

Appendix H
Visual Assessment Report



Wind Turbine Photomontage – Update For McLean’s Mountain Wind Farm

Prepared for: Dillon Consulting Ltd.
235 Yorkland Blvd., Suite 800
Toronto, Ontario
M2J 4Y8

Attention: Mr. Don McKinnon

Tel: (416) 229-4647, Ext. 2355
Fax: (416) 229-4692
Email: dpmckinnon@dillon.ca

Prepared by: Alex Tsopelas, B.Eng., Ext. 356
Energy Systems Specialist
Email: atsopelas@ortech.ca
Tel: (905) 822-4120
Fax: (905) 855-0406
and
David Warner, Ext. 462
GIS Specialist
Email: dwarner@ortech.ca
Tel: (905) 822-4120
Fax: (905) 855-0406

Project No.: 70286-PM
17 Pages

Date: July 21, 2009

TABLE OF CONTENTS

	Page
1. INTRODUCTION	1
2. PHOTOMONTAGE METHODOLOGY	2
3. VISUAL SIMULATIONS	5

LIST OF FIGURES

Figure 1: McLean’s Mt Wind Farm Location	1
Figure 2: Viewpoint Locations and Directions	3
Figure 3: Example of Photography Apparatus	4
Figure 4: Aligning Photo with Locator (Blue “x” In Image)	4
Figure 5 - Site 1 Visual Simulation	6
Figure 6 - Site 2 Visual Simulation	7
Figure 7 - Site 3 Visual Simulation	8
Figure 8 - Site 4 Visual Simulation	9
Figure 9 - Site 5 Visual Simulation	10
Figure 10 - Site 6 Visual Simulation	11
Figure 11 - Site 1 (Original) Visual Simulation	12
Figure 12 - Site 2 (Original) Visual Simulation	13
Figure 13 - Site 3 (Original) Visual Simulation	14
Figure 14 - Site 4 (Original) Visual Simulation	15
Figure 15 - Site 5 (Original) Visual Simulation	16
Figure 16 - Site 6 (Original) Visual Simulation	17

1. INTRODUCTION

Dillon Consulting Ltd. (Dillon) originally contracted ORTECH Power (ORTECH) to complete several visual simulations from various viewpoints in support of a visual impact assessment for the proposed McLean's Mountain Wind Farm, submitted on June 15, 2009. Since that time, modification to the proposed turbine layout has warranted new visual simulations be produced. This report displays both layouts for McLean's Mountain Wind Farm. The proposed wind farm is located in the northeast part of Manitoulin Island, near Little Current, Ontario as seen in Figure 1. Figure 2 shows the relative location and direction of each of the photo viewpoints; red arrows indicate viewpoints.

Figure 1: McLean's Mt Wind Farm Location



2. PHOTOMONTAGE METHODOLOGY

ORTECH traveled to the project site and met with a representative from Northland Power Inc., six locations were decided on to give a representative indication of visual impact from areas that may be sensitive to residents or travelers. At each viewpoint, photographs (6–7) were taken from left to right, with an additional group of photographs taken from right to left. An example of the setup used for this technique is shown in Figure 3. Information about the viewpoints recorded on site included; UTM coordinates of the camera, compass bearing centered in the view span, and UTM coordinates of one or more locators, used to digitally align the photographs later.

Photo stitching software was used to combine the six or seven photos for each viewpoint into one panoramic view. Combinations of photos from each set of consecutive photos were used to produce the best panoramic view with the least distortion and the best possible overlapping of the photos. Photo editing software was used to remove any spots resulting from dust on the lens and to remove any inconsistencies with respect to contrast as necessary.

Digital terrain data was downloaded from an online database; www.GeoBase.ca as a digital elevation model (.DEM) file with 25m contour intervals. Dillon Consulting provided UTM coordinates of the proposed wind turbine locations. The wind turbine locations, turbine 3D geometry data (from stock ORTECH data) and the DEM file were used as inputs to ReSoft WindFarm software to generate a wireframe representation of the terrain and wind turbines. Each generated panoramic photograph was loaded into the WindFarm software and aligned with the terrain. Proper alignment was achieved by using the coordinates of the locators and adjusting the direction of the viewpoint until the locator was correctly aligned with the object it represented in the photograph (Figure 4). The pitch angle of the photograph was adjusted until the horizon of the wire frame matched the horizon in the photograph. The photograph was rotated, if necessary, to align the horizons. 3D geometry data for the Vestas V90 1.8MW wind turbine was obtained from technical specification documents and used to design and render the turbines on the photograph. Where there were objects of known height on the photograph near the proposed location, the height of the wind turbine was compared and exclusion zones were added to make the turbines appear behind objects in the forefront of the image.

Figure 2: Viewpoint Locations and Directions



Figure 3: Example of Photography Apparatus



Figure 4: Aligning Photo with Locator (Blue “x” In Image)



Table 1: Photograph Parameters

Viewpoint	Easting	Northing	Bearing	Closest Turbine	Distance to Closest Turbine
1	430754	5093768	212.5	4	6150m
2	427256	5092108	198.5	1	2910m
3	424594	5090054	139.3	2	1110m
4	414441	5085156	91.8	25	1090m
5	425321	5083014	337.0	30	1950m
6	429518	5088517	223.0	10	2570m

3. VISUAL SIMULATIONS

The six updated visual simulations are shown below as Figures 5-10. The visual simulations should be looked at in conjunction with the wireframe image included because simulations may contain turbines that are partially or fully hidden by trees or other obstructions. Original visual simulations are included for reference as Figures 11 – 16.

Figure 5 - Site 1 Visual Simulation

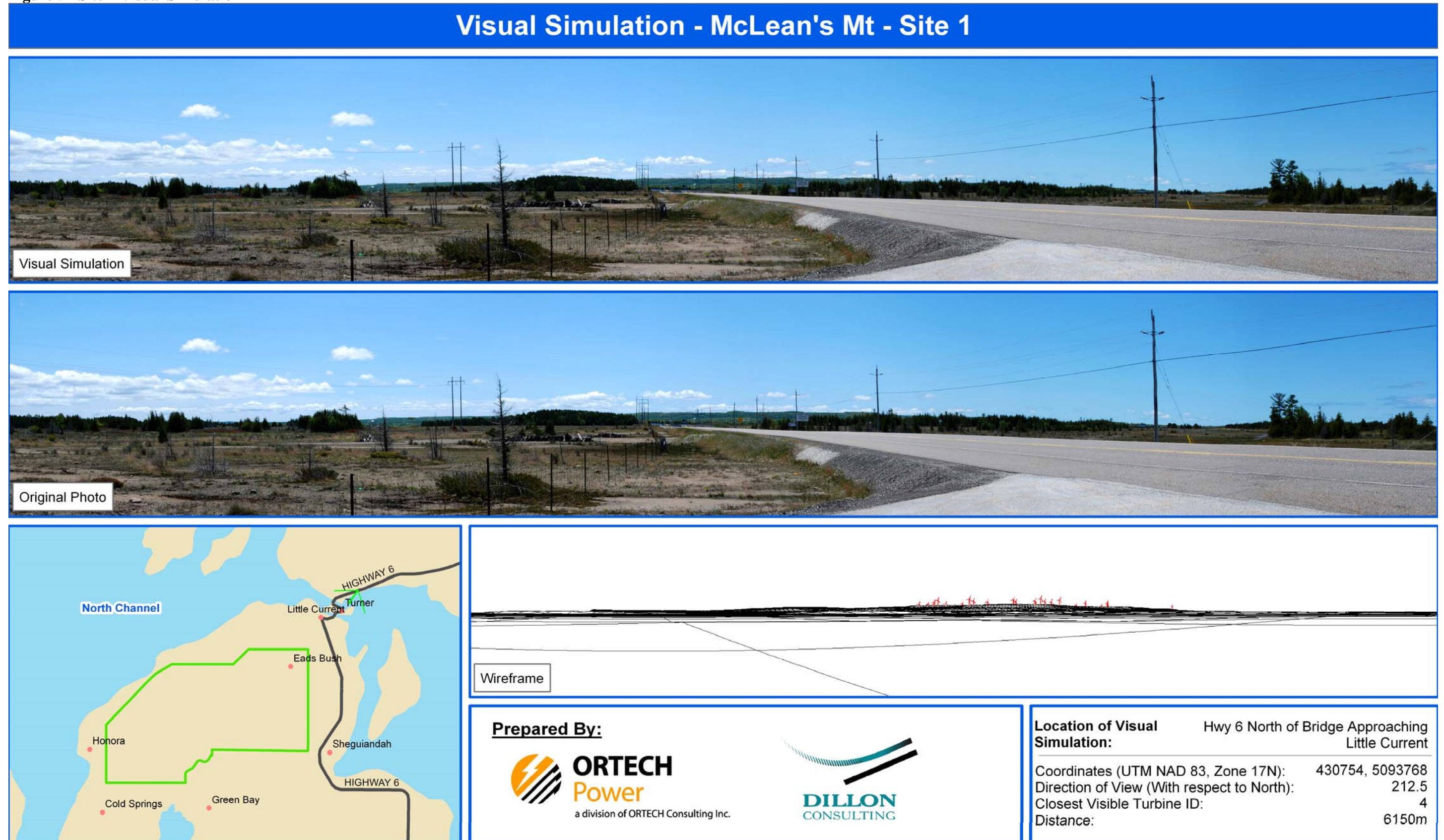


Figure 6 - Site 2 Visual Simulation

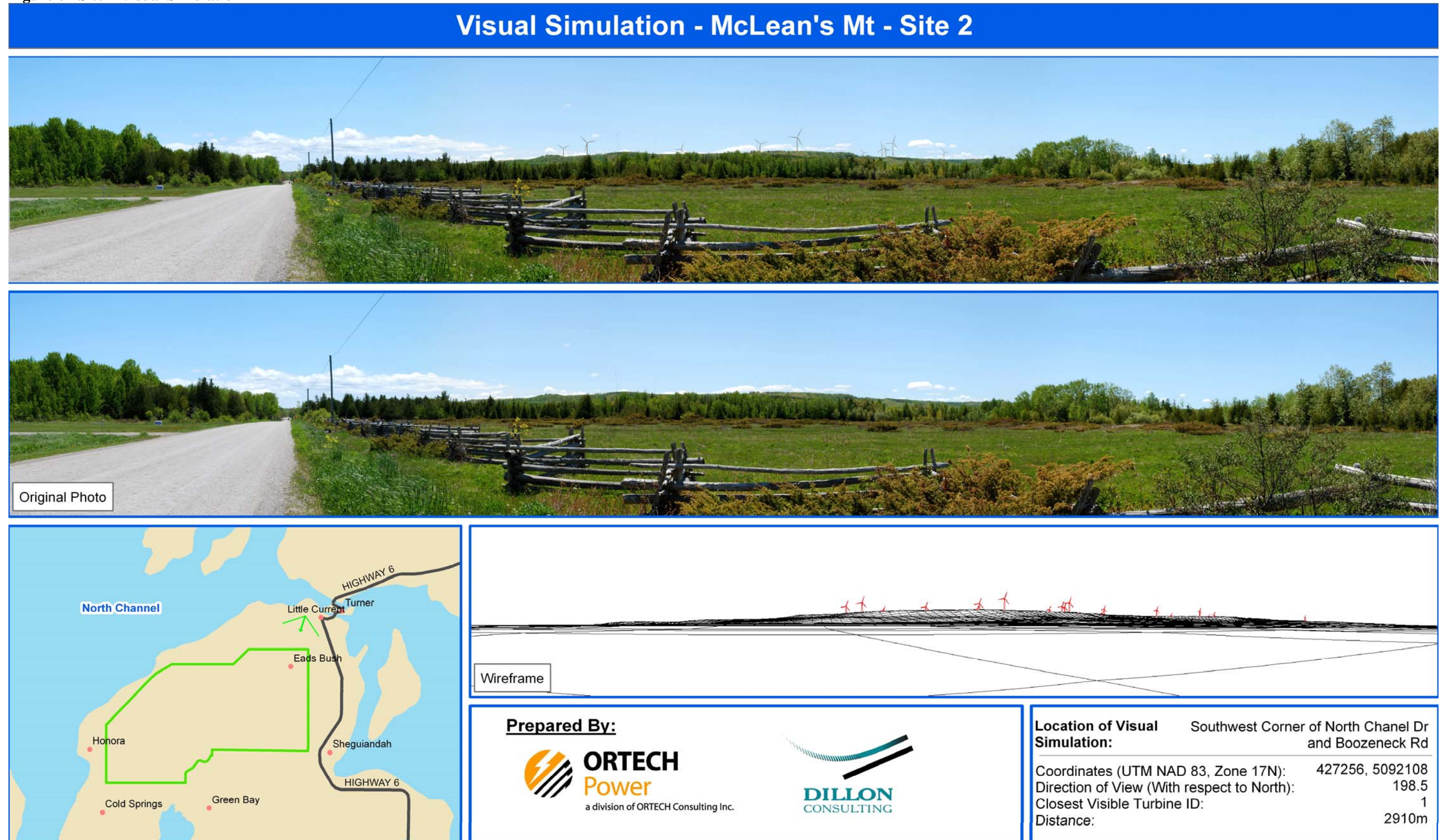


Figure 7 - Site 3 Visual Simulation

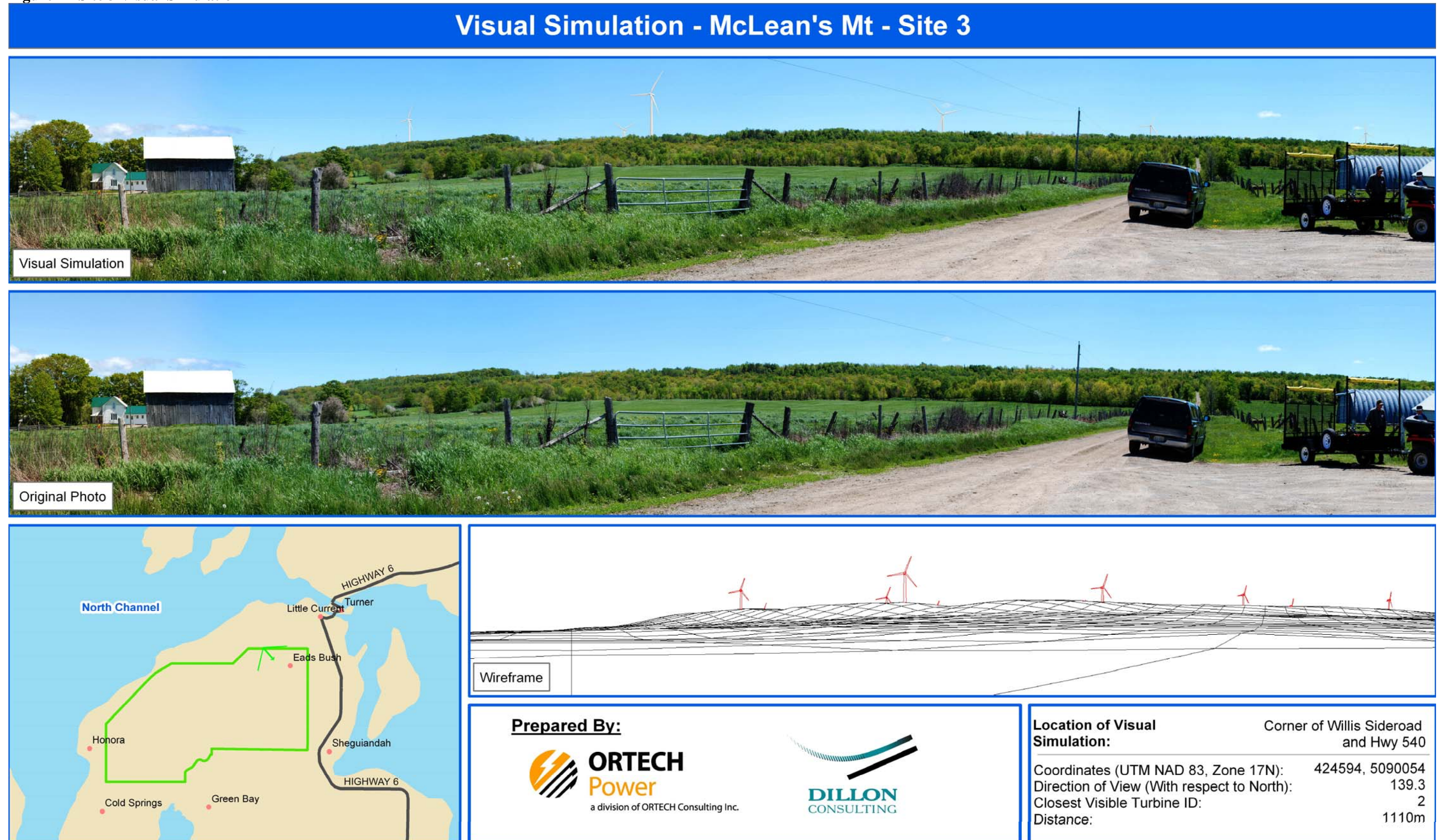


Figure 8 - Site 4 Visual Simulation

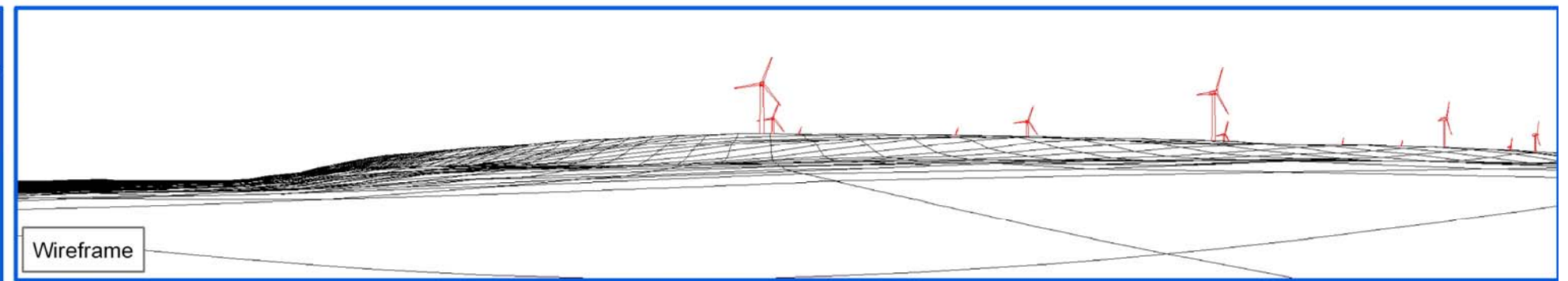
Visual Simulation - McLean's Mt - Site 4



Visual Simulation



Original Photo



Wireframe

Prepared By:



Location of Visual Simulation:	Corner of Guida's Sideroad and Hwy 540
Coordinates (UTM NAD 83, Zone 17N):	414441, 5085156
Direction of View (With respect to North):	91.8
Closest Visible Turbine ID:	25
Distance:	1090m

Figure 9 - Site 5 Visual Simulation

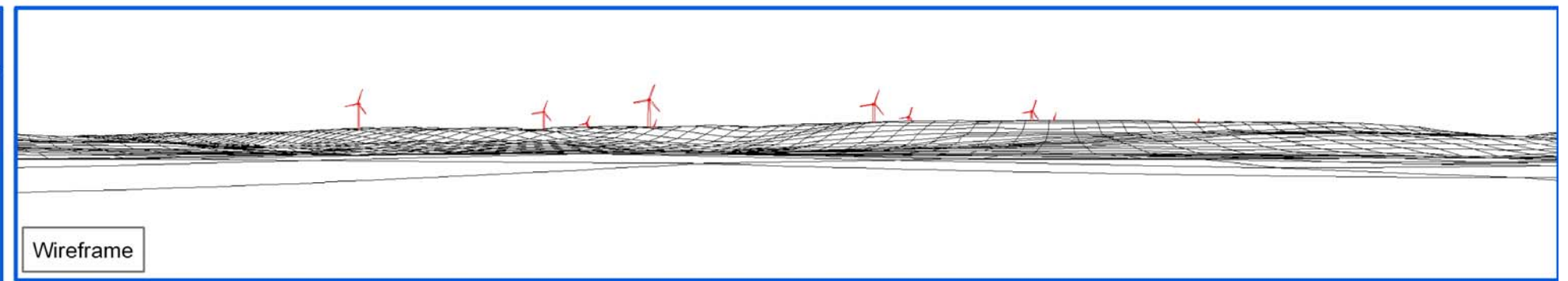
Visual Simulation - McLean's Mt - Site 5



Visual Simulation



Original Photo



Wireframe

Prepared By:



Location of Visual
Simulation:

Town Line at Bass Lake

Coordinates (UTM NAD 83, Zone 17N):	425321, 5083014
Direction of View (With respect to North):	337.0
Closest Visible Turbine ID:	30
Distance:	1950m

Figure 10 - Site 6 Visual Simulation

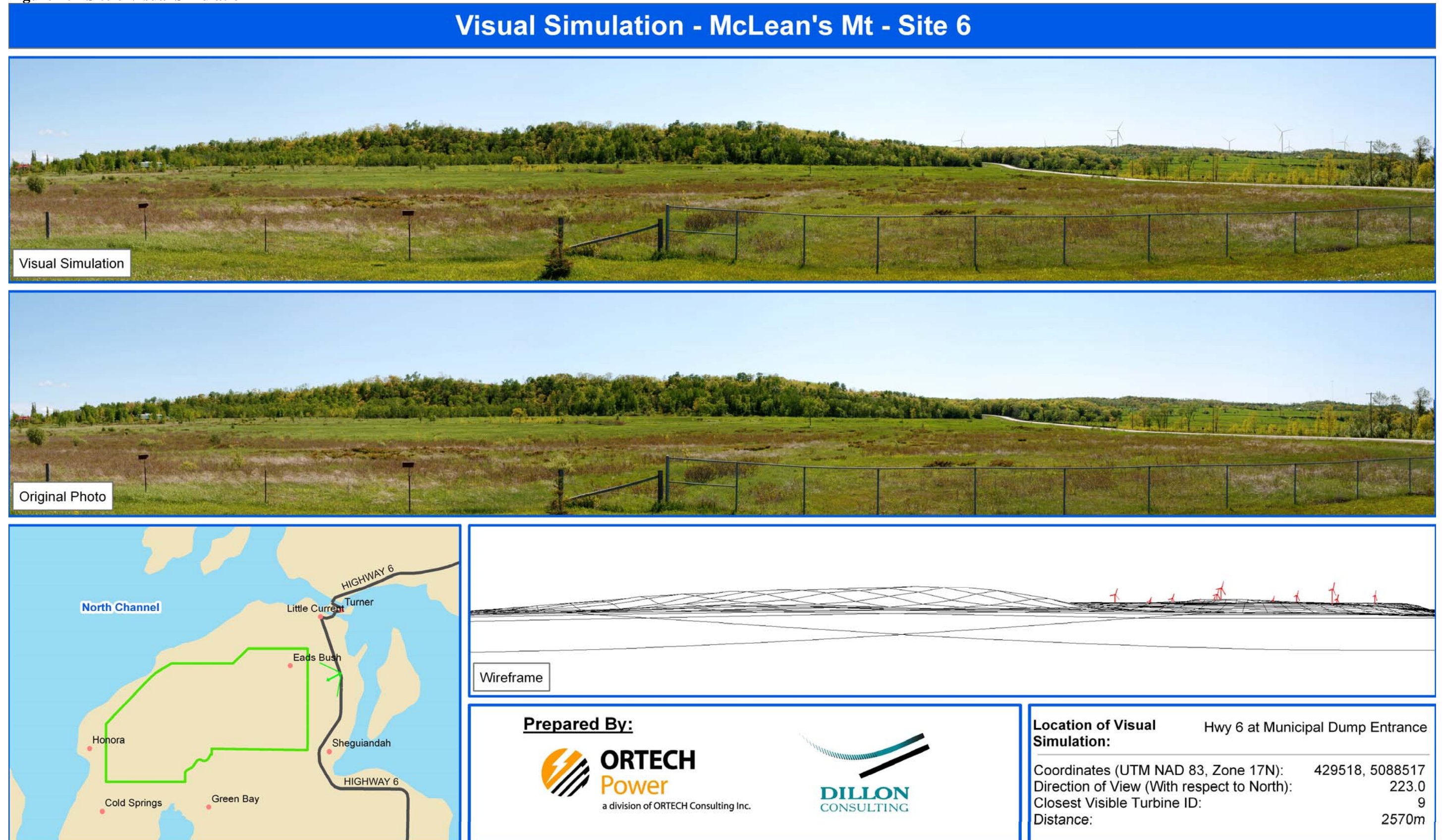


Figure 11 - Site 1 (Original) Visual Simulation

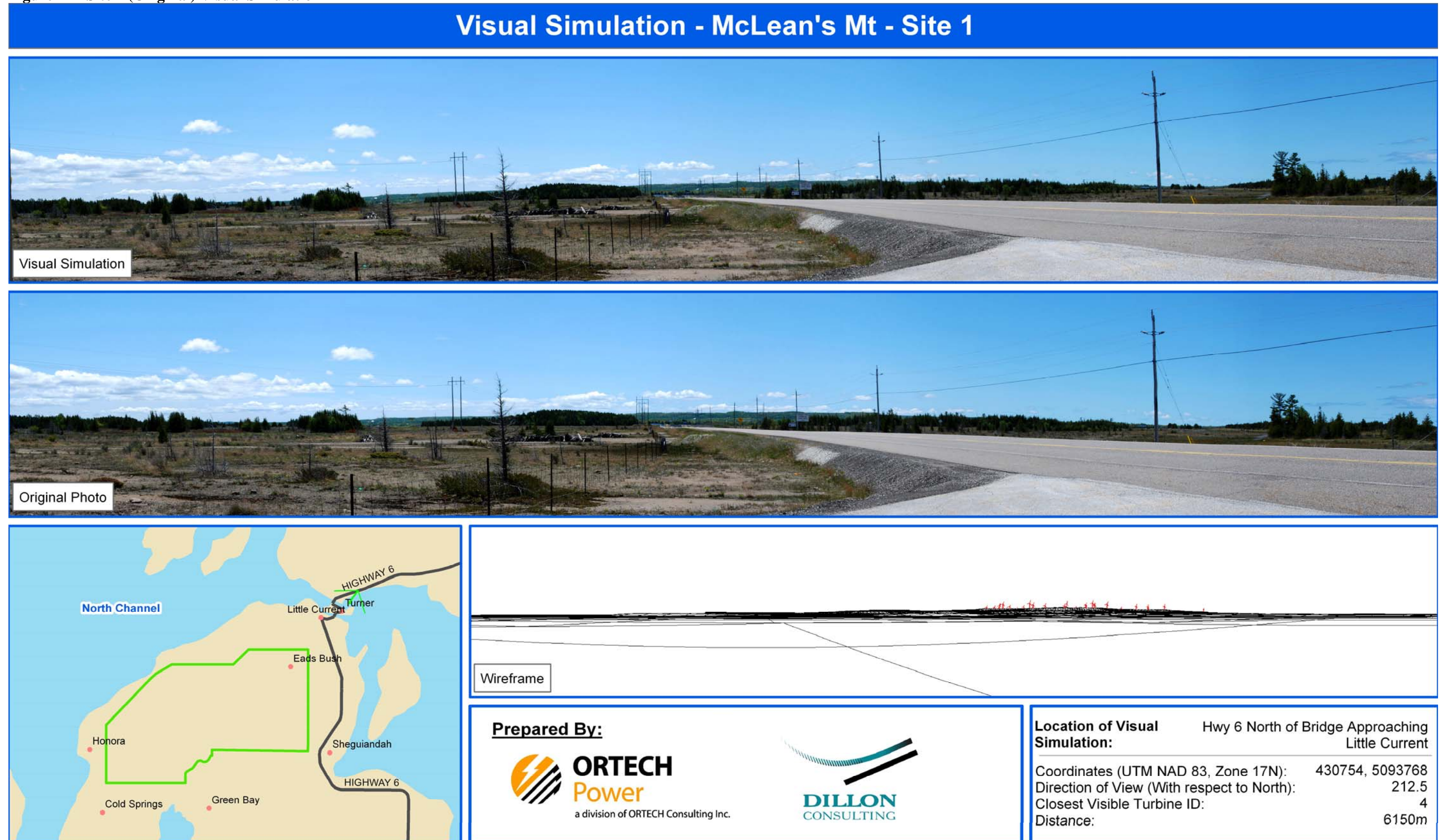


Figure 12 - Site 2 (Original) Visual Simulation

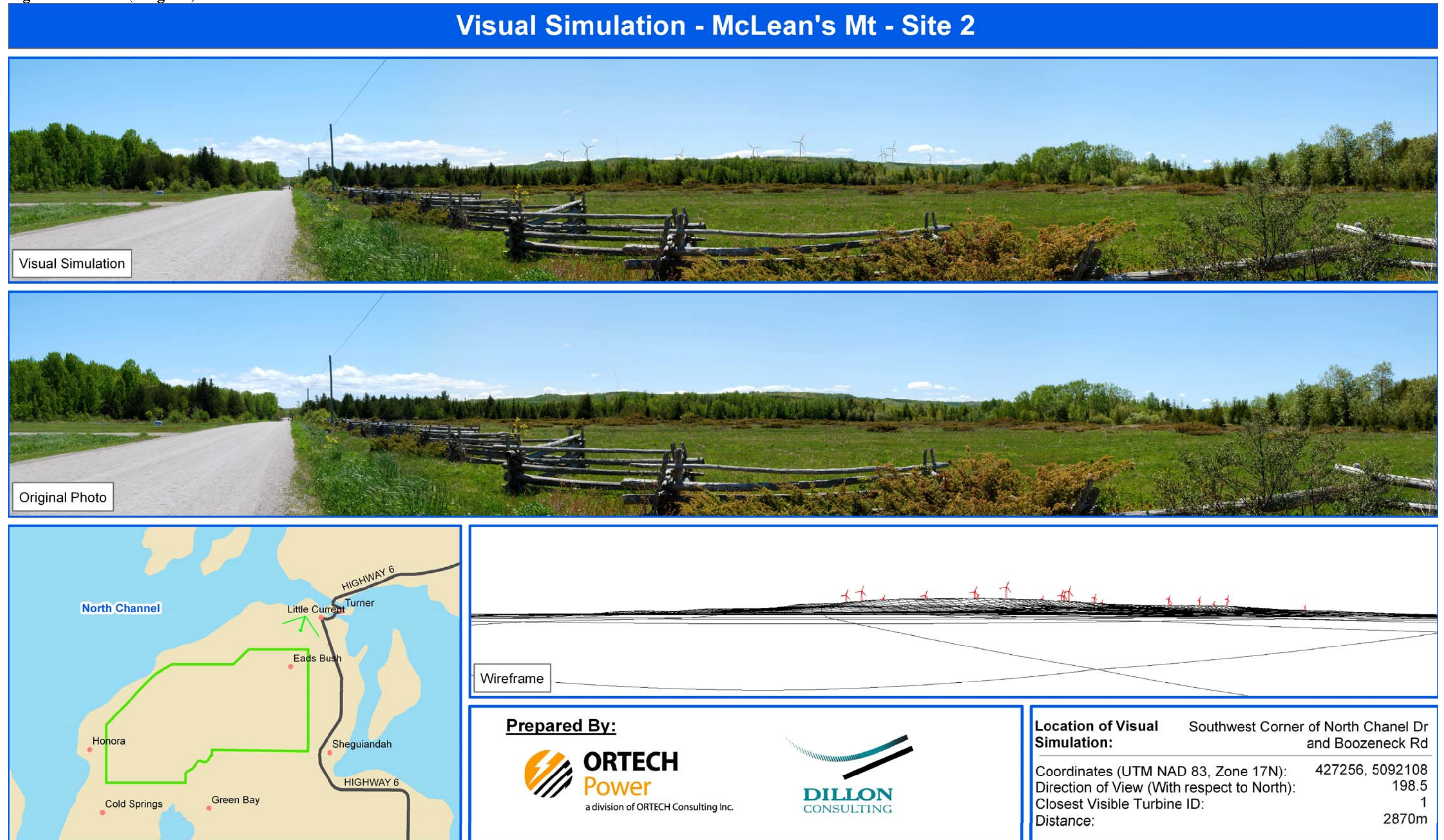


Figure 13 - Site 3 (Original) Visual Simulation

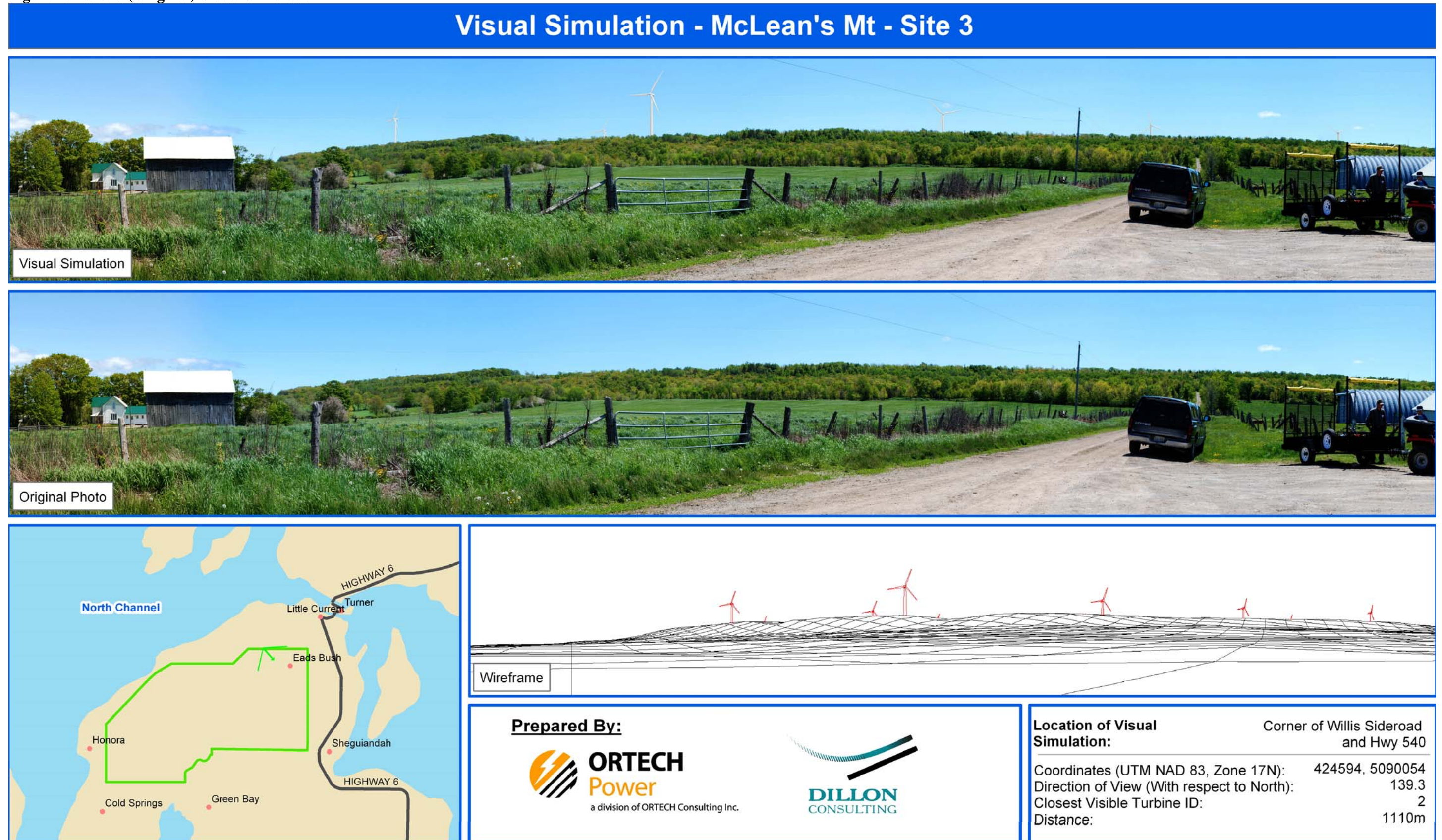


Figure 14 - Site 4 (Original) Visual Simulation

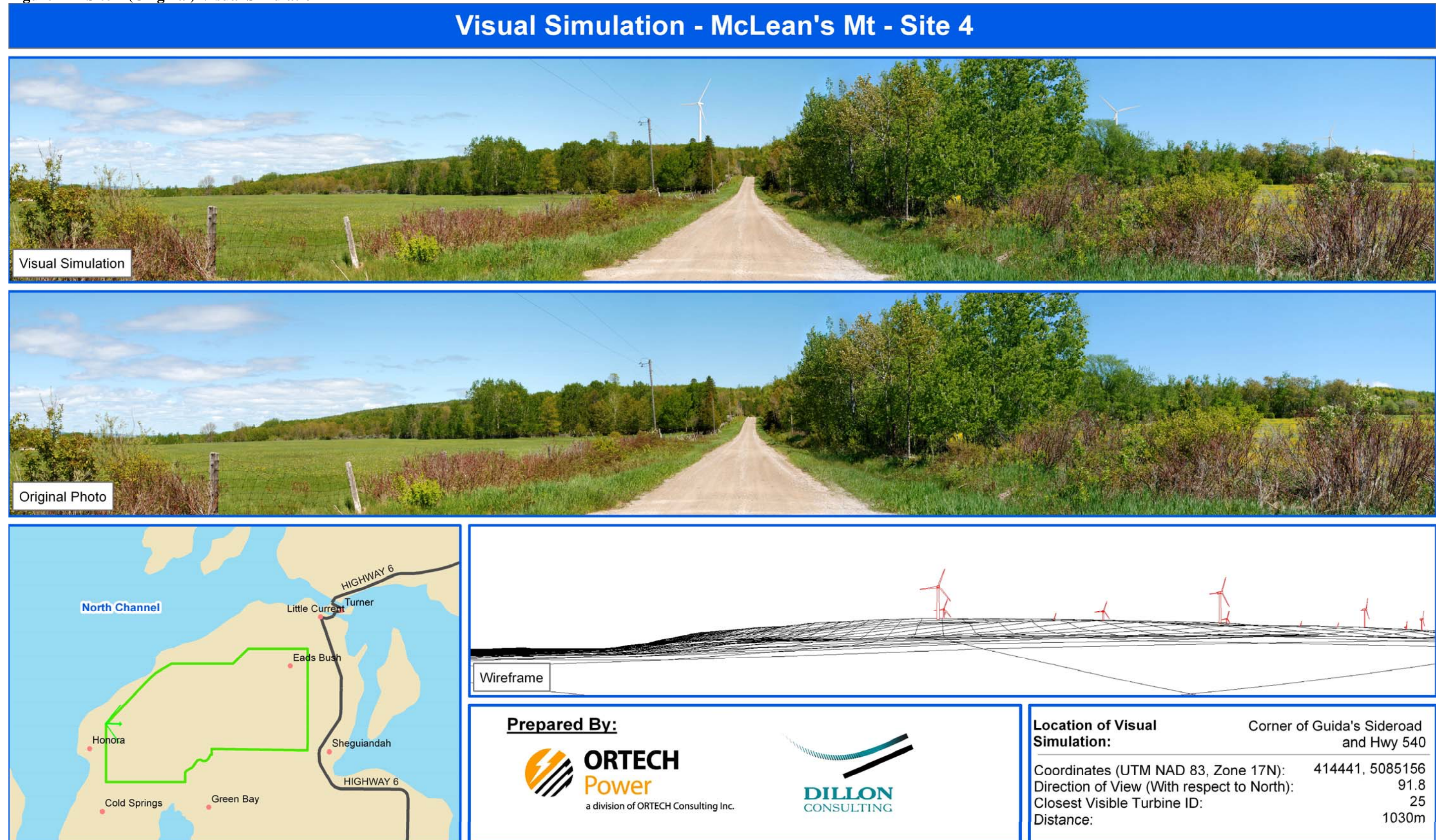


Figure 15 - Site 5 (Original) Visual Simulation

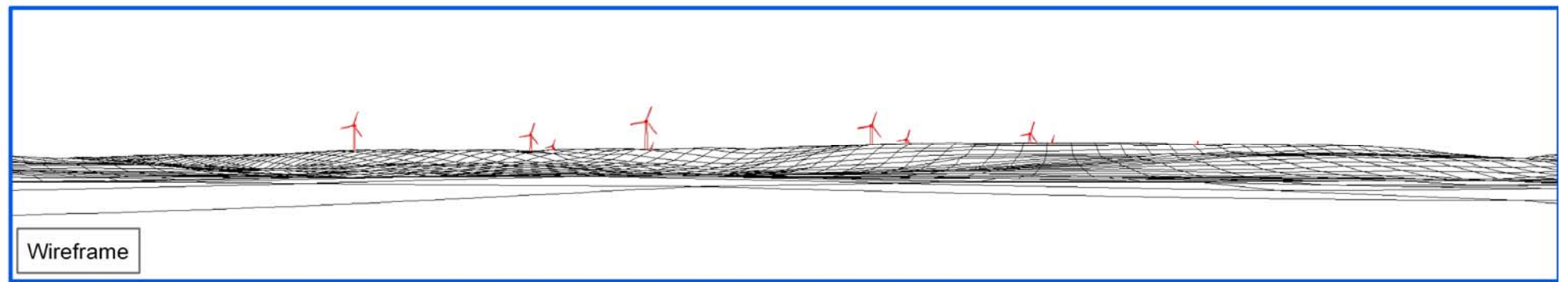
Visual Simulation - McLean's Mt - Site 5



Visual Simulation



Original Photo



Wireframe

Prepared By:



Location of Visual
Simulation:

Town Line at Bass Lake

Coordinates (UTM NAD 83, Zone 17N):	425321, 5083014
Direction of View (With respect to North):	337.0
Closest Visible Turbine ID:	30
Distance:	1950m

Figure 16 - Site 6 (Original) Visual Simulation

