2.0 POLICY CONTEXT AND ASSESSMENT CRITERIA

2.1 Policy Context

In 2009, the Government of Ontario passed the *Green Energy and Green Economy Act* as a method of integrating more renewable energy into the Province's power grid, and increasing energy conservation and sustainability (Government of Ontario, 2009; MOE, 2009). Regulation 359/09 of the *Environmental Protection Act* (EPA) defines the requirements for a proposed Renewable Energy project to achieve Renewable Energy Approval (REA). The Regulation integrates requirements under the *Environmental Assessment Act* within a new regulation under the EPA. This Built Heritage and Cultural Landscape Study for the proposed Adelaide Wind Farm was undertaken in order to meet the REA requirements as outlined in Ontario Regulation 359/09, which is part of the EPA.

This assessment addresses built heritage and cultural heritage landscape resources as required by Reg. 359/09 under part V.0.1 of the *Environmental Assessment Act*; the *Provincial Policy Statement;* the County of Middlesex *Official Plan;* and the Township of Adelaide Metcalfe *Official Plan.* Following are the specific sections of these documents that pertain to cultural heritage.

2.1.1 Ontario Regulation 359/09

Under Reg. 359/09, a heritage resource

means real property that is of cultural heritage value or interest and may include a building, structure, landscape or other feature of real property.

Under section 19(1) of Reg. 359/09, a proponent of a proposed renewable energy project must determine whether the project location is on a protected property, which includes:

- A property that is the subject of an agreement, covenant or easement entered into under clause 10 (1) (b) of the *Ontario Heritage Act*.
- A property in respect of which a notice of intention to designate the property to be of cultural heritage value or interest has been given in accordance with section 29 of the *Ontario Heritage Act*.
- A property designated by a municipal by-law made under section 29 of the *Ontario Heritage Act* as a property of cultural heritage value or interest.
- A property designated by order of the Minister of Culture made under section 34.5 of the *Ontario Heritage Act* as a property of cultural heritage value or interest of provincial significance.
- A property in respect of which a notice of intention to designate the property as property of cultural heritage value or interest of provincial significance has been given in accordance with section 34.6 of the Ontario Heritage Act.





- A property that is the subject of an easement or a covenant entered into under section 37 of the *Ontario Heritage Act*.
- A property that is part of an area designated by a municipal by-law made under section 41 of the *Ontario Heritage Act* as a heritage conservation district.
- A property designated as a historic site under Regulation 880 of the Revised Regulations of Ontario, 1990 (Historic Sites) made under the *Ontario Heritage Act*.

Under section 20(1) of Reg. 359/09, a proponent of a proposed renewable energy project must also consider whether engaging in the project may have an impact on a heritage resource at the property location not listed in section 19(1) or a property listed in section 19(1) that abuts the parcel of land on which the property location is situated.

If the resulting answer is that the proposed renewable energy project may have an impact on a heritage resource as documented in section 19(1) and 20(1), according to section 23(1) of Reg. 359/09 the proponent shall:

- (a) conduct a heritage assessment consisting of,
- *i)* an evaluation of whether there are any heritage resources at the project location, applying the criteria set out in Ontario Regulation 9/06 (Criteria for Determining Cultural Heritage Value or Interest) made under the Ontario Heritage Act, and
- ii) if any heritage resources are identified as a result of the evaluation under subclause (i), an evaluation of any impact of the renewable energy project on the heritage resources and proposed measures to avoid, eliminate or mitigate the impact, which may include a heritage conservation plan;

The heritage assessment report as well as any written comments provided by the Ministry of Tourism and Culture in respect of the heritage assessment will be submitted as part of an application for the issue of a renewable energy approval.

2.1.2 Ontario Regulation 9/06 made under the Ontario Heritage Act

The criteria for determining cultural heritage value or interest are outlined under Regulation 9/06 as follows:

1. (1) The criteria set out in subsection (2) are prescribed for the purposes of clause 29 (1) (a) of the Act. O. Reg. 9/06, s. 1 (1).

(2) A property may be designated under section 29 of the Act if it meets one or more of the following criteria for determining whether it is of cultural heritage value or interest:

- 1. The property has design value or physical value because it,
 - i. is a rare, unique, representative or early example of a style, type, expression, material or construction method,
 - ii. displays a high degree of craftsmanship or artistic merit, or





HERITAGE RESOURCE ASSESSMENT AIR ENERGY TCI ADELAIDE WIND FARM

- iii. demonstrates a high degree of technical or scientific achievement.
- 2. The property has historical value or associative value because it,
 - i. has direct associations with a theme, event, belief, person, activity, organization or institution that is significant to a community,
 - ii. yields, or has the potential to yield, information that contributes to an understanding of a community or culture, or
 - iii. demonstrates or reflects the work or ideas of an architect, artist, builder, designer or theorist who is significant to a community.
- 3. The property has contextual value because it,
 - i. is important in defining, maintaining or supporting the character of an area,
 - ii. is physically, functionally, visually or historically linked to its surroundings, or
 - iii. is a landmark. O. Reg. 9/06, s. 1 (2).

2.1.3 The Provincial Policy Statement

Section 2.6.1 of the Provincial Policy Statement (PPS) requires that

Significant built heritage resources and significant cultural heritage landscapes shall be conserved.

Section 2.6.3 of the PPS specifies the circumstances under which development / site alteration may be permitted and discusses mitigative measures:

Development and site alteration may be permitted on adjacent lands to protected heritage property where the proposed development and site alteration has been evaluated and it has been demonstrated that the heritage attributes of the protected heritage property will be conserved.

Mitigative measures and/or alternative development approaches may be required in order to conserve the heritage attributes of the protected heritage property affected by the adjacent development or site alteration.

The PPS defines "built heritage resources" as

...one or more significant buildings, structures, monuments, installations or remains associated with architectural, cultural, social, political, economic or military history and identified as being important to a community. These resources may be identified through designation or heritage conservation easement under the Ontario Heritage Act, or listed by local, provincial or federal jurisdictions.

The PPS defines "conserved" as

...the identification, protection, use and/or management of cultural heritage and archaeological resources in such a way that their heritage values, attributes and integrity are retained. This may be addressed through a conservation plan or heritage impact assessment.





The PPS defines "cultural heritage landscape" as

...a defined geographical area of heritage significance which has been modified by human activities and is valued by a community. It involves a grouping(s) of individual heritage features such as structures, spaces, archaeological sites and natural elements, which together form a significant type of heritage form, distinctive from that of its constituent elements or parts. Examples may include, but are not limited to, heritage conservation districts designated under the Ontario Heritage Act; and villages, parks, gardens, battlefields, mainstreets and neighbourhoods, cemeteries, trailways and industrial complexes of cultural heritage value.

Regarding cultural heritage and archaeology, the PPS defines "significant" as

resources that are valued for the important contribution they make to our understanding of the history of a place, an event, or a people.

2.1.4 The County of Middlesex *Official Plan*

Within the Policy Framework of the Middlesex Official Plan, Section 2.2.5 states that the Plan supports conservation of cultural and built heritage resources and further states that

Development and site alteration on or adjacent to lands containing archaeological resources and/or significant built heritage resources shall maintain the heritage integrity of the site.

2.1.5 Township of Adelaide Metcalfe *Official Plan*

Section 1.3e of the Adelaide Metcalfe Plan states that one of the goals that is a basic decision-making guideline of this Plan and reflects the general long-range intent of the Plan is

To protect, conserve or wherever feasible, rehabilitate and/or reuse the cultural heritage resources of the Township.

2.2 Public Consultation and Recognition

The Township of Adelaide Metcalfe does not have a Heritage Committee nor do they have a local Historical Society. Attempts were made to contact other, local historians, with an interest in the history of the general area and unfortunately no one was located. According to the Clerk of Adelaide Metcalfe Township, there is no Heritage Committee in either Middlesex County or Adelaide Metcalfe; however, the Heritage Trail through the Middlesex Department of Tourism, identifies heritage resources throughout the entire county. According to this Heritage Trail, one site of heritage interest is located within the study area, St. Ann's Anglican Church.





This church is located within the village of Adelaide and is not located on a participating parcel (Figure 11, Appendix B). There are no federally or provincially recognized cultural heritage resources, plaques or cemeteries located in the study area.

2.3 Assessment Criteria

A range of examples of "built heritage resources" is included on the Ministry of Culture (2002) website: "At a micro-scale level, there are individual buildings ranging from houses to hydro-electric generating stations, defined open spaces ranging from small cemeteries to waterfront parks, and discrete purpose-built structures ranging from century-old stone bridges to silver mine head frames." As these examples indicate, the concept of built heritage applies to individual buildings of either a private or public nature (e.g., houses, barns, city halls, churches), industrial and utilitarian artifacts (e.g., bridges, lime kilns, culverts), and landscapes that have been designed to serve a specifically human purpose (e.g., cemeteries, parks, promenades, streetscapes). The process of producing a thorough evaluation of their heritage significance involves the consideration and balancing of numerous factors: the age of the resource, the quality of its design, its mode of construction, the importance of architects or contractors responsible for its erection, the importance of its owners or inhabitants, its role in relation to significant events or movements in the area where it is situated, its state of preservation (i.e., the extent to which its original features and character have been maintained), its condition, its uniqueness or its value as a representative of a distinctive local type, its landmark status, and its visual and/or thematic role within its immediate topological and geographic context.

As mentioned in Section 2.1.2, the Ministry of Culture has defined three types of cultural landscapes: defined landscapes, "which have been intentionally designed"; evolved landscapes, "which have grown organically"; and associative landscapes, "those with powerful religious, artistic or cultural associations of the natural element." Such landscapes may comprise "built" heritage in the sense that they comprise elements of human design, construction and manipulation, and they may affect the evaluation of the individual built structures they envelop.

The process of evaluating heritage landscapes involves research into many different facets of its pre-historical and historical pasts, comprehensive field surveys to identify relationships between the human occupation of the land and its present form, and interviews to determine facets of the landscape with important associations for its present occupants and the wider communities of which it forms a part. The landscapes considered in this report constitute evolved landscapes; a study of such landscapes necessarily involves a history of the human occupation of the land and of the uses they made of the land. Section 4.0 of this report provides that essential background.





3.0 PHYSICAL DESCRIPTION OF STUDY AREA

The study area falls within the southwestern section of the Horseshoe Moraines physiographic region, specifically towards the tail end of the Seaforth Moraine (Chapman and Putnam 1984:127-129). This portion of the Horseshoe Moraines is characterized by a simple landscape consisting primarily of a fine-textured till with some stoniness present (Chapman and Putnam 1984:127). The study area has two major soil types: the Huron series and the Brantford series. Both soil series are silty clay loams and range from moderately well to imperfectly drained. The area's topography is nearly level with only some areas of gentle sloping which can contribute to the soils' drainage characteristics as noted above. The soils of this area are well suited for agricultural activities.

Several watercourses run through the study area. The section of the study area located roughly north of Highway 402 contains tributaries of the Ausable River; Adelaide Creek and Mud Creek. The headwaters of the Ausable can be found in the Wyoming Moraine and the Clay Plain at Exeter. The river drains to Lake Huron. Branches of Adelaide Creek flow through the town of Adelaide and join the Ausable River northeast of Keyser, in West Williams Township. The creek is fairly narrow, shallow and winding and it has low banks often lined with scrub brush. The Mud Creek flows through Crathie and the northeast section of Adelaide Township to join with the Ausable River in West Williams Township, north of the study area. The creek is small and shallow, with low banks.

In the southern portion of the study area, Hardy Creek and a branch of the Sydenham River begin south of Highway 402 and drain to the main branch of the Syndenham River in Brooke Township. Many of the small branches have been adapted and redirected as municipal drains. Hardy Creek has somewhat steeper banks in comparison to other watercourses in the area. Throughout the study area municipal drains were built along roads both to drain fields and improve the stability of roads.





4.0 HISTORICAL BACKGROUND INFORMATION

4.1 **First Nations Occupation**

The First Nations history of the study area and its environs has been well documented in the Stage 1 Archaeological Assessment (Golder Associates Ltd. 2009). It is not apparent that First Nations activities and presence have influenced the character of the modern cultural landscape (as far as can be discerned through vegetation patterns, earthworks, knowledge of their sacred sites, etc.) nor have they left tangible, above ground material features (earthworks, etc.). The aboriginal presence in the study area is assumed at this time to be the matter of archaeology.

The area first enters the Euro-Canadian historic record as part of Treaty Numbers 21 and 27½ made between the First Nation inhabitants of the area and the British. Treaty Number 21:

was a provisional agreement, entered into on the 9th day of March, 1819, between John Aiken, Esquire, on behalf of His Majesty, and the Principal Men of the Chippewa Nation of Indians, inhabiting a tract of land, whereas the said John Aikens for His Majesty was to pay the said Indians 600 pounds yearly for the said tract described as follows:

Commencing at the northerly side of the River Thames at the south west angle of the Township of London; thence along the western boundary of the Township of London, in a course north 21 degrees, 30 minutes west, twelve miles to the north west angle of the said Township; then on a course about south 62 degrees and 30 minutes west forty-eight miles more or less until it intersects a line on a course produced north two miles from the north east angle of the Shawnee [Sombra] Township; then along the eastern boundary line of the said Township, twelve miles and a half more or less to the northern boundary line of the Township of Chatham; then east twenty-four miles more or less to the River Thames; then along the waters edge of the River Thames against the stream to the place of beginning, reserving a tract of land situate[d] on the northerly side of the River Thames nearly opposite to the northerly angle of the Township of Southwold and south west angle of the Del[a]ware Township containing 15,360 acres; also reserving two miles square distant about four miles above the rapids where the Indians have their improvements and nearly parallel to the Moravian Village containing 5,120 acres.

(Morris 1943: 24-25)

Treaty Number 21 was further modified in Treaty Number 28½ (Canada 1891: 281-282) and finally confirmed in Treaty Number 25 which modified the method of quantity of payment to the First Nation Groups concerned and some minor variation in the description of the land surrender (Morris 1943: 25).





A small portion of the northwest corner of the Geographic Township of Adelaide was later surrendered in Treaty Number 27¹/₂,

being an agreement made at Amherstburg in the Western District of the Province of Upper Canada on the 26th of April, 1825, between James Givens, Esquire, Superintendent of Indian Affairs, on behalf of His Majesty King George the Fourth and the Chiefs and Principal Men of the part of the Chippewa Nation of Indians, inhabiting and claiming the tract of land Wawanosh Township in the County of Huron was named after Way-way-nosh the principal Chief of the Band making this Treaty.

(Morris 1943: 26-27)

Treaty Number 27¹/₂ was subsequently confirmed on July 10, 1827 as Treaty Number 29 with only a minor change in the legal description of the boundaries of the land surrender (Morris 1943: 27).

Although it is difficult to exactly delineate treaty boundaries today, Figure 3 provides an approximate outline of the limits of Treaty Numbers 21 and 27¹/₂.

4.2 Original Survey of the Township

In order for organized settlement to occur in early Upper Canada, an official legal survey was first required of all lands. It was only following the survey that land could be registered and title given to an owner. With a land title, the owner could mortgage, lease and sell the land under the rules of law. On occasion land had been "leased" prior to the land surveys but these were highly speculative transactions.

The land surveys of the Township of Adelaide had profound effects on the modern cultural heritage landscape of the current study area. The surveys ultimately established the road pattern and the location of farmsteads. Many of the original boundary lines are still visible today as fences and hedgerows (Plate 1).

The initial survey of Adelaide Township was conducted in 1831 and centred on the development of a much needed route through the Western District of Upper Canada. Within Adelaide Township this route would be named Egremont Road. The Lieutenant Governor of Canada at the time, Sir John Colborne, recognized that the contemporary road network in what is now southwestern Ontario was insufficient to allow European settlers into the area and did not provide an adequate military transportation route should any defensive concerns arise (Nielsen 1993: 3). Colborne therefore initiated the creation of a road which would extend from Lobo Township to Lake Huron and essentially open up the formerly untouched Western District for future immigration (Nielsen 1993: 3).

Colborne gained the assistance of the Commissioner of Crown Lands and Surveyor General of Woods, Peter Robinson, who in turn recommended Peter Carroll to carry out the survey (Nielsen 1993: 5). Figure 4 is a copy of Peter Carroll's original 1831 map illustrating his Egremont Road Survey (Carroll 1831). Carroll completed the initial survey of Adelaide Township (along with Warwick and Plympton Townships that are now part of Lambton County) in 1831. This survey lay in the route of Egremont Road along with "three tiers of lots on either side" (Nielsen 1993: 6). The original township map prepared by Peter Carroll (Figures 5 and F6), while dated in Oxford County on December 29, 1831, had numerous additions made to it over the following years.



The most obvious addition is the comprehensive survey of the entire township which was completed in July, 1832 (Nielsen 1993: 8). The names of lot occupants indicated on the map appear to have been added once settlers immigrated into the area after 1832.

The Crown survey system that was employed in the Township of Adelaide was the 2,400 acre sectional system which was used for surveys dating from 1829 to 1851. The 2,400 acre system used in Adelaide Township created rectangular lots of 200 acres that ran across the entire concession. Since a road at the back of the lot was unnecessary, road allowances were laid out on every second concession line. Side road allowances were laid out after every third lot. The surveys proceeded from a baseline, Egremont Road, which still exists by the same name. Lot numbers increase as one moves towards the eastern boundary of the township. The concessions were numbered sequentially moving north and south from the surveyed Egremont Road and the initials N.E.R. and S.E.R. became used to refer to the areas north and south of Egremont Road. Figures 7 and 8 illustrate the lot size and side road allowances.

The majority of the farm lots fronted onto the concession roads. Hence almost all of the farmsteads were located along the concessions, with some exceptions (for example Lot 15, Concession 3 S.E.R. in Figure 8). To this day this pattern of occupancy is strongly imprinted upon the landscape. In most cases, houses located on the side roads were built long after the initial phase of settlement had occurred.



Plate 1: Fence and Tree Line along the West Side of Pike Road, Dividing Adjacent Lots







LEGEND

Treaty Boundary

Approximate Location of Study Area

Treaty No. 381, Volume 3 (May 9th, 1781): Mississauga and Chippewa							
Crawford's Purchase (Oct. 9th, 1783): Algonquin and Iroquois							
Crawford's Purchase (Oct. 9th, 1783): Mississauga							
Crawford's Purchases (1784, 1787, 1788): Mississauga							
John Collins' Purchase (1785): Chippewa							
Treaty No. 2 (May 19th, 1790): Odawa, Chippewa, Pottawatomi, and Huron							
Treaty No. 3 (Dec. 2nd, 1792): Mississauga							
Haldimand Tract: from the Crown to the Mohawk (1793)							
Tyendinaga: from the Crown to the Mohawk (1793)							
Treaty No. 3¾ (Oct. 24th, 1795): from the Crown to Joseph Brant							
Treaty No. 5 (May 22nd, 1798): Chippewa							
Treaty No. 6 (Sep. 7th, 1796): Chippewa							
Treaty No. 7 (Sep. 7th, 1796): Chippewa							
Treaty No. 13 (Aug. 1st, 1805): Mississauga							
Treaty No. 13A (Aug. 2nd, 1805): Mississauga							
Treaty No. 16 (Nov. 18th, 1815): Chippewa							
Treaty No. 18 (Oct. 17th, 1818): Chippewa							
Treaty No. 19 (Oct. 28th, 1818): Chippewa							
Treaty No. 20 (Nov. 5th, 1818): Chippewa							
Treaty No. 21 (Mar. 9th, 1819): Chippewa							
Treaty No. 27 (May 31st, 1819): Mississauga							
Treaty No. 27 ¹ / ₂ (Apr. 25th, 1825): Ojibwa and Chippewa							
Treaty No. 35 (Aug. 13th, 1833): Wyandot or Huron							
Treaty No. 45 (Aug. 9th, 1836): Chippewa and Odawa							
Treaty No. 451/2 (Aug. 9th, 1836): Saugeen							
Treaty No. 57 (Jun. 1st, 1847): Iroquois of St. Regis							
Treaty No. 61, Robinson Treaty (Sep. 9th, 1850): Ojibwa							
Treaty No. 72 (Oct. 30th, 1854): Chippewa							
Treaty No. 82 (Feb. 9th, 1857): Chippewa							
Williams Treaty (Oct. 31st and Nov. 15th, 1923): Chippewa and Mississauga							
Williams Treaty (Oct. 31st, 1923): Chippewa							

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT. ALL LOCATIONS ARE APPROXIMATE.

REFERENCE

1. Base Data - MNR NRVIS, obtained 2004, CANMAP v2006.4 2. Treaty Boundary - Approximate Treaty Boundary was created by Golder Associates Ltd. Jan. 2009. MORRIS, J.L. 1943. Indians Of Ontario. Reprinted 1964. Department Of Lands And Forests, Toronto. Produced by Golder Associates Ltd. under licence from Ontario Ministry of Natural Resources, © Queens Printer 2008 Projection: Transverse Mercator Datum: NAD 83 25 50 Kilometres PROJECT Built Heritage and Cultural Landscape Study Adelaide Wind Farm Geo. Twp. of Adelaide, Middlesex County, Ontario TITLE

Treaty Boundaries Based on Morris 1943

ALL	PROJECT No. 07-1112-0151			1:2,500,000	REV. 0.0
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Mississauga, Ontario					

4.3 Early Settlers

The European settlement of Adelaide Township began in 1832 with three main groups of immigrants converging into the area, including a group of well to do Irish gentlemen, a group of English immigrants referred to as the "Petworth Settlers" and also many discharged British soldiers. The influx of settlers into the area occurred extraordinarily quickly. An 1832 article from the *Montreal Gazette* illustrates the excitement that was raised over such a quick settlement:

The new Township of Adelaide, in the London district, containing 80,000 acres, which five months ago was a complete desert, without house or inhabitant, now possesses a population of 1,600, with leading roads and numerous buildings, which, though rude, will afford a comfortable shelter to their inmates until time permits better ones to be erected.

(Talman 1929: 48).

The Radcliffe family, a prosperous Irish family including the brothers William and Thomas, were the first recorded settlers in the township in 1832 (Nielsen 1993: 10). The Radcliffe name can be observed on Carroll's original 1831 map of the Township (Figure 6). The name of Dr. Thomas Phillips also appears on this map. Dr. Phillips is recorded in the historical record as erecting the first house in the township (Nielsen 1993: 10). Other names that appear on the original map of the township are conspicuous later additions. For example, Thomas Pennington is written into the west half of Lot 15, Concession 2 N.E.R. (Figure 5) but he is recorded as having only purchased the land from the Crown in 1856 (ATHG 2001: 329). His name also overwrites a now illegible inscription reading "W¹/₂ specification for [...]" which might be related to the land's designation as a clergy reserve. In fact, all lands that were marked with a blue watercolour oval were designated as Clergy, usually the Anglican Church (ATHG 2001: 439). However, by the time of Thomas Pennington's purchase in 1856 the land had been secularized (Fahey 2008). Incidentally, the lots marked with a red watercolour oval were designated as Crown Lands. In any case, close examination of the study area as depicted on the original township map does not reveal any squatters recorded from before 1831 or any notable First Nations activity in the area.

In order to help relieve some of the overpopulation of poor families living in England during the early 19th century, the Petworth Emigration Society was created (Nielsen 1993: 12). A number of families from parishes in Sussex, who were sponsored by the Earl of Egremont, immigrated to Adelaide Township in 1832 and became known as the Petworth Settlers. These settlers were largely poverty stricken families and unemployed individuals who strove for a better life and living conditions in the recently surveyed Township of Adelaide in Upper Canada (Nielsen 1993: 12). The Petworth settlers, in general, prospered in their new setting and the Earl of Egremont continued to sponsor additional waves of English families into the area until his death in 1837 (Gibb 2006: 5).

Two later historical maps from the 19th century record the first settlers and illustrate the growth in the study area: the 1862 Tremaine Map (Tremaine 1862) and the 1878 H.R. Page and Company Historical Atlas Map (H.R. Page 1878). The Tremaine Map (Figure 7) provides the names of all of the landowners but only illustrates a select number of structures on the properties. However, the later Historical Atlas Map (Figure 8) not only provides the names of the landowners but also the structures on the majority of the properties. In addition to the houses, the structures noted on this map include brickyards, cemeteries, churches, hotels, manufactories, mills and schools.



LEGEND

Approximate Location of Study Area

REFERENCE

DRAWING BASED ON

 Nielsen, Eleanor
1993 The Egremont Road: Historic Route from Lobo to Lake Huron. Lambton Historical Society, Sarnia. p. 7.

NOTES

THIS DRAWING IS SCHEMATIC ONLY AND IS TO BE READ IN CONJUNCTION WITH ACCOMPANYING TEXT.

ALL LOCATIONS ARE APPROXIMATE.



Golder Associates

			SCALE	NOT TO SCALE	REV.	
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