

**BALLOON TEST
&
PHOTOSIMULATION REPORT
CAMELOT DRIVE WIND PROJECT
PLYMOUTH, MASSACHUSETTS**

Prepared for:

**Balboni, LLC
74-1 Camelot Drive
Plymouth, MA 02360**

Prepared by:

**Atlantic Design Engineers, LLC
P.O. Box 1051
Sandwich, MA 02563**

February 23, 2009

ADE Project #2572.00

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I. EXECUTIVE SUMMARY

In accordance with the requirements of the Town of Plymouth Wind Energy Facilities bylaw Section 205-73 (F) (9) (b) (c) and Section 205 -73 (F) (13) (c) Atlantic Design Engineers, LLC. (Atlantic) has completed a balloon test and performed a series of photosimulations for the proposed Camelot Drive Wind Project at 125 Camelot Drive, in Plymouth, MA. The purpose of the balloon test was to illustrate the height of the proposed facility by presenting an object (balloon) at the approximate height and location of the proposed wind turbine for a specific period of time for viewing by Town officials and the general public.

Photosimulation is a procedure where an object (such as a wind turbine) is superimposed onto a photograph at the proper scale, location and elevation to provide a visual representation of what the proposed object (turbine) would look like if it appeared in the photograph. The purpose of this report is to outline the procedures used for the balloon test and photosimulations and provide the results to the Zoning Board of Appeals and other Town Boards and Departments.

II. PROCEDURES

On Saturday, February 7th, 2009, Atlantic performed a balloon test on the site between the hours of 8:00 AM and 12:00 noon. Weather conditions were partly cloudy, no precipitation, temperatures in the 20°'s, with moderate winds at 10-15 mph. A 3 foot diameter red, helium filled balloon was raised from the proposed turbine location to a height equivalent to the top of the turbine blades (389' above grade). Due to drift caused by windy conditions at that elevation, for the majority of the time the balloon was not at this exact height. To account for this, the angle of the balloon from the ground was measured with an altimeter to track, using geometry, the actual elevation and location of the balloon during the test.

Photographs of the elevated balloon at the location of the proposed turbine were taken from eight (8) specific locations surrounding the site. These locations were discussed with the Planning staff prior to the test and are as follows:

- A. Camelot Medical Building
- B. Rte 3 Rest Area/Park and Ride
- C. Registry of Deeds Court House
- D. #27 Harbor Light Drive
- E. Plymouth Plantation
- F. Plymouth Country Club
- G. #242 Jordan Road
- H. Uno Restaurant – Long Pond Road

Note that the photography crew also went to Dwight and Kenwood Drive and to Russell Mills Road but the balloon was not visible from these locations and no photos were taken.

The photographs were taken with a digital Nikon 200 SLR camera of the balloon at the proposed turbine site. The approximate location of where the photographs were taken is shown on the Photo Identification Plan included in Appendix A. Using a portable GPS device, the latitude, longitude and elevation at each photo location were logged. In addition, the approximate wind direction, azimuth angle and approximate height of the balloon at the balloon test site were logged. Refer to the photo log in Appendix B.

A total of 64 photographs were taken, approximately 8 at each location. The photographs were taken with various different focal lengths and exposures. The photographs that provided the best visual representation, exposure and compatibility with the photosimulation software were chosen for the photosimulation process.

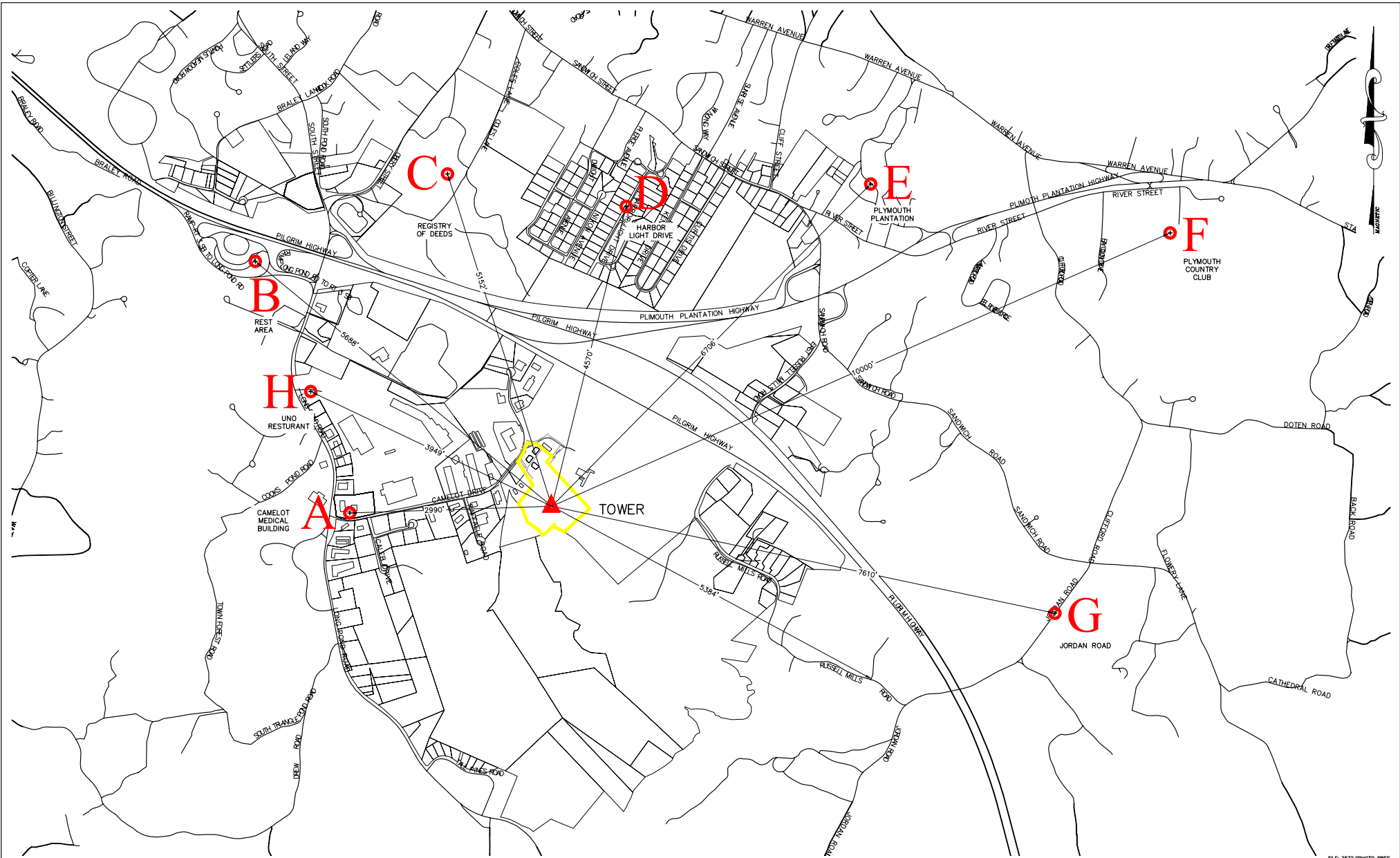
The photosimulation process was completed using the "Photomontage" module of WindPRO software version 2.6.0.235 developed by EMD International. Utilizing the visible balloon location, latitude, longitude, and elevation of both the photograph location and the balloon location, as well as certain camera settings such as focal length and exposure, the software develops photosimulations of each photograph, using a 3D model of a standard wind turbine, adjusted to the proper height and dimensions of the turbine proposed at Camelot Drive.

III.RESULTS

An "Existing Conditions" photograph and a "Proposed Conditions" photosimulation from the eight chosen locations are enclosed in Appendix C of this report. Each "proposed conditions" photosimulation photograph shows a visual representation of the proposed turbine as it would appear from the location where the photograph was taken. A Photo Identification Plan is provided in Appendix A that shows on an aerial vicinity map where the photo was taken in relation to the proposed turbine site. This aerial vicinity map is also provided as an inset on the "proposed condition" photograph.

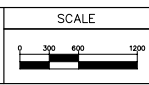
APPENDIX A

Photo Identification Plan




Atlantic® DESIGN ENGINEERS, L.L.C.
 P.O. Box 1051, Sandwich, MA 02563 (508) 888 - 9282

Designed by: _____
 Drawn by: _____
 Checked by: _____
 Survey chk. by: _____
 Approved by: _____



DATE	NO.	BY	DATE	REVISION

PREPARED FOR:
 BALBONI, LLC
 74-1 CAMELOT DRIVE
 PLYMOUTH, MA 02360

PHOTO IDENTIFICATION PLAN
 FOR
 CAMELOT DRIVE WIND PROJECT
 LOT 24-4, MAP 83, PLYMOUTH, MA
 FEBRUARY 23, 2009

FILE: 2572.DWG PHOTO PRES
 Sheet of 1 1
 JOB NUMBER 2572.00

APPENDIX B

Photo Log

Balboni - Camelot Drive Photo Log								
Tower #1 : Latitude 41° 55' 31.06" Longitude 70° 38' 39.95", Elevation: 79 Feet Above Mean Sea Level (AMSL)								
Photo Location	Description	Photo Number	Wind Direction	Photo Location Coordinates		Photo Elevation (In Feet AMSL)	Balloon Angle (From Ground)	Distance from Camera to Turbine (Feet)
				Latitude	Longitude			
A	Camelot Medical Building	1 through 8	40-45	41-55-31 N	70-39-19.5 W	124.7	45,44,40	2,986
B	Rte. 3 Rest Area/Park and Ride	9 through 16	40-45	41-56-7.9 N	70-39-37.5 W	121.4	50,51,52	5,914
C	Registry of Deeds/Court House	17 through 24	40	41-56-20.4 N	70-38-59.7 W	128.0	45,47,48,50,51,50	5,122
D	#27 Harbor Light Drive	25 through 33	15	41-56-15.4 N	70-38-24.8 W	118.1	60,58	4,541
E	Plymouth Plantation	34 through 39	*	41-56-18.3 N	70-37-36.9 W	68.9	*	6,653
F	Plymouth Country Club	40 through 47	*	41-56-10.7 N	70-36-38.4 W	101.7	*	9,927
G	#242 Jordan Road	48 through 55	40	41-55-15.3 N	70-37-1.7 W	52.5	35-32,36-38,40	7,589
H	Uno Restaurant, Long Pond Road	56 through 64	40	41-55-48.8 N	70-39-26.9 W	134.5	45-47	3,972

*Balloon not visible from photo location - Photograph taken - Balloon measurements not taken.

**A series of eight photographs were taken at each site. Two photos were taken at 20 mm, two at 32mm, two at 45mm, and two at 70mm.

APPENDIX C
Photosimulations



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'A' - CAMELOT MEDICAL BUILDING (LOOKING EAST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'A' - CAMELOT MEDICAL BUILDING
(LOOKING EAST)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'B' - RTE. 3 REST AREA/ PARK AND RIDE (LOOKING SOUTHEAST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'B' - RTE. 3 REST AREA/ PARK AND RIDE
(LOOKING SOUTHEAST)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'C' - REGISTRY OF DEEDS/ COURT HOUSE (LOOKING SOUTH)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'C' - REGISTRY OF DEEDS/ COURT HOUSE
(LOOKING SOUTH)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'D' - #27 HARBOR LIGHT DRIVE (LOOKING SOUTH)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'D' - #27 HARBOR LIGHT DRIVE
(LOOKING SOUTH)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'E' - PLYMOUTH PLANTATION (LOOKING SOUTHWEST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER (NOT VISIBLE)
LOCATION 'E' - PLYMOUTH PLANTATION
(LOOKING SOUTHWEST)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'F' - PLYMOUTH COUNTRY CLUB (LOOKING SOUTHWEST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'F' - PLYMOUTH COUNTRY CLUB
(LOOKING SOUTHWEST)



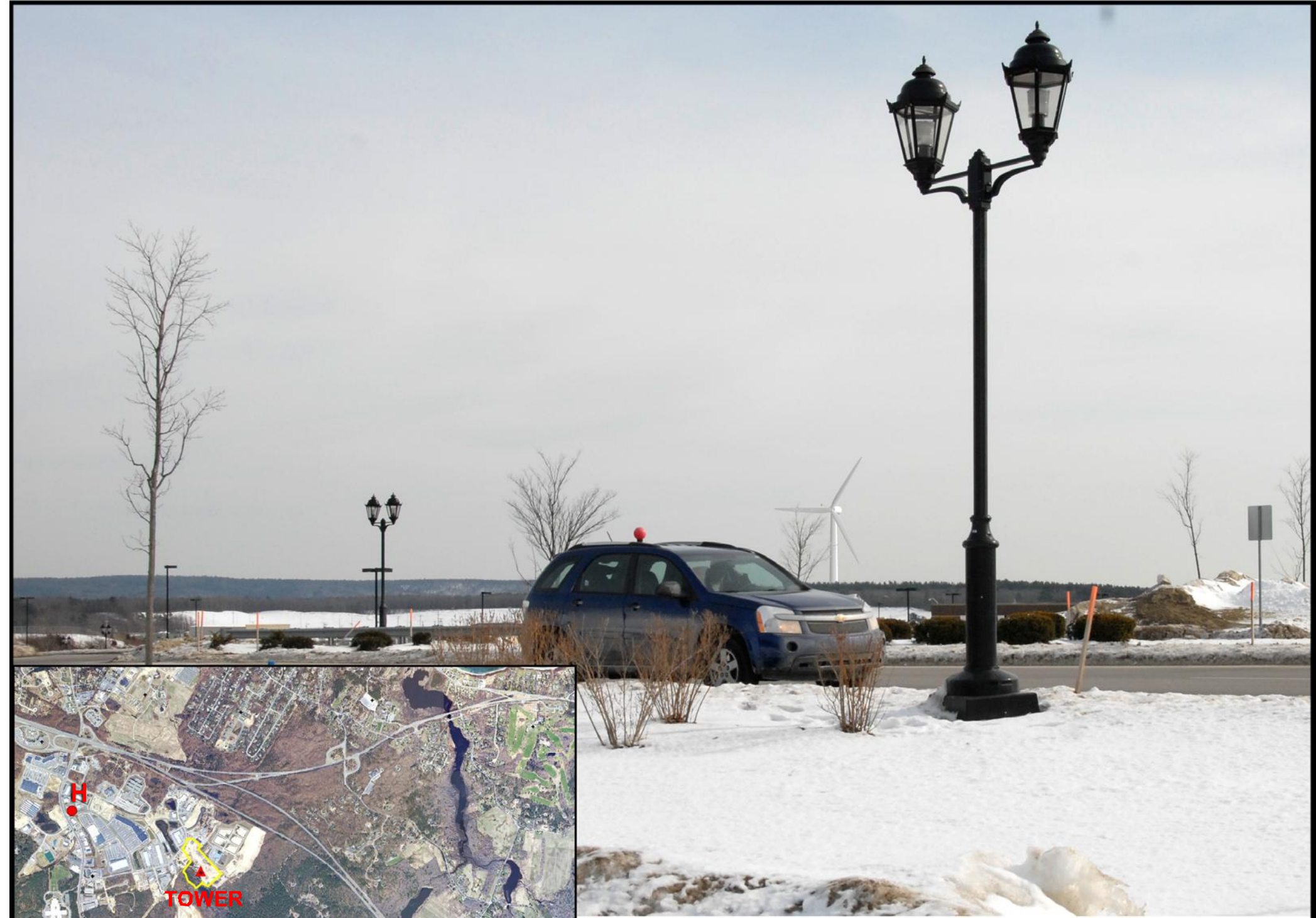
CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'G' - #242 JORDAN ROAD (LOOKING WEST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'G' - #242 JORDAN ROAD
(LOOKING WEST)



CAMELOT DRIVE WIND PROJECT
EXISTING CONDITIONS
LOCATION 'H' - UNO RESTAURANT, LONG POND RD. (LOOKING EAST)



CAMELOT DRIVE WIND PROJECT
PROPOSED CONDITIONS WITH 80M TOWER
LOCATION 'H' - UNO RESTAURANT, LONG POND RD.
(LOOKING EAST)