

**Riverview Wind Power Plant
Development Permit Application
Submitted to the Municipal
District of Pincher Creek No. 9**

June 1, 2018

Issued by:

Riverview Limited Partnership
c/o ENEL Green Power North America Inc.
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1.0 INTRODUCTION

Riverview Limited Partnership is developing the Riverview Wind Power Plant (the Project) and its associated Riverview Substation north of the Hamlet of Pincher Station and south of the Oldman Reservoir. The Riverview project area is in Sections 4, 5, 6, 7, 8, 9, 16, 17, 18 and 19 of Range 29, Township 7 W4M, and Sections 13 and 14 of Range 30, Township 7 W4M.

The Project will consist of the Riverview Wind Power Plant and its associated Riverview Substation. The power plant will consist of 28 Vestas V136-82 4.2-megawatt (MW) Wind Turbine Generators (WTG) with a total power generation capacity of 117.6 MW, and a substation with one transformer. The transformer and interconnection are sized to limit the maximum power transmitted to the Alberta Interconnected Electric System to 115 MW.

Riverview Limited Partnership is submitting this Development Permit application as one package for each Wind Energy Conversion System (WECS) titled parcel. A listing of the WECS titled parcels and landowners is provided in Table 1. A site plan for each WECS application showing and labeling the exact location of each proposed wind turbine (tower and rotor arc), including setbacks, all associated substations, collection and transmission system on or abutting the subject lot or parcel, contours of the land, and access roads are provided in Appendix A.

A listing of requested setback waivers is provided in Table 2. A site plan for each waiver request is provided in Appendix B. A listing of requested sound setback waivers is provided in Table 3. A site plan for each waiver request is provided in Appendix B.

Table 1 WECS Titled Parcels

Land Description	Title Number	Landowner Name	Address
NW Sec-4 Twp-7 Rge-29 Mer-4 Plan 9212608 Block 1 Lot 2	981229559	Earl Higginbotham	Box 1227 Pincher Creek, Alberta T0K 1W0
NE, NW, SE, SW Sec-5 Twp-7 Rge-29 Mer-4	851063072	The Town of Pincher Creek	Box 159 Pincher Creek, Alberta T0K 1W0
W Sec-6 Twp-7 Rge-29 Mer-4 - Plan 8511150 Block 1 Lot 2	991254064	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
N Sec-7 Twp-7 Rge-29 Mer-4 - Plan 9911858 Block 1 Lot 1	991165222	Earl Higginbotham	Box 1227 Pincher Creek, Alberta T0K 1W0
NE, NW Sec-7 Twp-7 Rge-29 Mer-4	991165222	Earl Higginbotham	Box 1227 Pincher Creek, Alberta T0K 1W0
SE Sec-7 Twp-7 Rge-29 Mer-4	981076843	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
SW Sec-7 Twp-7 Rge-29 Mer-4	981076843	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
SE Sec-8 Twp-7 Rge-29 Mer-4	991254058	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
NW Sec-8 Twp-7 Rge-29 Mer-4	991254064	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0

Land Description	Title Number	Landowner Name	Address
SW Sec-8 Twp-7 Rge-29 Mer-4	991254064	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
NE Sec-18 Twp-7 Rge-29 Mer-4	991254052	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
SW Sec-18 Twp-7 Rge-29 Mer-4 - Plan 9911860 Block 1 Lot 1	991254052	Higginbotham Farms Limited	Box 1227 Pincher Creek, Alberta T0K 1W0
SE Sec-18 Twp-7 Rge-29 Mer-4 - Plan 9911860 Block 1 Lot 2	991165224	Earl Higginbotham	Box 1227 Pincher Creek, Alberta T0K 1W0
SE Sec-13 Twp-7 Rge-30 Mer-4	141295861	Stauffer Ranches Inc.	Box 2377 Pincher Creek, Alberta T0K 1W0
SW Sec-13 Twp-7 Rge-30 Mer-4	141295861	Stauffer Ranches Inc.	Box 2377 Pincher Creek, Alberta T0K 1W0
SE Sec-14 Twp-7 Rge-30 Mer-4	141295859	Stauffer Ranches Inc.	Box 2377 Pincher Creek, Alberta T0K 1W0

Table 2 Listing of Setback Waiver Requests

Land Description	Landowner Name	Turbine ID	Distance from Property Line (m)	Waiver Distance Requested (m)	Reason for Waiver Request
SW Sec-06-Twp-7 Rge-29 Mer-4	Higginbotham Farms Limited	9	145.47	17.50	Request Developed Road Setback Waiver. Constrained by Altalink 240 kV line setback.
SE Sec-07-Twp-7 Rge-29 Mer-4	Higginbotham Farms Limited	17	8.43	67.07	Request Adjacent Property (inside the wind farm boundary). Quarter line common pasture area.
NW Sec-8 Twp-7 Rge-29 Mer-4 Plan 9911859 Block 1 Lot 1	Higginbotham Farms Limited	26	4.89	70.61	Request Adjacent Property (inside the wind farm boundary). Quarter line common pasture area.
SE Sec-8 Twp-7 Rge-29 Mer-4	Higginbotham Farms Limited	35	102.00	67.50	Request Adjacent Property (outside the wind farm boundary). Quarter line common pasture area.
SE Sec-8 Twp-7 Rge-29 Mer-4	Higginbotham Farms Limited	37	115.61	49.39	Request Undeveloped Road Setback Waiver. Undeveloped road will not be developed due to topography, CPR crossing constraint (not permitted), and Altalink 240 kV Line.

Land Description	Landowner Name	Turbine ID	Distance from Property Line (m)	Waiver Distance Requested (m)	Reason for Waiver Request
NE Sec-5 Twp-7 Rge-29 Mer-4	The Town of Pincher Creek	38	32.95	132.05	Request Undeveloped Road Setback Waiver. Undeveloped road will not be developed due to topography, CPR crossing constraint (not permitted), and Altalink 240 kV Line.
NW Sec-4 Twp-7 Rge-29 Mer-4	Earl Higginbotham	39	51.40	113.60	Request Undeveloped Road Setback Waiver. Undeveloped road will not be developed due to topography, CPR crossing constraint (not permitted), and Altalink 240 kV Line.
NE Sec-18 Twp-7 Rge-29 Mer-4	Higginbotham Farms Limited	10	31.25	133.75	Request Adjacent Property (outside the wind farm boundary). Quarter line common pasture area.

Table 3 Listing of Sound Setback Waiver Requests

Land Description	Title Number	Landowner	Comment
NW Sec-17 Twp-7 Rge-29 Mer-4	921066231	Her Majesty The Queen in Right of Alberta	Affected landowner is the Crown.
SW Sec-19 Twp-7 Rge-29 Mer-4 – Plan 9110052 Block 2	981224369	Higginbotham Farms Limited	Request for easement to be registered on the land title.
NW Sec-18 Twp-7 Rge-29 Mer-4	981224369	Higginbotham Farms Limited	Request for easement to be registered on the land title.
NE Sec-12 Twp-7 Rge-30 Mer-4	991254123	Earl & Gloria Higginbotham	Request for easement to be registered on the land title.
SE Sec-12 Twp-7 Rge-30 Mer-4	991254123	Earl & Gloria Higginbotham	Request for easement to be registered on the land title.
NE Sec-01 Twp-7 Rge-30 Mer-4	121112849	Earl Higginbotham	Request for easement to be registered on the land title.
SE Sec-01 Twp-7 Rge-30 Mer-4	951105054	Alvin & Lorraine Robbins	Request for easement to be registered on the land title.
NE Sec-35 Twp-6 Rge-30 Mer-4	991254064	Higginbotham Farms Limited	Request for easement to be registered on the land title.

Introduction

Land Description	Title Number	Landowner	Comment
NE Sec-06 Twp-7 Rge-29 Mer-4 – Plan 8511150 Block 1 Lot 1	911045846	The Town of Pincher Creek	Request for easement to be registered on the land title.
NW Sec-04 Twp-7 Rge-29 Mer-4	111048406	Robert & Audrey Westrop	Request for easement to be registered on the land title.
SW Sec-04 Twp-7 Rge-29 Mer-4	111048406	Robert & Audrey Westrop	Request for easement to be registered on the land title.
SE Sec-19 Twp-7 Rge-29 Mer-4	931303524	Her Majesty The Queen in Right of Alberta	Affected landowner is the Crown.
SE Sec-19 Twp-7 Rge-29 Mer-4 – Plan 9110052 Block 3	991254052	Higginbotham Farms Limited	Request for easement to be registered on the land title.
N Sec-08 Twp-7 Rge-29 Mer-4	991254058	Higginbotham Farms Limited	Request for easement to be registered on the land title.
NW Sec-09 Twp-7 Rge-29 Mer-4	991254056	Earl Higgingbotham	Request for easement to be registered on the land title.
SW Sec-09 Twp-7 Rge-29 Mer-4	991254056	Earl Higgingbotham	Request for easement to be registered on the land title.

Proponent

2.0 PROPONENT

Riverview Limited Partnership is developing the Riverview Wind Power Plant, a 115-megawatt (MW) wind energy plant north of the Hamlet of Pincher Station and south of the Oldman Reservoir. The Riverview project area is in Sections 4, 5, 6, 7, 8, 9, 16, 17, 18 and 19 of Range 29, Township 7 W4M, and Sections 13 and 14 of Range 30, Township 7 W4M.

Riverview Limited Partnership and Enel Green Power North America is a leading operator of more than 100 renewable energy power plants across 23 U.S. states and 2 Canadian provinces. Enel Green Power operates an installed capacity of more than 2,600 MW across different renewable energy technologies, namely wind, solar, geothermal and hydropower.

Riverview Limited Partnership, through the projects, aims to maximize the local socio-economic benefits of wind power through the creation of local employment, both direct and indirect during the construction and operation phases. Such projects also provide royalty income for landowners and contribute to the municipal tax base.

Riverview Limited Partnership will be responsible for the design, construction and operation of the project, and will be considered the “proponent” throughout the project. The proponent’s offices and contact details are:

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3.0 PROJECT DESCRIPTION

The Riverview Wind Power Plant consists of the Riverview Wind Power Plant and its associated Riverview Substation. The Project will be constructed in Sections 4, 5, 6, 7, 8, and 18 of Range 29, Township 7 W4M, and Sections 13 and 14 of Range 30, Township 7 W4M. The legal land description of the Project Area is provided in Table 4.

Table 4 Legal Land Description of Project Area

Township (TWP-RGE-W4M)	Sections	Quarters
07-29-W4M	04	NW
	05	NW, NE, SW, SE
	06	NW, SW
	07	NW, SW, SE
	08	NW, NE, SW, SE
	18	NE, SW, SE
07-30-W4M	13	SW, SE
	14	SE

The power plant will consist of 28 Vestas V136-82 4.2-megawatt (MW) Wind Turbine Generators (WTG) with a total power generation capacity of 117.6 MW, and a substation with one transformer. The transformer and interconnection are sized to limit the maximum power transmitted to the Alberta Interconnected Electric System to 115 MW. The ancillary developments (collector lines and access roads) are expected to have a 5 m to 20 m wide right-of-way. Figure 1 illustrates the Project site plan. A list of the coordinates for the center of each turbine structure are provided in Table 5 and shown in Figure 2. A detailed turbine listing is provided in Appendix C.

Table 5 Location of Project Wind Turbines

Turbine BH No.	Turbine No.	UTM ZONE 12 NAD 83		NAD 83 DATUM					
		EASTING	NORTHING	LATITUDE			LONGITUDE		
1	A-1	288233.000	5492805.000	49	33	5.361449	-113	55	31.025177
2	B-1	288231.000	5492471.000	49	32	51.989076	-113	55	39.832998
3	B-2	288231.000	5492141.000	49	32	41.317262	-113	55	39.194742
4	B-3	288394.000	5491872.000	49	32	32.823130	-113	55	30.573997
5	B-4	288490.000	5491579.000	49	32	23.468495	-113	55	25.237270
6	B-5	288235.000	5491181.000	49	32	10.276978	-113	55	37.139837
9	B-6	288057.000	5490085.000	49	31	34.609558	-113	55	43.864949
10	A-6	289186.000	5494653.000	49	34	3.752242	-113	54	56.571088
11	A-5	289250.000	5494390.000	49	33	55.327297	-113	54	52.882034
12	A-4	289412.000	5494093.000	49	33	45.925514	-113	54	44.255519
13	A-3	289238.000	5493586.000	49	33	29.311607	-113	54	51.929713
14	A-2	289173.000	5493254.000	49	33	18.493558	-113	54	54.521424
16	E-1	289043.000	5492549.000	49	32	55.531510	-113	54	59.624970
17	C-1	289137.000	5492257.000	49	32	46.206289	-113	54	54.390456
18	C-2	289216.000	5491953.000	49	32	36.474145	-113	54	49.878894
19	C-3	289303.000	5491652.000	49	32	26.848965	-113	54	44.976057
20	C-4	289780.000	5491165.000	49	32	11.696095	-113	54	20.336525
22	C-5	289729.000	5490468.000	49	31	49.091751	-113	54	21.533210
25	E-2	289945.000	5492523.000	49	32	55.819165	-113	54	14.742156
26	E-3	290028.000	5492226.000	49	32	46.317914	-113	54	10.047113
27	E-4	290131.000	5491946.000	49	32	37.391326	-113	54	4.391200
28	E-5	290201.000	5491646.000	49	32	27.776715	-113	54	0.337551
29	D-1	290382.000	5491216.000	49	32	14.096150	-113	53	50.519591
30	D-2	290386.000	5490895.000	49	32	3.720074	-113	53	49.706644
35	D-3	290987.082	5492080.272	49	32	42.799099	-113	53	22.100689
37	D-4	291106.000	5491568.000	49	32	26.379893	-113	53	15.213163
38	D-5	291174.640	5491185.811	49	32	14.105054	-113	53	11.073361
39	D-6	291268.000	5490882.000	49	32	4.395570	-113	53	5.855158

Figure No.

Title

Client/Project

Project Location





Project Description

Electricity generated by the turbines will be gathered by an underground collector system and routed to the Riverview Substation, to be located adjacent to, but separate from, the existing Castle Rock Ridge Project-owned substation at SE 14-7-30 W4M. The Riverview Substation site has been prepared and graded. The Project will utilize the existing transmission line previously constructed to join AltaLink Castle Rock Ridge 250S Substation to the Goose Lake Substation. No new transmission line will be needed.

The Project will also require the construction of two permanent lattice meteorological towers installed at the wind turbine generator hub height of 82 metres (m). The towers will collect data during the operation of the Project.

The Project is currently scheduled to achieve commercial operation date (COD) by December 1, 2019. The proposed construction schedule for the power plant is provided in Table 6. The proposed construction schedule for the substation is provided in Table 7.

Table 6 Proposed Power Plant Development Schedule

Activities	Period
AUC Approval	Expected September 2018
Access road construction	September 2018–June 2019
Collector system installation	May–September 2019
Substation foundation construction	August–October 2018
Substation and transformer installation	November 2018–August 2019
Turbine foundation construction	May–August 2019
Turbine installation	October – November 2019
In-service (Commercial Operation) date	December 1, 2019

Table 7 Proposed Substation Development Schedule

Activities	Period
AUC Approval	Expected September 2018
Substation site preparation and grading	August 2018
Substation foundation construction	August–October 2018
Substation and transformer installation	November 2018–August 2019
Substation testing	August 2019
In-service (Commercial Operation) date	December 1, 2019

4.0 PROJECT COMPONENTS

The Riverview Wind Power Plant will consist of the following components:

- x Wind turbine generators
- x Access roads leading to turbines
- x Underground electrical collector system, junction boxes and underground fiber optic system
- x Substation
- x A connection point to the Alberta Transmission System
- x Two permanent meteorological towers
- x Temporary workspaces and crane paths

The Project components (i.e. major equipment) are shown in Figure 3.



4.1 WIND TURBINE SPECIFICATION

The Project will include the installation of 28 [28 wind turbine locations] Vestas V136 wind turbines with an individual capacity of 4.2 MW per wind turbine generator, for a total installed nominal nameplate capacity of approximately 115 MW. The turbine technology is full inverter type with a total Project capacity of 128 MVA at a 0.9 power factor. The wind turbines have a three-bladed pitch regulated upwind rotor system with active yaw and a “flat-topped” nacelle, which houses the generator, gearbox and transformer. The nacelle is mounted on top of a monopole tower. The technical specifications of the Vestas V136–4.2 MW wind turbines are provided in Table 8. The Vestas V136-4.2MW brochure is provided in Appendix P.

Table 8 Wind Turbine Technical Specifications

Specification	Detail
Rated capacity	4.20 MW
Cut-in wind speed	3 m/s
Cut-out wind speed	25 m/s
Number of blades	3
Diameter	136 m
Swept area	14,527 m ²
Rotor speed (variable)	6 - 16 rpm
Tower (hub) height	82 m
Total Height	150 m
Gearbox	Two planetary stages and one helical stage
Generator	Asynchronous induction generator
Braking system	Air brake—full blade feathering with pitch cylinders
Yaw system	Electric gear motors mounted on the nacelle
Tower design	Five-section tubular steel tower

4.2 ACCESS ROADS

Permanent operational roads will be required to access and maintain the wind turbines during the operational life of the Project. The permanent operational roads will consist of all-weather graveled access roads. The Project will require the construction of approximately 14 km of permanent operational roads that are approximately 20 m wide during construction and approximately 6 m wide during operation. Where practical, routing of the permanent operational roads considered and minimized disturbance to landowners' agricultural practices and interfacing with existing roads, undeveloped municipal road allowances, and infrastructure in the area. Landowner input has been incorporated into the road design layout for the Project.

Project Components

Temporary crane paths and construction roads may also be required during construction to move the assembled crane from turbine-to-turbine and to avoid additional crane breakdowns and travel on county roads. The major components of the wind turbines, including the blades and tower sections, are relatively long; thus, the construction roads tend to follow paths that minimize excessive slopes, grades, and turning radius. Where practical, the temporary crane paths and construction roads will share routing with the collector systems.

4.3 COLLECTOR SYSTEM

Each of the 28 wind turbines will have a transformer within its nacelle to increase the voltage generated by the wind turbine to 34.5 kV. The cables entering and exiting the wind turbines will be installed underground.

Power generated by the wind turbines will be conveyed to the substation through an underground collector system, which will consist of 34.5 kV circuits of underground power cables buried to a minimum depth of approximately minimum 1 m as per the Canadian Electrical Code.

The collector lines consist of five separate cables; three stranded metal conductor cables in a size range of 1/0 to 1250MCM American wire gauge, one 4/0 American wire gauge ground wire, and one 1-to-2 inch conduit housing a fibre optic communications wire. The three conductor wires are bundled together, while the ground wire and communications conduit are each laid beside the conductor bundle.

Approximately 37 km of cable for the entire collector line system will be installed by direct ploughing and/or trench excavation, using sand bedding for protection against mechanical damage. Trenching of collector lines is likely the preferred method due to better quality control during installation (i.e., proper depth placement and less stress on cable) to preserve long-term collector line integrity during Project operations. Plastic warning tape will be installed along with the power cables.

Junction boxes will be installed, where needed, to join the various segments of the collector line within each circuit. Junction boxes have been strategically located, where possible and/or practical, within the existing Project footprint (e.g. near turbine towers or at the edges of landowners' properties) to minimize impacts to the environment and landowners' use of their lands (e.g. farming operations with heavy equipment).

4.4 SUBSTATION

The Riverview Substation is a 115 MVA 240 kV/34.5 kV single transformer substation which will share a common fence with the Altalink Castle Rock 205Ss substation as well as with Enel Castle Rock Ridge substation. The transformer will be connected by an overhead bus to the grid through two circuit breakers on the Altalink 205s Substation 240 kV ring bus. The low side of the transformer is a radial connection through a single 34.5 kV main breaker. A revenue meter will be installed in the substation and is fed from a 240 kV combined instrument transformer located at the Point of Interconnection.

4.5 TEMPORARY WORKSPACE

A temporary workspace, including crane pads, adjacent to each wind turbine location will be required during construction to temporarily store wind turbine components and equipment. A temporary laydown area and temporary substation laydown area will also be utilized.

5.0 PROJECT SAFETY FEATURES

Vestas wind turbines are equipped with extensive equipment and accessories to provide for human and mechanical safety and ensure stable operation. The entire wind turbine is certified as per IEC 61400¹, International Electrotechnical Commission set of design requirements for wind turbines. The substation, collector system and wind turbine systems are designed to exceed all applicable codes and standards, will be capable of remote operation and will be monitored 24/7 by Riverview Limited Partnership's Energy Management Operations Centre (EMOC) who can dispatch emergency personnel as required. Local operations personnel will be available "On Call" during off hours to address any emergencies.

Vestas wind turbines are equipped with an ergonomically designed and spacious nacelle that makes it easier for maintenance crews to gain access, so they can reduce the time spent on service while maximizing the uptime without compromising safety. All turbines are installed and maintained using standard installation and servicing tools and equipment.

5.1 FOUNDATION AND STRUCTURAL DESIGN

The foundations and wind turbine structures are designed to withstand extreme wind speeds for 1-in-50-year events, as per CAN/CSA standard C161400-1.

5.2 ACCESS ROAD DESIGN

Permanent site access roads are designed to be equal to MD of Pincher Creek roads in terms of accessibility and will allow for emergency vehicles to immediately approach adjacent to all wind turbine structures.

5.3 OVERSPEED PROTECTION

The generator rpm and the main shaft rpm are registered by inductive sensors and calculated by the wind turbine controller to protect against overspeed and rotating errors.

The safety-related partition of the VMP8000 control system monitors the rotor rpm. In case of an overspeed situation, the safety-related partition of the VMP8000 control system activates the emergency feathered position (full feathering) of the three blades independently of the non-safety related partition of VMP8000 control system.

Overspeed Protection	
Sensors Type	Inductive
Trip Level (variant dependent)	14.0-17.6 rpm/2000 (generator rpm)

¹ IEC 61400. https://en.wikipedia.org/wiki/IEC_61400.

5.4 ARC DETECTION

The turbine is equipped with an Arc Detection system including multiple optical arc detection sensors placed in the HV transformer compartment and the converter cabinet. The Arc Detection system is connected to the turbine safety system ensuring immediate opening of the HV switchgear if an arc is detected.

5.5 FIRE PROTECTION/FIRST AID

A handheld 5.6 kg CO₂ fire extinguisher, first aid kit and fire blanket are required in the nacelle during service and maintenance.

- x A handheld 5.6 kg CO₂ fire extinguisher is required only during service and maintenance activities, unless a permanently mounted fire extinguisher located in the nacelle is mandatorily required by authorities.
- x First aid kits are only required during service and maintenance activities.
- x Fire blankets are only required during non-electrical hot work activities.

6.0 ENVIRONMENTAL

All relevant environmental surveys and studies have been conducted for the Project. The baseline environmental studies performed include: wildlife, wetland, and rare plant surveys, and a historical resource review. Baseline wildlife surveys were conducted and project design layout setback considerations adhered to the requirements stipulated in the Wildlife Directive for Alberta Wind Energy Projects (GOA, 2017).

6.1 VEGETATION AND WILDLIFE

Vegetation surveys were conducted on July 27 and 28, 2011 and verified that much of the study area had been affected by agricultural practices. Rare plant surveys for the Project were completed in 2013 and wetland surveys were completed in 2014. Two rare plants, Parry's sedge (*Carex parryana* ssp. *parryana*) and cryptantha (*Cryptantha macounii*), were recorded. Per the AEP Referral Report Review, now that exact locations of roads and collector lines are known, additional rare plant surveys will be conducted in summer 2018 at turbine, access road and collector line locations in native prairie prior to construction. If mitigation is deemed to be required, it will be discussed with AEP prior to construction. Based on more recent air photographs and revised wetland mapping, the project was sited to be able to avoid direct impacts to wetlands. As such, a *Water Act* application is not required, and a Code of Practice Notifications will be filed as appropriate.

The Riverview Wind Energy Farm was first surveyed in 2005 along with another adjacent site called Highway 785 Wind Energy Farm. The two sites were shared a boundary delineated by the highway named Highway 785. In 2007 the two sites were merged into one site called Riverview Wind Energy Farm. Surveys were conducted as per the 2005 guidelines for wind farms in Alberta. In 2011 the guidelines were revised again, so Enel resurveyed the area to 2011 standards to keep the project current. From 2014 – 2015 the Riverview Project worked with ESRD to attain a Referral Report. To meet the guideline objectives for studies to not be older than 2 years, Enel conducted the

Environmental

required surveys in 2017 to represent the 2017 directives as discussed with AEP at a March 8, 2017 meeting. Alberta Environment and Parks (AEP) provided a Renewable Energy Referral Report Sign-off on July 6, 2015 (AEP 2015 Sign-off), following review of: the studies completed to date, Enel's Environmental Protection Plan (EPP) and Post Construction Monitoring Plan (PCMP).

In 2017, the AEP was consulted regarding the change in turbine technology and the decision was made to submit a Renewable Energy Referral Report in order to transition the project from the old (2011) Wildlife Guideline for Alberta Wind Energy Projects to new (2017) Wildlife Directives for Alberta Wind Energy Projects. In May 2018, A Renewable Energy Referral Report was submitted to the AEP. Enel worked with the AEP to further refine the project layout to decrease the overall risk of the project to wildlife and wildlife habitat. After review of the Renewable Referral Report, the AEP determined the project to be a moderate risk to wildlife and wildlife habitat.

Enel is currently working with the AEP to develop and possibly implement innovative ways to further reduce the risk of the project to wildlife through a smart curtailment system. The sign-off from Alberta Environment and Parks (AEP) formerly known as Alberta Sustainable Resource Development (ASRD) is provided in Appendix D.

7.0 APPROVALS AND PERMITS

A summary of required approvals and permits is presented in Table 8.

Table 9 Approvals and Permits

Permit/Approval	Regulatory Authority	Requirement	Status
Federal			
Aeronautical Obstruction Clearance (Refer to Appendix H)	Transport Canada	Height hazards/lighting requirements	The Transport Canada application has been submitted on May 30, 2018. Transport Canada has indicated that they will not review until within 90 days to construction.
Land-Use Clearance. (Refer to Appendix G)	NAV CANADA— ATC Radars	Aeronautical safety mapping and designations	The NAV CANADA application has been submitted on May 30, 2018
Department of National Defense— Air Defense, Navigational Aid and Major Military Installations (Refer to Appendix R)	Department of National Defense	Air Defense, Navigational Aid and Major Military Installations	The Proponent has submitted the DND application on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Department of National Defense— Radiocommunication Systems (Refer to Appendix R)	Department of National Defense	Radiocommunication Systems	The Proponent has submitted the DND application on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Environment and Climate Change Canada—Weather Radars (Refer to Appendix S)	Environment and Climate Change Canada	Weather Radars	The Proponent has submitted to ECCC on May 25, 2018 and expects to receive a letter of non-objection for the Project.
Provincial			
Environmental Screening Process – Alberta (Refer to Appendix D)	Alberta Environment and Parks	Project approval	The Proponent has received a Referral Report from Alberta Environment and Parks May 17, 2018
Power Plant and Substation, and Interconnection Approvals, in accordance with AUC Rule 007	Alberta Utilities Commission	Primary approvals to construct and operate a Wind Power Project and associated Substation	The Proponent is currently undergoing the participant involvement program for the AUC application. This work is underway.

Permit/Approval	Regulatory Authority	Requirement	Status
Water Act Approvals and Notifications under Code of Practice (Refer to Appendix D)	Alberta Environment and Parks	Permanent and temporary disturbance of wetlands	No Water Act Approvals Required. COP Notification if required during construction.
Archaeological Clearance – Alberta <i>Historical Resources Act</i> (Refer to Appendix E)	Alberta Culture and Tourism (Historical Resource Management)	Archaeological and historical resources survey – Act clearance	The Proponent has submitted an application to the Alberta Culture and Tourism and is pending a response.
Development Application (Refer to Appendix I)	Alberta Transportation	Placement of an Electrical Facility and Roadside Development within 300 metres of a Numbered Highway	The Proponent has submitted an application to Alberta Transportation for the relevant permits.
Proximity to Recreational Area (Refer to Appendix J)	Alberta Tourism, Parks, and Recreation	Project located within any conservation areas or provincial recreation areas	Not Required. All project turbines are setback more than 250m from the Oldman Dam Provincial Recreation Area
Heavy/Oversize Load Transportation Permit	Alberta Transportation	Compliance with provincial highway traffic and road safety regulations	Not applicable Turbine Supplier to Obtain
Municipal			
Utility Permit	M.D. of Pincher Creek	Road Crossing permits	Underway
Interconnection proposal (refer to Appendix F for AESO Functional Specification)	AESO	Generation: an interconnection proposal from AESO	Obtained
STARS (Refer to Appendix Q)	STARS	No conflict with approach into the Pincher Creek Hospital	The Proponent is currently in consultation with STARS

8.0 LAND USE & LAND DESIGNATION

The lands to be used for this project are mainly used for cropland and pasture. The project area consists of lands that were formerly designated Agriculture A. As required by the Land Use Bylaw of the Municipal District of Pincher Creek (MPC), the lands to be used for wind turbine implementation were re-designated as Wind Farm Industrial.

9.0 NOISE IMPACT ASSESSMENT

A Noise Impact Assessment (NIA) was conducted in accordance with the requirements in AUC Rule 012: Noise Control (AUC 2017b). The NIA predicts that Application Case cumulative noise levels (which include the AUC

prescribed ambient sound level, existing, proposed and approved industrial facilities, and the Project itself, will comply with the applicable AUC Rule 012 permissible daytime and the nighttime period permissible sound levels for all receptors. In addition, the NIA determined that low frequency noise effects are not expected at any receptors.

Based on an analysis of the noise emissions spectra for the Project wind turbine generators and that new generation wind turbines are designed to not have tonal components; the Project NIA also predicts that there will be no Project-related low frequency noise issues at any receptors. In other words, the Project NIA predicts daytime and nighttime compliance with the AUC Rule 012 permissible sound level and low frequency noise criteria for all receptors. The NIA report is provided in Appendix K.

10.0 SHADOW FLICKER IMPACT ASSESSMENT

A shadow flicker assessment study was prepared by Stantec Consulting Ltd. in May 2018. The Project shadow flicker assessment considered all habitable or occupied dwellings located within 2 km of any turbine. The shadow flicker assessment is provided in Appendix M.

Shadow flicker from the proposed Riverview Wind Project has been assessed using a shadow flicker model to determine the theoretical maximum of flicker that is possible at each receptor location. The modeling provided results which considered daylight hours to be constantly sunny with turbines constantly rotating and a position perpendicular to the sun. Additional analysis was completed to estimate realistic worst-case conditions by adjusting the number of hours of sunshine based on Environment Canada data.

Currently there are no provincial or federal regulations in Canada regarding shadow flicker. A commonly used assessment criterion or allowable limit for shadow flicker is 30 hours per year and 30 minutes per day for each turbine. The results indicate one receptor is predicted to exceed the 30 hours per year shadow flicker criteria and more than 30 minutes per day of shadow flicker at least once per year. These values are calculated assuming the worst-case scenario conditions which are that the sun is shining during all daylight hours, the turbine blades are always spinning, and the wind direction is aligned with the direction from the turbine to the receptor. In reality, shadow flicker is likely to go largely unnoticed as all the worst-case conditions must be adhered to simultaneously and windy conditions tend to occur more frequently in cloudy weather. The results of this assessment indicate that shadow flicker for the proposed Riverview Wind Project should not be a significant issue.

11.0 VISUAL IMPACT ASSESSMENT

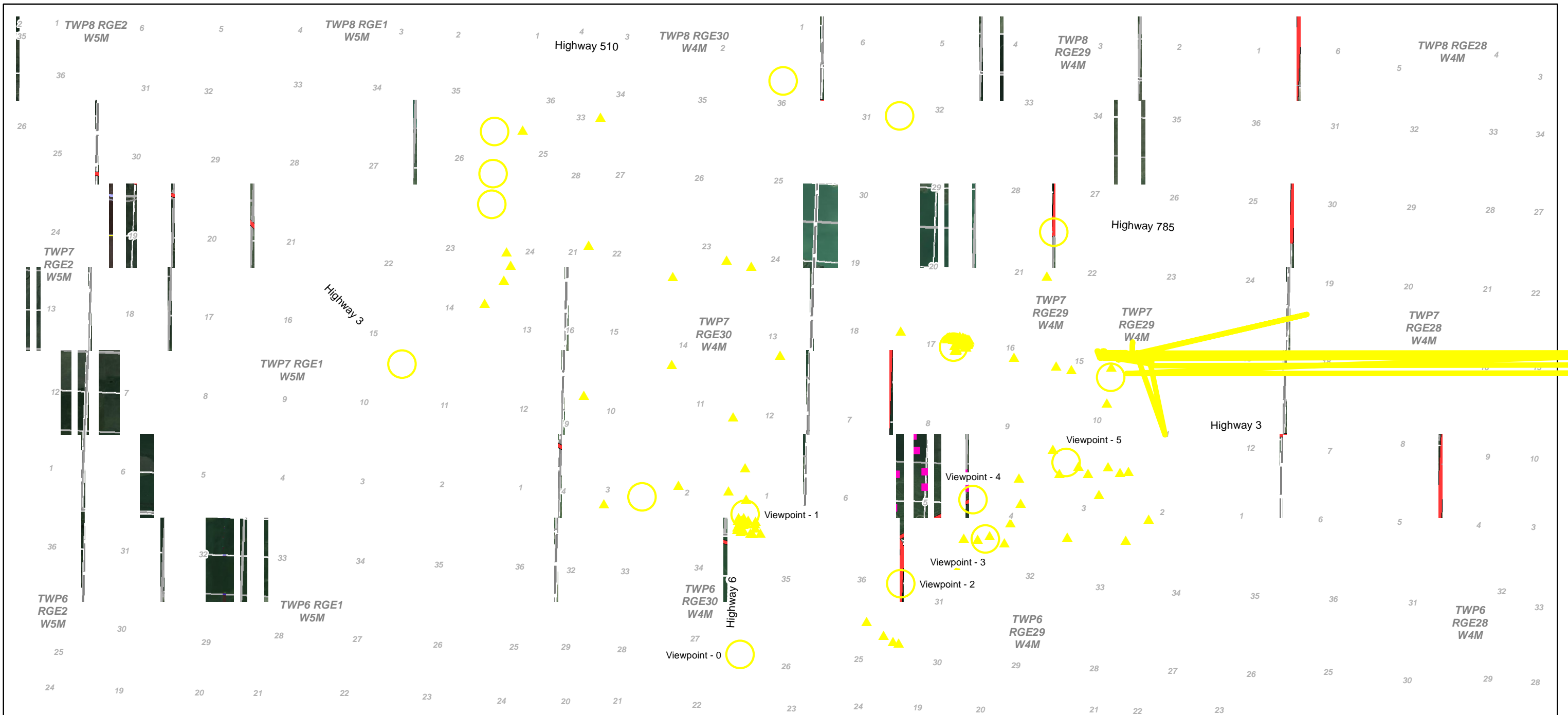
Visual representations (photomontages) were prepared as per the requirements listed in Section 53.21 (d) “Application Requirements for Category 3 WECS” of the Municipal District of Pincher Creek No. 9 Land Use Bylaw. A listing of the viewpoint locations is provided in Table 10 and the locations are shown in Figure 4. The photomontages are provided in Appendix N.

Table 10 Viewpoint Locations

Figure	Viewpoint Location
1	View from Viewpoint 0 – NE Sec 27 Twp 06 Rge 30 W4M – Looking Northwest
2	View from Viewpoint 0 – NE Sec 27 Twp 06 Rge 30 W4M – Looking Northeast
3	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking Northwest
4	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking Northeast
5	View from Viewpoint 1 – SW Sec 01 Twp 07 Rge 30 W4M – Looking East
6	View from Viewpoint 2 – NW Sec 31 Twp 06 Rge 29 W4M – Looking North
7	View from Viewpoint 3 – SW Sec 04 Twp 07 Rge 29 W4M – Looking North
8	View from Viewpoint 4 – NW Sec 04 Twp 07 Rge 29 W4M – Looking North
9	View from Viewpoint 5 – SW Sec 10 Twp 07 Rge 29 W4M – Looking West
10	View from Viewpoint 5 – SW Sec 10 Twp 07 Rge 29 W4M – Looking Northwest
11	View from Viewpoint 6 – SE Sec 15 Twp 07 Rge 29 W4M – Looking Southwest
12	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Northwest

Visual Impact Assessment

Figure	Viewpoint Location
13	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Southwest
14	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking Southwest
15	View from Viewpoint 8 – NE Sec 17 Twp 07 Rge 29 W4M – Looking South
16	View from Viewpoint 9 – SE Sec 28 Twp 07 Rge 29 W4M – Looking Southwest
17	View from Viewpoint 9 – SE Sec 28 Twp 07 Rge 29 W4M – Looking Southwest
18	View from Viewpoint 10 – SW Sec 32 Twp 07 Rge 29 W4M – Looking Southwest
19	View from Viewpoint 10 – SW Sec 32 Twp 07 Rge 29 W4M – Looking South
20	View from Viewpoint 11 – NE Sec 36 Twp 07 Rge 29 W4M – Looking Southwest
21	View from Viewpoint 12 – SE Sec 26 Twp 07 Rge 01 W5M – Looking Southeast
22	View from Viewpoint 13 – NE Sec 26 Twp 07 Rge 01 W5M – Looking Southeast
23	View from Viewpoint 14 – SE Sec 35 Twp 07 Rge 01 W5M – Looking Southeast
24	View from Viewpoint 15 – SE Sec 15 Twp 07 Rge 01 W5M – Looking Northeast
25	View from Viewpoint 15 – SE Sec 15 Twp 07 Rge 01 W5M – Looking East
26	View from Viewpoint 16 – NE Sec 03 Twp 07 Rge 30 W4M – Looking North
27	View from Viewpoint 16 – NE Sec 03 Twp 07 Rge 30 W4M – Looking Northeast



Project Area

Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS,

12.0 REPORT ON PUBLIC CONSULTATION AND COMMUNITY SUPPORT

Consultation for the Project has occurred in a manner that meets the scope of the Participant Involvement Program (PIP) described in Appendix 1 of AUC Rule 007, including notification and personal consultation activities. The intent of the PIP is to ensure that those stakeholders who may be directly or adversely impacted by the Project:

- x Gain a detailed understanding of the proposed Project;
- x Have an opportunity to respond to Project information and provide comments; and
- x Are aware of the channels available to provide additional input throughout the development process.

Riverview Limited Partnership has, and continues to, provide opportunities for open dialogue with stakeholders to better understand issues and concerns, and implement suitable resolutions. The Project PIP includes:

- x Direct, face-to-face consultation meetings;
- x Phone conversations and email for questions and comments;
- x Public open house sessions;
- x Project information mailings; and
- x Status update emails/letters

Riverview Limited Partnership is in the process of receiving comments, questions and concerns about the proposed Project and will incorporate this feedback through the adaptation or modification to Project design, movement of wind turbines or associated Project infrastructure, and other considerations / actions undertaken on behalf of Riverview Limited Partnership, where appropriate. Where a concern or request could not be accommodated, an explanatory response has been provided.

As a result of the change in turbine type, and Project layout, the AUC application is being amended. Consultation activities are occurring, and a PIP report will be provided to the MD of Pincher Creek upon completion of the PIP activities. Participant Involvement Program information (Appendix N).

13.0 IMPACT ON LOCAL ROAD SYSTEM

Land use in the area surrounding the Project includes agricultural activities including crop production and grazing on tame pasture and native prairie, rural residential use, roads, gravel extraction, transmission and wind energy developments. With the development of the Project, only a small portion of the land will be developed to support the wind turbines and ancillary features. Each turbine will require a foundation that will require excavation in an area of approximately 30 m x 30 m where the concrete foundation will be built, a pad to support the crane required to assemble the wind turbine, an underground collector system and an access road. Where possible, the collector line will run parallel to the access roads and will be fully reclaimed to support the existing vegetation. Roads will initially be developed to a width of approximately 6 m during the construction phase to accommodate transport trucks.

Decommission Plans

materials are ready for transport. The components and material will be transported to the appropriate facilities for reconditioning, salvage, recycling, and/or disposal.

When decommissioning occurs, reclamation standards at the time of decommissioning will be followed. Soil management will be incorporated into this process to facilitate site reclamation.

The wind turbines will be disassembled and removed from the site. The equipment, parts, and other materials removed during the decommissioning process will be recycled (i.e., salvaged and reconditioned) and/or disposed of as appropriate. Gravel, where used, will be removed from the sites.

Underground cables will be terminated and capped at connection points (from a practical perspective) in perpetuity. As they are to be buried to a depth of at least 1 m, unless future farming practices use ploughing techniques of greater than 1 m, limited adverse effects to land-use would be anticipated. At the end of facility operations, Riverview Limited Partnership will apply to the AUC to decommission the Project, as applicable, according to the regulations in force and standards at that time of decommissioning. Additionally, landowners will be consulted post-decommissioning regarding any concerns that may arise. The wind turbine's concrete pedestal will be removed to a depth of 1 m below surface, and the excavation backfilled with subsoil to match the natural grade. Removal of below-ground structures to a depth of approximately 1 m is expected to provide a sufficient soil profile to allow successful revegetation and typical land-use practices (i.e., ploughing, seeding, harvesting, grazing croplands and/or pasture), despite the underlying remnant concrete foundation. Buried concrete is commonly associated with decommissioned industrial facilities (i.e., oil/gas wells) that have been successfully reclaimed in the past. Additional mitigation measures at turbine foundation locations include the removal of surface gravels and soil decompaction.

After the infrastructure is removed, the wind turbine sites, and access/cabling routes may be ploughed as appropriate to alleviate soil compaction and graded to restore terrain profiles. Topsoil will be replaced and prepared for seeding on cultivated areas. All waste material and equipment will be removed from the facility site.

If a wind turbine discontinues producing power for two years, the (Wind Energy Conversion System) WECS operator will provide a status report to the Development Authority. A review of the status report may result in a request for the WECS to be decommissioned. Riverview Limited Partnership acknowledges that failure to comply with a decommissioning request may result in the issuance of a stop order by the designated officer in accordance with the provisions of the Municipal Government Act.

Riverview Limited Partnership will comply with all provincial regulations at the time of decommissioning. Furthermore, Riverview Limited Partnership will work with each respective landowner(s) to ensure that land is restored to an equivalent land capability.