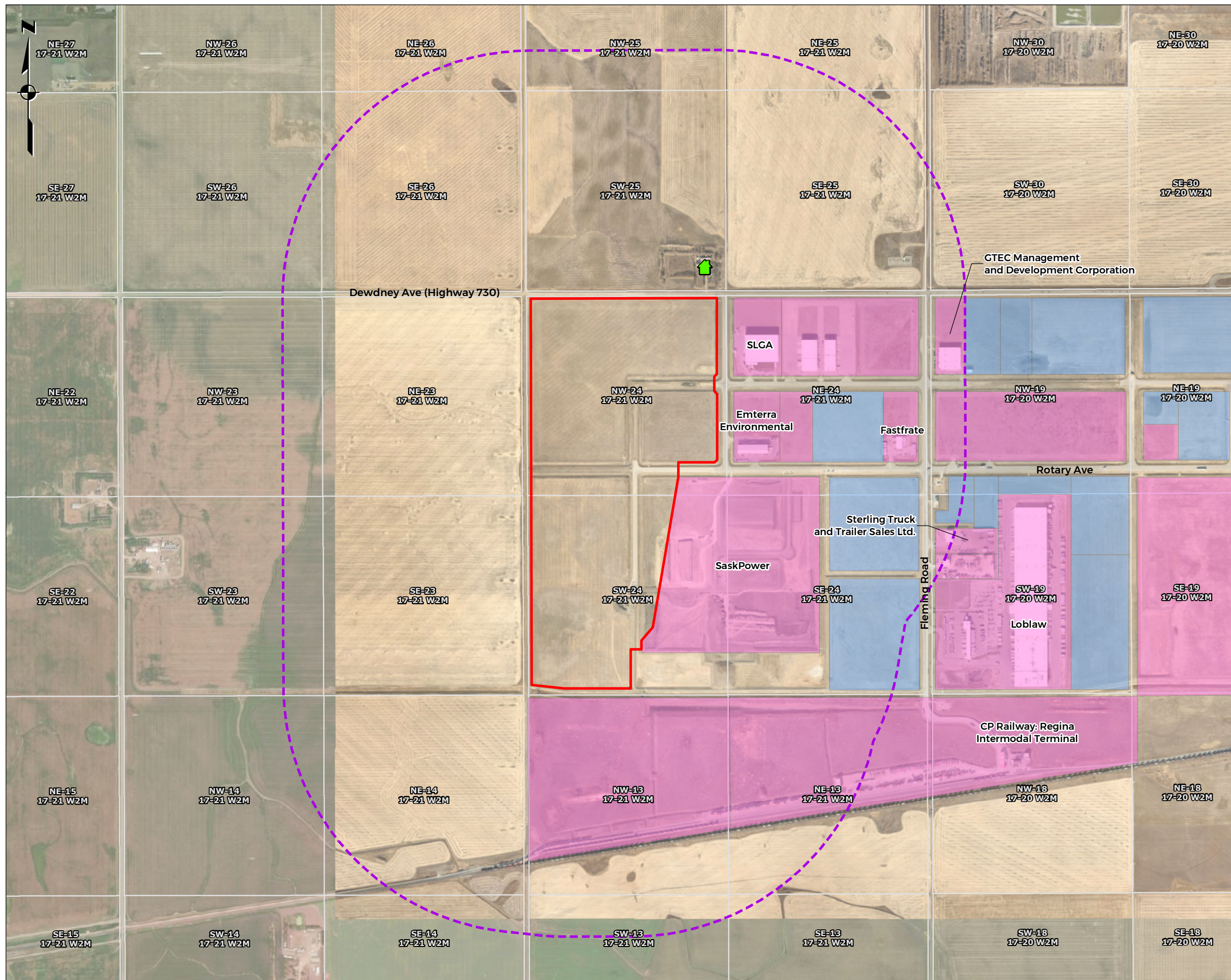
Regional Land Use Map

Regina Canola Processing Plant

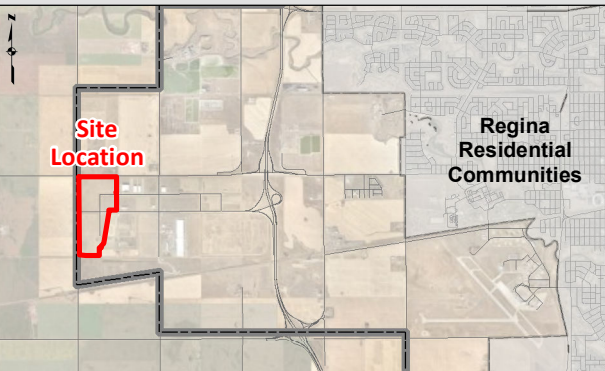
NW-24-017-21 W2M, SW-24-017-21 W2M



Figure 5

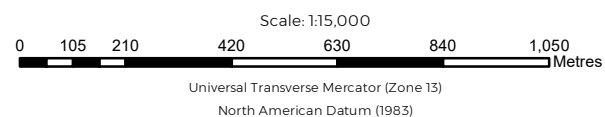


- Legend**
- Project Development Area
 - Offset - 1km
 - Future Development
 - Existing Development
 - 🏠 Residence



Cargill Technical Proposal
Figure 6

Private Residences, Existing and Proposed Developments Within 1 km of the Site
Regina Canola Processing Plant
 NW-24-017-21 W2M, SW-24-017-21 W2M



wsp Report By: KW WSP Job #: 211-04327-00
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