Niagara Region Wind Farm
2017 Post-construction Mortality Monitoring Report

Prepared for:
1021702 B.C. Ltd., as general partner for and on behalf of FWRN LP
277 Lakeshore Road East, Suite 211
Oakville, Ontario
N2H 6M7

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NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

Niagara Region Wind Farm
2017 Post-construction Mortality Monitoring Report

Project Team:

Staff	Role
Andrew Ryckman	Project Advisor/Biologist
Erin Bannon	Project Manager/Biologist
Craig Martin	Biologist
Hannah Phillips	Biologist
Jennifer McCarter	Biologist
Joseph Lance	Biologist
Kayla MacLellan	Biologist
Kaitlin Filippov	GIS Technician

Report submitted on February 27, 2018

Erin Bannon
Project Manager, Biologist

225 Labrador Drive, Waterloo, Ontario, N2K 4M8 **Tel:** (519) 725-2227 **Fax:** (519) 725-257 **Web:** www.nrsi.on.ca **Email:** info@nrsi.on.ca

Executive Summary

Natural Resource Solutions Inc. was retained to conduct 3 years of post-construction monitoring at the operational Niagara Region Wind Farm located within the Townships of West Lincoln and Wainfleet, and the Town of Lincoln, within Niagara Region and Haldimand County, Ontario. This wind energy project has a generating capacity of 230MW and consists of 77 wind turbines situated in an agricultural landscape dominated by row crops. Occasional wooded habitats, wetlands, and aquatic features are also present in the areas surrounding the project infrastructure. This report provides the detailed methods and results from the first year of post-construction monitoring for bird and bat mortality conducted at the Niagara Region Wind Farm in 2017.

During twice weekly searches from May 1 to October 31, 2017, a total of 111 bird mortalities were documented within the search areas around the subset of 23 turbines. Observed bird mortalities were primarily of landbird species, the majority of which are considered common in the province. Using appropriate correction factors, an estimated bird mortality rate of 7.39 birds/turbine/year (2.47 birds/MW/year), as calculated by turbine group, was determined for the Niagara Region Wind Farm. This is below the provincial threshold of 14 birds/turbine/year at individual turbines or turbine groups. A single significant bird mortality event of 10 or more birds at a single turbine occurred on one date during the 2017 monitoring season. The other significant bird mortality event trigger, 33 or more birds (including raptors) at multiple turbines on a single survey date, was not documented.

During twice weekly searches from May 1 to October 31, 2017, and once weekly searches in November, 8 raptor mortalities were documented within the search areas around the subset of 23 turbines. The observed raptor mortalities included turkey vulture (*Cathartes aura*) and red-tailed hawk (*Buteo jamaicensis*). These raptor species are considered common species in the province. This resulted in an estimated raptor mortality rate of 0.37 raptors/turbine/year (0.12 raptors/MW/year), which is above the provincial threshold of 0.20 raptors/turbine/year.

During twice weekly searches from May 1 to October 31, 2017, a total of 126 bat mortalities were documented within the search areas around the subset of 23 turbines. Bat mortalities of both long-distance migratory species and resident species were documented, including hoary bat (*Lasiurus cinereus*), silver-haired bat (*Lasionycteris noctivagans*), eastern red bat (*Lasiurus borealis*), and big brown bat (*Eptesicus fuscus*). The first 3 species above are considered long-distance migratory species which over-winter outside of Ontario, and accounted for approximately 72% of the total bat mortality observations at the Niagara Region Wind Farm in 2017. Using appropriate correction factors, an estimated bat mortality rate of 8.67 bats/turbine/year (2.89 bats/MW/year) was determined for the Niagara Region Wind Farm. This is below the provincial threshold of 10 bats/turbine/year.

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1.0 Introduction

Natural Resource Solutions Inc. (NRSI) was retained to conduct the first year of post-construction monitoring at the operational Niagara Region Wind Farm (Niagara Region WF), which is located within the Townships of West Lincoln and Wainfleet, and the Town of Lincoln, within Niagara Region and Haldimand County, Ontario. The Niagara Region WF consists of 77 wind energy generating turbines with a total nameplate capacity of 230MW. The project area and turbine locations can be seen on Map 1.

Post-construction monitoring at the Niagara Region WF in 2017 included bird, bat, and raptor mortality monitoring, searcher efficiency trials, scavenger removal trials, and visibility class mapping of substrates searched. These surveys were conducted in accordance with provincial guidelines and approval conditions (Renewable Energy Approval (REA); 4353-9HMP2R) of the project to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

The purpose of this report is to provide the detailed methods and results from the first year of post-construction mortality monitoring conducted at the Niagara Region WF.

For the purposes of this report, NRSI will frequently use the terms ‘mortality’ and ‘carcass’. The term ‘mortality’ will refer to dead birds and bats that were found in the vicinity of turbines at the Niagara Region WF. The term ‘carcass’ will refer to dead birds and bats that have been placed beneath wind turbines by NRSI staff for the purposes of searcher efficiency and/or scavenger removal trials.

2.0 Mortality Monitoring Methodology

2.1 Mortality Monitoring

2.1.1 Sample Locations

For wind energy projects consisting of greater than 10 turbines, a subset of at least 30% of turbines (minimum 23 turbines) is required to be monitored (OMNR 2011a, OMNR 2011b, MOE 2016 [L4(1)]). In accordance with these requirements, a subset of 23 turbines (30%) was selected by NRSI in consultation with the Ministry of Natural Resources and Forestry (MNRF, M. Poskin pers. comm.), which included the turbines identified in the Environmental Effects Monitoring Plan (EEMP; Stantec 2013). However, access to one of the selected turbines (T98) was refused part-way through the monitoring season, beginning May 24, 2017. As a result, turbine T99 replaced T98 in the subset of twice-weekly monitored turbines beginning May 25, 2017. This substitution occurred in consultation with the MNRF (A. Cameron pers. comm.). No mortalities were documented at turbine T98; therefore, it will not be considered further within this report. The subset of turbines that were monitored at the Niagara Region WF is shown on Map 1.

2.1.2 Monitoring Period and Search Frequency

NRSI biologists conducted twice weekly (3 and 4 day intervals) mortality monitoring at the subset of 23 turbines during the entire monitoring period of May 1 to October 31, 2017. Raptor mortality monitoring continued once weekly at the subset of 23 turbines throughout the month of November, and at all other turbines once per month from May to November (inclusive). Due to turbines T01 and T58 being located in close proximity to habitat that was confirmed significant for winter raptor use, weekly mortality searches also occurred at these 2 turbines from January to March, and again throughout December.

As a result of inclement weather and other safety concerns, some turbines could not be searched on particular dates. These relatively minor adjustments to the monitoring protocol are not expected to impact the results or conclusions presented in this report. The dates when turbines were not able to be searched are listed in Table 1.

Table 1. Summary of Regular Search Days When Turbines Could Not be Searched (2017)

Date (2017)	Turbine(s)	Rationale
June 20	T62, T63	Conflicting landowner activities (spraying)
June 27	T80	Inclement weather (thunderstorms)
July 13	T81	Inclement weather (thunderstorms)

2.1.3 Sample Area and Survey Duration

NRSI biologists conducted mortality searches within a 50m radius of each turbine base. Mortality searches were conducted using linear transects, spaced approximately 5m apart. Any mortality that was incidentally observed beyond the search radius was still documented, photographed, and collected, but was not included in formal calculations of estimated mortality rates. In order to maintain a consistent search effort, mortality searches followed a consistent search time throughout each month of searching. At the subset of 23 turbines, a search time of 20 minutes per turbine was used during the months of January, February, March, May, June, November, and December. In an attempt to increase the searcher efficiency values, and ultimately the accuracy of the estimated mortality rates during periods commonly associated with higher potential for mortality, the search effort was increased to 30 minutes per turbine during the months of July, August, and September.

2.1.4 Data Collection

During each visit to conduct mortality searches, all appropriate information was documented, including weather conditions, date, time and observer. The mortality monitoring data sheet has been provided in Appendix I.

In addition to general information collected on each visit, a variety of specific information was recorded upon encountering any mortality. This detailed information, as shown on the data sheet provided in Appendix I, included species (if identifiable), sex, condition code, estimated time since death, any apparent injuries, direction and distance from turbine base, substrate type and visibility class, and a unique mortality identification number for future reference. Specific UTM coordinates and photographs were also taken for each specimen to allow for further analysis, if necessary.

2.2 Scavenger Removal Trials

Scavenger removal trials were conducted in each of the spring, summer and fall seasons of mortality monitoring. For the purposes of this monitoring program, the spring monitoring season is defined as the months of May and June, the summer season is July and August, and the fall season is September and October. A minimum of 10 carcasses were placed during each monitoring season. No more than 5 carcasses were placed at one time and no more than 1 carcass was placed at any single turbine during each placement event. These measures were taken to avoid bias in the trial resulting from saturation of carcasses available to scavengers. Carcasses were placed throughout the range of habitats and substrate types being searched during each season. Species, UTM coordinates, direction and distance from turbine base, substrate and visibility class were all noted on a data sheet during the placement of each specimen. The scavenger removal data sheet has been provided in Appendix I.

Carcasses placed included both bird and bat specimens, with each trial consisting of at least one-third representation of each of bird and bat carcasses. Bird carcasses included species commonly encountered in this region of the province and ranged in size from very small to moderately-sized carcasses. Migratory bat carcasses were used in each seasonal scavenger trial, and included hoary bat (*Lasiurus cinereus*), eastern red bat (*Lasiurus borealis*) and silver-haired bat (*Lasionycteris noctivagans*). Carcasses used in scavenger removal trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. A list of all of the bird and bat species used during scavenger removal trials has been provided in Appendix II.

During each scavenger removal trial, the bird and bat carcasses were left for up to 14 days and were checked at the same frequency as mortality searches, or approximately twice per week, to note any scavenging or signs of scavenger presence. Following completion of the scavenger removal trials after 14 days, all remaining test carcasses were picked up and disposed of appropriately.

2.3 Searcher Efficiency Trials

In conjunction with mortality searches, NRSI conducted searcher efficiency trials on staff that conducted mortality searches at the Niagara Region WF. Similar to scavenger removal trials, searcher efficiency trials must be conducted at least once per season, and on each searcher and in each visibility class that was searched during that season. In order to obtain more accurate results and to account for seasonal changes in groundcover, weather, or soil saturation, NRSI conducted monthly searcher efficiency trials from May to October. During each trial, searchers were tested without their knowledge through the placement of a minimum of 10 test carcasses in each visibility class searched by the searcher. In almost all instances, no more than 3 carcasses were placed on any one date, as per the *Environmental Effects Monitoring Plan for Wildlife and Wildlife Habitat* (EEMP) (Stantec 2013), however on a single occasion, a total of 4 carcasses were accidentally placed. Based on the large size of the project, the placement of 4 carcasses on a single date is not expected to have resulted in any indication to the searcher that a trial was occurring. Carcasses were placed randomly within the search radius of the 23 subset turbines at the Niagara Region WF. Distance and direction from turbine base, visibility class and substrate type were recorded for each test carcass placed. Each found specimen was later compared to the total number of carcasses placed within the project area, the locations of their placement, and species placed. The data sheet used for searcher efficiency trials has been provided in Appendix I.

In order to discreetly mark carcasses, while minimizing human influence, NRSI marked the trial carcasses by using a combination of UTM coordinates, distance and direction from the turbine, and location on a field map. Each of these steps is used to clearly mark the location and attributes of the trial carcass for future reference should there be any uncertainty about whether or not the observed carcass is a turbine-related fatality.

Searcher efficiency carcasses included both bird and bat specimens, with each trial consisting of at least one-third representation of each of bird and bat carcasses. Bird carcasses included species commonly encountered in this region of the province and varied in size from very small to moderate-sized carcasses. Bat carcasses used during searcher efficiency trials included the 3 migratory species known to occur in Ontario,

hoary bat, eastern red bat, and silver-haired bat. Carcasses used in searcher efficiency trials were obtained from the Royal Ontario Museum and/or were collected from operational wind energy facilities within Ontario. Trial carcasses themselves were unmarked to avoid introducing bias by alerting the searcher to the trial. A list of all of the bird and bat species used during searcher efficiency trials has been provided in Appendix I.

2.4 Proportion of Area Searched

Following MNRF guidelines, visibility class maps were completed by searchers at a minimum frequency of once per season (OMNR 2011a, OMNR 2011b). Due to the potential for changing conditions, NRSI completed visibility class maps once per month from May to October to provide additional information to support whether more frequent searcher efficiency trials were warranted, and ultimately to increase the accuracy of the estimated mortality rates.

Visibility class mapping was completed for the full 50m search radius at each of the subset of 23 turbines. This mapping categorized portions of the search area according to visibility classes recommended by the MNRF (OMNR 2011a, OMNR 2011b). These include visibility classes 1 through 4, in addition to areas which may be deemed "unsearchable", such as aquatic features, wooded areas, areas deemed safety hazards, or other areas where searching was not possible. Mapping of these visibility classes within each search radius was conducted and calculated as per a repeatable methodology using a combination of the visibility class field maps, review of aerial photographs, and Geographic Information System (GIS) software. The data sheet used to record visibility class mapping has been provided in Appendix I.

In an effort to increase the accuracy of searcher efficiency rates and minimize the influence of the proportion of area searched on the bird and bat mortality estimates, the majority of the search radius at the subset of 23 turbines was maintained at visibility classes 1 or 2 by plowing or mowing for the duration of the regular monitoring year (May through November), as needed. Small areas of other visibility classes were occasionally present, particularly near the limit of the 50m radii. When small and temporary areas of other visibility classes were present, they were searched thoroughly until scheduled vegetation maintenance could occur. As a result, the majority of the 50m radius at each

turbine was searched for the duration of the 2017 monitoring period. At a small number of turbines, some larger areas were mapped as visibility classes that were not searched as part of this monitoring program (i.e. visibility class 3/4) during a particular month. These larger areas that persisted in more difficult visibility classes for the majority of the month were not searched in that month, and the appropriate Proportion of Area Searched was calculated. Visibility class maps for each turbine in each month have been provided in Appendix VII.

The maintenance of the 50m search radius was only completed when necessary to maintain suitable mortality visibility and it also followed a strict schedule that ensured the maintenance activities were completed in a manner to minimize or eliminate any potential negative influence on the mortality monitoring and searcher efficiency or scavenger removal trials. The maintenance of the search areas is expected to increase the accuracy of the final estimated mortality rates at the Niagara Region WF.

3.0 Scavenger Removal Trial Results

Scavenger removal rates at the Niagara Region WF were relatively consistent throughout each monitoring season, with low scavenging activity.

Table 2 shows the results from the seasonal scavenger removal trials conducted at the Niagara Region WF. Details on the date placed, species, distance and direction from turbine, visibility class, dates checked and by whom, UTM coordinates, and whether the carcass was scavenged have been provided in Appendix II.

Table 2. Number of Carcasses Remaining During Scavenger Removal Trials at the Niagara Region Wind Farm (2017)

Number of Carcasses Remaining					
Spring Trial (May/June)					
Turbine	**Visit 0**	**Visit 1**	**Visit 2**	**Visit 3**	**Visit 4**
T01	1	1	1	1	1
T02	1	1	1	0	0
T03	1	1	1	1	1
T05	1	0	0	0	0
T07	1	1	1	0	0
T12	1	1	1	1	0
T16	1	1	0	0	0
T24	1	0	0	0	0
T32	1	1	1	1	0
T44	1	0	0	0	0
T45	1	1	1	1	0
T57	1	1	1	1	1
T58	1	1	1	1	1
T61	1	0	0	0	0
T62	1	1	1	0	0
T63	1	1	1	1	1
T66	1	1	1	1	1
T80	1	1	1	1	1
T81	1	0	0	0	0
T94	1	1	1	1	1
Total	**20**	**15**	**14**	**11**	**8**
Summer Trial (July/August)					
Turbine	**Visit 0**	**Visit 1**	**Visit 2**	**Visit 3**	**Visit 4**
T02	1	1	1	1	1
T03	1	1	1	1	1
T05	1	1	1	1	1

Number of Carcasses Remaining					
T07	1	1	1	1	1
T08	1	1	1	1	1
T12	1	0	0	0	0
T24	1	0	0	0	0
T32	1	1	1	1	0
T44	1	1	0	0	0
T45	1	1	1	1	0
T57	1	1	1	1	1
T58	1	1	1	1	1
T61	1	1	1	0	0
T62	1	0	0	0	0
T63	1	0	0	0	0
T66	1	0	0	0	0
T80	1	1	1	1	1
T81	1	1	1	1	1
T94	1	1	0	0	0
T95	1	1	1	1	1
Total	**20**	**15**	**13**	**12**	**10**
Fall Trial (September/October)					
Turbine	**Visit 0**	**Visit 1**	**Visit 2**	**Visit 3**	**Visit 4**
T02	2	2	2	2	2
T03	2	2	1	1	1
T05	2	1	1	1	1
T12	1	1	0	0	0
T16	1	0	0	0	0
T24	1	1	1	1	1
T44	1	0	0	0	0
T45	1	0	0	0	0
T57	2	2	2	2	2
T58	2	1	0	0	0
T62	1	0	0	0	0
T63	1	1	1	0	0
T80	2	2	2	2	2
T95	1	1	1	1	1
Total	**20**	**14**	**11**	**10**	**10**

To address the scavenger removal rates for each of the specific monitoring periods, NRSI has used the following equation recommended by the MNRF:

$$Sc = \frac{n_{visit1} + n_{visit2} + n_{visit3}\ldots}{n_{visit0} + n_{visit1} + n_{visit2}\ldots}$$

Sc: proportion of carcasses not removed by scavengers

n_{visit0}: total number of carcasses placed
n_{visit1} – n_{visit3}…: numbers of carcasses remaining on visits 1 through 3 etc.

Using the scavenger removal results seen in Table 2, and the equation provided by the MNRF, the seasonal scavenger removal rates have been determined as follows:

Sc_{Spring} = (15 + 14 + 11 + 8) / (20 + 15 + 14 + 11)
= 48 / 60
= **0.80**

Sc_{Summer} = (15 + 13 + 12 + 10) / (20 + 15 + 13 + 12)
= 50 / 60
= **0.83**

Sc_{Fall} = (14 + 11 + 10 + 10) / (20 + 14 + 11 + 10)
= 45 / 55
= **0.82**

The above scavenger removal rates represent the proportion of carcasses still remaining from one visit to the next. These values generally represent a low level of scavenging activity throughout the monitoring seasons. These values will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0.

4.0 Searcher Efficiency Trial Results

Searcher efficiency rates at the Niagara Region WF were generally high throughout the 2017 monitoring season, with a slightly lower rate documented during the spring season. Results of the monthly searcher efficiency trials are summarized in Table 3 below. Details on the searcher and tester, species, distance and direction from turbine, habitat, substrate, visibility class, UTM coordinates, and whether the carcass was found or scavenged have been provided in Appendix III.

Table 3. Results of Searcher Efficiency Trials at the Niagara Region Wind Farm (2017)

Searcher	Carcasses Found	Carcasses Placed	Carcasses Scavenged	Searcher Efficiency (Se)	Proportion of Turbines Searched
May 2017					
Searcher A	15	20	0	0.75	0.48
Searcher B	16	27	1	0.62	0.52
June 2017					
Searcher A	16	20	0	0.80	0.47
Searcher B	19	29	3	0.73	0.53
July 2017					
Searcher A	17	21	1	0.85	0.45
Searcher B	19	21	1	0.95	0.52
Searcher C[1]	N/A	N/A	N/A	0.90	0.03
August 2017					
Searcher A	14	20	0	0.70	0.48
Searcher B	16	20	0	0.80	0.50
Searcher D[1]	N/A	N/A	N/A	0.75	0.02
September 2017					
Searcher A	19	20	0	0.95	0.48
Searcher B	16	22	2	0.80	0.52
October 2017					
Searcher A	18	20	0	0.90	0.46
Searcher B	19	20	0	0.95	0.49
Searcher E[1]	N/A	N/A	N/A	0.93	0.03
Searcher F[1]	N/A	N/A	N/A	0.93	0.02

[1]This searcher searched for 1 day during the month and therefore could not be properly tested for searcher efficiency following MNRF guidelines (i.e. 7 search days are required for proper testing in 2 visibility classes since no more than 3 carcasses can be placed at a time). As a result, the average result obtained by the regular searchers in this month was used for these searchers.

Based on the information collected during detailed searcher efficiency trials and the equations recommended by the MNRF, overall searcher efficiency (SeO) was calculated for each of the monitoring months as follows:

$$Se = \frac{\text{number of test carcasses found}}{}$$

number of test carcasses placed – number of carcasses scavenged

SeO = Se_A(proportion of turbines searched) + Se_B(proportion of turbines searched)…

SeO_{May} = 0.75(0.48) + 0.62(0.52) = **0.68**
SeO_{June} = 0.80(0.47) + 0.73(0.53) = **0.76**
SeO_{July} = 0.85(0.45) + 0.95(0.52) + 0.90(0.03) = **0.90**
SeO_{August} = 0.70(0.48) + 0.80(0.50) + 0.75(0.02) = **0.75**
$SeO_{September}$ = 0.95(0.48) + 0.80(0.52) = **0.87**
$SeO_{October}$ = 0.90(0.46) + 0.95(0.49) + 0.93(0.03) + 0.93(0.02) = **0.93**

These searcher efficiency values generally represent relatively moderate to high searcher efficiency rates, which are likely attributed to the additional search effort and steps to maintain a clear search area, and steps taken to keep the search areas in low visibility classes (i.e. clear and more easily searched) to increase the accuracy of the estimated mortality rate. These values will be used to calculate the estimated avian and bat mortality rates in Sections 6.0 and 8.0.

5.0 Proportion of Area Searched

Visibility class mapping was completed every month from May to October within the 50m search radius at each of the 23 subset turbines in order to reflect changes in groundcover and resulting visibility classes. All habitat maps have been provided in Appendix VII.

Visibility class mapping was used in combination with GIS software to determine the specific area and sizes of each of the visibility classes identified within the turbine search areas. During the 2017 monitoring program, NRSI biologists searched all areas of visibility classes 1 or 2 at each subset turbine, which have been combined to represent the proportion of area searched (Ps). Table 4 below shows the Ps value during each month of the monitoring season for all 23 of the subset turbines. These values will be used to calculate the estimated avian, raptor and bat mortality rates in Sections 6.0, 7.0, and 8.0.

Table 4. Proportion of Area Searched at the Niagara Region Wind Farm (2017)

Month	Total Searched Area (m^2)	Total Search Radius (m^2)	Proportion of Area Searched (Ps)
May	156,967	180,550	0.87
June	166,313	180,550	0.92
July	163,948	180,550	0.91
August	174,223	180,550	0.96
September	174,860	180,550	0.97
October	177,693	180,550	0.98

6.0 Avian Mortality Results

6.1 Avian Mortalities

During the 2017 mortality monitoring period at the Niagara Region WF, NRSI biologists found 111 bird mortalities within 50m of the monitoring subset of 23 turbines. The mortalities that could be identified to species level were primarily confirmed to be small landbirds, generally representing a variety of common species for this area of the province. The most commonly observed mortalities were of tree swallow (*Tachycineta bicolor*; n=64) and purple martin (*Progne subis*; n=14). Five bird mortalities could not be identified to the species level due to advanced decomposition and/or scavenging activity, and were therefore identified as swallow species (n=2), warbler species (n=2), and bird species (n=1).

A list of avian mortalities observed during the mortality searches has been provided in Appendix IV.

6.2 Temporal Distribution of Avian Mortalities

The observed bird mortalities were relatively low throughout the spring season, with subsequent increases in mortalities observed in each of the summer and fall seasons, respectively. The highest number of bird mortalities was documented in the month of September (n=56). Up to 16 mortalities were documented on a single monitoring date, which was observed on September 21, 2017. The distribution of avian mortalities by month is shown in Figure 1 below.

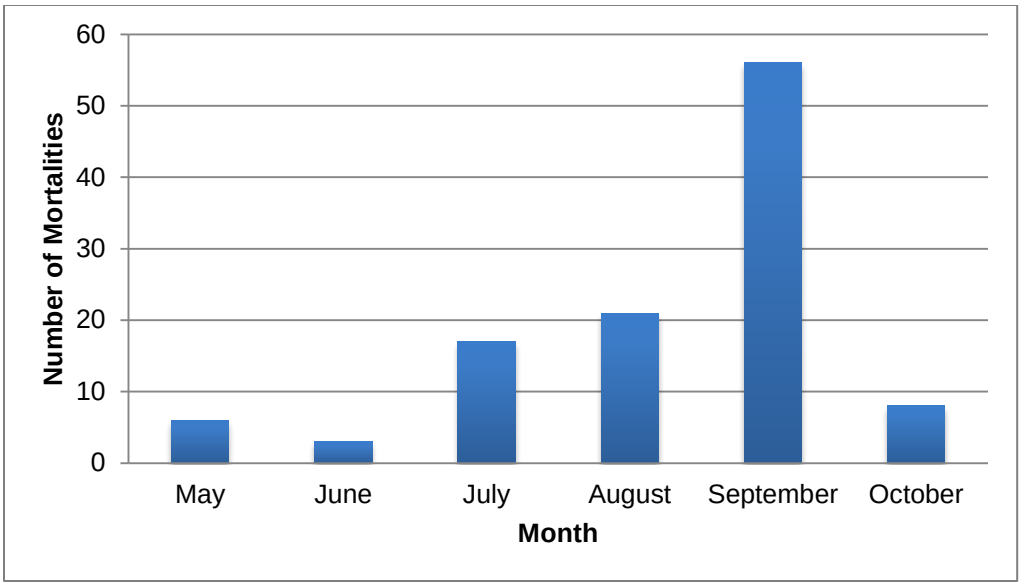

Figure 1. Bird Mortalities Observed by Month at the Niagara Region Wind Farm (2017)

6.3 Spatial Distribution of Avian Mortalities

Avian mortalities were observed at each of the 23 subset turbines. The number of avian mortalities observed at each turbine varied, with the highest number of mortalities occurring at turbines T03 (n=19), T94 (n=11), and T95 (n=11), and the lowest number of mortalities occurring at turbines T05, T32, T57, T63, and T99, which each had a single avian mortality during the monitoring season (see Figure 2 below).

Details regarding each avian mortality, including date, time, location, and species are summarized in Appendix IV, and turbine maps identifying the locations of each observed mortality are provided in Appendix VI.

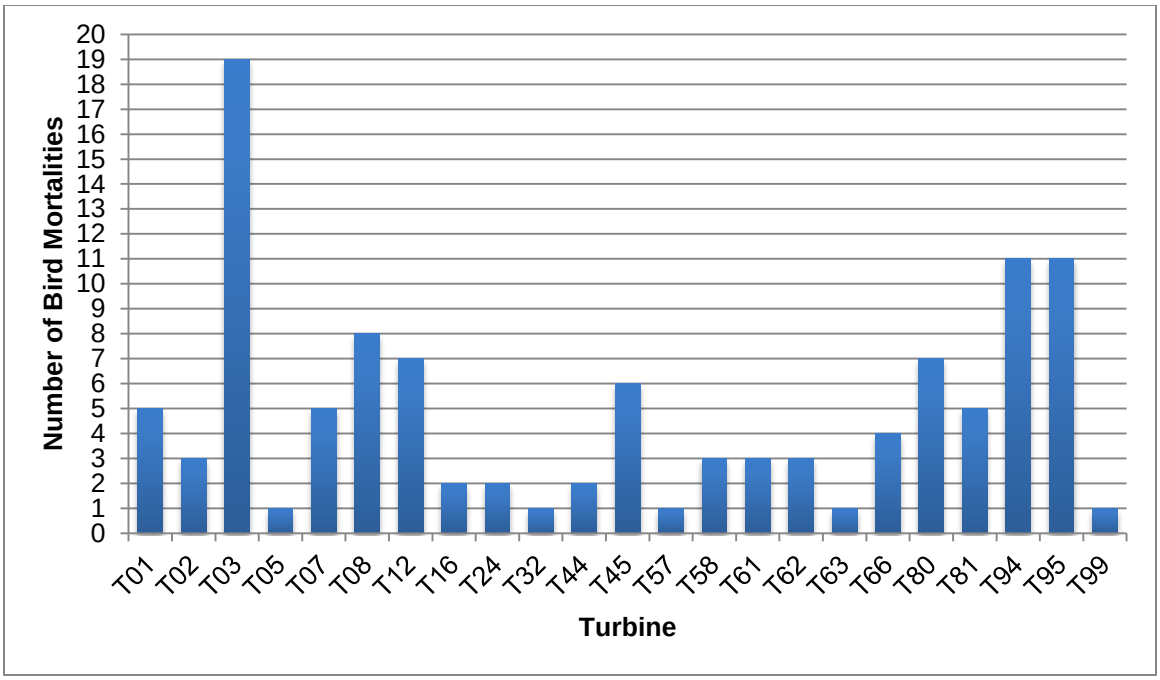

Figure 2. Bird Mortalities Observed by Turbine at the Niagara Region Wind Farm (2017)

Distance and direction of bird mortalities from each of the turbine bases were also documented for each observed mortality. Bird mortalities were found throughout the area searched by NRSI biologists, ranging in distance from 1m to 50m from the turbine base, and averaging a distance of approximately 31m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 3 below. Maps identifying the locations of each observed mortality by turbine are provided in Appendix VI.

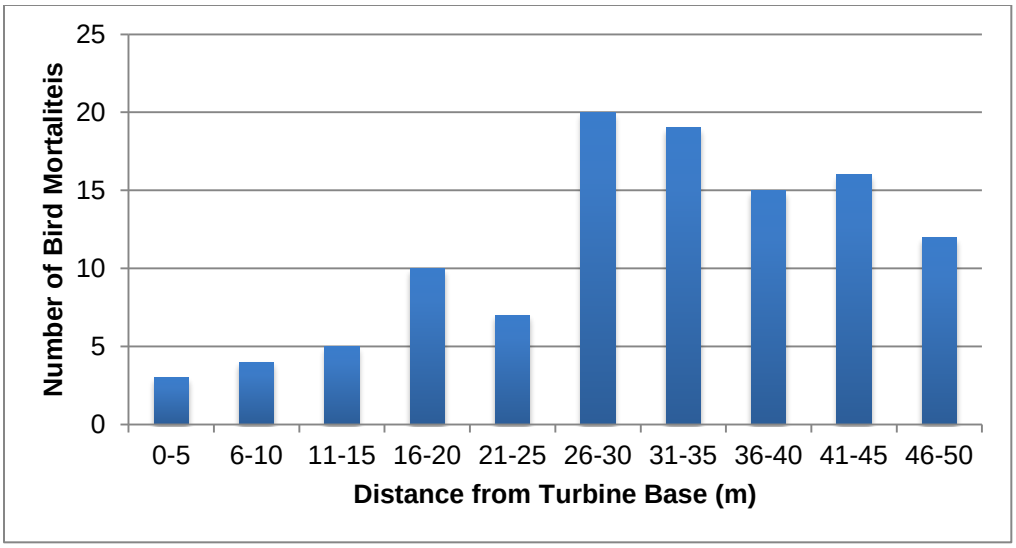

Figure 3. Bird Mortalities Observed by Distance from Turbine at the Niagara Region Wind Farm (2017)

6.4 Mortalities Documented Near Significant Bird Habitats

Based on the proximity of the Niagara Region WF to a significant Migratory Landbird Stopover Area habitat, certain turbines were specifically chosen to be surveyed during the post-construction phase, and specific mention of the turbine-specific results at these turbines is required (Stantec 2013, MOE 2016 [L4(1, 2)]). Table 5 outlines the number of bird mortalities documented at each turbine found within 120m of a significant bird habitat at the Niagara Region WF in 2017.

Table 5. Bird Mortalities Documented at Turbines within 120m of Significant Bird Habitat

Turbine	Significant Bird Habitat Within 120m	Documented Bird Mortalities
Twice-weekly Monitored Turbines		
T16	MLSA1	2
T44	MLSA1	2
T45	MLSA1	6
T61	MLSA1	3
T62	MLSA2	3
T63	MLSA2	1
Monthly Monitored Turbines		
T14	MLSA1	0
T21	MLSA1	0
T22	MLSA1	0
T47	MLSA1	1

6.5 Corrected (Estimated) Avian Mortality

In accordance with the *Birds and Bird Habitats: Guidelines for Wind Power Projects* (OMNR 2011b), estimated avian mortality rates are to be presented by individual or turbine group. Since searcher efficiency and scavenger removal rates have been collected specifically for the turbine subset, NRSI is presenting estimated mortality rates by this same turbine group at which the estimator variables have been collected.

Based on the field observations at the Niagara Region WF, NRSI biologists have compiled the searcher efficiency trial results, scavenger removal trial results, proportion of area searched, and direct mortality observations into an equation that will be used to estimate the total avian mortality at the Niagara Region WF in 2017. The equation recommended by the MNRF is found below:

C = c / (Se*Sc*Ps)

C: Corrected (Estimated) Mortality Rate
c: actual observed mortalities
Se: overall searcher efficiency
Sc: proportion of remaining carcasses
Ps: proportion of area searched

Using the equation and variables described above, the estimated avian mortality rates by month have been presented below:

C_{May} = 6 / (0.68*0.80*0.87) = 6 / 0.4733 = **12.68 birds**
= 0.55 birds/turbine (0.18 birds/MW)

C_{June} = 3 / (0.76*0.80*0.92) = 3 / 0.5594 = **5.36 birds**
= 0.23 birds/turbine (0.08 birds/MW)

C_{July} = 17 / (0.90*0.83*0.91) =17 / 0.6798= **25.01 birds**
= 1.09 birds/turbine (0.36 birds/MW)

C_{August} = 21 / (0.75*0.83*0.96) = 21 / 0.5976 = **35.14 birds**
= 1.53 birds/turbine (0.51 birds/MW)

$C_{September}$ = 56 / (0.87*0.82*0.97) = 56 / 0.6920 = **80.92 birds**
= 3.52 birds/turbine (1.18 birds/MW)

$C_{October}$ = 8 / (0.93*0.82*0.98) = 8 / 0.7473 = **10.71 birds**
= 0.47 birds/turbine (0.16 birds/MW)

Total **= 7.39 birds/turbine** (2.47 birds/MW)

6.6 Summary

A total of 111 avian mortalities were documented at the subset of 23 regularly monitored turbines at the Niagara Region WF in 2017 and consisted predominantly of small landbird species, the majority of which represent common species in southern Ontario. The most commonly observed mortalities were of tree swallow (n=64) and purple martin (n=14). Avian mortalities were found at each of the 23 subset turbines, ranging from 1 to 19 mortalities per turbine. The observed bird mortalities were relatively low throughout the spring season, with subsequent increases in mortalities observed in each of the summer and fall seasons, respectively.

Using the appropriate variables and equations recommended by the MNRF, the corrected (estimated) avian mortality at the Niagara Region WF in 2017 was calculated. Table 6 shows the monthly estimated mortality rates as well as the overall estimated avian mortality rate at the Niagara Region WF, as calculated by turbine group.

Table 6. Corrected Bird Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2017)

Month (2017)	Observed Avian Mortalities	Corrected Mortality (birds/turbine)	Corrected Mortality (birds/MW)
May	6	0.55	0.18
June	3	0.23	0.08
July	17	1.09	0.36
August	21	1.53	0.51
September	56	3.52	1.18
October	8	0.47	0.16
TOTAL	**111**	**7.39**	**2.47**

Based on the information collected during the 2017 post-construction monitoring period, the anticipated impact of this facility on birds is characterized by an estimated mortality rate of **7.39 birds/turbine/year** (2.47 birds/MW/year), as calculated by turbine group.

7.0 Raptor Mortality Results

7.1 Raptor Mortalities

Mortality searches resulted in the observation of 8 raptor mortalities at the Niagara Region WF, consisting of red-tailed hawk (*Buteo jamaicensis*) (n=3) and turkey vulture (*Cathartes aura*) (n=5).

Raptor mortalities were observed predominantly during the summer season, with the most mortalities observed in July (n=4). Raptor mortalities were observed at 7 of the 23 subset turbines (30%) and were relatively evenly distributed between turbines, with 2 mortalities occurring at turbine T94, and 1 mortality occurring at each of turbines T02, T08, T16, T32, T45, and T66.

Raptor mortality monitoring was also conducted at all of the other turbines within the project area once per month from May to November (inclusive) (see Section 7.4), and at T01 and T58 once per week from January to March, and during December due to the proximity of these turbines to significant raptor wintering areas (see Section 7.2).

Further details regarding the raptor mortalities have been provided in Appendix IV, and turbine maps identifying the location of each observed mortality are included in Appendix VI.

7.2 Mortalities Documented Near Significant Raptor Wintering Area Habitat

Based on the proximity of the Niagara Region WF to significant Raptor Wintering Area and Short-eared Owl Habitat, certain turbines were specifically chosen to be surveyed during the post-construction phase, and specific mention of the turbine-specific results at these turbines is required. No raptor mortalities were documented at either T01 or T58 during the specific post-construction mortality monitoring completed during the months of January through March, or in December, 2017.

7.3 Corrected (Estimated) Raptor Mortality

Using assumed searcher efficiency and scavenger removal values of 1.00, and the proportion of area searched for the months of June, July, August, and October

respectively (when each observation occurred), the estimated raptor mortality rate is as follows:

C_{June} = 1 / (1.00*1.00*0.92) = 1 / 0.92 = **1.09 raptors**
= 0.05 raptors/turbine (0.02 raptors/MW)

C_{July} = 4 / (1.00*1.00*0.91) = 4 / 0.91 = **4.40 raptors**
= 0.19 raptors/turbine (0.06 raptors/MW)

C_{August} = 2 / (1.00*1.00*0.96) = 2 / 0.96= **2.08 raptors**
= 0.09 raptors/turbine (0.03 raptors/MW)

$C_{October}$ = 1 / (1.00*1.00*0.98) = 1 / 0.98 = **1.02 raptors**
= 0.04 raptors/turbine (0.01 raptors/MW)

Total **= 0.37 raptors/turbine** (0.12 raptors/MW)

The corrected (estimated) raptor mortality at the Niagara Region WF in 2017 was calculated using the appropriate variables and equations recommended by the MNRF. Table 7 shows the monthly estimated mortality rates as well as the overall estimated raptor mortality rate at the Niagara Region WF.

Table 7. Corrected Raptor Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2017)

Month (2017)	Observed Raptor Mortalities	Corrected Mortality (raptors/turbine)	Corrected Mortality (raptors/MW)
January	0	0.00	0.00
February	0	0.00	0.00
March	0	0.00	0.00
May	0	0.00	0.00
June	1	0.05	0.02
July	4	0.19	0.06
August	2	0.09	0.03
September	0	0.00	0.00
October	1	0.04	0.01
November	0	0.00	0.00
December	0	0.00	0.00
TOTAL	**8**	**0.37**	**0.12**

Based on the information collected during the 2017 post-construction monitoring period, the anticipated impact of this facility on raptors is characterized by an estimated mortality rate of **0.37 raptors/turbine/year** (0.12 raptors/MW/year).

7.4 Monthly Raptor Surveys

Monthly mortality searches were conducted from May to November at turbines which are not included in the subset of 23 regularly monitored turbines. These monthly searches resulted in the documentation of 10 additional incidental raptor mortalities within the project area, including 8 turkey vultures and 2 red-tailed hawks. Incidental raptor mortalities were observed relatively evenly throughout the spring, summer and fall. Further details on these incidental raptor mortalities have been provided in Appendix IV.

8.0 Bat Mortality Results

8.1 Bat Mortalities

During the 2017 mortality monitoring period at the Niagara Region WF, NRSI biologists observed 126 bat mortalities within the 50m radius at the subset of 23 turbines that were searched twice weekly.

Bat mortalities represented 4 different species, including 3 long-distance migratory species (hoary bat, eastern red bat, and silver-haired bat), as well as the resident species big brown bat (*Eptesicus fuscus*). The most abundant species observed was hoary bat (n=54), followed by big brown bat (n=35), eastern red bat (n=21), and silver-haired bat (n=16). Observed mortalities of the 3 migratory bat species combine to represent a total of 72% of all documented bat mortalities.

A detailed examination of bat mortalities at the Niagara Region WF has been included in the following sections. Detailed information regarding each bat mortality observed during 2017 post-construction mortality monitoring has been provided in Appendix V.

8.2 Temporal Distribution of Bat Mortalities

Bat mortalities were observed throughout the monitoring period, but were most abundant during the months of July (49.2%) and August (31.7%; see Figure 4 below). The monitoring day with the highest number of documented mortalities occurred on July 25, 2017 (n=14).

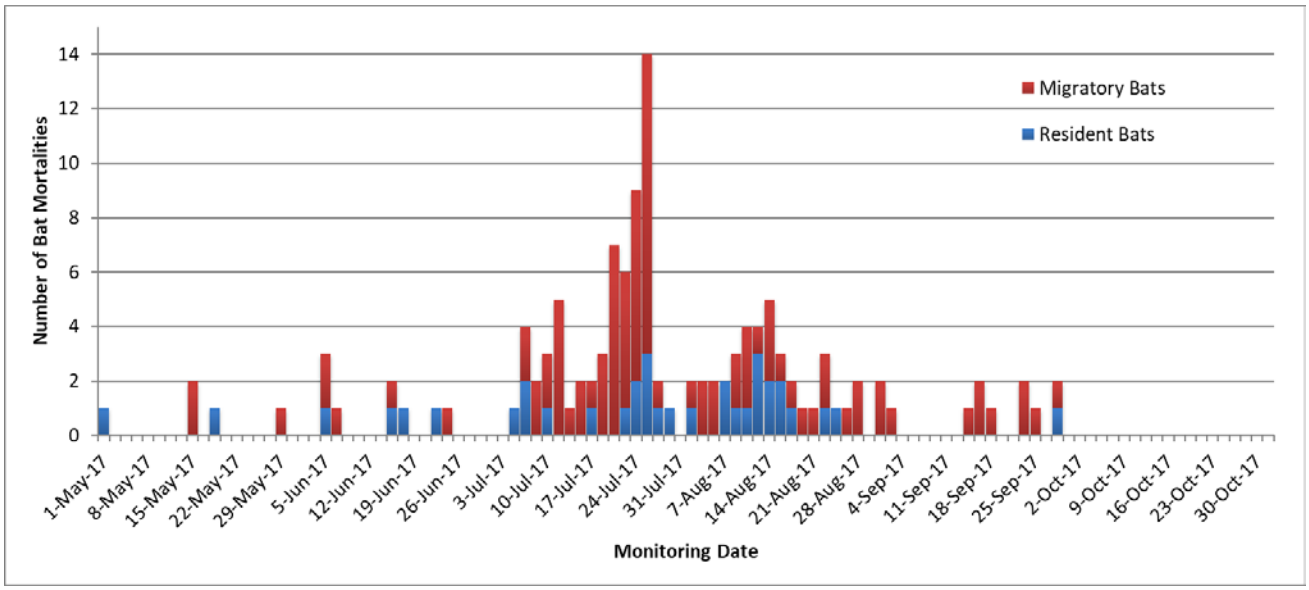

Figure 4. Bat Mortalities Observed by Date at the Niagara Region Wind Farm (2017)

Overall, bat mortality was concentrated during the months of July and August, corresponding to the anticipated peak periods of summer swarming and early fall migration of bats.

8.3 Spatial Distribution of Bat Mortalities

Bat mortalities were observed at all 23 subset turbines at the Niagara Region WF in 2017, ranging from 1 mortality at turbine T81 to 11 mortalities at turbine T80 (see Figure 5 below). The turbines with the highest bat mortality (T80, T57 and T58) are all located in the northeastern quadrant of the project area.

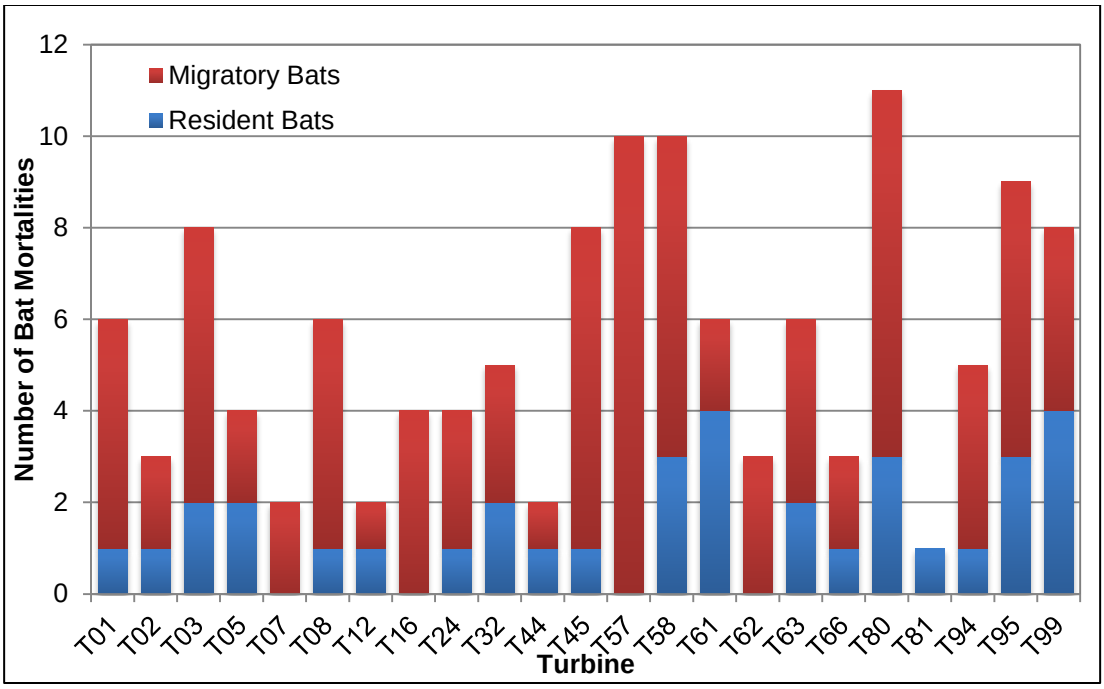

Figure 5. Bat Mortalities Observed by Turbine at the Niagara Region Wind Farm (2017)

Distance and direction of bat mortalities from each of the turbine bases were also documented for each observed mortality. Bat mortalities were found throughout the area searched by NRSI biologists, ranging in distance from less than <1m to 50m from the turbine base, and averaging a distance of approximately 28m from the turbine base. The overall distribution of mortalities by distance class can be seen in Figure 6 below. Maps identifying the locations of each observed mortality by turbine are provided in Appendix VI.

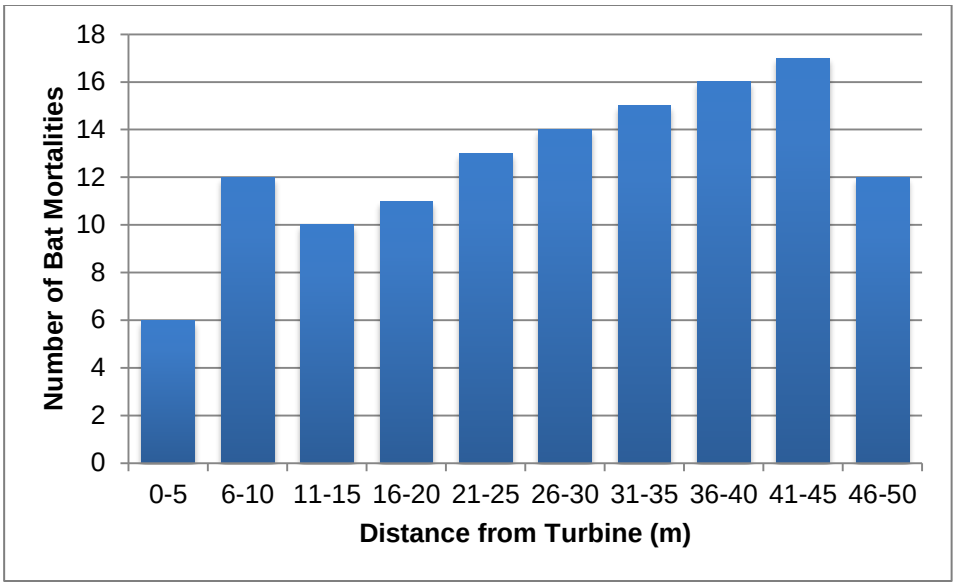

Figure 6. Bat Mortalities Observed by Distance from Turbine at the Niagara Region Wind Farm (2017)

8.4 Corrected (Estimated) Bat Mortality

Based on the field observations at the Niagara Region WF, NRSI biologists have compiled the searcher efficiency trials, scavenger removal trials, proportion of area searched, and direct mortality observations into an equation that will be used to estimate the total bat mortality at the Niagara Region WF in 2017. The equation recommended by the MNRF is found below:

C = c / (Se*Sc*Ps)

C: Corrected (Estimated) Mortality Rate
c: actual observed mortalities
Se: overall searcher efficiency
Sc: proportion of remaining carcasses
Ps: proportion of area searched

Using the equation and variables described above, the estimated bat mortality rates by month have been presented below:

C_{May} = 5 / (0.68*0.80*0.87) = 5 / 0.4733 = **10.56 bats**
= **0.46 bats/turbine** (0.15 bats/MW)

C_{June} = 9 / (0.76*0.80*0.92) = 9 / 0.5594 = **16.09 bats**
= **0.70 bats/turbine** (0.23 bats/MW)

C_{July} = 62 / (0.90*0.83*0.91) = 62 / 0.6798 = **91.20 bats**
= **3.97 bats/turbine** (1.33 bats/MW)

C_{August} = 40 / (0.75*0.83*0.96) = 40 / 0.5976 = **66.93 bats**
= **2.91 bats/turbine** (0.97 bats/MW)

$C_{September}$ = 10 / (0.87*0.82*0.97) = 10 / 0.6920 = **14.45 bats**
= **0.63 bats/turbine** (0.21 bats/MW)

$C_{October}$ = 0 / (0.93*0.82*0.98) = 0 / 0.7473 = **0.00 bats**
= **0.00 bats/turbine** (0.00 bats/MW)

Total **= 8.67 bats/turbine** (2.89 bats/MW)

8.5 Summary

NRSI biologists documented 126 bat mortalities at the Niagara Region WF in 2017. Mortalities included individuals of all 3 of the long-distance migratory bat species in Ontario, hoary bat, eastern red bat, and silver-haired bat, which together comprise 72% of the total bat mortalities observed. Big brown bat, a resident species known to over-winter in Ontario, was also observed. The highest bat mortality was documented in the months of July and August, which combined to represent approximately 81% of all bat mortalities. The greatest number of bat mortalities occurred at T80 (n=11).

Using the appropriate variables and recommended equations provided by the MNRF, the corrected (estimated) bat mortality at the Niagara Region WF in 2017 was calculated. The monthly estimated mortality rates and the overall estimated bat mortality rate for the Niagara Region WF is provided in Table 8 below.

Table 8. Corrected Bat Mortality Rates Based on Mortality Monitoring at the Niagara Region Wind Farm (2017)

Month (2017)	Observed Bat Mortalities	Corrected Mortality (bats/turbine)	Corrected Mortality (bats/MW)
May	5	0.46	0.15
June	9	0.70	0.23
July	62	3.97	1.33
August	40	2.91	0.97
September	10	0.63	0.21
October	0	0.00	0.00
TOTAL	**126**	**8.67**	**2.89**

Based on the information collected during the 2017 post-construction monitoring period, the anticipated impact of this facility on bats is characterized by a corrected mortality rate of **8.67 bats/turbine/year** (2.89 bats/MW/year).

9.0 Mortality Thresholds and Notifications

In accordance with the appropriate MNRF guidelines, project approval conditions, and other commitments made as part of the monitoring program, several mortality thresholds and notification requirements for the Niagara Region WF have been established. The status of each threshold and confirmation of notifications, where applicable, have been described in the following sections.

9.1 Annual Bird Mortality

The annual bird mortality threshold for the Niagara Region WF is 14 birds/turbine/year, calculated by individual turbine or turbine group. Based on an estimated rate of 7.39 birds/turbine/year, as calculated by turbine group, the Niagara Region WF remains below this provincial threshold. Since the results are below the established threshold, no notification is required.

9.2 Annual Raptor Mortality

The annual raptor mortality threshold for the Niagara Region WF is 0.20 raptors/turbine/year (or 0.10 raptors/turbine/year for provincially tracked raptors). Based on an estimated rate of 0.37 raptors/turbine/year and no mortalities of provincially tracked raptors, the threshold has been exceeded. The submission of this report to the MNRF will satisfy the requirement to notify the MNRF within 3 months of the completion of the annual mortality monitoring activities.

9.3 Annual Bat Mortality

The annual bat mortality threshold for the Niagara Region WF is 10 bats/turbine/year. Based on an estimated rate of 8.67 bats/turbine/year, the Niagara Region WF remains below this provincial threshold. Since the results are below the established threshold, no notification is required.

9.4 Significant Bird Mortality Event

In accordance with the Bird and Bird Habitats: Guidelines for Wind Power Projects (OMNR 2011b), significant bird mortality events have been defined by the MNRF as single-day mortality events with 10 or more birds at any one turbine, or 33 or more birds (including raptors) at multiple turbines.

A significant bird mortality event occurred at Niagara Region WF on September 12, 2017 when 12 bird mortalities, all of which were tree swallow, were documented at turbine T03. In accordance with condition L5 of the Niagara Region WF approval conditions (REA #4353-9HMP2R; November 6, 2014), the MNRF and the Director were notified within 48 hours of the identification of the significant bird mortality event.

The significant mortality event occurred during the expected tree swallow migration and associated foraging period in this area of the province, when there is regularly a spike in activity approximately mid September through early October (eBird 2012). Tree swallow mortalities were distributed relatively evenly throughout the project area during the 2017 monitoring year. There does not appear to be an identifiable trend or attractant to either the turbine at which the mortality event occurred, or the surrounding area. Through a detailed ecological consideration of this event, NRSI believes that this was an extremely rare, and isolated, event that remains extremely unlikely to happen again at this turbine at any point in the future.

The following proactive steps will be implemented to ensure a robust monitoring program is in place to remain confident that any future events will be equally well documented, and to present specific mitigation measures that will be implemented in the unlikely scenario of this mortality event occurring again.

- The turbine at which the mortality event occurred, turbine T03, will continue to be included in the subsample of turbines monitored twice-weekly from May 1 through October 31 and once per month during November for at least 2 additional years (2018, 2019).
- In the event that either a significant bird mortality event occurs at turbine T03 or significant mortality to tree swallow occurs at the project, additional habitat and/or behavioural surveys will be conducted and analyzed to determine whether a trend in mortality can be identified, and subsequently develop appropriate mitigation measures based on any observable trends.

Given the rare and isolated nature of this event, and the proactive steps implemented to accurately document any future events, no additional steps are proposed to minimize impacts to birds at this turbine. The potential impact to birds at turbine T03, will continue to be assessed for at least 2 more years. If this impact is reached again, further analysis of spatial, habitat, and temporal trends in mortality will be conducted, such that any

additional steps (if appropriate) are implemented to minimize impacts to this species in future years.

9.5 Bird Mortality Documented Near Significant Bird Habitat

Three Significant Bird Habitat areas have been identified within 120m of the Niagara Region Wind Farm. In accordance with *Birds and Bird Habitats; Guidelines for Wind Power Projects* (OMNR 2011b, Stantec 2013, MOE 2016), mortality triggers must be considered separately for turbines that are located within 120m of bird Significant Wildlife Habitat. This section addresses avian and raptor mortality rates at the following bird Significant Wildlife Habitat, as follows:

- Significant Landbird Migratory Stopover Area Habitat
- Significant Raptor Wintering Area
- Short-eared Owl Habitat

Six regularly searched turbines (T16, T44, T45, T61, T62, and T63), and 4 once-monthly searched turbines (T14, T21, T22, and T47) are located within 120m of Significant Landbird Migratory Stopover Area Habitat. None of these turbines exceeded the provincial threshold of 14 birds/turbine/year. whether considered individually or as a turbine group. Of the 14 avian mortalities that occurred across the 8 turbines within 120m of MLSA1, over one-third (64%; n=9) were documented during the summer months and not associated with expected migratory time periods. Furthermore, no significant bird mortality events were documented at any of the turbines within 120m of MLSA1 or MLSA2.

Two regularly searched turbines are located within 120m of the Significant Raptor Wintering Area/Short-eared Owl Habitats (T01 and T58). No raptor mortalities were documented at either turbine during the seasonality associated with wintering raptors, typically January to March, and December. Furthermore, no raptor mortalities were documented at either turbine throughout the remainder of the monitoring year. Therefore, despite an overall exceedance of the project-wide raptor thresholds, it is apparent that neither the winter monitoring season nor these 2 specific turbines have contributed to the overall raptor exceedance.

Based on the results presented above, NRSI has confirmed that no thresholds have been specifically exceeded at turbines within 120m of bird Significant Wildlife Habitat. As a result, no notification is required.

9.6 Species at Risk Mortality Event

Any Species at Risk (SAR; MNRF 2017) mortality documented during post-construction mortality monitoring at the Niagara Region WF requires formal notification to the MNRF within 24 hours following a confirmed species identification (Stantec 2013; 2015). In accordance with the *Environmental Effects Monitoring Plan for Wildlife and Wildlife Habitat* (Stantec 2013), notification was sent to the MNRF within 24 hours, following confirmed identification of any SAR mortality at the Niagara Region WF.

10.0 Summary and Conclusions

NRSI was retained to conduct the first year of post-construction monitoring at the operational Niagara Region WF. The Niagara Region WF consists of 77 wind energy generating turbines, with a total nameplate capacity of 230MW.

Post-construction monitoring at the Niagara Region WF in 2017 included bird, bat, and raptor mortality monitoring, searcher efficiency trials, scavenger removal trials, and visibility class mapping. These surveys were conducted to assess the potential impacts of this wind energy generating facility on local and migratory birds and bats.

A total of 111 avian mortalities were documented at the Niagara Region WF during the 2017 monitoring period. The observed mortalities at this facility were predominantly common landbird species. Given the number of observed avian mortalities, searcher efficiency rates, scavenger removal rates, percent area searched and the equation recommended by the MNRF, a total corrected (estimated) avian mortality rate of **7.39 birds/turbine/year** (2.47 birds/MW/year), as calculated by turbine group, has been determined for the Niagara Region WF. This estimated mortality rate is below the threshold level of 14 birds/turbine/year established by the MNRF guidelines. One significant bird mortality event of 10 or more birds at any one turbine was observed during the monitoring program in 2017.

A total of 8 raptor mortalities were documented at the Niagara Region WF during the 2017 monitoring period. Based on the observed raptor mortalities, a corrected (estimated) raptor mortality rate of **0.37 raptors/turbine/year** (0.12 raptors/MW/year) has been determined for the Niagara Region WF. This estimated raptor mortality rate is above the provincial threshold level of 0.20 raptors/turbine/year established by the MNRF guidelines.

A total of 126 bat mortalities were documented at the Niagara Region WF during the 2017 mortality monitoring period. Migratory bat species were the most commonly observed mortalities, making up approximately 72% of documented mortalities. Based on the observed bat mortalities, searcher efficiency rates, scavenger removal rates, percent area searched and equations recommended by the MNRF, a total corrected

(estimated) bat mortality rate of **8.67 bats/turbine/year** (2.89 bats/MW/year) has been determined for the Niagara Region WF. The estimated bat mortality rate is below the threshold level of 10 bats/turbine/year established by the MNRF guidelines.

11.0 References

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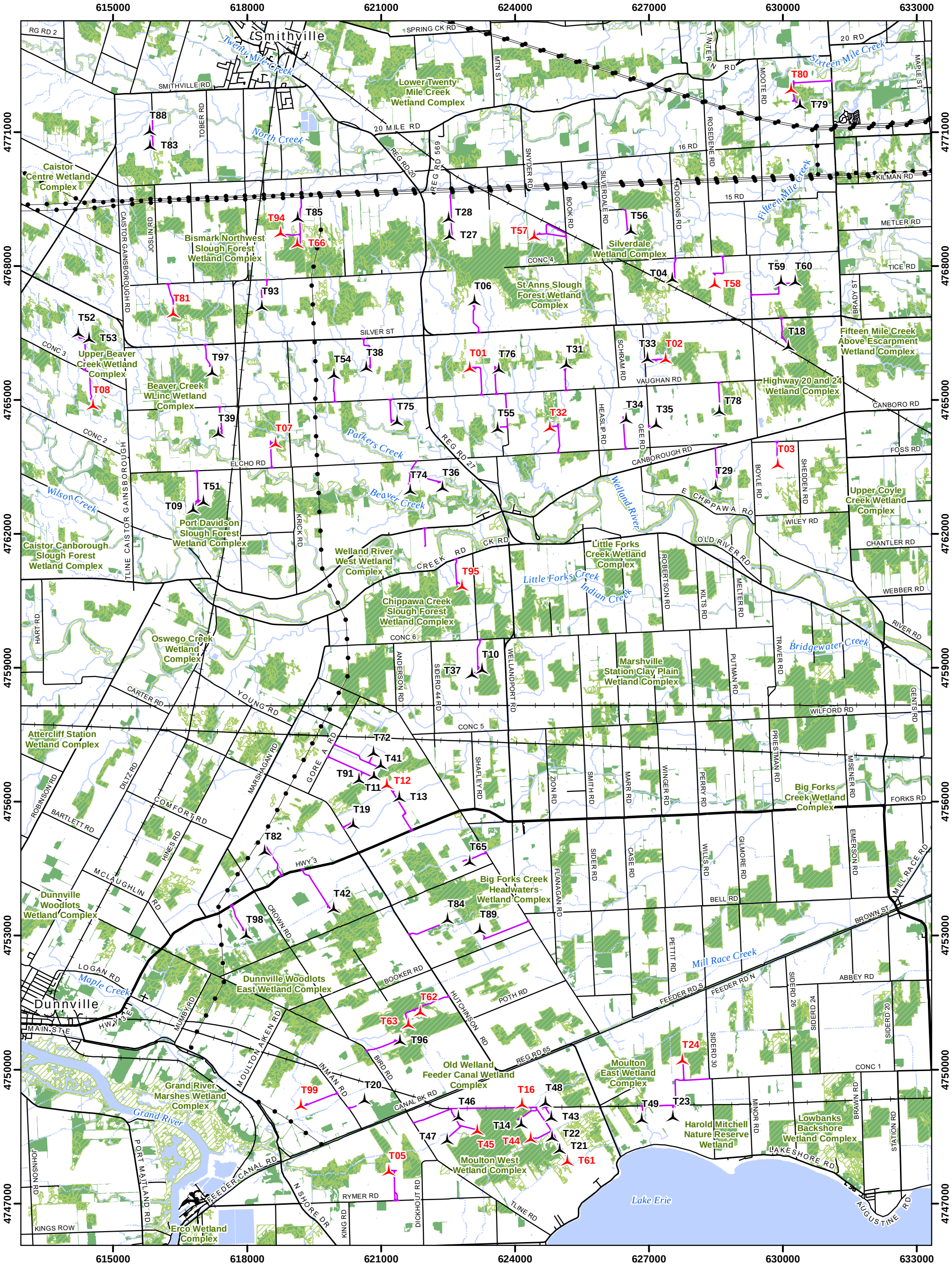
Maps



Legend

- Turbine (Twice-weekly)
- Turbine (Monthly)
- Access Road
- Utility Line
- Railway
- Highway
- Primary Road
- Secondary Road
- Permanent Watercourse
- Intermittent Watercourse
- Water Body
- Wetland
- Wooded Area

Map 1

Niagara Region Wind Farm

Mortality Monitoring Turbines

NATURAL RESOURCE SOLUTIONS INC.
Aquatic, Terrestrial and Wetland Biologists

0 1 2 3 Kilometers

Project: 1865A
Date: January 11, 2018
NAD83 - UTM Zone 17
Scale 1:80,000 (11x17")

N

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_Map1_MortalityMonitoringTurbines_80K_2018_01_11_KEF.mxd

Appendix I
Post-construction Monitoring Data Sheets

Bird and Bat Mortality Search Summary

Date (dd/mm/yy): ____/____/____ Observer(s): _____ Project Name: _____ Project No: _____

Start Time (24hrs): _____hrs Dog Used? Y N Days Since Last Search (*i.e. Mon to Thurs = 3 days*): _____days

WEATHER

Temp: _____°C Cloud Cover: _____ % Wind Speed: _____ Wind Direction (from): _____ (use N,SW, etc.)

Visibility: High Medium Low Precip: None Rain Fog Weather Comments: _____

Significant Weather before visit?_____

COMMENTS (ex. wildlife notes, landowner interactions, turbine maintenance, unsearchable areas, etc.)

_____

_____

_____

_____

SEARCH RESULTS

Scheduled Search			Mortality Results. Enter "None" if no mortalities found.													
Turbine #	Start Time (24hr)	End Time (24hr)	Sample ID (PROJ#-DDMMYY-TXX-Mortality No.)	Species Found	Bat FA (mm)	Sex (M/F)	UTM		Dist. from Turbine (m)	Dir. from Turbine (°)	CC	Est. Time Since Death (hrs)	Injuries	Substrate/Habitat	VC	Photo No.(s)
							Easting	Northing								

CC = Condition Codes: I: Injured or Dying, F: Fresh, E: Early Decomposition, M: Moderate Decomposition, A: Advanced Decomposition, C: Complete Decomposition, S: Scavenged

Injuries: Describe any injuries to the bird carcass (e.g. none observed, broken neck, broken left wing, decapitated, laceration etc.)

Substrate/Habitat Types: The material upon which the carcass was found (ex. gravel, soy, corn, open soil, mud, standing water, concrete etc.)

VC = Visibility Class Codes: Class 1: >90% bare ground, <15cm tall Class 2: >25% bare ground, <15cm tall Class 3: < 25% bare ground, <25% >30cm tall Class 4: little or no bare ground, >25% >30cm tall

FA (mm) = Forearm Length (mm): Measure the length of the leading edge of the wing between the wrist and the elbow (mm)

Scavenger Removal Data Form

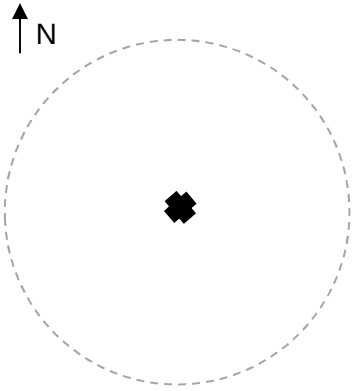
Project Name:_____ **Project #:** _____

Visit #	Day	Date	Obs.	Temp (°C)	Wind Speed	Wind Direction	Precip.	Visibility	Cloud Cover (%)	Cloud Height
0	0									
1										
2										
3										
4										

Turbine No. _____

Specimen 1: Species _____ Dist: _____ Dir: _____ UTM: _____
Visibility Class: _____ Notes:_____

Specimen 2: Species _____ Dist: _____ Dir: _____ UTM: _____
Visibility Class: _____ Notes:_____

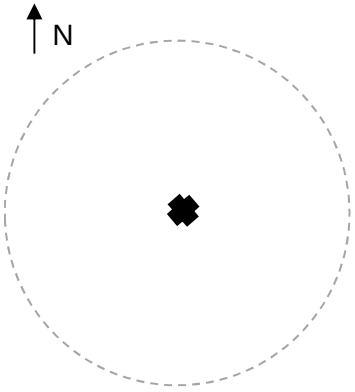


Day	Time	Specimen 1			Specimen 2		
		Present	Signs of Scavenging	Photo No.(s)	Present	Signs of Scavenging	Photo No.(s)

Turbine No. _____

Specimen 1: Species _____ Dist: _____ Dir: _____ UTM: _____
Visibility Class: _____ Notes:_____

Specimen 2: Species _____ Dist: _____ Dir: _____ UTM: _____
Visibility Class: _____ Notes:_____



Day	Time	Specimen 1			Specimen 2		
		Present	Signs of Scavenging	Photo No.(s)	Present	Signs of Scavenging	Photo No.(s)

Searcher Efficiency Data Form

Project Name:_____ **Project #:** _____

Date: _____ Time: _____hrs Searcher: _____ Placed By: _____

Condition of Carcasses: Fresh Thawed Carcasses marked (and how)?_____

WEATHER

Temp: _____ °C *Wind Speed: _____ Wind Direction (*from*): _____ Visibility: High Medium Low

Cloud Cover (%): _____ Cloud Height: High Medium Low Precipitation: Rain Fog Snow None _____

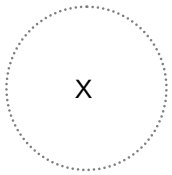
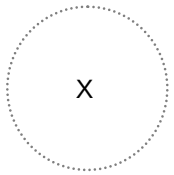
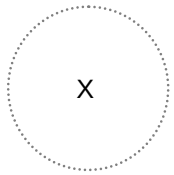
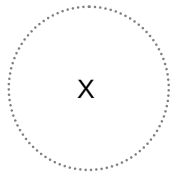
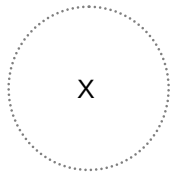
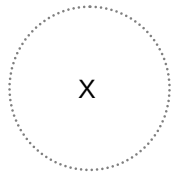
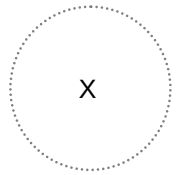
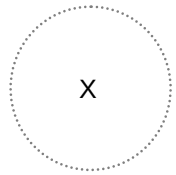
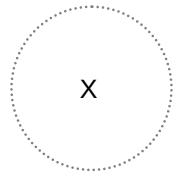
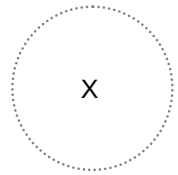
Additional Weather or Other Comments: _____

	Time Placed (24hr)	Turbine #	Species	Distance From Turbine	Direction from Turbine	Habitat/ Substrate	Visibility Class	UTM	Found By Searcher (Y/N)	Found After Search (Y/N)
1										
2										
3										
4										
5										
6										
7										
8										
9										
10										

*Beaufort Wind Scale: 0 calm; 1 smoke drifts; 2 wind felt on face; 3 leaves in motion; 4 small branches move; 5 small trees sway; 6 large branches move; 7 whole trees in motion; 8 twigs break off and hard to walk; 9 light structural damage; 10 tree uprooted

Placement Location Sketches (Draw access road for each sketch)

N ↑

1	2	3	4	5	6	7	8	9	10
									
T#___	T#___	T#___	T#___	T#___	T#___	T#___	T#___	T#___	T#___

Visibility Class Map

Project Name:_____ **Project #:** _____ **Turbine #:** _____ **Degree of Slope** _____ **degrees** **Slope Orientation** _____ (e.g. SSW)

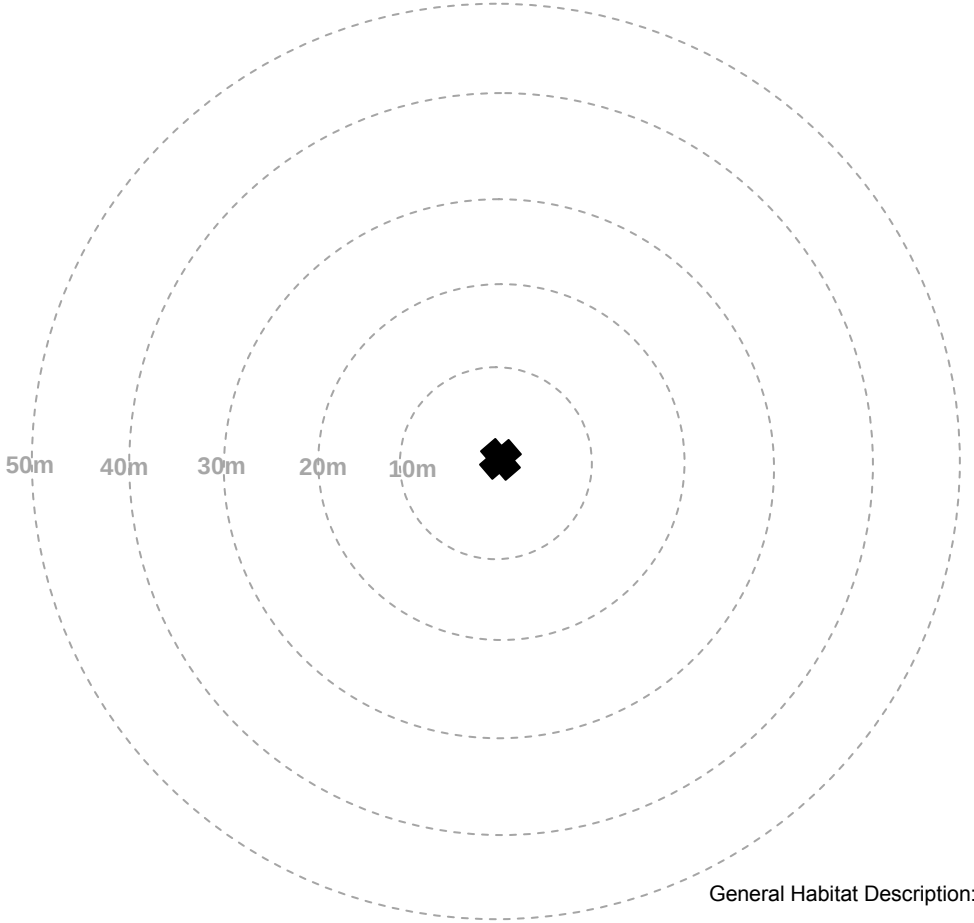
Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ___/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____m

N



General Habitat Description:
_____

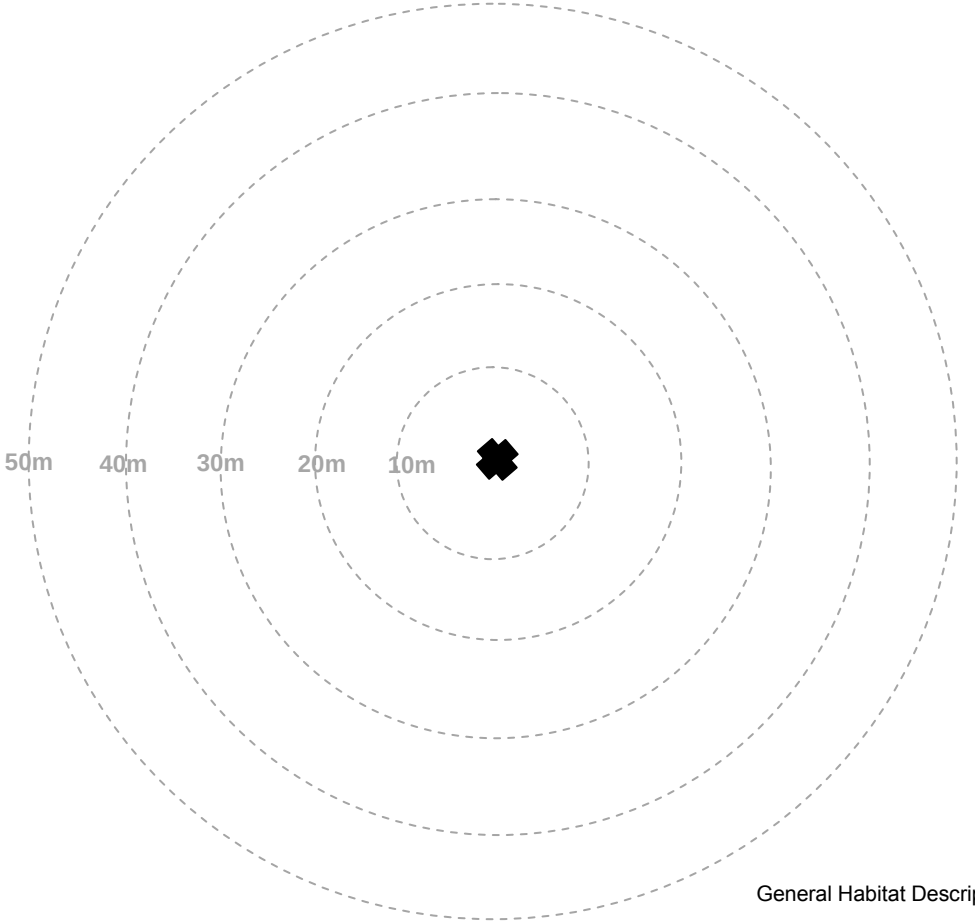
Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

Date (DD/MM/YY): ___/____/____

Observer: _____

Monthly/Seasonal
Linear Transect Width: _____m

N



General Habitat Description:
_____

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Appendix II
Scavenger Removal Trial Results

Appendix II
1865A Niagara Region Wind Farm
Scavenger Removal Trial Results 2017

May 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (˚)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T94	Gray Catbird	44	195	17T 618745 4768718	2	Day 0	1-May-17	Y	Carcass placed	Searcher A
							Day 3	4-May-17	Y	None	Searcher A
							Day 7	8-May-17	Y	None	Searcher A
							Day 10	11-May-17	Y	None	Searcher A
							Day 14	15-May-17	Y	None	Searcher A
2	T66	Gray Catbird	38	40	17T 619151 4768564	2	Day 0	1-May-17	Y	Carcass placed	Searcher A
							Day 3	4-May-17	Y	None	Searcher A
							Day 7	8-May-17	Y	None	Searcher A
							Day 10	11-May-17	Y	None	Searcher A
							Day 14	15-May-17	Y	None	Searcher A
3	T81	Eastern Red Bat	0	180	17T 616343 4766976	1	Day 0	1-May-17	Y	Carcass placed	Searcher A
							Day 3	4-May-17	N	Carcass removed	Searcher A
							Day 7	8-May-17	N	N/A	Searcher A
							Day 10	11-May-17	N	N/A	Searcher A
							Day 14	15-May-17	N	N/A	Searcher A
4	T07	Eastern Red Bat	50	260	17T 618582 4764043	2	Day 0	1-May-17	Y	Carcass placed	Searcher A
							Day 3	4-May-17	Y	None	Searcher A
							Day 7	8-May-17	Y	None	Searcher A
							Day 10	11-May-17	N	Carcass removed	Searcher A
							Day 14	15-May-17	N	N/A	Searcher A
5	T01	White-breasted Nuthatch	22	320	17T 622966 4765764	1	Day 0	1-May-17	Y	Carcass placed	Searcher A
							Day 3	4-May-17	Y	None	Searcher A
							Day 7	8-May-17	Y	None	Searcher A
							Day 10	11-May-17	Y	None	Searcher A
							Day 14	15-May-17	Y	None	Searcher A
6	T32	Eastern Red Bat	36	90	17T 624818 4764405	1	Day 0	1-May-17	Y	Carcass placed	Searcher B
							Day 3	4-May-17	Y	None	Searcher B
							Day 7	8-May-17	Y	None	Searcher B
							Day 10	11-May-17	Y	None	Searcher B
							Day 14	15-May-17	N	Carcass removed	Searcher B
7	T45	Lincoln's Sparrow	30	65	17T 623177 4748660	1	Day 0	1-May-17	Y	Carcass placed	Searcher B
							Day 3	4-May-17	Y	None	Searcher B
							Day 7	8-May-17	Y	None	Searcher B
							Day 10	11-May-17	Y	None	Searcher B
							Day 14	15-May-17	N	Carcass removed	Searcher B
8	T16	Eastern Red Bat	50	292	17T 624099 4749263	2	Day 0	1-May-17	Y	Carcass placed	Searcher B
							Day 3	4-May-17	Y	None	Searcher B
							Day 7	8-May-17	N	Carcass removed	Searcher B
							Day 10	11-May-17	N	N/A	Searcher B
							Day 14	15-May-17	N	N/A	Searcher B
9	T61	Lincoln's Sparrow	45	357	17T 625175 4748014	2	Day 0	1-May-17	Y	Carcass placed	Searcher B
							Day 3	4-May-17	N	Carcass removed	Searcher B
							Day 7	8-May-17	N	N/A	Searcher B
							Day 10	11-May-17	N	N/A	Searcher B
							Day 14	15-May-17	N	N/A	Searcher B
10	T44	Lincoln's Sparrow	35	274	17T 624311 4748474	1	Day 0	4-May-17	Y	Carcass placed	Searcher B
							Day 4	8-May-17	N	Carcass removed	Searcher B
							Day 7	11-May-17	N	N/A	Searcher B
							Day 11	15-May-17	N	N/A	Searcher B
							Day 14	18-May-17	N	N/A	Searcher B

June 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T80	Red-eyed Vireo	46	94	17T 630232 4771983	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher A
							Day 4	6-Jun-17	Y	None	Searcher A
							Day 7	9-Jun-17	Y	None	Searcher A
							Day 11	13-Jun-17	Y	None	Searcher A
							Day 14	16-Jun-17	Y	None	Searcher A
2	T57	Red-eyed Vireo	13	248	17T 624421 4768690	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher A
							Day 4	6-Jun-17	Y	None	Searcher A
							Day 7	9-Jun-17	Y	None	Searcher A
							Day 11	13-Jun-17	Y	None	Searcher A
							Day 14	16-Jun-17	Y	None	Searcher A
3	T58	Hoary Bat	17	33	17T 628484 4767642	2	Day 0	2-Jun-17	Y	Carcass placed	Searcher A
							Day 4	6-Jun-17	Y	None	Searcher A
							Day 7	9-Jun-17	Y	None	Searcher A
							Day 11	13-Jun-17	Y	None	Searcher A
							Day 14	16-Jun-17	Y	None	Searcher A
4	T02	Hoary Bat	42	120	17T 627414 4765920	2	Day 0	2-Jun-17	Y	Carcass placed	Searcher A
							Day 4	6-Jun-17	Y	None	Searcher A
							Day 7	9-Jun-17	Y	Pieces of wing present only	Searcher A
							Day 11	13-Jun-17	N	Wings removed, carcass removed	Searcher A
							Day 14	16-Jun-17	N	None	Searcher A
5	T03	Swainson's Thrush	35	335	17T 629814 4763617	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher A
							Day 4	6-Jun-17	Y	None	Searcher A
							Day 7	9-Jun-17	Y	None	Searcher A
							Day 11	13-Jun-17	Y	None	Searcher A
							Day 14	16-Jun-17	Y	None	Searcher A
6	T12	Hoary Bat	23	342	17T 621108 4756424	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher B
							Day 4	6-Jun-17	Y	None	Searcher B
							Day 7	9-Jun-17	Y	None	Searcher B
							Day 11	13-Jun-17	Y	None	Searcher B
							Day 14	16-Jun-17	N	Carcass removed	Searcher B
7	T62	Purple Martin	14	177	17T 621879 4751301	2	Day 0	2-Jun-17	Y	Carcass placed	Searcher B
							Day 4	6-Jun-17	Y	None	Searcher B
							Day 7	9-Jun-17	Y	None	Searcher B
							Day 11	13-Jun-17	N	Carcass removed	Searcher B
							Day 14	16-Jun-17	N	N/A	Searcher B
8	T63	Eastern Red Bat	34	15	17T 621603 4751070	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher B
							Day 4	6-Jun-17	Y	None	Searcher B
							Day 7	9-Jun-17	Y	None	Searcher B
							Day 11	13-Jun-17	Y	None	Searcher B
							Day 14	16-Jun-17	Y	None	Searcher B
9	T05	Red-eyed Vireo	8	350	17T 621164 4747766	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher B
							Day 4	6-Jun-17	N	Carcass removed, only a few feathers present	Searcher B
							Day 7	9-Jun-17	N	N/A	Searcher B
							Day 11	13-Jun-17	N	N/A	Searcher B
							Day 14	16-Jun-17	N	N/A	Searcher B
10	T24	Hoary Bat	45	168	17T 627764 4750192	1	Day 0	2-Jun-17	Y	Carcass placed	Searcher B
							Day 4	6-Jun-17	N	Carcass removed	Searcher B
							Day 7	9-Jun-17	N	N/A	Searcher B
							Day 11	13-Jun-17	N	N/A	Searcher B
							Day 14	16-Jun-17	N	N/A	Searcher B

July 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T94	Silver-haired Bat	21	332	17T 618741 4768790	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher A
							Day 3	6-Jul-17	Y	None	Searcher A
							Day 7	10-Jul-17	N	Carcass removed	Searcher A
							Day 10	13-Jul-17	N	N/A	Searcher A
							Day 14	17-Jul-17	N	N/A	Searcher A
2	T66	Silver-haired Bat	41	21	17T 619135 4768569	2	Day 0	3-Jul-17	Y	Carcass placed	Searcher A
							Day 3	6-Jul-17	N	Carcass removed	Searcher A
							Day 7	10-Jul-17	N	N/A	Searcher A
							Day 10	13-Jul-17	N	N/A	Searcher A
							Day 14	17-Jul-17	N	N/A	Searcher A
3	T81	Black-throated Green Warbler	17	340	17T 616314 4767017	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher A
							Day 3	6-Jul-17	Y	None	Searcher A
							Day 7	10-Jul-17	Y	None	Searcher A
							Day 10	13-Jul-17	Y	None	Searcher A
							Day 14	17-Jul-17	Y	None	Searcher A
4	T08	Black-throated Green Warbler	8	62	17T 614548 4764926	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher A
							Day 3	6-Jul-17	Y	Carcass moved slightly, feathers dispersed	Searcher A
							Day 7	10-Jul-17	Y	No new signs	Searcher A
							Day 10	13-Jul-17	Y	No new signs	Searcher A
							Day 14	17-Jul-17	Y	No new signs	Searcher A
5	T07	Brown Creeper	32	262	17T 618605 4764049	2	Day 0	3-Jul-17	Y	Carcass placed	Searcher A
							Day 3	6-Jul-17	Y	None	Searcher A
							Day 7	10-Jul-17	Y	None	Searcher A
							Day 10	13-Jul-17	Y	None	Searcher A
							Day 14	17-Jul-17	Y	None	Searcher A
6	T32	Black-throated Green Warbler	49	294	17T 622808 4760859	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher B
							Day 3	6-Jul-17	Y	None	Searcher B
							Day 7	10-Jul-17	Y	None	Searcher B
							Day 10	13-Jul-17	Y	None	Searcher B
							Day 14	17-Jul-17	N	Carcass removed	Searcher B
7	T95	Hoary Bat	13	273	17T 622798 4760847	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher B
							Day 3	6-Jul-17	Y	None	Searcher B
							Day 7	10-Jul-17	Y	None	Searcher B
							Day 10	13-Jul-17	Y	None	Searcher B
							Day 14	17-Jul-17	Y	None	Searcher B
8	T45	Blue Jay	25	197	17T 622809 4760857	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher B
							Day 3	6-Jul-17	Y	Decapitated	Searcher B
							Day 7	10-Jul-17	Y	No new signs	Searcher B
							Day 10	13-Jul-17	Y	No new signs	Searcher B
							Day 14	17-Jul-17	N	Carcass removed	Searcher B
9	T44	Eastern Red Bat	7	179	17T 624350 4748459	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher B
							Day 3	6-Jul-17	Y	None	Searcher B
							Day 7	10-Jul-17	N	Carcass removed	Searcher B
							Day 10	13-Jul-17	N	N/A	Searcher B
							Day 14	17-Jul-17	N	N/A	Searcher B
10	T61	Hoary Bat	23	43	17T 625190 4747995	1	Day 0	3-Jul-17	Y	Carcass placed	Searcher B
							Day 3	6-Jul-17	Y	None	Searcher B
							Day 7	10-Jul-17	Y	Only wings present	Searcher B
							Day 10	13-Jul-17	N	Wings removed, carcass removed	Searcher B
							Day 14	17-Jul-17	N	N/A	Searcher B

August 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T80	Golden-crowned Kinglet	19	35	17T 630194 4772006	1	Day 0	1-Aug-17	Y	Carcass placed	Searcher A
							Day 3	4-Aug-17	Y	None	Searcher A
							Day 7	8-Aug-17	Y	None	Searcher A
							Day 10	11-Aug-17	Y	None	Searcher A
							Day 14	15-Aug-17	Y	None	Searcher A
2	T57	Black-throated Green Warbler	27	175	17T 624438 4768668	1	Day 0	1-Aug-17	Y	Carcass placed	Searcher A
							Day 3	4-Aug-17	Y	None	Searcher A
							Day 7	8-Aug-17	Y	None	Searcher A
							Day 10	11-Aug-17	Y	None	Searcher A
							Day 14	15-Aug-17	Y	None	Searcher A
3	T58	Silver-haired Bat	13	350	17T 628467 4767640	1	Day 0	1-Aug-17	Y	Carcass placed	Searcher A
							Day 3	4-Aug-17	Y	None	Searcher A
							Day 7	8-Aug-17	Y	None	Searcher A
							Day 10	11-Aug-17	Y	None	Searcher A
							Day 14	15-Aug-17	Y	None	Searcher A
4	T02	Tree Swallow	36	190	17T 629891 4763542	2	Day 0	1-Aug-17	Y	Carcass placed	Searcher A
							Day 3	4-Aug-17	Y	None	Searcher A
							Day 7	8-Aug-17	Y	None	Searcher A
							Day 10	11-Aug-17	Y	None	Searcher A
							Day 14	15-Aug-17	Y	None	Searcher A
5	T03	Silver-haired Bat	46	220	17T 627360 476899	2	Day 0	1-Aug-17	Y	Carcass placed	Searcher A
							Day 3	4-Aug-17	Y	None	Searcher A
							Day 7	8-Aug-17	Y	None	Searcher A
							Day 10	11-Aug-17	Y	None	Searcher A
							Day 14	15-Aug-17	Y	None	Searcher A
6	T63	Tree Swallow	43	326	17T 621583 4751073	1	Day 0	1-Aug-17	Y	Carcass placed	Searcher B
							Day 3	4-Aug-17	N	Carcass removed	Searcher B
							Day 7	8-Aug-17	N	N/A	Searcher B
							Day 10	11-Aug-17	N	N/A	Searcher B
							Day 14	15-Aug-17	N	N/A	Searcher B
7	T62	Hoary Bat	27	88	17T 621891 4751339	2	Day 0	1-Aug-17	Y	Carcass placed	Searcher B
							Day 3	4-Aug-17	N	Carcass removed	Searcher B
							Day 7	8-Aug-17	N	N/A	Searcher B
							Day 10	11-Aug-17	N	N/A	Searcher B
							Day 14	15-Aug-17	N	N/A	Searcher B
8	T05	Golden-crowned Kinglet	14	145	17T 621186 4747738	1	Day 0	1-Aug-17	Y	Carcass placed	Searcher B
							Day 3	4-Aug-17	Y	None	Searcher B
							Day 7	8-Aug-17	Y	None	Searcher B
							Day 10	11-Aug-17	Y	None	Searcher B
							Day 14	15-Aug-17	Y	None	Searcher B
9	T24	Red-eyed Vireo	31	196	17T 627736 4750210	2	Day 0	1-Aug-17	Y	Carcass placed	Searcher B
							Day 3	4-Aug-17	N	Carcass removed	Searcher B
							Day 7	8-Aug-17	N	N/A	Searcher B
							Day 10	11-Aug-17	N	N/A	Searcher B
							Day 14	15-Aug-17	N	N/A	Searcher B
10	T12	Silver-haired Bat	49	295	17T 621080 4756428	1	Day 0	11-Aug-17	Y	Carcass placed	Searcher B
							Day 4	15-Aug-17	N	Carcass removed	Searcher B
							Day 7	18-Aug-17	N	N/A	Searcher D
							Day 11	22-Aug-17	N	N/A	Searcher B
							Day 14	25-Aug-17	N	N/A	Searcher B

September 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T95	Purple Martin	22	166	17T 622830 4760822	1	Day 0	4-Sep-17	Y	Carcass placed	Searcher B
							Day 3	7-Sep-17	Y	None	Searcher B
							Day 7	11-Sep-17	Y	None	Searcher B
							Day 10	14-Sep-17	Y	None	Searcher B
							Day 14	18-Sep-17	Y	None	Searcher B
2	T45	Eastern Red Bat	14	357	17T 623147 4748666	1	Day 0	4-Sep-17	Y	Carcass placed	Searcher B
							Day 3	7-Sep-17	N	Carcass removed	Searcher B
							Day 7	11-Sep-17	N	N/A	Searcher B
							Day 10	14-Sep-17	N	N/A	Searcher B
							Day 14	18-Sep-17	N	N/A	Searcher B
3	T16	Red-eyed Vireo	48	170	17T 624147 4749194	1	Day 0	4-Sep-17	Y	Carcass placed	Searcher B
							Day 3	7-Sep-17	N	Carcass removed	Searcher B
							Day 7	11-Sep-17	N	N/A	Searcher B
							Day 10	14-Sep-17	N	N/A	Searcher B
							Day 14	18-Sep-17	N	N/A	Searcher B
4	T44	Hoary Bat	35	73	17T 624386 4748485	1	Day 0	4-Sep-17	Y	Carcass placed	Searcher B
							Day 3	7-Sep-17	N	Carcass removed	Searcher B
							Day 7	11-Sep-17	N	N/A	Searcher B
							Day 10	14-Sep-17	N	N/A	Searcher B
							Day 14	18-Sep-17	N	N/A	Searcher B
5	T05	Silver-haired Bat	16	18	17T 621178 4747773	1	Day 0	5-Sep-17	Y	Carcass placed	Searcher B
							Day 3	8-Sep-17	Y	None	Searcher B
							Day 7	12-Sep-17	Y	None	Searcher B
							Day 10	10-Sep-17	Y	None	Searcher B
							Day 14	19-Sep-17	Y	None	Searcher B
6	T80	Hoary Bat	33	130	17T 630216 4771963	1	Day 0	5-Sep-17	Y	Carcass placed	Searcher A
							Day 3	8-Sep-17	Y	None	Searcher A
							Day 7	12-Sep-17	Y	None	Searcher A
							Day 10	10-Sep-17	Y	None	Searcher A
							Day 14	19-Sep-17	Y	None	Searcher A
7	T57	Hoary Bat	26	310	17T 624423 4768722	1	Day 0	5-Sep-17	Y	Carcass placed	Searcher A
							Day 3	8-Sep-17	Y	None	Searcher A
							Day 7	12-Sep-17	Y	None	Searcher A
							Day 10	10-Sep-17	Y	None	Searcher A
							Day 14	19-Sep-17	Y	Moved and broken apart	Searcher A
8	T58	Brown Creeper	8	256	17T 628462 4767635	2	Day 0	5-Sep-17	Y	Carcass placed	Searcher A
							Day 3	8-Sep-17	N	Carcass removed, animal tracks nearby	Searcher A
							Day 7	12-Sep-17	N	N/A	Searcher A
							Day 10	10-Sep-17	N	N/A	Searcher A
							Day 14	19-Sep-17	N	N/A	Searcher A
9	T02	Tree Swallow	46	90	17T 627427 4765949	2	Day 0	5-Sep-17	Y	Carcass placed	Searcher A
							Day 3	8-Sep-17	Y	None	Searcher A
							Day 7	12-Sep-17	Y	None	Searcher A
							Day 10	10-Sep-17	Y	None	Searcher A
							Day 14	19-Sep-17	Y	None	Searcher A
10	T03	Brown Creeper	24	15	17T 629891 4763606	1	Day 0	5-Sep-17	Y	Carcass placed	Searcher A
							Day 3	8-Sep-17	Y	None	Searcher A
							Day 7	12-Sep-17	Y	None	Searcher A
							Day 10	10-Sep-17	Y	None	Searcher A
							Day 14	19-Sep-17	Y	None	Searcher A

October 2017 Scavenger Removal Trial

Carcass Number	Turbine	Species	Distance from Turbine Base (m)	Direction from Turbine Base (°)	UTM	Visibility Class	Test Day	Date	Carcass Present	Signs of Scavenging	Tester
1	T80	Swainson's Thrush	1	159	17T 630190 4771981	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher A
							Day 3	6-Oct-17	Y	None	Searcher A
							Day 7	10-Oct-17	Y	None	Searcher A
							Day 10	13-Oct-17	Y	None	Searcher A
							Day 14	17-Oct-17	Y	None	Searcher A
2	T57	Golden-crowned Kinglet	13	24	17T 624440 4768712	2	Day 0	3-Oct-17	Y	Carcass placed	Searcher A
							Day 3	6-Oct-17	Y	None	Searcher A
							Day 7	10-Oct-17	Y	None	Searcher A
							Day 10	13-Oct-17	Y	None	Searcher A
							Day 14	17-Oct-17	Y	None	Searcher A
3	T58	Hoary Bat	46	355	17T 628464 4767676	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher A
							Day 3	6-Oct-17	Y	None	Searcher A
							Day 7	10-Oct-17	N	Carcass removed	Searcher A
							Day 10	13-Oct-17	N	N/A	Searcher A
							Day 14	17-Oct-17	N	N/A	Searcher A
4	T02	Hoary Bat	39	260	17T 627341 4765929	2	Day 0	3-Oct-17	Y	Carcass placed	Searcher A
							Day 3	6-Oct-17	Y	None	Searcher A
							Day 7	10-Oct-17	Y	None	Searcher A
							Day 10	13-Oct-17	Y	None	Searcher A
							Day 14	17-Oct-17	Y	None	Searcher A
5	T03	Wilson's Warbler	30	32	17T 629906 4763612	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher A
							Day 3	6-Oct-17	Y	None	Searcher A
							Day 7	10-Oct-17	N	Carcass removed	Searcher A
							Day 10	13-Oct-17	N	N/A	Searcher A
							Day 14	17-Oct-17	N	N/A	Searcher A
6	T12	Eastern Red Bat	21	95	17T 619216 4749202	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher B
							Day 3	6-Oct-17	Y	None	Searcher B
							Day 7	10-Oct-17	N	Carcass removed	Searcher B
							Day 10	13-Oct-17	N	N/A	Searcher B
							Day 14	17-Oct-17	N	N/A	Searcher B
7	T63	Dark-eyed Junco	13	150	17T 621623 4751020	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher B
							Day 3	6-Oct-17	Y	None	Searcher B
							Day 7	10-Oct-17	Y	None	Searcher B
							Day 10	13-Oct-17	N	Carcass removed	Searcher B
							Day 14	17-Oct-17	N	N/A	Searcher B
8	T62	Red-eyed Vireo	46	12	17T 621862 4751360	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher B
							Day 3	6-Oct-17	N	Carcass removed	Searcher B
							Day 7	10-Oct-17	N	N/A	Searcher B
							Day 10	13-Oct-17	N	N/A	Searcher B
							Day 14	17-Oct-17	N	N/A	Searcher B
9	T05	Hoary Bat	37	138	17T 621199 4747724	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher B
							Day 3	6-Oct-17	N	Carcass removed	Searcher B
							Day 7	10-Oct-17	N	N/A	Searcher B
							Day 10	13-Oct-17	N	N/A	Searcher B
							Day 14	17-Oct-17	N	N/A	Searcher B
10	T24	Silver-haired Bat	9	37	17T 627742 4750250	1	Day 0	3-Oct-17	Y	Carcass placed	Searcher B
							Day 3	6-Oct-17	Y	None	Searcher B
							Day 7	10-Oct-17	Y	None	Searcher B
							Day 10	13-Oct-17	Y	None	Searcher B
							Day 14	17-Oct-17	Y	None	Searcher B

Appendix III
Searcher Efficiency Trial Results

Appendix III
1865A Niagara Region Wind Farm
Searcher Efficiency Trial Results 2017

May 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
5-May-17	Searcher A	1	T80	Eastern Red Bat	39	145	Bare soil	1	630207	4771951	Y	-
		2	T02	Dark-eyed Junco	29	36	Row crop	2	627396	4765968	Y	-
		3	T03	Black-throated Green Warbler	15	306	Bare soil	1	629883	4763590	Y	-
8-May-17	Searcher A	4	T66	American Goldfinch	26	300	Bare soil	1	619085	4768492	N	N
		5	T94	Hoary Bat	45	7	Weeds	2	618741	4768813	N	N
		6	T81	Purple Martin	33	286	Bare soil	1	616307	4766972	Y	-
9-May-17	Searcher A	7	T57	Brown Creeper	30	270	Weeds	2	624401	4768693	N	N
		8	T02	European Starling	18	149	Weeds	2	627395	4765927	Y	-
		9	T03	Hoary Bat	16	34	Bare soil	1	629901	4763597	Y	-
19-May-17	Searcher A	10	T02	Silver-haired Bat	10	182	Bare soil	1	627362	4765929	Y	-
		11	T57	Brown Creeper	25	82	Bare soil	1	624460	4768697	Y	-
		12	T03	Black-throated Green Warbler	23	211	Bare soil	1	629885	4763554	Y	-
23-May-17	Searcher A	13	T57	Dark-eyed Junco	21	15	Bare soil	1	624133	4749264	Y	-
		14	T02	Eastern Red Bat	17	233	Grass	2	627361	4765931	Y	-
		15	T03	Golden-crowned Kinglet	21	69	Grass	2	629913	4763587	N	N
25-May-17	Searcher A	16	T66	Eastern Red Bat	16	154	Grass	2	619140	4768512	N	N
		17	T94	Red-eyed Vireo	45	200	Weeds	2	618755	4768717	Y	-
		18	T01	Dark-eyed Junco	1	340	Gravel	1	622980	4765749	Y	-
29-May-17	Searcher A	19	T08	Eastern Red Bat	8	122	Grass	2	611943	4751449	Y	-
		20	T07	Hoary Bat	7	190	Grass	2	618629	4764043	Y	-
5-May-17	Searcher B	1	T62	Killdeer	32	124	Bare soil	1	621847	4751337	Y	-
		2	T63	Eastern Red Bat	35	176	Gravel	1	621597	4751078	N	N
		3	T63	Black-throated Green Warbler	42	272	Weeds	2	621653	4751034	N	N
9-May-17	Searcher B	4	T24	Ovenbird	20	210	Grass	2	627741	4750223	N	N
		5	T05	Ovenbird	17	42	Weeds	2	621182	4747768	N	N
		6	T05	Hoary Bat	13	156	Bare soil	1	621177	4747743	Y	-
12-May-17	Searcher B	7	T24	Black-throated Green Warbler	50	190	Grass	2	627747	4750186	N	N
		8	T63	Hoary Bat	0	90	Gravel	1	621610	4751036	Y	-
		9	T62	Brown Creeper	40	340	Weeds	2	621857	4751347	N	N
18-May-17	Searcher B	10	T45	Eastern Red Bat	13	228	Weeds	2	623113	4748686	Y	-
		11	T16	Hoary Bat	26	50	Bare soil	1	624170	4749266	Y	-
		12	T61	European Starling	8	304	Grass	2	625175	4747985	N	N
19-May-17	Searcher B	13	T62	Swainson's Thrush	14	186	Bare soil	1	621877	4751295	Y	-
		14	T62	Hoary Bat	1	40	Gravel	1	624606	4748953	Y	-
		15	T63	Purple Martin	27	116	Bare soil	1	621640	4751034	Y	-
22-May-17	Searcher B	16	T95	Swainson's Thrush	30	175	Bare soil	1	622832	4760818	Y	-
		17	T16	Hoary Bat	30	280	Bare soil	1	624111	4749247	Y	-
		18	T16	Tree Swallow	23	320	Weeds	2	624134	4749264	Y	-
23-May-17	Searcher B	19	T05	Red-eyed Vireo	41	136	Bare soil	1	621203	4747733	Y	-
		20	T05	Swainson's Thrush	18	4	Weeds	2	621172	4747780	Y	-
		21	T24	Hoary Bat	30	336	Bare soil	1	627735	4750269	N	N
25-May-17	Searcher B	22	T95	Eastern Red Bat	17	45	Grass	2	622818	4760859	Y	-
		23	T61	European Starling	22	270	Grass	2	625144	4747976	Y	-
		24	T45	Brown Creeper	42	160	Bare soil	1	623152	4749606	N	Y
29-May-17	Searcher B	25	T32	Hoary Bat	6	21	Weeds	2	624778	4764419	N	N
		26	T32	Red-eyed Vireo	50	102	Weeds	2	624830	4764407	Y	-
		27	T95	Swainson's Thrush	8	212	Weeds	2	622815	4760835	N	N

June 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
1-Jun-17	Searcher A	1	T08	Hoary Bat	26	5	Gravel	1	614549	4764960	Y	-
2-Jun-17	Searcher A	2	T80	Hoary Bat	22	33	Weeds	2	630196	4772011	Y	-
		3	T57	Purple Martin	46	187	Bare soil	1	624439	4768648	Y	-
5-Jun-17	Searcher A	4	T66	Blue Jay	16	341	Grass	2	619123	4768570	Y	-
		5	T94	Red-eyed Vireo	34	87	Bare soil	1	618788	4768760	Y	-
16-Jun-17	Searcher A	6	T02	Eastern Red Bat	9	23	Weeds	2	627384	4765958	Y	-
		7	T58	Red-eyed Vireo	43	272	Grass	2	628426	4767634	Y	-
		8	T57	Hoary Bat	31	148	Bare soil	1	624467	4768685	Y	-
20-Jun-17	Searcher A	9	T80	Swainson's Thrush	32	119	Bare soil	1	630188	4771952	Y	-
		10	T58	Golden-crowned Kinglet	14	46	Wheat	2	628483	4767645	Y	-
		11	T02	Eastern Red Bat	48	271	Weeds	2	627332	4765924	N	N
22-Jun-17	Searcher A	12	T66	Hoary Bat	18	93	Weeds	2	619131	4768523	Y	-
		13	T94	Dark-eyed Junco	44	121	Bare soil	1	618785	4768729	Y	-
		14	T81	Red-eyed Vireo	25	347	Bare soil	1	616332	4767005	N	N
23-Jun-17	Searcher A	15	T03	Dark-eyed Junco	40	301	Bare soil	1	629835	4763593	Y	-
		16	T02	Swainson's Thrush	5	323	Weeds	2	627389	4765943	Y	-
		17	T58	Silver-haired Bat	21	44	Wheat	2	628487	4767652	N	N
26-Jun-17	Searcher A	18	T66	Hoary Bat	11	164	Weeds	2	619130	4768483	Y	-
		19	T94	Eastern Red Bat	19	2	Bare soil	1	618737	4768783	N	N
		20	T01	American Goldfinch	45	122	Bare soil	1	623031	4765733	Y	-
1-Jun-17	Searcher B	1	T44	Hoary Bat	16	149	Weeds	2	624365	4748465	Y	-
		2	T44	Purple Martin	49	303	Bare soil	1	624301	4748489	Y	-
		3	T99	European Starling	30	120	Bare soil	1	624300	4748490	N	**Y**
6-Jun-17	Searcher B	4	T62	American Goldfinch	9	134	Weeds	2	621886	4751319	N	N
		5	T05	Eastern Red Bat	46	125	Weeds	2	621212	4747734	N	N
		6	T24	Dark-eyed Junco	36	184	Gravel	1	627758	4750203	Y	-
8-Jun-17	Searcher B	7	T45	Eastern Red Bat	22	115	Bare soil	1	623179	4748656	Y	-
		8	T45	Wilson's Warbler	46	163	Bare soil	1	623178	4748609	N	N
		9	T61	Purple Martin	24	128	Weeds	2	625203	4747961	N	**Y**
12-Jun-17	Searcher B	10	T95	Wilson's Warbler	32	78	Bare soil	1	622851	4760849	N	**Y**
		11	T95	Eastern Red Bat	15	307	Bare soil	1	622803	4760855	N	N
		12	T99	Purple Martin	45	140	Bare soil	1	619243	4749193	Y	-
13-Jun-17	Searcher B	13	T12	Blue Jay	25	330	Weeds	2	621112	4756427	Y	-
		14	T12	Hoary Bat	45	43	Weeds	2	621156	4756440	N	N
		15	T63	Swainson's Thrush	22	348	Gravel	1	621602	4751054	Y	-
22-Jun-17	Searcher B	16	T95	Blue Jay	46	295	Cut row crop	2	628472	4767637	Y	-
		17	T99	American Goldfinch	30	130	Bare soil	1	619239	4749217	Y	-
		18	T45	Eastern Red Bat	9	138	Bare soil	1	623172	4748656	Y	-
		19	T61	Golden-crowned Kinglet	23	306	Weeds	2	625155	4747987	N	N
23-Jun-17	Searcher B	20	T24	Hoary Bat	36	226	Wheat	2	627723	4750216	Y	-
		21	T63	Purple Martin	16	272	Weeds	2	621598	4751045	Y	-
		22	T62	Golden-crowned Kinglet	43	126	Bare soil	1	621917	4751293	N	N
26-Jun-17	Searcher B	23	T32	Tree Swallow	30	135	Weeds	2	624795	4764367	Y	-
		24	T95	Swainson's Thrush	17	76	Bare soil	1	622834	4760848	Y	-
		25	T44	Hoary Bat	18	24	Bare soil	1	624349	4748496	Y	-
27-Jun-17	Searcher B	26	T62	Hoary Bat	15	106	Weeds	2	621893	4751322	Y	-
		27	T05	Swainson's Thrush	27	80	Weeds	2	621201	4747758	Y	-
		28	T24	Wilson's Warbler	9	216	Gravel	1	627743	4750251	Y	-
29-Jun-17	Searcher B	29	T95	Brown Creeper	13	310	Bare soil	1	622804	4760851	Y	-

July 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
4-Jul-17	Searcher A	1	T80	Silver-haired Bat	26	309	Bare soil	1	625190	4747972	Y	-
		2	T58	Hoary Bat	6	190	Cut crop	2	628474	4767620	Y	-
		3	T57	Golden-crowned Kinglet	45	3	Bare soil	1	624420	4768743	N	**Y**
6-Jul-17	Searcher A	4	T66	Hoary Bat	14	179	Grass	2	619130	4768513	Y	-
		5	T94	Black-throated Green Warbler	24	209	Row crop	2	618742	4768739	N	N
		6	T07	Dark-eyed Junco	38	271	Weeds	2	618594	4764054	Y	-
7-Jul-17	Searcher A	7	T57	Silver-haired Bat	21	84	Gravel	1	624104	4768993	Y	-
		8	T02	Red-eyed Vireo	9	349	Weeds	2	627370	4765954	Y	-
		9	T03	Killdeer	40	227	Bare soil	1	629862	4763546	Y	-
11-Jul-17	Searcher A	10	T57	Hoary Bat	17	120	Bare soil	1	624449	4768667	Y	-
		11	T58	Brown Creeper	26	337	Wheat	2	628454	4767655	Y	-
		12	T02	Swainson's Thrush	5	44	Weeds	2	627388	4765947	Y	-
21-Jul-17	Searcher A	13	T57	Purple Martin	8	42	Bare soil	1	624437	4768709	Y	-
		14	T02	Red-eyed Vireo	42	202	Wheat	2	627368	4765898	Y	-
		15	T03	Wilson's Warbler	32	14	Bare soil	1	629885	4763618	N	N
24-Jul-17	Searcher A	16	T94	Eastern Red Bat	2	194	Gravel	1	618747	4768761	Y	-
		17	T81	Brown Creeper	15	253	Bare soil	1	616326	4766971	Y	-
		18	T07	Tree Swallow	32	70	Wheat	2	618663	4764076	N	N
27-Jul-17	Searcher A	19	T66	American Woodcock	11	64	Weeds	2	619116	4768578	Y	-
		20	T81	Hoary Bat	45	38	Bare soil	1	616351	4767026	Y	-
		21	T01	Silver-haired Bat	21	209	Bare soil	1	622976	4765724	Y	-
4-Jul-17	Searcher B	1	T12	Black-throated Green Warbler	22	208	Bare soil	1	621120	4756383	Y	-
		2	T63	Killdeer	32	63	Grass	2	621614	4751042	Y	-
		3	T62	Hoary Bat	40	330	Bare soil	1	621859	4751350	Y	-
7-Jul-17	Searcher B	4	T24	Hoary Bat	14	152	Gravel	1	627758	4750227	Y	-
		5	T62	Red-eyed Vireo	44	240	Bare soil	1	621838	4751283	Y	-
		6	T63	Swainson's Thrush	14	130	Weeds	2	621626	4751035	Y	-
10-Jul-17	Searcher B	7	T45	Hoary Bat	27	132	Bare soil	1	623158	4748668	Y	-
		8	T44	Dark-eyed Junco	40	86	Bare soil	1	624391	4748480	Y	-
		9	T61	American Goldfinch	25	146	Weeds	2	625196	4747948	N	**Y**
11-Jul-17	Searcher B	10	T62	Tree Swallow	8	200	Grass	2	621862	4751310	Y	-
		11	T05	Hoary Bat	24	85	Weeds	2	621194	4747759	N	N
		12	T24	Black-throated Green Warbler	3	184	Gravel	1	627751	4750231	Y	-
21-Jul-17	Searcher B	13	T12	Red-eyed Vireo	30	140	Bare soil	1	621136	4756371	Y	-
		14	T05	Silver-haired Bat	22	348	Weeds	2	621165	4747782	Y	-
		15	T24	Tree Swallow	30	315	Bare soil	1	627729	4750266	Y	-
24-Jul-17	Searcher B	16	T32	Hoary Bat	8	148	Weeds	2	624707	4764441	Y	-
		17	T95	Red-eyed Vireo	19	274	Weeds	2	622802	4760859	Y	-
		18	T99	Purple Martin	41	140	Weeds	2	619222	4749187	Y	-
27-Jul-17	Searcher B	19	T32	Eastern Red Bat	2	18	Gravel	1	624783	4764422	Y	-
		20	T61	Tree Swallow	34	50	Weeds	2	625202	4747998	Y	-
		21	T44	Killdeer	39	172	Bare soil	1	624359	4748432	Y	-

August 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
3-Aug-17	Searcher A	1	T66	Purple Martin	15	67	Weeds	2	619142	4768541	Y	-
		2	T94	Brown Creeper	<1	323	Concrete	1	618747	4768763	Y	-
		3	T07	Eastern Red Bat	23	163	Wheat	2	618621	4764028	Y	-
8-Aug-17	Searcher A	4	T57	Eastern Red Bat	45	98	Bare soil	1	624465	4768715	Y	-
		5	T58	Golden-crowned Kinglet	8	199	Bare soil	1	628465	4767621	N	N
		6	T02	American Woodcock	16	91	Weeds	2	627400	4765946	Y	-
11-Aug-17	Searcher A	7	T80	Hoary Bat	17	162	Bare soil	1	630188	4771981	Y	-
		8	T57	Black-throated Green Warbler	46	161	Bare soil	1	624456	4768652	Y	-
		9	T02	Purple Martin	26	7	Weeds	2	627372	4765970	Y	-
14-Aug-17	Searcher A	10	T66	Hoary Bat	36	7	Weeds	2	619127	4768572	Y	-
		11	T07	Dark-eye Junco	17	269	Gravel	1	618614	4764047	Y	-
		12	T01	Tree Swallow	42	231	Bare soil	1	622950	4765717	Y	-
15-Aug-17	Searcher A	13	T80	Silver-haired Bat	32	69	Weeds	2	630220	4771995	N	N
		14	T02	Golden-crowned Kinglet	13	243	Wheat	2	627367	4765930	N	N
		15	T03	Swainson's Thrush	38	170	Bare soil	1	629914	4763548	Y	-
24-Aug-17	Searcher A	16	T66	Tree Swallow	31	184	Weeds	2	619131	4768497	Y	-
		17	T07	American Woodcock	21	328	Weeds	2	618615	4764068	N	N
28-Aug-17	Searcher A	18	T81	Silver-haired Bat	14	12	Grass	2	621612	4751040	Y	-
		19	T94	Eastern Red Bat	23	187	Grass	2	618738	4768741	N	N
		20	T66	Hoary Bat	34	93	Weeds	2	619165	4768536	N	N
3-Aug-17	Searcher B	1	T45	Brown Creeper	49	235	Bare soil	1	623122	4748620	N	N
		2	T61	Tree Swallow	25	172	Weeds	2	625183	4747945	Y	-
		3	T99	Eastern Red Bat	42	20	Weeds	2	619222	4749263	Y	-
7-Aug-17	Searcher B	4	T32	American Woodcock	13	50	Weeds	2	627369	4765945	N	N
		5	T99	Golden-crowned Kinglet	25	240	Bare soil	1	619183	4749217	Y	-
		6	T44	Eastern Red Bat	25	336	Bare soil	1	624341	4748499	Y	-
8-Aug-17	Searcher B	7	T63	Eastern Red Bat	1	70	Concrete	1	621615	4751034	Y	-
		8	T62	Swainson's Thrush	33	250	Weeds	2	621850	4751292	Y	-
		9	T24	Brown Creeper	41	165	Gravel	1	627754	4750197	Y	-
10-Aug-17	Searcher B	10	T32	Silver-haired Bat	8	280	Weeds	2	624769	4764403	Y	-
		11	T95	Tree Swallow	33	43	Bare soil	1	622842	4760869	Y	-
22-Aug-17	Searcher B	12	T62	Eastern Red Bat	24	70	Weeds	2	621902	4751330	N	N
		13	T05	Brown Creeper	3	120	Gravel	1	621177	4747754	Y	-
		14	T24	Swainson's Thrush	50	120	Bare soil	1	627802	4750222	Y	-
25-Aug-17	Searcher B	15	T63	Purple Martin	23	135	Grass	2	621624	4751030	Y	-
		16	T62	Red-eyed Vireo	39	334	Weeds	2	621857	4751349	Y	-
		17	T12	Eastern Red Bat	8	115	Gravel	1	621131	4756393	Y	-
28-Aug-17	Searcher B	18	T32	American Woodcock	14	295	Weeds	2	630196	4771977	N	N
		19	T95	Hoary Bat	45	342	Bare soil	1	622791	4760884	Y	-
		20	T61	Tree Swallow	27	96	Weeds	2	625206	4747974	Y	-

September 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
5-Sep-17	Searcher A	1	T57	Golden-crowned Kinglet	13	56	Gravel	1	624359	4748465	Y	-
		2	T02	Hoary Bat	44	306	Weeds	2	627337	4765968	Y	-
		3	T03	Tree Swallow	30	24	Bare soil	1	629893	4763616	Y	-
7-Sep-17	Searcher A	4	T66	Hoary Bat	10	26	Weeds	2	619134	4768542	Y	-
		5	T94	Red-eyed Vireo	26	179	Gravel	1	618752	4768738	Y	-
		6	T07	American Goldfinch	26	117	Weeds	2	618662	4764040	Y	-
8-Sep-17	Searcher A	7	T80	Silver-haired Bat	7	182	Weeds	2	630194	4771977	Y	-
		8	T58	Brown Creeper	48	16	Bare soil	1	628470	4767680	Y	-
		9	T02	Swainson's Thrush	35	216	Weeds	2	627362	4765910	Y	-
11-Sep-17	Searcher A	10	T81	Brown Creeper	32	72	Bare soil	1	616387	4766978	Y	-
		11	T07	Purple Martin	8	205	Weeds	2	618629	4764038	Y	-
		12	T01	Hoary Bat	26	69	Bare soil	1	623007	4765767	Y	-
12-Sep-17	Searcher A	13	T80	Swainson's Thrush	19	114	Weeds	2	630224	4771930	Y	-
		14	T02	American Woodcock	44	92	Weeds	2	627425	4765955	Y	-
		15	T03	Silver-haired Bat	<1	345	Concrete	1	629893	4763589	Y	-
22-Sep-17	Searcher A	16	T57	Hoary Bat	39	173	Bare soil	1	623154	4748610	Y	-
		17	T02	Silver-haired Bat	11	322	Weeds	2	627368	4765953	Y	-
		18	T03	Tree Swallow	21	299	Bare soil	1	629866	4763588	Y	-
28-Sep-17	Searcher A	19	T66	Swainson's Thrush	23	33	Weeds	2	619138	4768555	N	N
		20	T94	Eastern Red Bat	1	236	Concrete	1	628747	4768761	Y	-
1-Sep-17	Searcher B	1	T24	Wilson's Warbler	46	156	Weeds	2	627794	4750221	N	**Y**
		2	T63	Swainson's Thrush	9	145	Weeds	2	621621	4751035	Y	-
		3	T62	Eastern Red Bat	26	350	Gravel	1	621864	4751342	Y	-
5-Sep-17	Searcher B	4	T62	Hoary Bat	17	245	Weeds	2	621853	4751307	Y	-
		5	T63	Red-eyed Vireo	31	330	Gravel	1	621598	4751065	Y	-
		6	T05	American Goldfinch	14	65	Bare soil	1	627369	4765940	N	N
8-Sep-17	Searcher B	7	T12	Golden-crowned Kinglet	1	45	Concrete	1	621134	4756380	Y	-
		8	T62	Eastern Red Bat	13	235	Weeds	2	621851	4751293	Y	-
		9	T63	Purple Martin	41	320	Weeds	2	621575	4751060	Y	-
12-Sep-17	Searcher B	10	T63	Killdeer	30	355	Weeds	2	622994	4765743	Y	-
		11	T62	Dark-eyed Junco	13	60	Weeds	2	621878	4751329	Y	-
		12	T24	Hoary Bat	22	160	Bare soil	1	627766	4750214	Y	-
14-Sep-17	Searcher B	13	T95	Hoary Bat	35	205	Bare soil	1	622809	4760807	N	N
		14	T45	Dark-eyed Junco	45	301	Bare soil	1	623121	4748665	N	**Y**
		15	T61	American Woodcock	14	82	Weeds	2	625189	4747987	Y	-
22-Sep-17	Searcher B	16	T63	Swainson's Thrush	13	174	Weeds	2	621610	4751035	N	N
		17	T62	Dark-eyed Junco	40	341	Gravel	1	621865	4751350	Y	-
25-Sep-17	Searcher B	18	T32	American Woodcock	36	100	Weeds	2	624818	4764408	Y	-
		19	T95	Dark-eyed Junco	10	230	Bare soil	1	622805	4760835	Y	-
		20	T99	Hoary Bat	45	350	Bare soil	1	619189	4749266	N	N
28-Sep-17	Searcher B	21	T95	Hoary Bat	1	150	Concrete	1	622805	4760865	Y	-
		22	T99	Purple Martin	20	150	Bare soil	1	619222	4749207	Y	-

October 2017 Searcher Efficiency Trial

Date	Searcher	No.	Turbine	Species	Distance (m)	Direction (°)	General Habitat	Visibility Class	UTM		Found (Y/N)	Scavenged (Y/N)
									Easting	Northing		
5-Oct-17	Searcher A	1	T66	Brown Creeper	1	80	Concrete	1	619125	4768546	Y	-
		2	T94	Purple Martin	10	66	Weeds	2	618763	4768775	Y	-
		3	T01	Silver-haired Bat	26	135	Bare soil	1	623013	4765731	N	N
6-Oct-17	Searcher A	4	T57	American Woodcock	6	344	Weeds	2	624435	4768707	Y	-
		5	T58	Hoary Bat	49	184	Weeds	2	628470	4767581	Y	-
		6	T02	Golden-crowned Kinglet	1	108	Concrete	1	627384	4765942	Y	-
12-Oct-17	Searcher A	7	T66	Swainson's Thrush	13	53	Weeds	2	627749	4750228	Y	-
		8	T94	American Woodcock	24	193	Weeds	2	618755	4768738	Y	-
		9	T01	Eastern Red Bat	46	114	Bare soil	1	623033	4765733	Y	-
13-Oct-17	Searcher A	10	T80	Red-eyed Vireo	35	98	Weeds	2	630224	4771980	Y	-
		11	T58	Hoary Bat	17	22	Gravel	1	628469	4767653	Y	-
		12	T02	Killdeer	47	294	Weeds	2	627330	4765954	Y	-
16-Oct-17	Searcher A	13	T81	Tree Swallow	11	322	Weeds	2	616334	4766988	Y	-
		14	T08	Hoary Bat	40	9	Bare soil	1	614537	4764956	N	N
		15	T07	Red-eyed Vireo	3	247	Gravel	1	618628	4764050	Y	-
19-Oct-17	Searcher A	16	T66	Killdeer	50	105	Weeds	2	619184	4768534	Y	-
		17	T94	American Woodcock	8	243	Weeds	2	618742	4768756	Y	-
		18	T07	Eastern Red Bat	3	332	Gravel	1	618635	4764059	Y	-
27-Oct-17	Searcher A	19	T02	Hoary Bat	38	269	Gravel	1	621182	4747746	Y	-
		20	T03	Silver-haired Bat	1	345	Concrete	1	629893	4763589	Y	-
3-Oct-17	Searcher B	1	T24	Purple Martin	17	210	Weeds	2	627736	4750240	Y	-
		2	T63	Hoary Bat	1	14	Concrete	1	627749	4750239	Y	-
		3	T62	Tree Swallow	21	78	Weeds	2	621897	4751323	Y	-
5-Oct-17	Searcher B	4	T16	Swainson's Thrush	36	268	Bare soil	1	624110	4749257	Y	-
		5	T44	Eastern Red Bat	19	107	Bare soil	1	624372	4748481	Y	-
		6	T61	Red-eyed Vireo	14	125	Weeds	2	625192	4747974	Y	-
10-Oct-17	Searcher B	7	T05	American Woodcock	13	55	Weeds	2	627368	4765942	Y	-
		8	T24	Hoary Bat	46	198	Weeds	2	627759	4750193	Y	-
		9	T12	Red-eyed Vireo	24	135	Gravel	1	621146	4756387	Y	-
16-Oct-17	Searcher B	10	T32	American Woodcock	41	304	Weeds	2	624739	4764431	Y	-
		11	T95	Dark-eyed Junco	20	305	Bare soil	1	622795	4760855	Y	-
		12	T44	Eastern Red Bat	18	56	Bare soil	1	624353	4748493	Y	-
19-Oct-17	Searcher B	13	T16	Tree Swallow	36	296	Bare soil	1	624112	4749282	Y	-
		14	T44	Red-eyed Vireo	41	165	Bare soil	1	624372	4748441	N	N
		15	T61	Hoary Bat	9	170	Weeds	2	625184	4747961	Y	-
20-Oct-17	Searcher B	16	T63	American Woodcock	19	275	Weeds	2	621576	4751042	Y	-
		17	T62	Killdeer	40	355	Weeds	2	621868	4751354	Y	-
		18	T05	Eastern Red Bat	13	90	Gravel	1	621185	4747758	Y	-
27-Oct-17	Searcher B	19	T62	Hoary Bat	22	40	Weeds	2	621887	4751335	Y	-
		20	T63	Hoary Bat	26	335	Weeds	2	621602	4751060	Y	-

Appendix IV
Avian Mortalities

Appendix IV
1865A Niagara Region Wind Farm
2017 Bird Mortalities

Visibility Class:
1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≤25% bare ground, ≤25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: F Freshly Dead
E Early Decomposition
M Moderate Decomposition
A Advanced Decomposition
C Complete Decomposition
S Scavenged
I Injured or Dying

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
4-May-17	T44	13:39	13:59	N	3	9	100	None	2	E	Tree Swallow	1865-040517-T44-01	U	624324	4748463	28	251	E	48	Broken neck	Bare soil	1
11-May-17	T01	14:00	14:20	N	3	8	100	Rain	4	NE	Wood Thrush	1865-110517-T01-01	U	623012	4765748	27	86	E	36	None apparent	Bare soil	1
15-May-17	T61	14:35	14:55	N	4	9	0	None	3	NW	American Woodcock	1865-150517-T61-01	U	625207	4747947	36	152	E	48	Broken neck	Grass	2
16-May-17	T24	11:30	11:50	N	4	13	95-100	Rain	2	S	Ovenbird	1865-160517-T24-01	U	627724	4750232	22	240	F	24	None apparent	Wheat	2
19-May-17	T63	11:15	11:35	N	3	11	25	None	3	W	Red-eyed Vireo	1865-190517-T63-02	U	621634	4751060	33	56	M	72	None apparent	Weeds	2
29-May-17	T07	11:30	11:50	N	4	16	100	Rain	4	SW	Red-eyed Vireo	1865-290517-T07-02	U	618677	4767034	45	125	F	24	None apparent	Weeds	2
8-Jun-17	T32	8:41	9:01	N	3	12	0	None	2	E	Bird species	1865-080617-T32-01	U	624757	4764377	40	237	S	72	Wings only	Bare soil	1
8-Jun-17	T45	12:34	12:54	N	3	12	0	None	2	E	Brown Creeper	1865-080617-T45-02	U	623153	4748610	40	216	M	72	None apparent	Bare soil	1
15-Jun-17	T61	8:40	9:00	N	3	16	100	Rain	1	S	Purple Martin	1865-150617-T61-01	U	625163	4747981	14	319	E	48	Broken neck	Weeds	2
3-Jul-17	T45	12:45	13:15	N	4	19	0	None	3	NW	Bank Swallow	1865-030717-T45-01	U	623205	4748638	45	104	F	24	None apparent	Bare soil	1
4-Jul-17	T24	13:10	13:40	N	4	19	30	None	3	N	Swallow species	1865-040717-T24-01	U	627801	4750227	50	111	F	12	Wings only	Wheat	2
7-Jul-17	T58	9:40	10:10	N	3	21	100	Rain	1	SW	Tree Swallow	1865-070717-T58-02	U	628505	4767631	32	99	F	18	Broken wing	Bare soil	1
7-Jul-17	T05	12:00	12:30	N	3	20	90	Rain	3	SW	Tree Swallow	1865-070717-T05-01	U	621155	4747764	11	312	E	48	Wound on back	Weeds	2
13-Jul-17	T07	13:40	14:10	N	3	19	100	Fog/rain	1	N	Bobolink	1865-130717-T07-01	U	618663	4764040	27	131	M	60	Broken wing and leg	Weeds	2
13-Jul-17	T66	18:30	19:00	N	3	19	100	Fog/rain	1	N	Barn Swallow	1865-130717-T66-01	U	619125	4768532	3	3	E	48	None apparent	Gravel	1
14-Jul-17	T12	9:30	10:00	N	3	21	100	Fog	3	W	Tree Swallow	1865-140717-T12-01	U	621097	4756433	34	338	M	72	Wound on back	Bare soil	1
18-Jul-17	T80	12:10	12:40	N	4	25	0	None	2	SW	Tree Swallow	1865-180717-T80-02	U	630168	4772002	21	320	F	6	Broken wing	Bare soil	1
21-Jul-17	T02	14:30	15:00	N	3	30	20	None	1	SW	Cliff Swallow	1865-210717-T02-02	U	627414	4765928	36	120	F	6	None apparent	Wheat	2
24-Jul-17	T45	12:00	12:30	N	4	20	75	None	3	W	Tree Swallow	1865-240717-T45-01	U	623146	4748665	17	306	M	72	Laceration on back	Bare soil	1
24-Jul-17	T45	12:00	12:30	N	4	20	75	None	3	W	Cliff Swallow	1865-240717-T45-02	U	623119	4748669	45	312	E	48	Laceration on head	Bare soil	1
24-Jul-17	T45	12:00	12:30	N	4	20	75	None	3	W	Purple Martin	1865-240717-T45-03	U	623187	4748638	29	117	F	24	Laceration on abdomen	Bare soil	1
27-Jul-17	T81	12:40	13:10	N	3	20	100	Rain	1	SW	Swallow species	1865-270717-T81-01	U	616377	4766994	32	70	M	72	None apparent	Bare soil	1
31-Jul-17	T81	10:00	10:30	N	4	30	50	None	2	W	Tree Swallow	1865-310717-T81-01	U	616364	4767004	30	39	M	72	None apparent	Bare soil	1
31-Jul-17	T08	12:00	12:30	N	4	30	50	None	2	W	Purple Martin	1865-310717-T08-02	U	614512	4764880	45	235	F	18	Broken tail	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
31-Jul-17	T07	12:50	13:20	N	4	30	50	None	2	W	Tree Swallow	1865-310717-T07-01	U	618638	4764037	17	167	F	6	Broken neck	Weeds	2
31-Jul-17	T01	13:35	14:05	N	4	30	50	None	2	W	Tree Swallow	1865-310717-T01-01	U	623021	4765727	36	124	F	6	None apparent	Bare soil	1
1-Aug-17	T12	8:20	8:50	N	4	20	0	None	2	NW	Purple Martin	1865-010817-T12-01	U	621114	4756372	29	201	S	72	Missing abdomen	Bare soil	1
3-Aug-17	T95	10:00	10:30	N	3	22	0	None	2	SW	Bank Swallow	1865-030817-T95-01	U	622852	4760879	44	52	E	48	Broken neck	Bare soil	1
8-Aug-17	T12	9:05	9:35	N	4	15	10	None	2	N	European Starling	1865-080817-T12-02	U	621095	4756397	28	255	F	12	None apparent	Bare soil	1
14-Aug-17	T01	9:30	10:00	N	4	25	50	None	1	SE	Tree Swallow	1865-140817-T01-01	U	623029	4765770	50	60	F	18	None apparent	Bare soil	1
15-Aug-17	T80	9:10	9:40	N	4	25	25	None	3	S	Tree Swallow	1865-150817-T80-01	U	630209	4771987	23	80	S	24	In pieces	Bare soil	1
15-Aug-17	T12	8:40	9:10	N	4	19	0	None	3	S	Tree Swallow	1865-150817-T12-01	U	621097	4756383	31	246	F	12	None apparent	Bare soil	1
21-Aug-17	T01	9:45	10:15	N	4	25	0	None	3	SW	Purple Martin	1865-210817-T01-01	U	622949	4765773	46	312	M	72	None apparent	Bare soil	1
21-Aug-17	T94	13:35	14:05	N	4	25	0	None	3	SW	Tree Swallow	1865-210817-T94-01	U	618718	4768779	33	306	M	72	None apparent	Bare soil	1
21-Aug-17	T61	15:17	15:47	N	4	23	0	None	3	SW	Tree Swallow	1865-210817-T61-01	U	625146	4747942	42	225	S	72	Wing missing, chest eaten	Weeds	2
24-Aug-17	T08	10:50	11:20	N	3	21	0	None	1	N	Purple Martin	1865-240817-T08-01	U	614588	4764910	40	80	M	72	None apparent	Bare soil	1
24-Aug-17	T44	14:10	14:40	N	3	14	0	None	2	NW	Barn Swallow	1865-240817-T44-01	U	624360	4748457	17	144	F	12	None apparent	Bare soil	1
25-Aug-17	T80	12:15	12:45	N	3	15	0	None	1	NE	Tree Swallow	1865-250817-T80-01	U	630223	4772010	43	54	A	85	None apparent	Weeds	2
28-Aug-17	T08	11:10	11:40	N	4	24	90	None	1	SE	Magnolia Warbler	1865-280817-T08-01	U	614566	4764866	50	152	F	18	None apparent	Bare soil	1
28-Aug-17	T66	15:10	15:40	N	4	24	90	None	1	SE	Tree Swallow	1865-280817-T66-01	U	619126	4768490	34	184	A	86	None apparent	Weeds	2
28-Aug-17	T95	10:00	10:30	N	4	16	100	None	3	SE	Black-throated Blue Warbler	1865-280817-T95-01	U	622785	4760840	34	251	F	24	Laceration on chest	Bare soil	1
29-Aug-17	T03	9:30	10:00	N	4	18	100	None	1	SE	Barn Swallow	1865-290817-T03-01	U	629868	4763605	18	308	M/S	60	Decapitated	Bare soil	1
29-Aug-17	T58	10:50	11:20	N	4	18	100	None	1	SE	Barn Swallow	1865-290817-T58-01	U	628471	4767598	27	190	F	4	None apparent	Bare soil	1
29-Aug-17	T80	14:15	14:45	N	4	18	100	None	1	SE	Purple Martin	1865-290817-T80-01	F	630189	4772022	38	7	F	24	None apparent	Bare soil	1
29-Aug-17	T12	8:45	9:15	N	4	18	90	None	3	SE	Tree Swallow	1865-290817-T12-01	U	621137	4756377	26	166	F	24	Laceraton on abdomen	Bare soil	1
29-Aug-17	T12	8:45	9:15	N	4	18	90	None	3	SE	Tree Swallow	1865-290817-T12-02	U	621137	4756420	13	9	S	72	Decapitated	Bare soil	1
31-Aug-17	T95	16:00	16:30	N	3	17	50	None	5	NE	Tree Swallow	1865-310817-T95-01	U	622788	4760817	44	226	E	30	Laceration on chest	Bare soil	1
1-Sep-17	T58	13:10	13:40	N	3	15	30	None	2	NE	Tree Swallow	1865-010917-T58-02	U	628473	4767588	41	184	E	30	None apparent	Bare soil	1
1-Sep-17	T02	15:00	15:30	N	3	15	30	None	2	NE	Purple Martin	1865-010917-T02-01	U	627353	4765957	27	317	F	24	None apparent	Weeds	2
1-Sep-17	T62	15:30	16:00	N	3	11	50	None	4	N	Blackburnian Warbler	1865-010917-T62-01	U	621876	4751307	3	195	E	48	Laceration on chest	Gravel	1
4-Sep-17	T99	11:10	11:40	N	4	20	0	None	6	SW	Purple Martin	1865-040917-T99-01	U	619180	4749210	26	241	E	48	Laceration on abdomen	Bare soil	1
7-Sep-17	T08	9:30	10:00	N	3	16	40	None	1	SW	Purple Martin	1865-070917-T08-01	F	614549	4764934	18	44	F	18	Laceration	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
8-Sep-17	T80	9:00	9:30	N	3	15	90	None	1	NW	Purple Martin	1865-080917-T80-01	F	630229	4772006	46	66	F	12	None apparent	Bare soil	1
8-Sep-17	T03	14:50	15:20	N	3	15	90	None	1	NW	Tree Swallow	1865-080917-T03-01	U	629907	4763570	17	126	E	36	None apparent	Bare soil	1
8-Sep-17	T12	8:40	9:10	N	3	12	90	Rain	3	W	Purple Martin	1865-080917-T12-01	U	621152	4756434	35	50	F	12	Laceration on abdomen	Bare soil	1
11-Sep-17	T16	13:50	14:20	N	4	9	0	None	3	S	Purple Martin	1865-110917-T16-01	U	624148	4749196	45	188	S	24	One wing only	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-01	U	629906	4763582	10	80	F	8	None apparent	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-02	U	629913	4763587	19	75	F	8	None apparent	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-03	U	629935	4763568	46	120	F	8	Broken neck	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-04	U	629925	4763562	36	124	F	8	Broken tail	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-05	U	629910	4763547	45	150	F	8	Laceration	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-06	U	629898	4763554	26	186	F	8	Laceration	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-07	U	629889	4763550	27	190	F	8	Broken neck	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-08	U	629873	4763558	26	230	F	8	Laceration	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-09	U	629858	4763578	28	275	F	8	Laceration	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-10	U	629856	4763574	32	269	F	8	Decapitated	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-11	U	629859	4763604	39	320	F	8	Laceration	Bare soil	1
12-Sep-17	T03	15:20	15:50	N	4	25	10	None	1	NE	Tree Swallow	1865-120917-T03-12	U	629894	4763585	1	60	I	N/A	Found alive, died on the way to the rehab facility, no apparent injuries	Gravel	1
14-Sep-17	T08	13:30	14:00	N	3	20	40	None	1	W	Tree Swallow	1865-140917-T08-01	U	614541	4764922	10	336	F	8	Laceration	Gravel	1
14-Sep-17	T08	13:30	14:00	N	3	20	40	None	1	W	Warbler species	1865-140917-T08-02	U	614550	4764901	10	160	A	100	None apparent	Bare soil	1
14-Sep-17	T07	14:10	14:40	N	3	20	40	None	1	W	Tree Swallow	1865-140917-T07-01	U	628655	4764050	17	110	F	8	Laceration	Weeds	2
14-Sep-17	T16	14:00	14:30	N	3	18	100	None	2	W	Bobolink	1865-140917-T16-02	U	624173	4749258	18	72	F	12	Laceration on head and leg	Bare soil	1
15-Sep-17	T80	9:00	9:30	N	3	26	0	None	1	NW	Red-eyed Vireo	1865-150917-T80-01	U	630192	4772015	32	18	E	18	Laceration	Bare soil	1
15-Sep-17	T03	14:50	15:20	N	3	26	0	None	1	NW	Tree Swallow	1865-150917-T03-01	U	629905	4763591	13	52	F	24	Laceration	Bare soil	1
15-Sep-17	T03	14:50	15:20	N	3	26	0	None	1	NW	Tree Swallow	1865-150917-T03-02	U	629878	4763552	32	216	M	24	None apparent	Bare soil	1
15-Sep-17	T03	14:50	15:20	N	3	26	0	None	1	NW	Tree Swallow	1865-150917-T03-03	U	629883	4763551	25	205	S	48	Wings only	Bare soil	1
18-Sep-17	T66	10:25	10:55	N	4	27	100	Fog	1	SW	Tree Swallow	1865-180917-T66-01	U	619128	4768537	13	11	F	2	Broken neck	Weeds	2
18-Sep-17	T81	12:15	12:45	N	4	27	100	None	1	SW	Tree Swallow	1865-180917-T81-01	U	616341	4766999	17	0	F	8	None apparent	Weeds	2
18-Sep-17	T95	9:50	10:20	N	4	18	30	Fog	2	S	Tree Swallow	1865-180917-T95-01	U	622814	4760807	44	185	F	12	None apparent	Bare soil	1
19-Sep-17	T02	16:10	16:40	N	4	26	60	None	0	-	Tree Swallow	1865-190917-T02-01	U	627366	4765907	36	195	F	24	Laceration	Weeds	2
19-Sep-17	T03	16:50	17:20	N	4	26	60	None	0	-	Purple Martin	1865-190917-T03-01	F	629857	4763603	39	315	E	48	None apparent	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
19-Sep-17	T03	16:50	17:20	N	4	26	60	None	0	-	Tree Swallow	1865-190917-T03-02	U	629859	4763625	50	320	E	36	Laceration	Bare soil	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-01	U	618745	4768721	43	191	E	36	Broken tail	Soy	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-02	U	618740	4768722	44	202	E	36	None apparent	Soy	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-03	U	618746	4768735	31	195	M	52	None apparent	Bare soil	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-04	U	618737	4768741	25	224	E	36	Severed torso	Weeds	2
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-05	U	618714	4768760	36	275	M	50	Laceration	Soy	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-06	U	618726	4768783	28	315	F	24	Broken neck	Soy	1
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-07	U	618738	4768795	31	335	F	24	Broken neck	Soy	2
21-Sep-17	T94	9:50	10:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T94-08	U	618782	4768745	33	140	M	52	Laceration	Bare soil	1
21-Sep-17	T81	12:45	13:15	N	3	30	0	None	1	E	Red-eyed Vireo	1865-210917-T81-01	U	616329	4766959	23	232	E	36	Laceration	Bare soil	1
21-Sep-17	T81	12:45	13:15	N	3	30	0	None	1	E	Chestnut-sided Warbler	1865-210917-T81-02	U	616309	4766938	49	232	E	36	None apparent	Bare soil	1
21-Sep-17	T07	15:50	16:20	N	3	30	0	None	1	E	Tree Swallow	1865-210917-T07-01	U	618624	4764027	26	216	E	36	None apparent	Weeds	2
21-Sep-17	T95	9:45	10:15	N	3	19	0	None	2	E	Tree Swallow	1865-210917-T95-01	U	622804	4760857	34	277	F	12	None apparent	Bare soil	1
21-Sep-17	T95	9:45	10:15	N	3	19	0	None	2	E	Tree Swallow	1865-210917-T95-02	U	622798	4760834	26	231	F	12	Laceration on back	Bare soil	1
21-Sep-17	T95	9:45	10:15	N	3	19	0	None	2	E	Tree Swallow	1865-210917-T95-03	U	622790	4760826	39	234	F	12	Laceration on back	Bare soil	1
21-Sep-17	T95	9:45	10:15	N	3	19	0	None	2	E	Chimney Swift	1865-210917-T95-04	U	622799	4760811	44	207	F	12	Laceration on head	Bare soil	1
21-Sep-17	T45	12:35	13:05	N	3	19	0	None	2	E	Nashville Warbler	1865-210917-T45-01	F	623155	4748608	38	191	F	12	None apparent	Bare soil	1
25-Sep-17	T94	8:25	8:30	N	4	30	20	Fog	0	-	Tree Swallow	1865-250917-T94-01	U	618730	4768750	22	243	A	84	Broken wing	Soy	2
25-Sep-17	T94	8:25	8:30	N	4	30	20	Fog	0	-	Tree Swallow	1865-250917-T94-02	U	618797	4768779	48	70	F	24	Broken tail	Soy	1
26-Sep-17	T62	10:00	10:30	N	4	27	10	Fog	4	NW	Magnolia Warbler	1865-260917-T62-01	U	621876	4751304	7	194	F	24	Laceration on chest	Gravel	1
28-Sep-17	T08	10:45	11:15	N	3	16	70	None	2	NW	Tree Swallow	1865-280917-T08-02	U	614501	4764920	44	285	F	24	None apparent	Bare soil	1
28-Sep-17	T95	9:35	10:05	N	3	16	100	None	4	NW	Tree Swallow	1865-280917-T95-01	U	622812	4760878	30	20	F	12	Laceration on back	Bare soil	1
2-Oct-17	T66	10:15	10:35	N	4	24	0	None	1	SE	Tree Swallow	1865-021017-T66-01	U	619102	4768510	32	235	A	72	None apparent	Weeds	2
2-Oct-17	T95	13:01	13:21	N	4	8-22	10-20	None	1	S	Tree Swallow	1865-021017-T95-01	U	622829	4760820	33	160	F	6	Broken neck	Bare soil	1
3-Oct-17	T57	10:45	11:05	N	4	24	0	None	3	SW	Tree Swallow	1865-031010-T57-02	U	624389	4768676	50	258	F	24	Laceration	Bare soil	1
5-Oct-17	T08	9:10	9:30	N	3	23	0	Fog	3	W	Tree Swallow	1865-051017-T08-01	U	614518	4764938	36	326	E	36	Broken wing	Bare soil	1
12-Oct-17	T01	15:30	15:50	N	3	17	100	None	3	NE	Warbler species	1865-121017-T01-01	U	622987	4765698	47	180	A	72	None apparent	Weeds	2
12-Oct-17	T95	9:45	10:05	N	3	12	100	None	4	NE	Tree Swallow	1865-121017-T95-01	U	622826	4760810	35	171	F	24	None apparent	Bare soil	1
17-Oct-17	T80	10:10	10:30	N	4	15	20	None	6	SW	Golden-crowned Kinglet	1865-171017-T80-01	M	630217	4772023	50	48	E	48	Broken wing	Bare soil	1
27-Oct-17	T62	11:10	11:30	N	3	16	25	None	5	SE	Golden-crowned Kinglet	1865-271017-T62-01	U	621901	4751302	26	112	F	24	Laceration on chest	Weeds	2

2016 Raptor Mortalities

Visibility Class:
1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≤25% bare ground, ≤25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: F Freshly Dead
E Early Decomposition
M Moderate Decomposition
A Advanced Decomposition
C Complete Decomposition
S Scavenged
I Injured or Dying

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
5-Jun-17	T94	8:15	8:35	N	4	13	100	Rain/fog	2	SW	Turkey Vulture	1865-050617-T94-01	U	618756	4768777	13	24	F	12	None apparent	Bare soil	1
6-Jul-17	T66	9:30	10:00	N	3	30	10	None	1	SW	Red-tailed Hawk	1865-060717-T66-01	U	619139	4768512	20	140	F	18	Broken wing	Weeds	2
10-Jul-17	T45	11:34	14:10	N	4	22	30	None	4	SW	Red-tailed Hawk	1865-100717-T45-01	U	623202	4748653	40	80	F	24	None apparent	Bare soil	1
27-Jul-17	T94	10:05	10:35	N	3	20	100	Rain	1	SW	Turkey Vulture	1865-270717-T94-01	U	618732	4768733	36	226	F	24	None apparent	Soy	2
31-Jul-17	T08	12:00	12:30	N	4	30	50	None	2	W	Turkey Vulture	1865-310717-T08-01	U	614550	4764866	45	176	F	6	Broken wing	Bare soil	1
3-Aug-17	T32	8:15	8:45	N	3	22	0	None	2	SW	Red-tailed Hawk	1865-030817-T32-02	U	624808	4764433	30	75	E	48	Broken neck	Weeds	2
30-Aug-17	T16	16:23	16:25	N	2	22	50	None	3	SW	Turkey Vulture	1865-300817-T16-01	U	624182	4749261	34	69	F	8	Laceration	Bare soil	1
24-Oct-17	T02	11:19	11:39	N	4	10	90	None	5	SW	Turkey Vulture	1865-241017-T02-01	U	627353	4765973	37	330	F	24	None apparent	Wheat	2

2017 Raptor Mortalities (Monthly Searches)

Visibility Class:
1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≤25% bare ground, ≤25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code: F Freshly Dead
E Early Decomposition
M Moderate Decomposition
A Advanced Decomposition
C Complete Decomposition
S Scavenged
I Injured or Dying

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
3-May-17	T93	10:20	10:35	N	N/A	10	0	None	3	SW	Turkey Vulture	1865-030517-T93-01	U	618289	4767146	35	302	M	72	Broken wing	Bare soil	1
6-Jun-17	T06	11:45	11:50	N	34	15	100	Rain	4	NW	Turkey Vulture	1865-060617-T06-01	U	623106	4767241	8	104	E	48	None apparent	Bare soil	1
26-Jun-17	T85	10:30	10:35	N	18	18	40	None	2	SW	Turkey Vulture	1865-260617-T85-01	U	619124	4769128	20	330	F	6	Broken wing	Weeds	2
12-Jul-17	T82	8:30	8:40	N	28	21	100	Rain	3	S	Red-tailed Hawk	1865-120717-T82-01	U	630159	4766272	49	52	S	168	No body	Weeds	3
2-Aug-17	T88	8:08	8:25	N	29	21	0	None	2	SW	Red-tailed Hawk	1865-020817-T88-01	U	615853	4771012	34	72	A	80	None apparent	Bare soil	1
7-Aug-17	T46	12:05	12:15	N	28	22	100	None	1	SW	Turkey Vulture	1865-070817-T46-01	U	622728	4748969	6	336	A	168	Laceration on back	Gravel	1
9-Aug-17	T38	8:20	8:30	N	35	20	0	None	3	SW	Turkey Vulture	1865-090817-T38-01	U	620705	4765767	36	88	F	24	None apparent	Wheat	3
7-Sep-17	T52	10:12	10:30	N	35	17	40	None	1	SW	Turkey Vulture	1865-070917-T52-01	U	614206	4766563	28	352	M	72	None apparent	Weeds	2
3-Oct-17	T54	14:48	15:06	N	15	25	0	None	3	SW	Turkey Vulture	1865-031017-T54-01	U	619971	4765623	20	8	A	84	None apparent	Soy	2
4-Oct-17	T04	13:05	13:15	N	28	26	100	None	7	SW	Turkey Vulture	1865-041017-T04-01	U	627486	4767765	42	315	M	72	Decapitated	Bare soil	1

Appendix V
Bat Mortalities

Appendix V
1865A Niagara Region Wind Farm
2017 Bat Mortalities

Visibility Class:
1 ≥90% bare ground, vegetation ≤15cm tall
2 ≥25% bare ground, vegetation ≤15cm tall
3 ≤25% bare ground, ≤25% of vegetation is >30cm tall
4 little or no bare ground, ≥ 25% of vegetation is >30cm tall

Condition Code:
F Freshly Dead
E Early Decomposition
M Moderate Decomposition
A Advanced Decomposition
C Complete Decomposition
S Scavenged
I Injured or Dying

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
1-May-17	T95	10:25	10:45	N	4	8	100	Rain	2	NE	Big Brown Bat	1865-010517-T95-01	42	U	622809	4760879	30	0	F	12	None apparent	Pooled water	2
15-May-17	T45	10:28	10:48	N	4	9	0	None	3	NW	Hoary Bat	1865-150517-T45-01	54	U	623180	4748679	26	69	E	36	None apparent	Bare soil	1
15-May-17	T44	13:15	13:35	N	4	9	0	None	3	NW	Silver-haired Bat	1865-150517-T44-01	39	U	624352	4748517	41	28	E	36	Wound on abdomen	Bare soil	1
18-May-17	T32	9:00	9:20	N	3	22	0	None	4	SW	Big Brown Bat	1865-180517-T32-01	45	U	624746	4764420	31	281	M	60	None apparent	Bare soil	1
29-May-17	T32	8:30	8:50	N	4	16	100	Rain	4	S	Silver-haired Bat	1865-290517-T32-02	39	U	624762	4764418	20	292	E	36	Laceration on back	Bare soil	1
5-Jun-17	T08	13:40	14:00	N	4	13	100	Rain/fog	2	SW	Hoary Bat	1865-050617-T08-01	53	U	614569	4764946	41	37	M	60	None apparent	Old cut crop	2
5-Jun-17	T45	11:40	12:00	N	4	12	100	Fog	2	N	Silver-haired Bat	1865-050617-T45-01	N/A	U	623167	4748697	45	22	S	84	No head, wings or torso	Bare soil	1
5-Jun-17	T61	14:30	14:50	N	4	12	100	Fog	2	N	Big Brown Bat	1865-050617-T61-01	45	U	625178	4747948	16	181	A	108	Abrasion on head/back	Weeds	2
6-Jun-17	T57	10:40	11:00	N	4	15	100	Rain	4	NW	Eastern Red Bat	1865-060617-T57-01	41	M	624400	4768665	47	240	F	12	None apparent	Bare soil	1
15-Jun-17	T44	10:00	10:20	N	3	16	100	Rain	1	S	Big Brown Bat	1865-150617-T44-01	43	U	624396	4748482	44	61	E	36	Wound on stomach	Weeds	2
15-Jun-17	T45	10:55	11:15	N	3	16	100	Rain	1	S	Hoary Bat	1865-150617-T45-01	54	U	623163	4748617	31	195	E	36	None apparent	Bare soil	1
16-Jun-17	T63	9:30	9:50	N	3	21	75	None	3	SW	Big Brown Bat	1865-160617-T63-01	45	U	621567	4751031	40	266	M	60	Abrasion on back	Planted corn	1
22-Jun-17	T32	8:30	8:50	N	3	16	90	None	2	S	Big Brown Bat	1865-220617-T32-01	44	U	624797	4764429	26	44	E	36	None apparent	Bare soil	1
23-Jun-17	T63	9:45	10:05	N	7	21	100	Rain	5	SW	Hoary Bat	1865-230617-T63-01	55	U	621614	4751058	22	33	E	36	Broken wing/forearm	Weeds	2
4-Jul-17	T80	8:20	8:50	N	4	17	0	None	1	NE	Big Brown Bat	1865-040717-T80-01	45	U	630198	4771981	10	130	F	8	None apparent	Gravel	1
6-Jul-17	T99	9:15	9:45	N	3	16	0	None	2	SW	Hoary Bat	1865-060717-T99-01	54	U	619166	4749215	43	252	F	12	None apparent	Bare soil	1
6-Jul-17	T45	11:00	11:30	N	3	16	0	None	2	SW	Big Brown Bat	1865-060717-T45-01	44	F	623142	4748635	24	234	F	12	None apparent	Bare soil	1
6-Jul-17	T45	11:00	11:30	N	3	16	0	None	2	SW	Hoary Bat	1865-060717-T45-02	51	U	623196	4748622	45	132	E	36	None apparent	Bare soil	1
6-Jul-17	T61	14:10	14:40	N	3	16	0	None	2	SW	Big Brown Bat	1865-060717-T61-01	42	U	625167	4747963	12	242	F	16	Wound on stomach	Grass	2
7-Jul-17	T58	9:40	10:10	N	3	21	100	Rain	1	SW	Hoary Bat	1865-070717-T58-01	50	U	628476	4767619	8	169	M	60	None apparent	Bare soil	1
7-Jul-17	T58	9:40	10:10	N	3	21	100	Rain	1	SW	Hoary Bat	1865-070717-T58-03	55	U	628474	4767675	46	1	F	12	Broken wing	Bare soil	1
10-Jul-17	T94	13:50	14:20	N	4	23	100	None	2	SW	Eastern Red Bat	1865-100717-T94-01	42	U	618757	4768762	5	105	E	36	None apparent	Gravel	1
10-Jul-17	T61	14:55	15:25	N	4	22	30	None	4	SW	Eastern Red Bat	1865-100717-T61-01	39	U	625173	4747930	40	185	F	18	Wound on back	Grass	2
10-Jul-17	T61	14:55	15:25	N	4	22	30	None	4	SW	Big Brown Bat	1865-100717-T61-02	44	U	625213	4747960	33	147	A	168	Wound on chest	Grass	2
11-Jul-17	T57	12:40	13:10	N	4	25	70	None	2	SW	Hoary Bat	1865-110717-T57-01	54	U	624459	4768666	38	148	F	12	None apparent	Bare soil	1
11-Jul-17	T80	14:20	14:50	N	4	25	70	None	2	SW	Hoary Bat	1865-110717-T80-01	55	U	630222	4771961	40	130	E	36	None apparent	Bare soil	1
11-Jul-17	T80	14:20	14:50	N	4	25	70	None	2	SW	Hoary Bat	1865-110717-T80-02	53	U	630152	4771999	35	290	A	84	None apparent	Bare soil	1
11-Jul-17	T63	8:35	9:05	N	4	21	75	Fog/none	2	SW	Hoary Bat	1865-110717-T63-01	55	U	621617	4751034	4	103	S	168	Wing only	Gravel	1

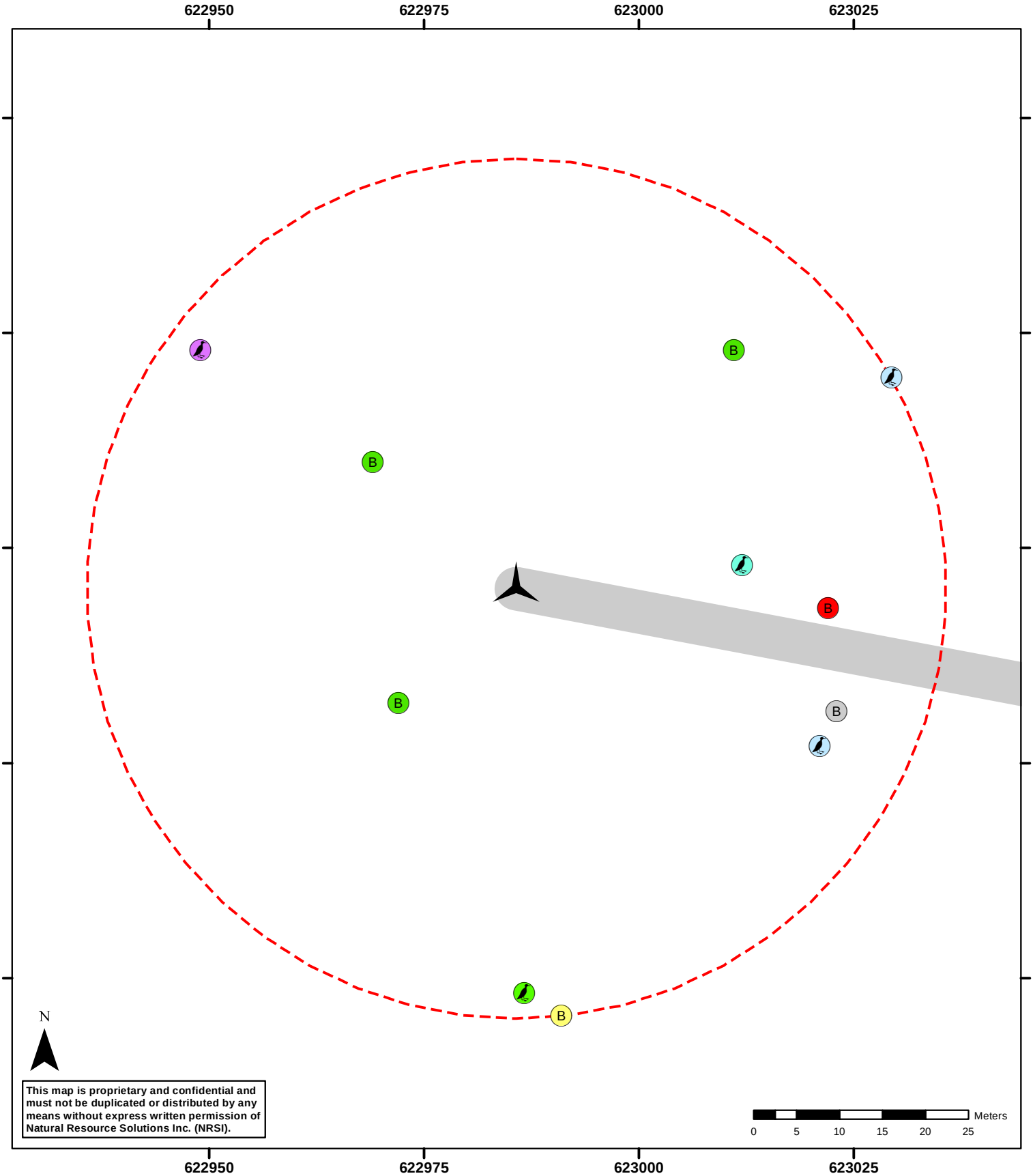
Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
11-Jul-17	T62	9:25	9:55	N	4	21	75	Fog/none	2	SW	Hoary Bat	1865-110717-T62-01	54	U	621886	4751309	10	105	F	12	None apparent	Weeds	2
13-Jul-17	T07	13:40	14:10	N	3	19	100	None	1	N	Hoary Bat	1865-130717-T07-02	48	U	618669	4764052	29	95	F	12	None apparent	Weeds	2
14-Jul-17	T57	13:25	13:55	N	3	19.5	100	None	4	NW	Hoary Bat	1865-140717-T57-01	49	U	624429	4768687	8	200	F	12	None apparent	Gravel	1
14-Jul-17	T24	15:00	15:30	N	3	21	100	None	3	W	Hoary Bat	1865-140717-T24-01	52	U	627754	4750223	16	177	F	18	Wound on abdomen	Gravel	1
17-Jul-17	T01	12:40	13:10	N	4	27	90	None	3	SW	Silver-haired Bat	1865-170717-T01-01	40	U	627753.7667	4750222.989	36	120	M	84	None apparent	Gravel	1
17-Jul-17	T99	10:45	11:15	N	4	20	100	Fog/none	3	W	Big Brown Bat	1865-170717-T99-01	47	F	619217	4749257	16	34	F	12	None apparent	Bare soil	1
18-Jul-17	T80	12:10	12:40	N	4	25	0	None	2	SW	Hoary Bat	1865-180717-T80-01	58	U	627753.7667	4750222.989	47	55	F	12	Broken wing	Bare soil	1
18-Jul-17	T58	15:40	16:10	N	4	25	0	None	2	SW	Hoary Bat	1865-180717-T58-01	54	U	628437	4767611	35	250	S	40	Wings and partial body only	Bare soil	1
18-Jul-17	T63	9:58	10:28	N	4	17	0	None	4	SW	Hoary Bat	1865-180717-T63-01	52	U	621593	4751063	32	331	F	12	None apparent	Gravel	1
20-Jul-17	T94	9:20	9:50	N	3	22	100	Rain	2	S	Hoary Bat	1865-200717-T94-01	50	U	618764	4768794	27	20	E	36	None apparent	Soy	1
20-Jul-17	T08	13:40	14:10	N	3	22	100	Rain	2	S	Hoary Bat	1865-200717-T08-01	52	U	614559	4764953	41	21	E	36	None apparent	Weeds	2
20-Jul-17	T07	14:20	14:50	N	3	22	100	Rain	2	S	Hoary Bat	1865-200717-T07-01	50	U	618665	4764018	47	155	A	84	None apparent	Weeds	2
20-Jul-17	T01	15:00	15:30	N	3	22	100	Rain	2	S	Eastern Red Bat	1865-200717-T01-01	33	U	623022	4765743	35	80	F	12	None apparent	Bare soil	1
20-Jul-17	T01	15:00	15:30	N	3	22	100	Rain	2	S	Hoary Bat	1865-200717-T01-02	55	U	623011	4765773	30	40	F	12	None apparent	Bare Soil	1
20-Jul-17	T95	9:15	9:45	N	3	22	20	None	3	S	Eastern Red Bat	1865-200717-T95-01	36	U	622827	4760865	17	35	E	36	None apparent	Bare soil	1
20-Jul-17	T95	9:15	9:45	N	3	22	20	None	3	S	Hoary Bat	1865-200717-T95-02	53	U	622845	4760887	45	35	E	36	Laceration on back	Bare soil	1
21-Jul-17	T80	9:00	9:30	N	3	30	20	None	1	SW	Eastern Red Bat	1865-210717-T80-01	40	U	630229	4772003	45	80	F	10	None apparent	Bare soil	1
21-Jul-17	T57	10:45	11:15	N	3	30	20	None	1	SW	Hoary Bat	1865-210717-T57-01	54	U	624442	4768722	21	16	F	12	None apparent	Bare soil	1
21-Jul-17	T57	10:45	11:15	N	3	30	20	None	1	SW	Hoary Bat	1865-210717-T57-02	50	U	624458	4768665	38	151	E	36	None apparent	Bare soil	1
21-Jul-17	T58	12:45	13:15	N	3	30	20	None	1	SW	Big Brown Bat	1865-210717-T58-01	49	U	628464	4767647	15	330	F	11	Laceration on back	Bare soil	1
21-Jul-17	T02	14:30	15:00	N	3	30	20	None	1	SW	Hoary Bat	1865-210717-T02-01	54	U	627408	4765918	36	140	F	12	None apparent	Wheat	2
21-Jul-17	T03	15:40	16:10	N	3	30	20	None	1	SW	Hoary Bat	1865-210717-T03-01	55	U	629895	4763621	40	21	F	12	Broken wing	Bare soil	1
24-Jul-17	T66	10:00	10:30	N	4	21	80	None	1	W	Hoary Bat	1865-240717-T66-01	54	U	619118	4768528	6	275	F	10	None apparent	Gravel	1
24-Jul-17	T66	10:00	10:30	N	4	21	80	None	1	W	Hoary Bat	1865-240717-T66-02	55	U	619091	4768519	35	266	F	10	None apparent	Weeds	2
24-Jul-17	T81	11:50	12:20	N	4	21	80	None	1	W	Big Brown Bat	1865-240717-T81-01	47	M	616367	4766999	27	55	M	60	None apparent	Bare soil	1
24-Jul-17	T08	13:35	14:05	N	4	21	80	None	1	W	Big Brown Bat	1865-240717-T08-01	43	U	614559	4764886	25	155	A	84	None apparent	Weeds	2
24-Jul-17	T01	16:30	17:00	N	4	21	80	None/rain	1	W	Hoary Bat	1865-240717-T01-01	55	U	622972	4765732	17	224	E	36	Broken wing	Bare soil	1
24-Jul-17	T32	8:10	8:40	N	4	20	75	None	3	W	Hoary Bat	1865-240717-T32-01	55	U	624795	4764408	10	120	F	12	None apparent	Gravel	1
24-Jul-17	T95	8:50	9:20	N	4	20	75	None	3	W	Hoary Bat	1865-240717-T95-01	52	U	622833	4760840	13	100	F	12	None apparent	Bare soil	1
24-Jul-17	T95	8:50	9:20	N	4	20	75	None	3	W	Hoary Bat	1865-240717-T95-02	52	U	622792	4760841	26	249	F	12	None apparent	Bare soil	1
24-Jul-17	T61	14:50	15:20	N	4	20	75	None	3	W	Hoary Bat	1865-240717-T61-01	55	U	625210	4747998	40	63	S	60	Wings only	Bare soil	1
25-Jul-17	T80	7:50	8:20	N	4	17	100	None	2	N	Eastern Red Bat	1865-250717-T80-01	41	U	630185	4771977	7	228	E	30	None apparent	Gravel	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
25-Jul-17	T80	7:50	8:20	N	4	17	100	None	2	N	Hoary Bat	1865-250717-T80-02	53	U	630183	4771958	21	190	E	30	None apparent	Bare soil	1
25-Jul-17	T80	7:50	8:20	N	4	17	100	None	2	N	Eastern Red Bat	1865-250717-T80-03	38	U	630168	4771963	25	232	E	30	None apparent	Bare soil	1
25-Jul-17	T57	9:35	10:05	N	4	17	100	None	2	N	Hoary Bat	1865-250717-T57-01	52	U	624437	4768741	41	8	E	36	None apparent	Bare soil	1
25-Jul-17	T57	9:35	10:05	N	4	17	100	None	2	N	Hoary Bat	1865-250717-T57-02	55	U	624409	4768681	31	254	E	36	None apparent	Bare soil	1
25-Jul-17	T03	17:50	18:20	N	4	17	100	None	2	N	Hoary Bat	1865-250717-T03-01	50	U	629887	4763574	3	260	M	60	None apparent	Gravel	1
25-Jul-17	T03	17:50	18:20	N	4	17	100	None	2	N	Eastern Red Bat	1865-250717-T03-02	43	U	629883	4763562	15	220	F	18	None apparent	Bare soil	1
25-Jul-17	T03	17:50	18:20	N	4	17	100	None	2	N	Big Brown Bat	1865-250717-T03-03	45	U	629883	4763561	16	220	F	18	None apparent	Bare soil	1
25-Jul-17	T03	17:50	18:20	N	4	17	100	None	2	N	Hoary Bat	1865-250717-T03-04	52	U	629911	4763594	21	55	E	40	None apparent	Bare soil	1
25-Jul-17	T12	8:30	9:00	N	4	17	100	None	3	N	Hoary Bat	1865-250717-T12-01	57	U	621138	4756393	11	142	F	12	None apparent	Gravel	1
25-Jul-17	T05	11:05	11:35	N	4	17	100	None	3	N	Big Brown Bat	1865-250717-T05-01	43	U	621187	4747735	21	154	E	36	Laceration on back	Bare soil	1
25-Jul-17	T05	11:05	11:35	N	4	17	100	None	3	N	Big Brown Bat	1865-250717-T05-02	44	U	621188	4747732	23	158	E	36	Laceration on abdomen	Bare soil	1
25-Jul-17	T05	11:05	11:35	N	4	17	100	None	3	N	Hoary Bat	1865-250717-T05-03	52	U	621166	4747764	6	351	F	12	None apparent	Gravel	1
25-Jul-17	T24	13:05	13:35	N	4	17	100	None	3	N	Hoary Bat	1865-250717-T24-01	51	U	627772	4750229	21	116	F	12	None apparent	Wheat	2
27-Jul-17	T66	10:45	11:15	N	3	20	100	Rain	1	SW	Big Brown Bat	1865-270717-T66-01	50	U	619121	4768498	27	200	E	36	None apparent	Weeds	2
27-Jul-17	T08	14:40	15:10	N	3	20	100	Rain	1	SW	Eastern Red Bat	1865-270717-T08-01	41	U	614544	4764920	8	356	E	40	None apparent	Gravel	1
28-Jul-17	T24	13:00	13:30	N	3	19	100	None	4	NE	Big Brown Bat	1865-280717-T24-01	47	U	627757	4750223	16	168	F	16	Laceration on abdomen	Wheat	2
1-Aug-17	T03	17:20	17:50	N	4	20	0	None	2	NW	Hoary Bat	1865-010817-T03-01	55	U	629929	4763573	38	92	F	12	None apparent	Bare soil	1
1-Aug-17	T63	9:20	9:50	N	4	20	0	None	2	NW	Big Brown Bat	1865-010817-T63-01	44	U	621602	4751023	<1	178	F	12	None apparent	Concrete	1
3-Aug-17	T32	8:15	8:45	N	3	22	0	None	2	SW	Hoary Bat	1865-030817-T32-01	55	U	624786	4764416	5	48	F	12	None apparent	Gravel	1
3-Aug-17	T45	12:35	13:05	N	3	22	0	None	2	SW	Eastern Red Bat	1865-030817-T45-01	40	U	623173	4748647	13	102	F	12	Broken neck	Bare soil	1
4-Aug-17	T02	13:30	14:00	N	3	30	100	Rain	1	SW	Hoary Bat	1865-040817-T02-01	56	U	627390	4765943	10	85	F	12	Broken wing	Weeds	2
4-Aug-17	T63	10:05	10:35	N	3	21	50	Rain	4	SW	Eastern Red Bat	1865-040817-T63-01	39	U	621603	4751049	12	320	E	36	None apparent	Gravel	1
7-Aug-17	T99	8:30	9:00	N	4	19	90	None	1	SW	Big Brown Bat	1865-070817-T99-01	47	U	619229	4749216	22	115	F	12	Broken wing	Bare soil	1
7-Aug-17	T61	14:30	15:00	N	4	19	90	None	1	SW	Big Brown Bat	1865-070817-T61-01	44	U	625195	4747969	18	99	F	12	None apparent	Bare soil	1
8-Aug-17	T57	9:40	10:10	N	4	15	0	None	1	N	Eastern Red Bat	1865-080817-T57-01	40	U	624473	4768701	38	109	E	36	None apparent	Bare soil	1
8-Aug-17	T12	9:05	9:35	N	4	15	10	None	2	N	Big Brown Bat	1865-080817-T12-01	44	U	621109	4756403	14	279	F	12	None apparent	Gravel	1
8-Aug-17	T62	10:50	11:20	N	4	15	10	None	2	N	Eastern Red Bat	1865-080817-T62-01	37	U	621915	4751301	40	108	F	10	None apparent	Bare soil	1
10-Aug-17	T94	8:00	8:30	N	3	20	20	Fog/none	1	SW	Big Brown Bat	1865-100817-T94-01	46	U	618748	4768780	10	345	F	10	None apparent	Soy	2
10-Aug-17	T08	12:00	12:30	N	3	20	20	Fog/none	1	SW	Hoary Bat	1865-100817-T08-01	56	U	614549	4764921	11	20	F	12	None apparent	Gravel	1
10-Aug-17	T01	13:25	13:55	N	3	20	20	Fog/none	1	SW	Hoary Bat	1865-100817-T01-01	52	U	622969	4765760	17	325	F	14	None apparent	Bare soil	1
10-Aug-17	T99	9:30	10:00	N	3	20	0	None	2	SW	Hoary Bat	1865-100817-T99-01	52	U	619186	4749243	29	312	F	12	None apparent	Bare soil	1
11-Aug-17	T80	9:00	9:30	N	3	22	100	None	2	SW	Big Brown Bat	1865-110817-T80-01	42	U	630187	4771938	46	182	A	84	None apparent	Bare soil	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
11-Aug-17	T58	12:40	13:10	N	3	22	100	Rain	2	SW	Big Brown Bat	1865-110817-T58-01	46	U	628490	4767675	49	25	E	36	None apparent	Bare soil	1
11-Aug-17	T58	12:40	13:10	N	3	22	100	Rain	2	SW	Eastern Red Bat	1865-110817-T58-02	38	U	628510	4767662	50	30	F	12	None apparent	Bare soil	1
11-Aug-17	T03	15:15	15:45	N	3	22	100	Rain	2	SW	Big Brown Bat	1865-110817-T03-01	44	U	629905	4763605	25	35	F	12	None apparent	Bare soil	1
14-Aug-17	T94	13:30	14:00	N	4	25	50	None	1	SE	Silver-haired Bat	1865-140817-T94-01	40	U	618768	4768773	8	88	F	12	None apparent	Soy	2
14-Aug-17	T95	9:00	9:30	N	4	19	30	None	2	E	Big Brown Bat	1865-140817-T95-01	45	U	622817	4760876	28	19	F	12	None apparent	Bare soil	1
14-Aug-17	T95	9:00	9:30	N	4	19	30	None	2	E	Big Brown Bat	1865-140817-T95-02	45	U	622847	4760880	41	48	F	12	None apparent	Bare soil	1
14-Aug-17	T95	9:00	9:30	N	4	19	30	None	2	E	Hoary Bat	1865-140817-T95-03	55	U	622846	4760889	49	34	F	12	None apparent	Bare soil	1
14-Aug-17	T99	10:15	10:45	N	4	19	30	None	2	E	Silver-haired Bat	1865-140817-T99-01	39	U	619222	4749186	37	170	F	12	None apparent	Gravel	1
15-Aug-17	T80	9:10	9:40	N	4	25	25	None	3	S	Big Brown Bat	1865-150817-T80-02	45	U	630214	4771966	30	125	E	36	None apparent	Weeds	2
15-Aug-17	T58	12:40	13:10	N	4	25	25	Rain	3	S	Hoary Bat	1865-150817-T58-01	55	U	628501	4767646	31	66	F	18	None apparent	Bare soil	1
15-Aug-17	T58	12:40	13:10	N	4	25	25	Rain	3	S	Big Brown Bat	1865-150817-T58-02	47	U	628502	4767663	39	52	E	36	None apparent	Bare soil	1
17-Aug-17	T99	8:40	9:10	N	3	17	50	None	3	E	Big Brown Bat	1865-170817-T99-01	42	U	619244	4749247	30	88	M	60	Laceration on back	Bare soil	1
17-Aug-17	T45	10:30	11:00	N	3	17	50	None	3	E	Hoary Bat	1865-170817-T45-01	54	U	623127	4748662	31	282	M	60	None apparent	Bare soil	1
18-Aug-17	T62	13:28	13:58	N	3	27	10	None	4	SW	Eastern Red Bat	1865-180817-T62-01	40	U	621881	4751264	47	174	A	80	None apparent	Bare soil	1
21-Aug-17	T95	9:25	9:55	N	4	23	0	None	3	SW	Hoary Bat	1865-210817-T95-01	55	U	622776	4760877	49	312	M	60	Laceration on chest	Gravel	1
22-Aug-17	T57	11:45	12:15	N	4	25	30	None	4	SW	Silver-haired Bat	1865-220817-T57-01	41	U	624443	4768704	35	335	E	36	Broken wing	Bare soil	1
22-Aug-17	T02	15:10	15:40	N	4	25	30	None	4	SW	Big Brown Bat	1865-220817-T02-01	48	U	627372	4765953	13	326	E	36	None apparent	Weeds	2
22-Aug-17	T03	15:55	16:25	N	4	25	30	None	4	SW	Eastern Red Bat	1865-220817-T03-01	37	U	629875	4763619	36	342	F	12	Laceration and broken wing	Bare soil	1
24-Aug-17	T01	9:15	9:45	N	3	21	0	None	1	N	Big Brown Bat	1865-240817-T01-01	47	U	622991	4765696	50	178	F	10	Broken wing	Bare soil	1
25-Aug-17	T58	8:50	9:20	N	3	15	0	None	1	NE	Eastern Red Bat	1865-250817-T58-01	43	U	628489	4767614	22	130	F	12	None apparent	Bare soil	1
28-Aug-17	T45	13:00	13:30	N	4	16	100	None	3	SE	Hoary Bat	1865-280817-T45-01	54	U	623130	4748618	42	212	F	14	None apparent	Bare soil	1
28-Aug-17	T16	14:35	15:05	N	4	16	100	None	3	SE	Silver-haired Bat	1865-280817-T16-01	39	U	624119	4749276	45	316	F	16	Laceration on chest	Bare soil	1
31-Aug-17	T94	9:30	10:00	N	3	18	100	None	4	N	Silver-haired Bat	1865-310817-T94-01	43	U	618792	4768756	41	106	F	12	None apparent	Soy	1
31-Aug-17	T16	10:40	11:10	N	3	17	50	None	5	NE	Silver-haired Bat	1865-310817-T16-01	37	U	624180	4749246	49	147	E	36	Wing removed	Bare soil	1
1-Sep-17	T58	13:10	13:40	N	3	15	30	None	2	NE	Silver-haired Bat	1865-010917-T58-01	44	U	628513	4767604	45	130	F	6	Broken leg	Bare soil	1
14-Sep-17	T16	14:00	14:30	N	3	18	100	None	1	W	Silver-haired Bat	1865-140917-T16-01	39	U	624160	4749274	31	21	E	24	Laceration on chest	Bare soil	1
15-Sep-17	T05	11:15	11:45	N	3	18	0	None	1	W	Eastern Red Bat	1865-150917-T05-01	38	U	621206	4747743	36	110	M	48	Laceration on chest	Bare soil	1
15-Sep-17	T24	13:05	13:35	N	3	18	0	None	0	W	Eastern Red Bat	1865-150917-T24-01	38	U	627773	4750223	26	129	F	24	None apparent	Wheat	2
18-Sep-17	T16	14:30	15:00	N	4	18	30	None	1	S	Silver-haired Bat	1865-180917-T16-01	39	U	624183	4749210	44	137	M	24	Laceration on back	Bare soil	1
22-Sep-17	T80	8:30	9:00	N	3	26	10	Fog	3	E	Silver-haired Bat	1865-220917-T80-01	42	M	630151	4771980	32	270	F	4	Broken wing	Bare soil	1
22-Sep-17	T57	10:15	10:45	N	3	26	10	Fog	3	E	Eastern Red Bat	1865-220917-T57-01	38	U	624437	4768693	2	138	E	30	None apparent	Gravel	1

Date	Turbine	Start Time	End Time	Dog Used (Y/N)	Days Since Last Search	Temp.	Cloud Cover (%)	Precipitation	Wind Speed (Beaufort Scale)	Wind Direction	Species	Sample ID	Bat FA (mm)	Sex (M/F/U)	Easting	Northing	Distance from Turbine (m)	Direction from Turbine (°)	Condition Code	Estimated Time Since Death (hrs)	Observed Injuries	Substrate/Habitat	Visibility Class
25-Sep-17	T99	9:40	10:10	N	4	18	10	Fog	4	SE	Silver-haired Bat	1865-250917-T99-01	41	U	619229	4749265	41	66	S	12	Lower half of the body missing, only wings, chest and head remain	Bare soil	1
28-Sep-17	T08	10:45	11:15	N	3	16	70	None	3	NW	Silver-haired Bat	1865-280917-T08-01	40	M	614567	4764934	32	46	F	12	Broken wing	Bare soil	1
28-Sep-17	T99	10:45	11:15	N	3	16	100	None	3	NW	Big Brown Bat	1865-280917-T99-01	44	U	619187	4749226	17	248	F	12	Laceration on back	Bare soil	1

Appendix VI
Locations of Bird and Bat Mortalities



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Silver-haired Bat
- Hoary Bat
- Purple Martin
- Tree Swallow
- Warbler species
- Wood Thrush

Appendix VI

Niagara Region Wind Farm

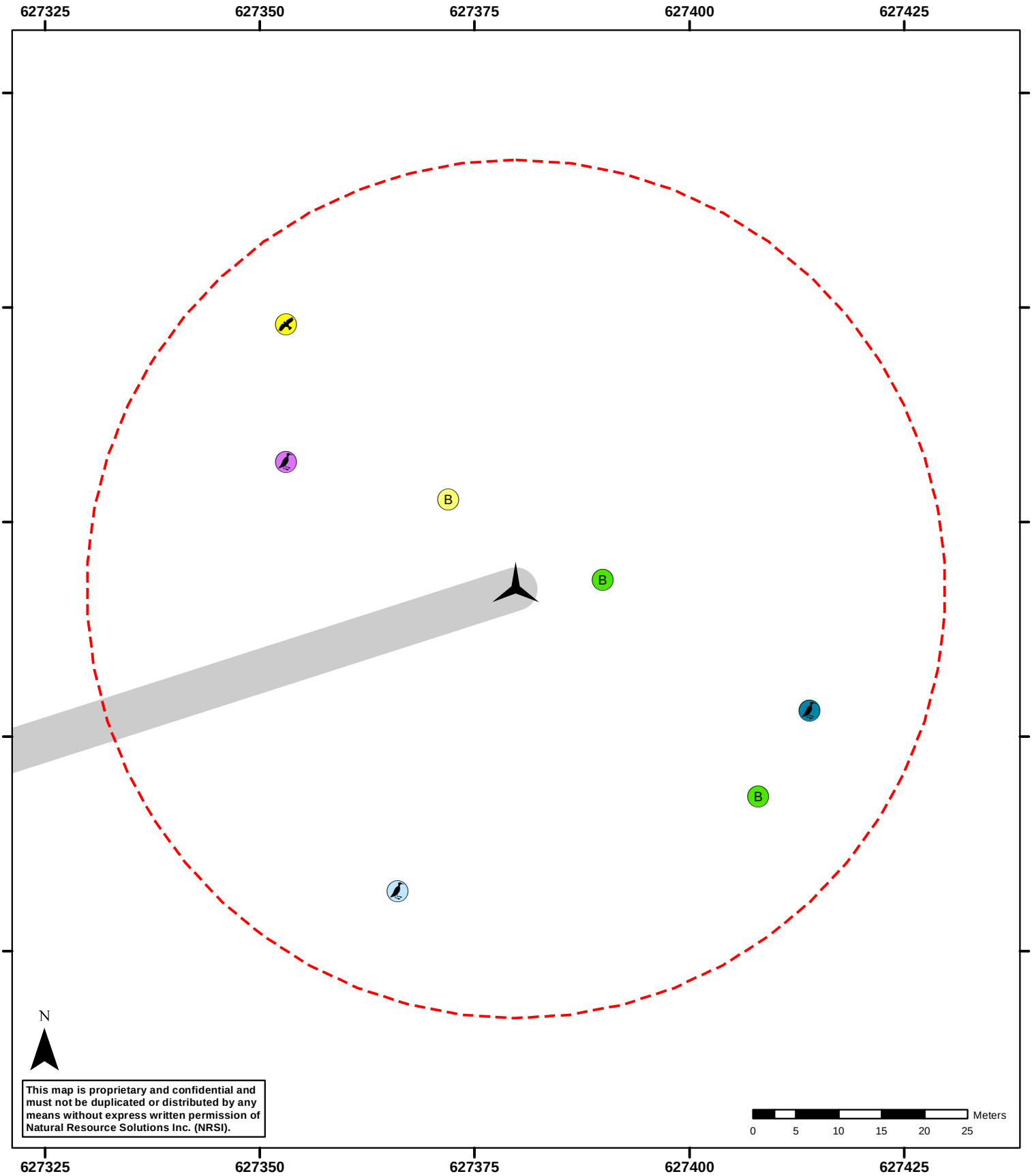
Turbine T01 Mortalities 2017

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 11, 2018
Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Hoary Bat
- Cliff Swallow
- Purple Martin
- Tree Swallow
- Turkey Vulture

Appendix VI

Niagara Region Wind Farm

Turbine T02 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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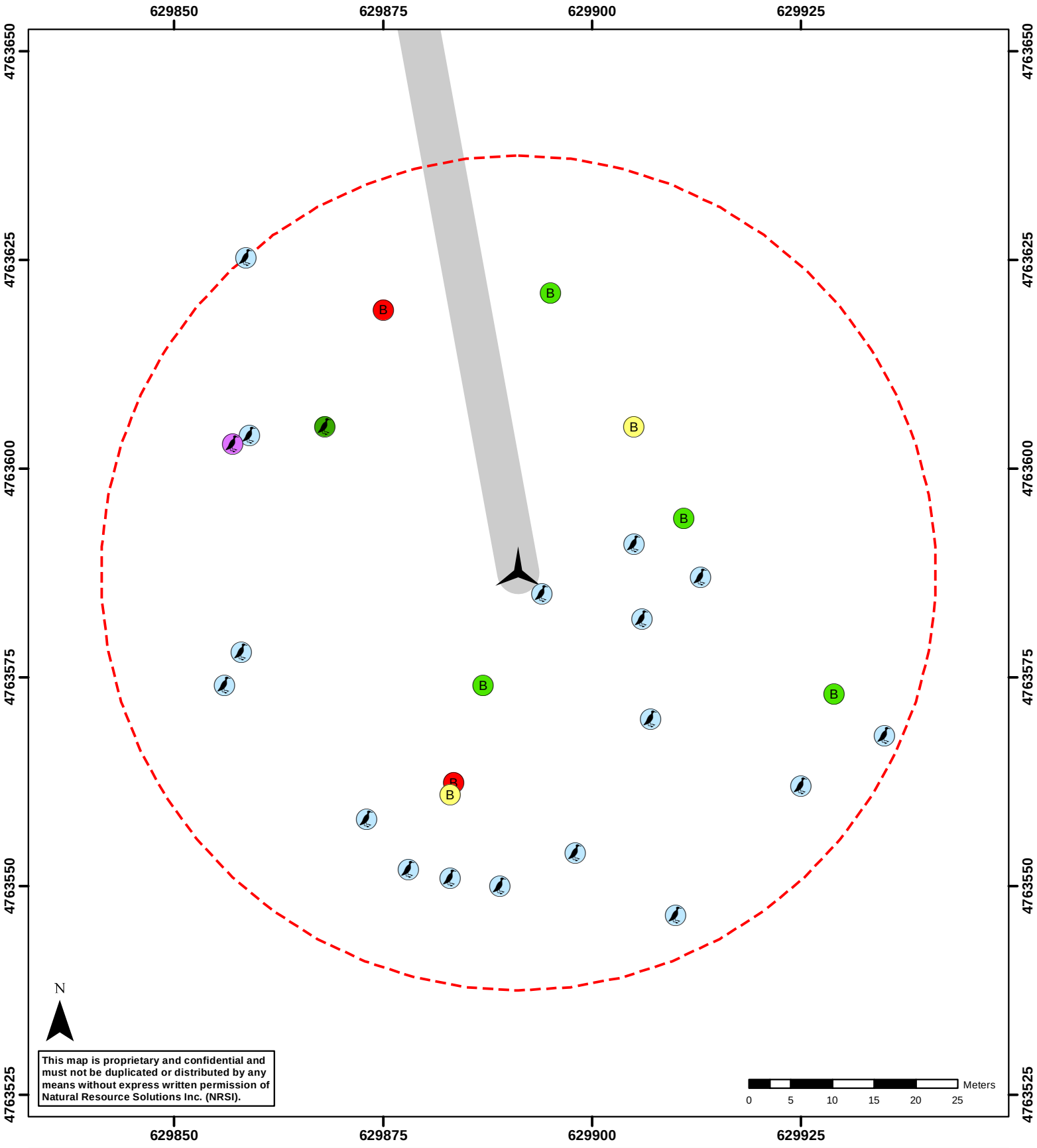

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Barn Swallow
- Purple Martin
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T03 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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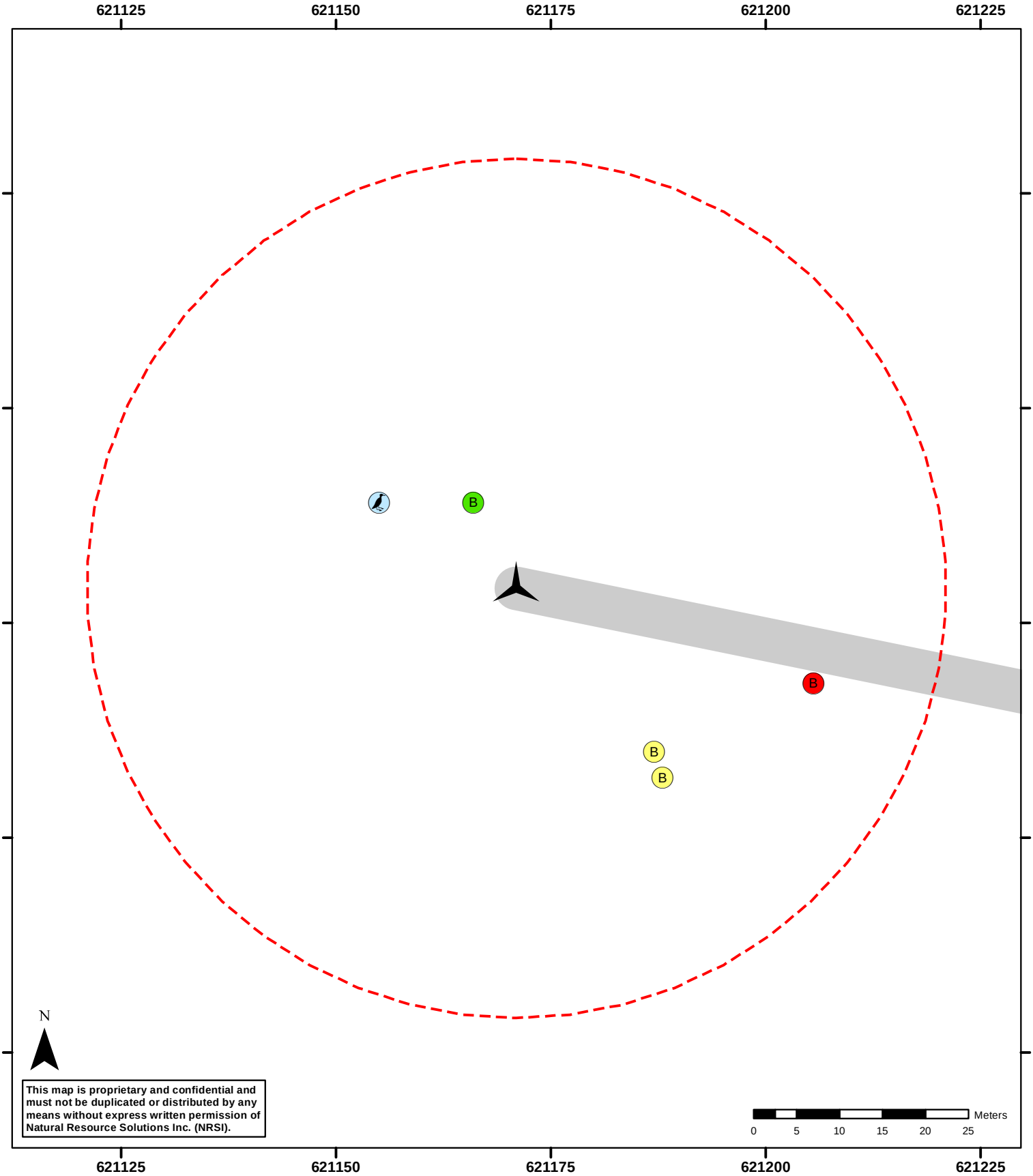

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T05 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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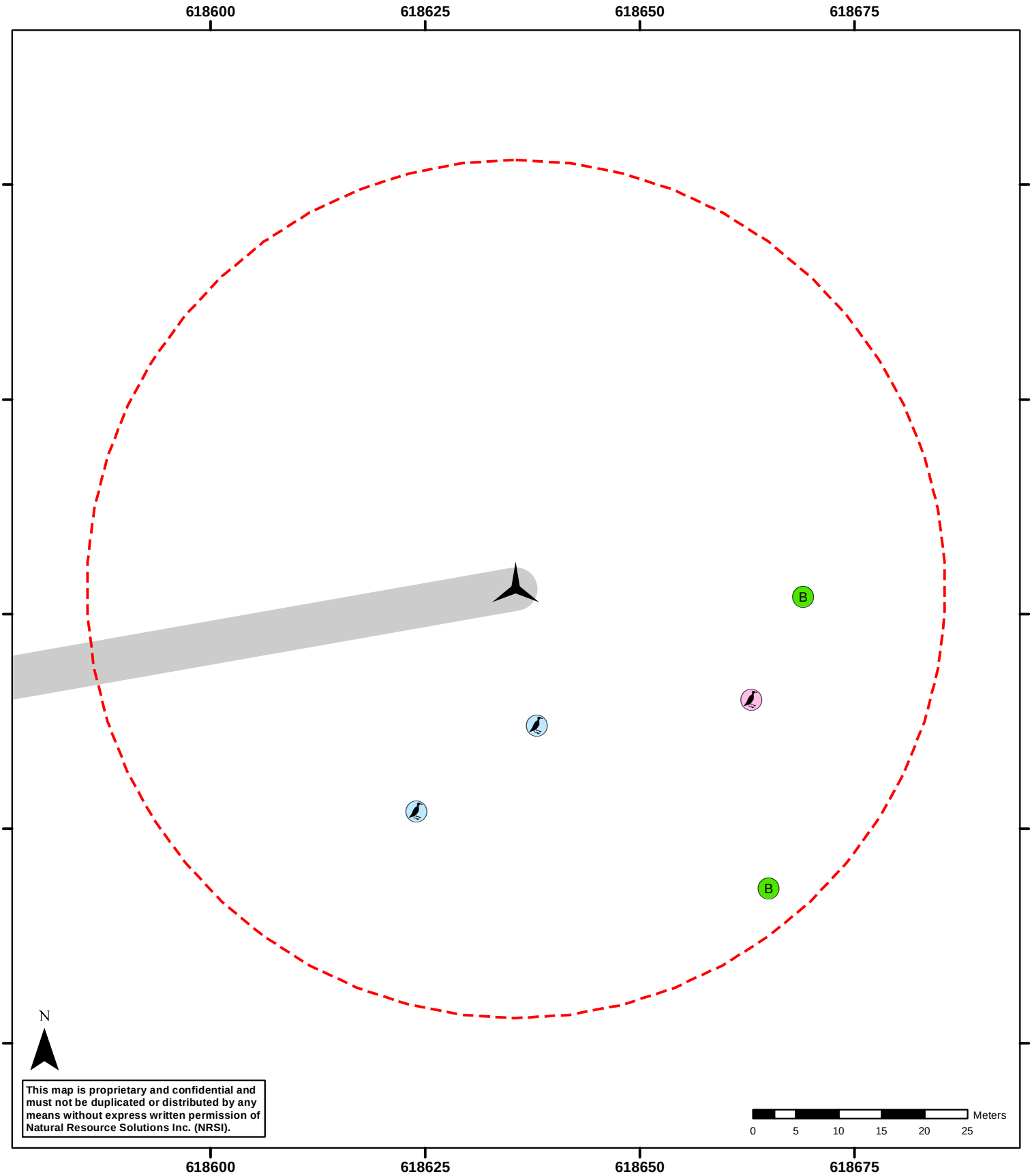

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Hoary Bat
- Bobolink
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T07 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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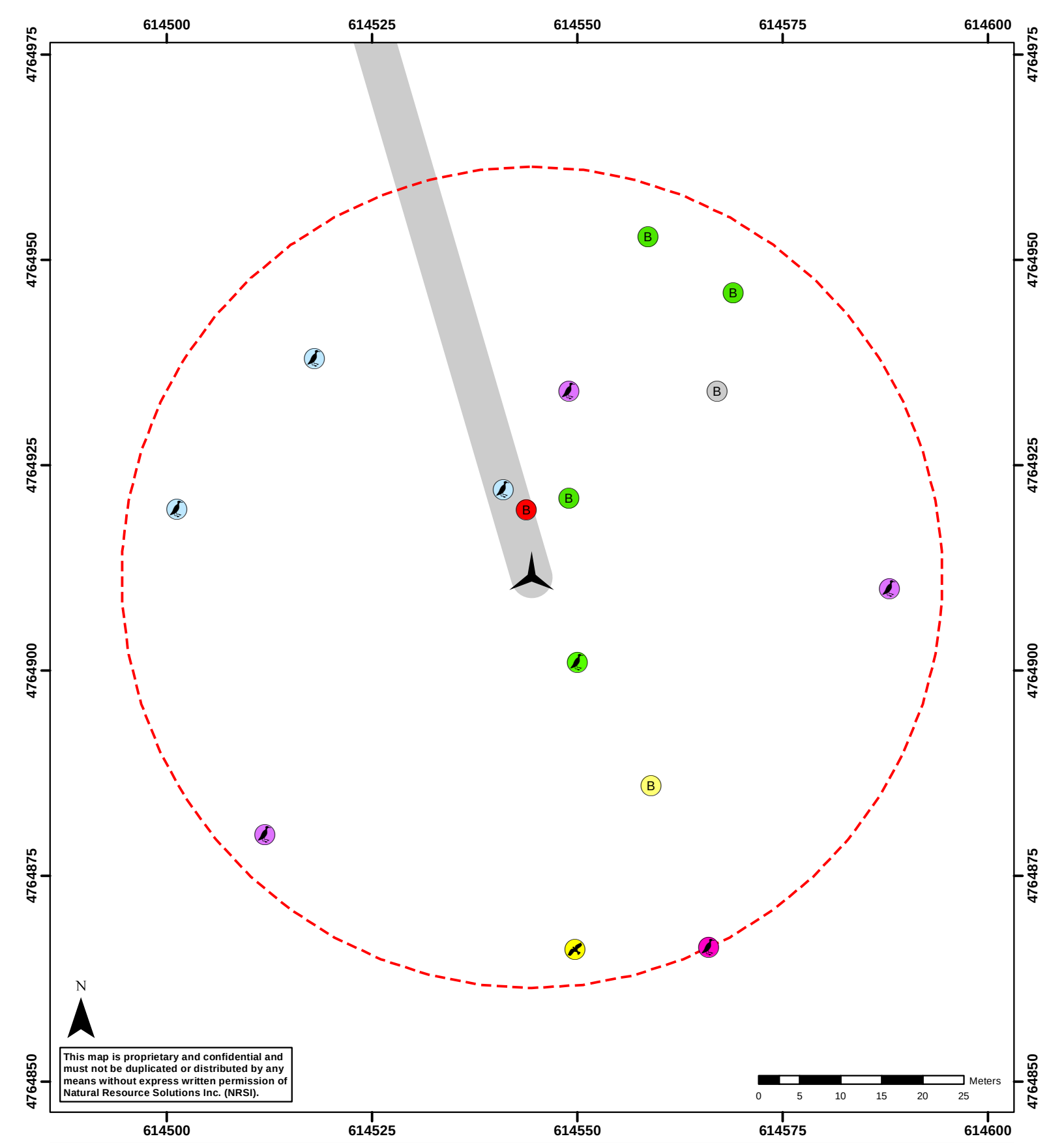

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Silver-haired Bat
- Hoary Bat
- Magnolia Warbler
- Purple Martin
- Tree Swallow
- Warbler species
- Turkey Vulture

Appendix VI

Niagara Region Wind Farm

Turbine T08 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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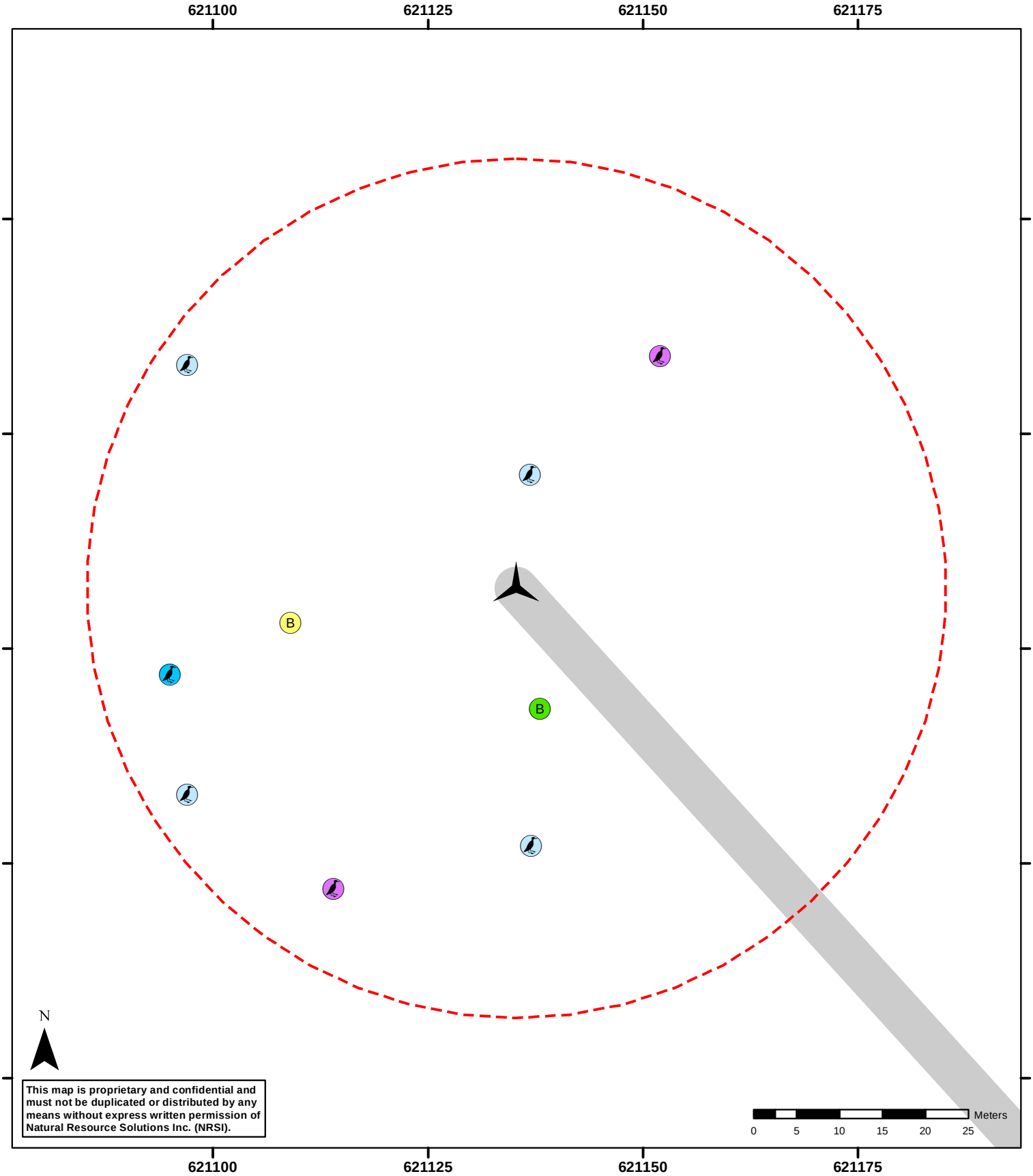


Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Hoary Bat
- European Starling
- Purple Martin
- Tree Swallow

Appendix VI

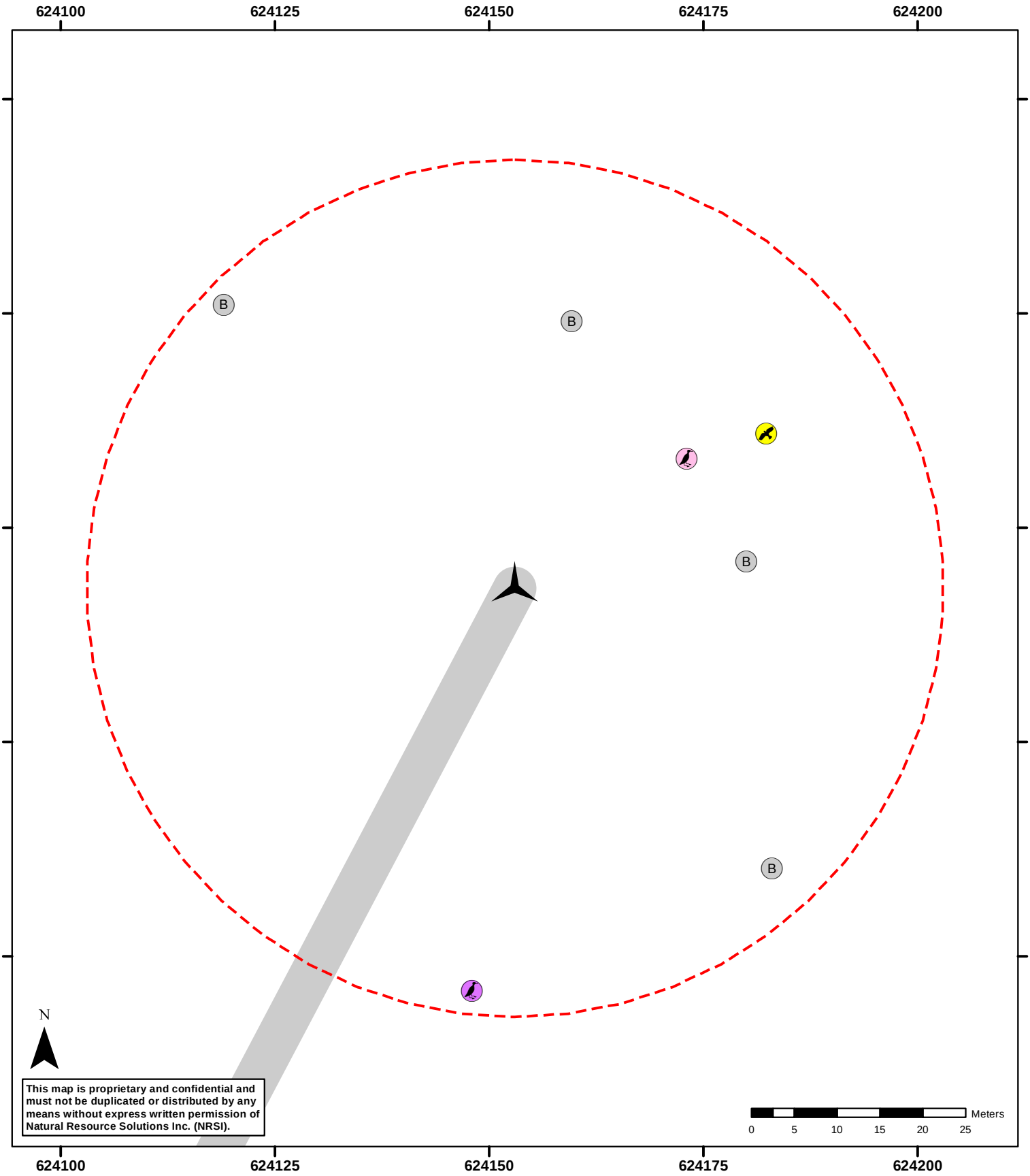
Niagara Region Wind Farm

Turbine T12 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- B Silver-haired Bat
- Bobolink
- Purple Martin
- Turkey Vulture

Appendix VI

Niagara Region Wind Farm

Turbine T16 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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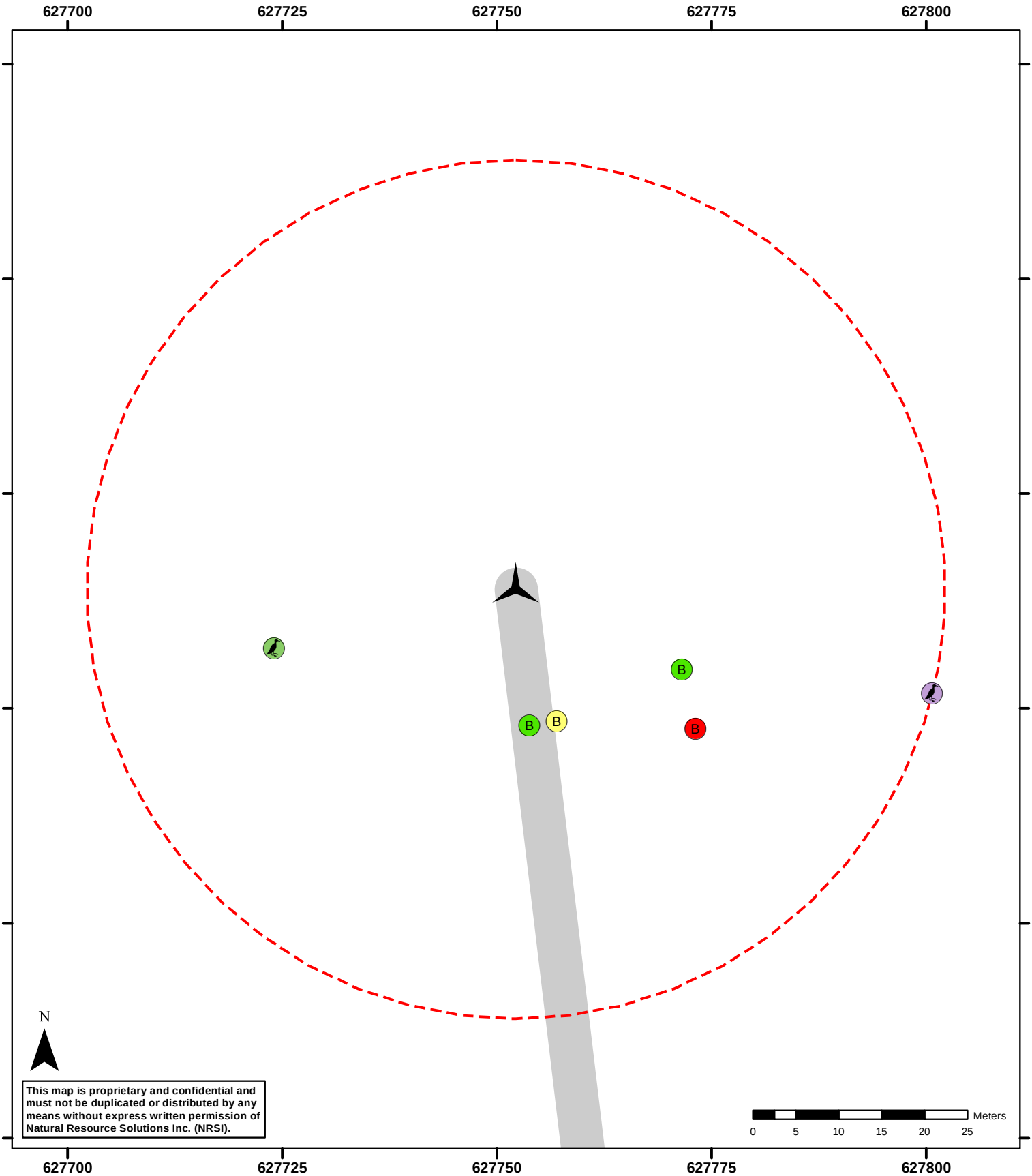

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Ovenbird
- Swallow species

Appendix VI

Niagara Region Wind Farm

Turbine T24 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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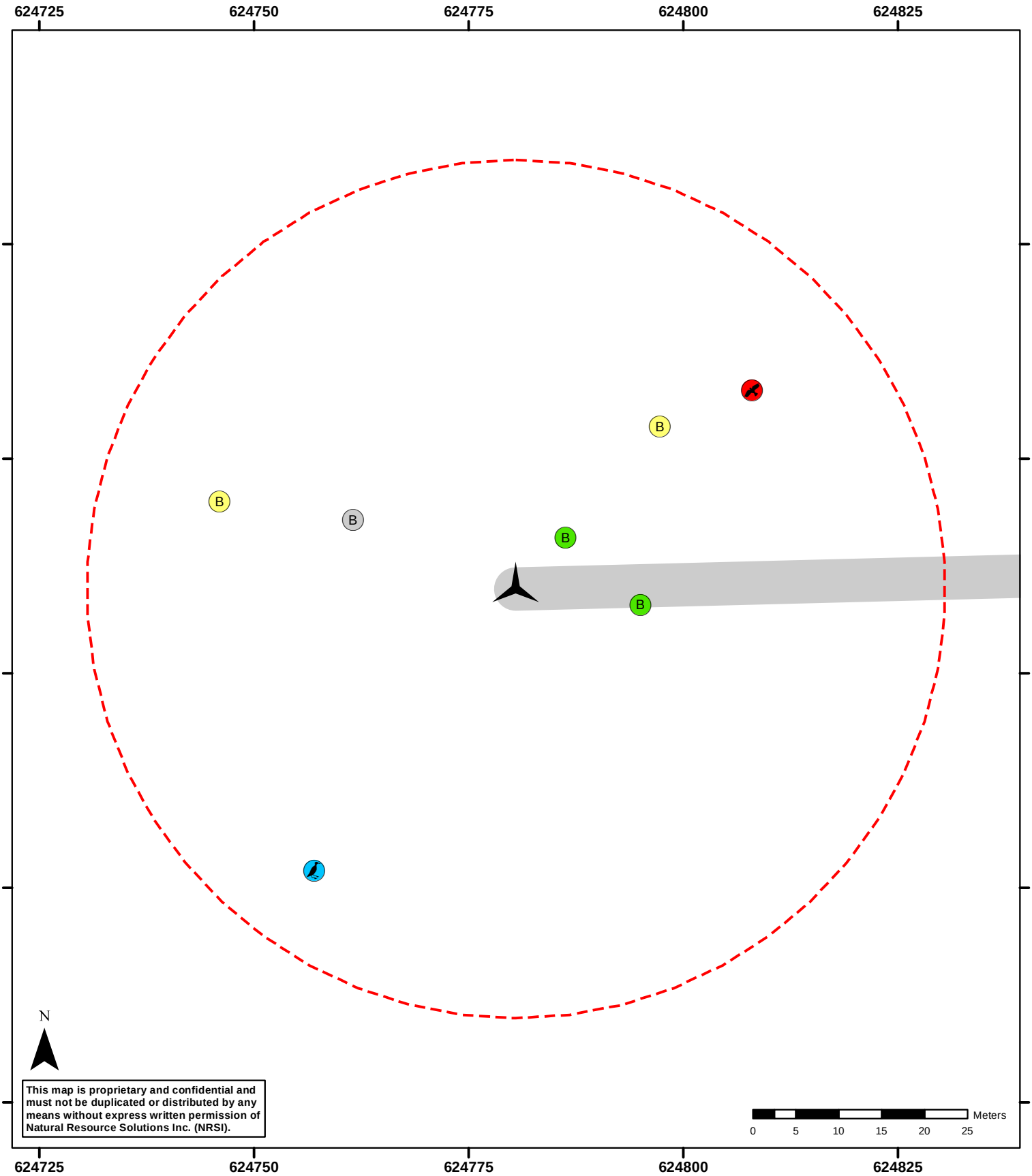

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Silver-haired Bat
- Hoary Bat
- Bird species
- Red-tailed Hawk

Appendix VI

Niagara Region Wind Farm

Turbine T32 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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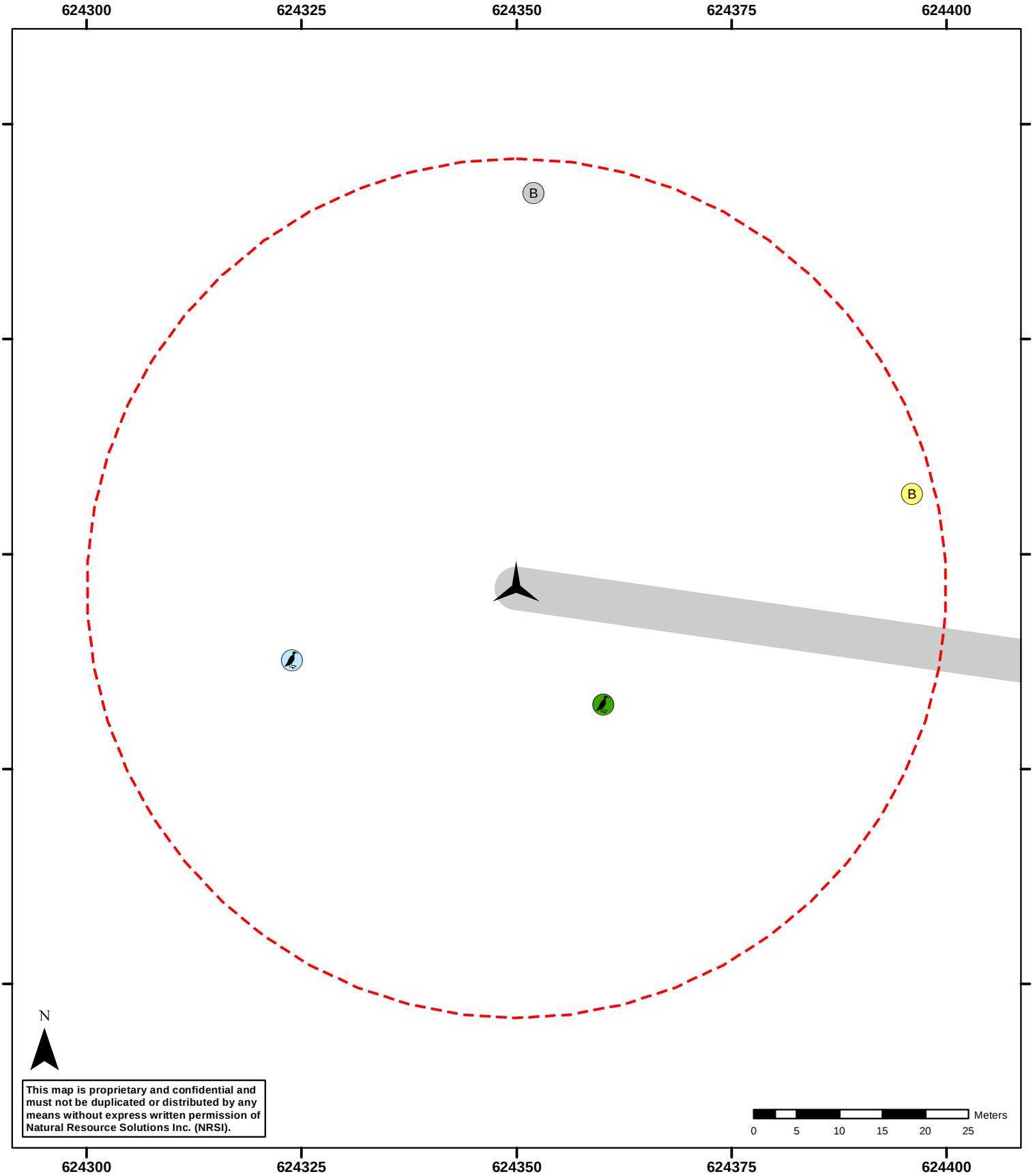

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Silver-haired Bat
- Barn Swallow
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T44 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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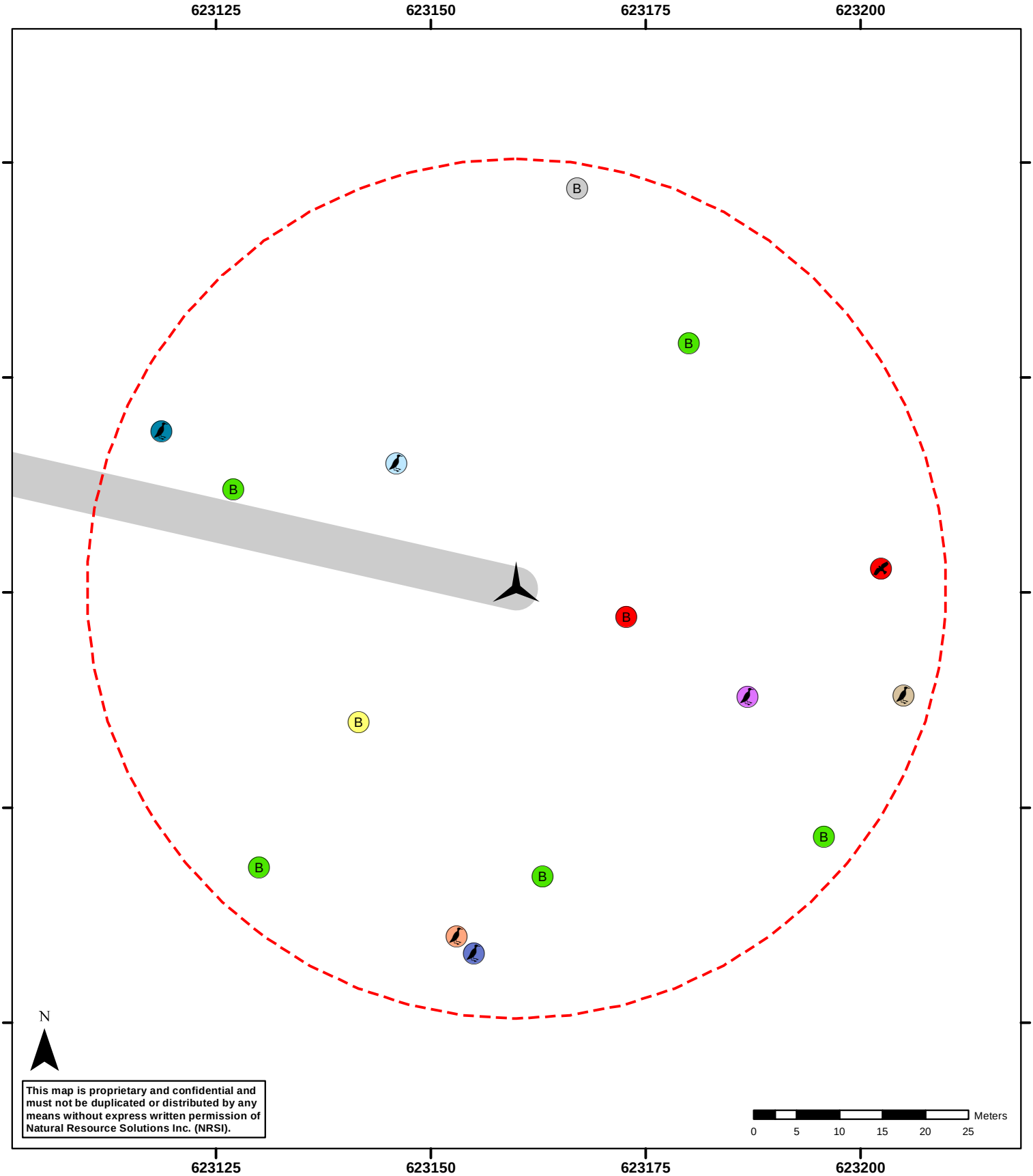

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Hoary Bat
- Cliff Swallow
- Tree Swallow
- Eastern Red Bat
- Bank Swallow
- Nashville Warbler
- Red-tailed Hawk
- Silver-haired Bat
- Brown Creeper
- Purple Martin

Appendix VI

Niagara Region Wind Farm

Turbine T45 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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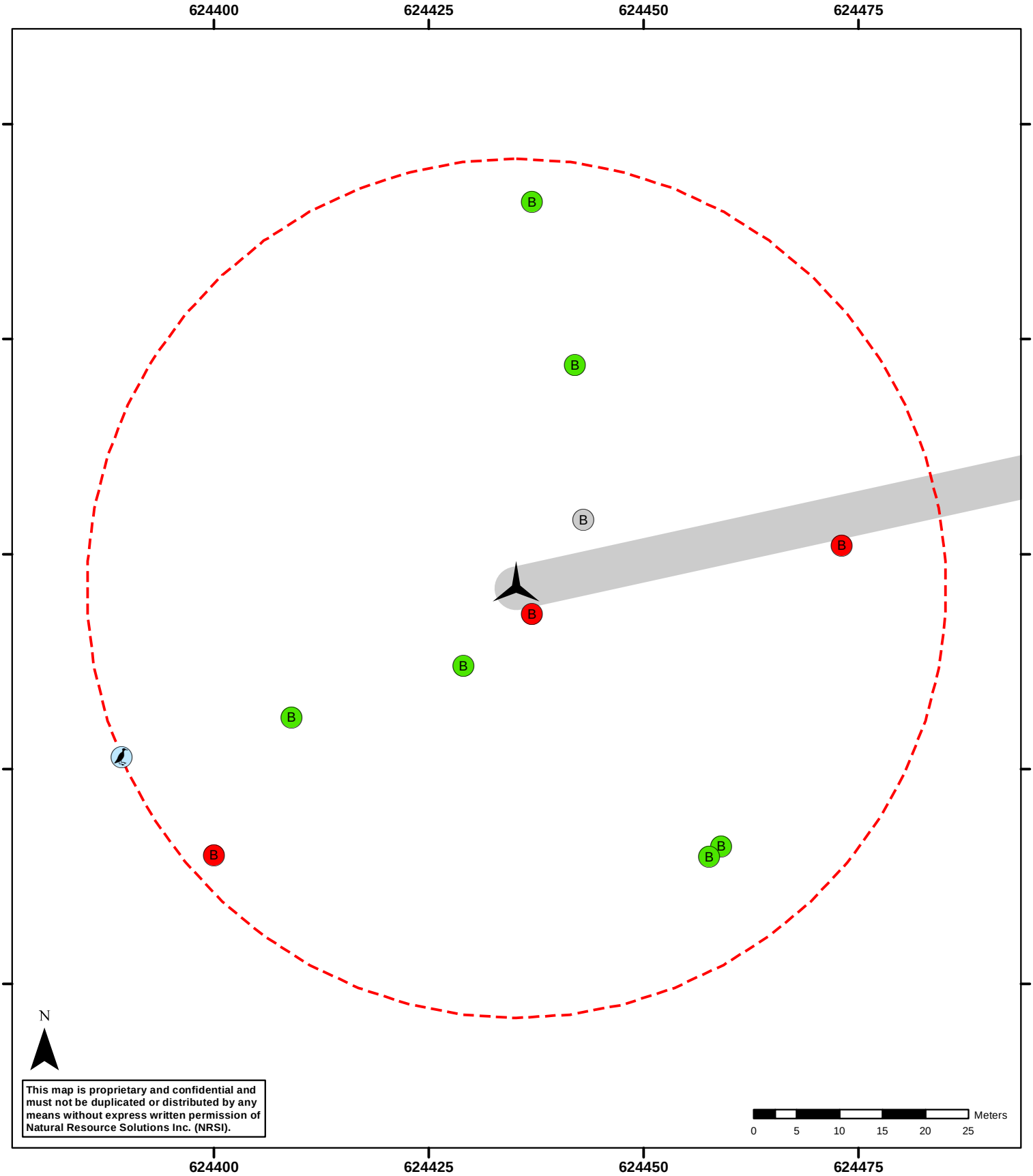

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Eastern Red Bat
- Silver-haired Bat
- Hoary Bat
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T57 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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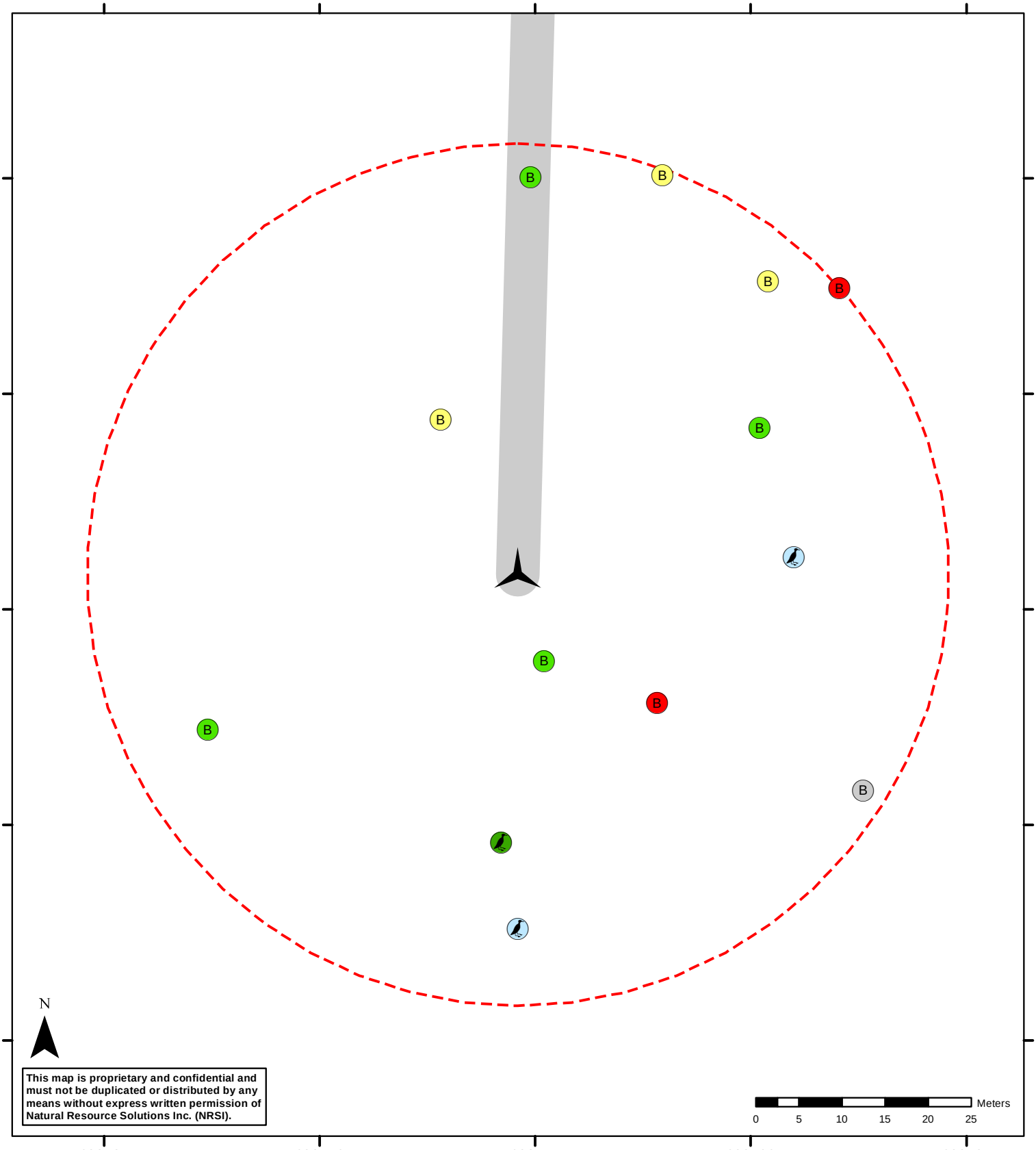

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Hoary Bat
- Eastern Red Bat
- Barn Swallow
- Silver-haired Bat
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T58 Mortalities 2017

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 11, 2018
Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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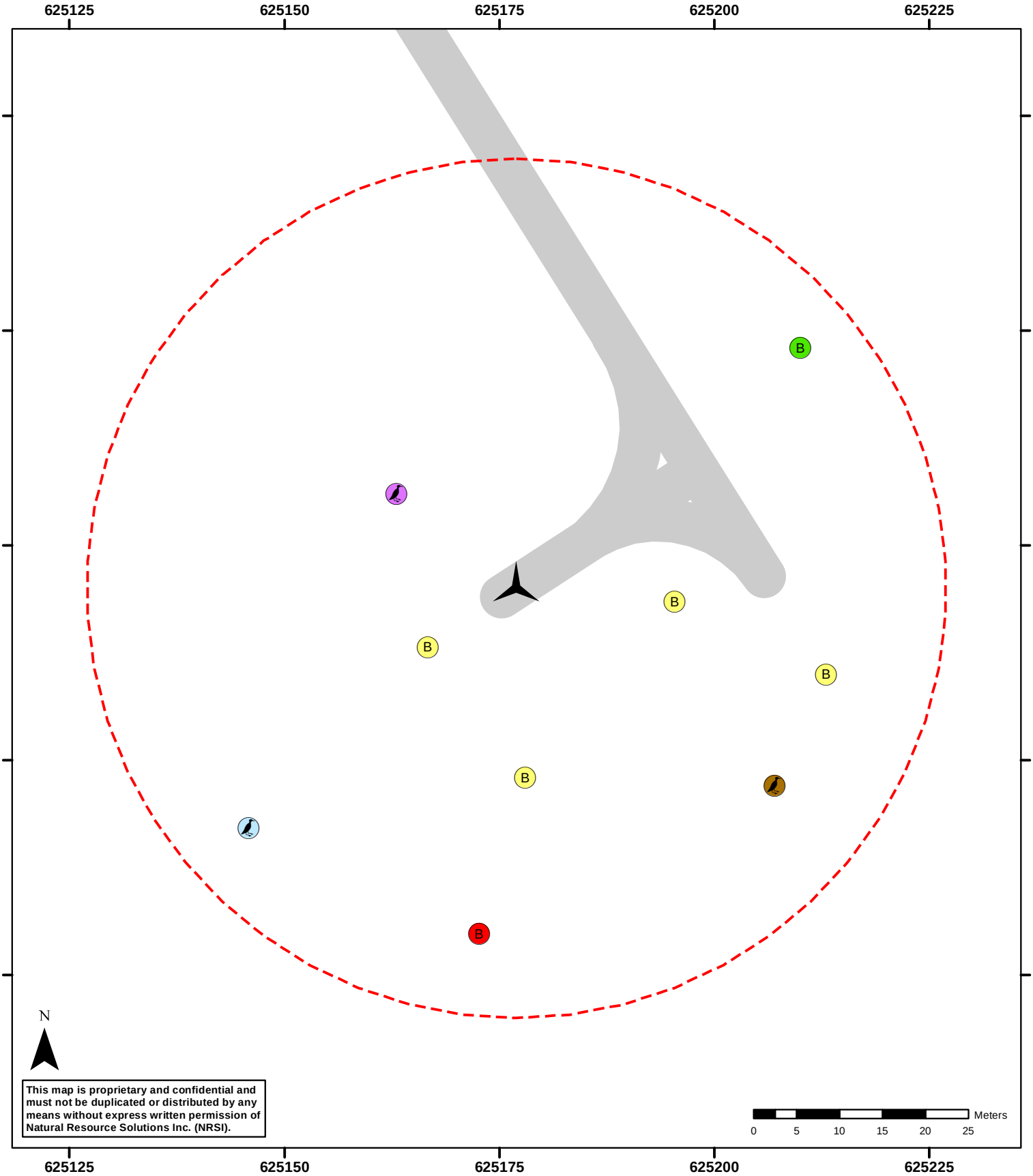

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- American Woodcock
- Purple Martin
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

Turbine T61 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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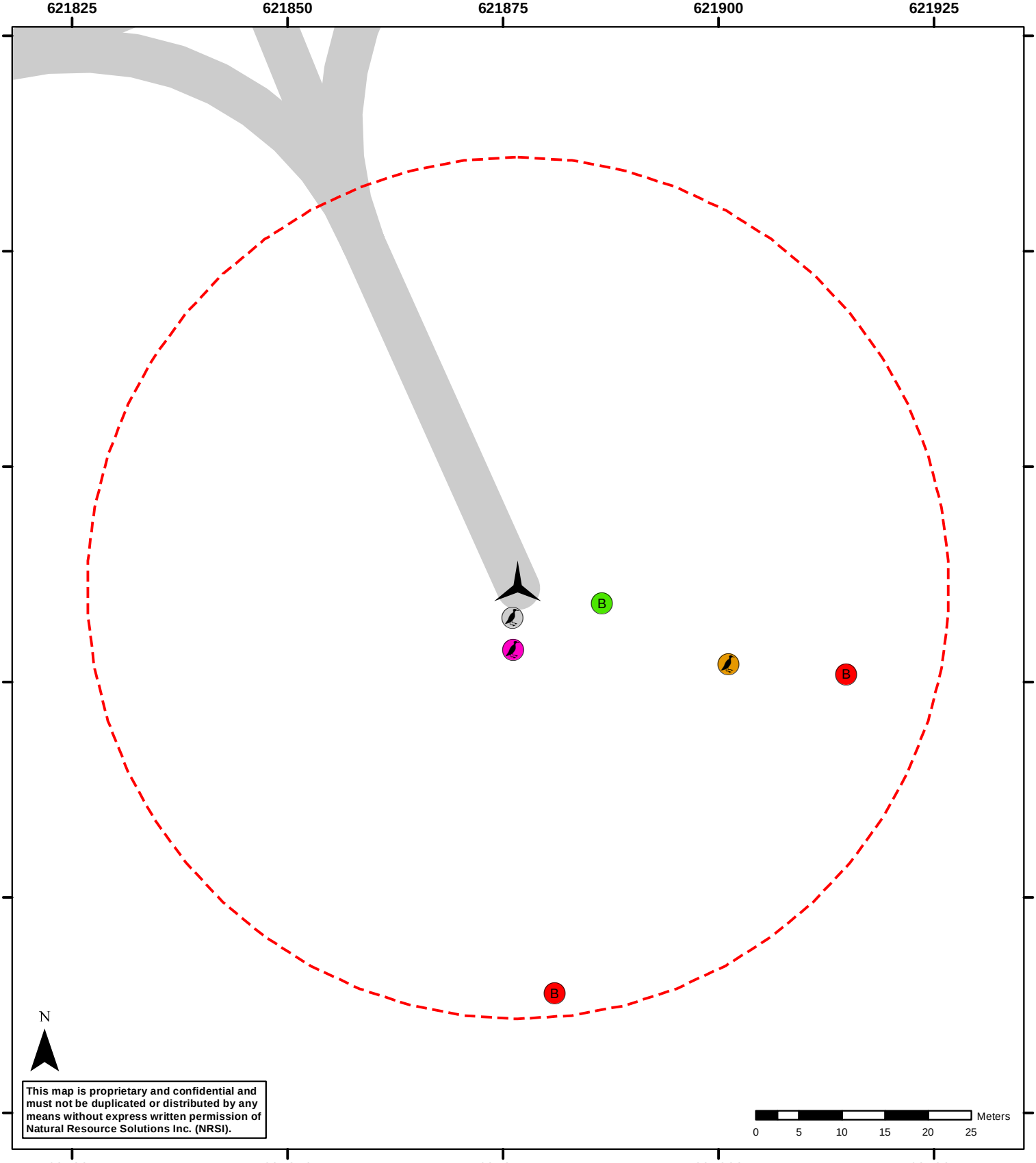

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Eastern Red Bat
- Hoary Bat
- Blackburnian Warbler
- Golden-crowned Kinglet
- Magnolia Warbler

Appendix VI

Niagara Region Wind Farm

Turbine T62 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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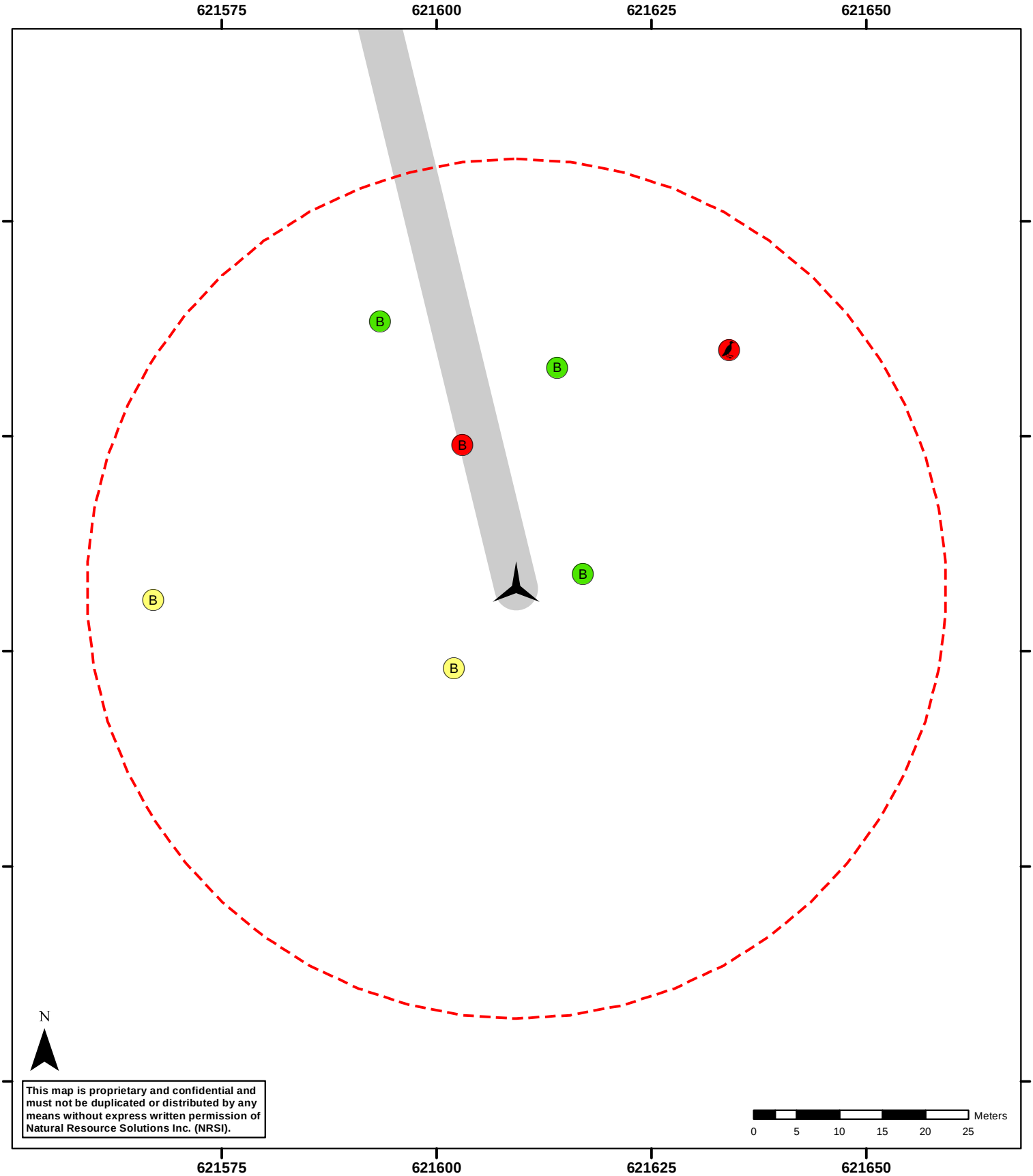

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Red-eyed Vireo

Appendix VI

Niagara Region Wind Farm

Turbine T63 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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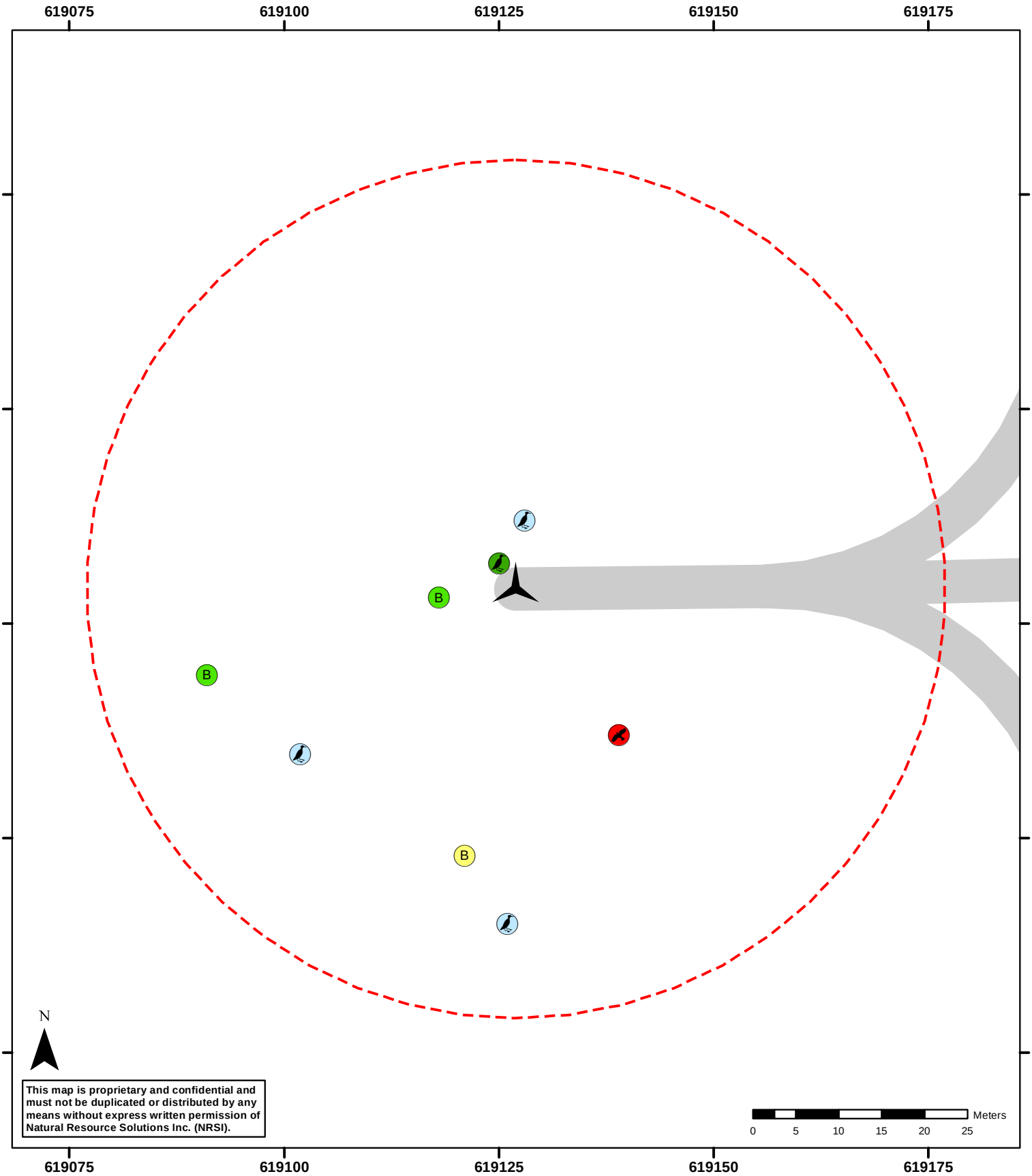

Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Hoary Bat
- Barn Swallow
- Tree Swallow
- Red-tailed Hawk

Appendix VI

Niagara Region Wind Farm

Turbine T66 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

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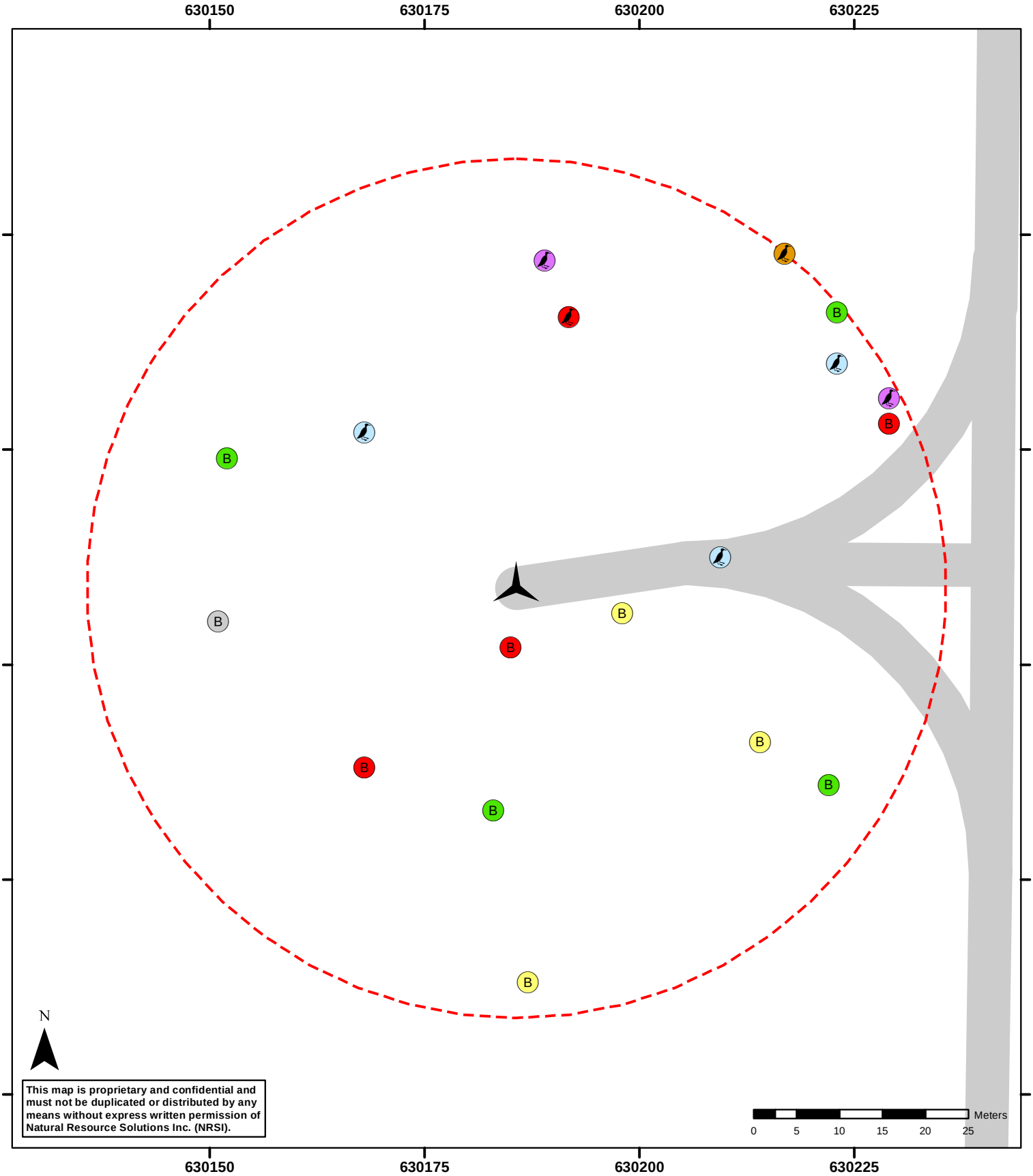


Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Silver-haired Bat
- Hoary Bat
- Golden-crowned Kinglet
- Purple Martin
- Red-eyed Vireo
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

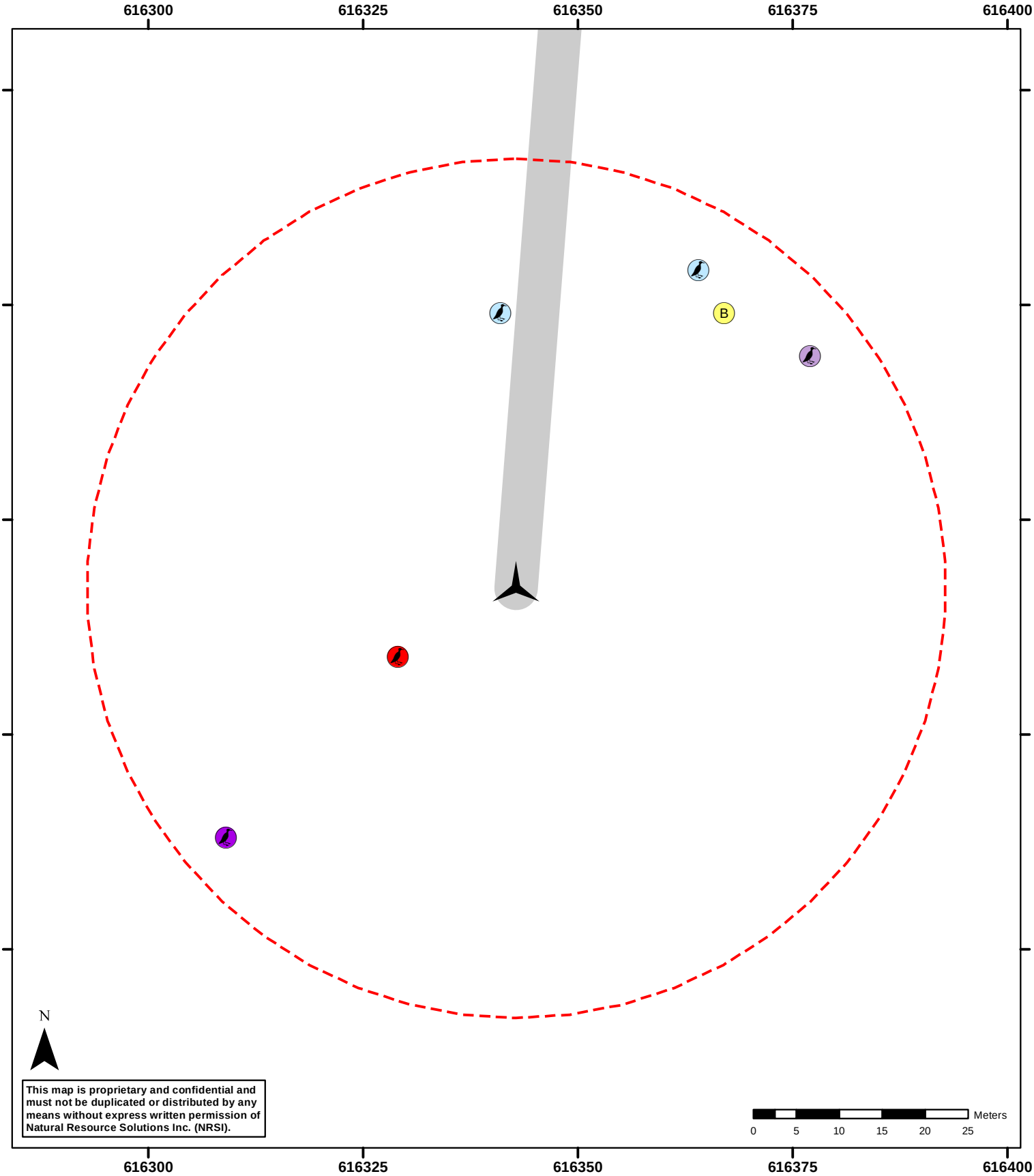
Turbine T80 Mortalities 2017

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 11, 2018
Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Chestnut-sided Warbler
- Red-eyed Vireo
- Swallow species
- Tree Swallow

Appendix VI

Niagara Region Wind Farm

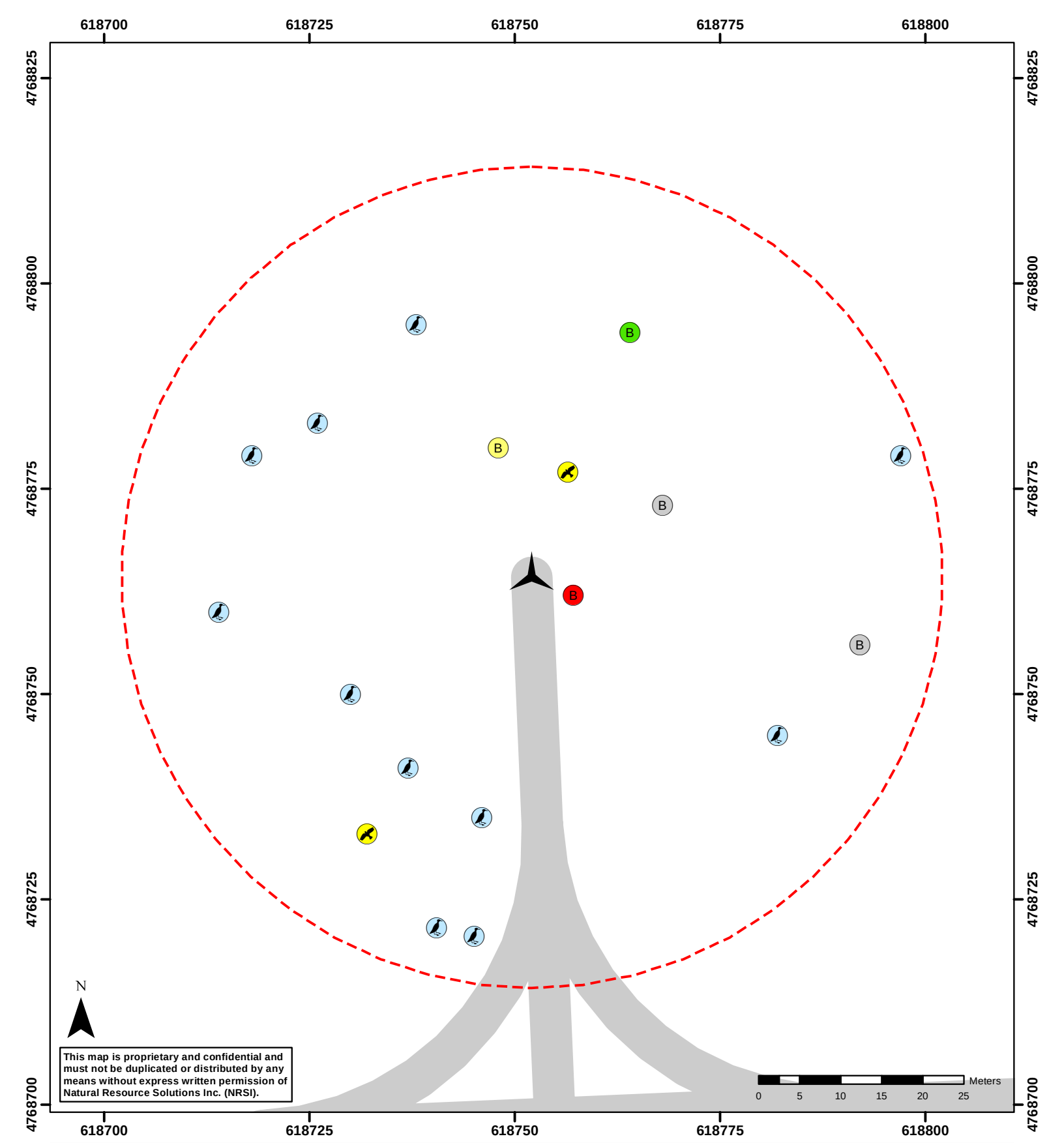
Turbine T81 Mortalities 2017

NAD83 - UTM Zone 17
Scale: 1:600 (8.5x11")

Date: January 11, 2018
Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Silver-haired Bat
- Hoary Bat
- Tree Swallow
- Turkey Vulture

Appendix VI

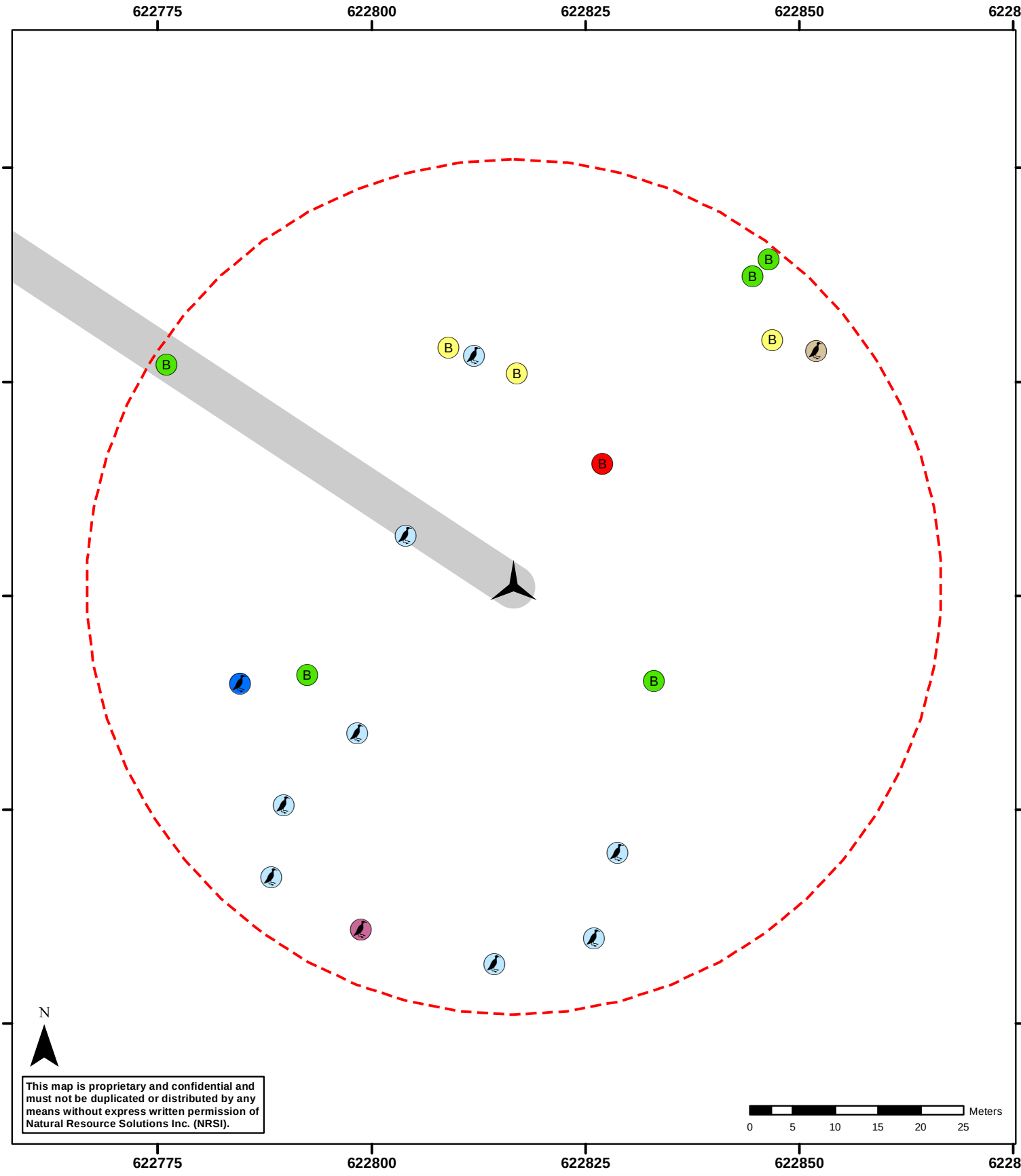
Niagara Region Wind Farm

Turbine T94 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Eastern Red Bat
- Hoary Bat
- Bank Swallow
- Black-throated Blue Warbler
- Chimney Swift
- Tree Swallow

Appendix VI

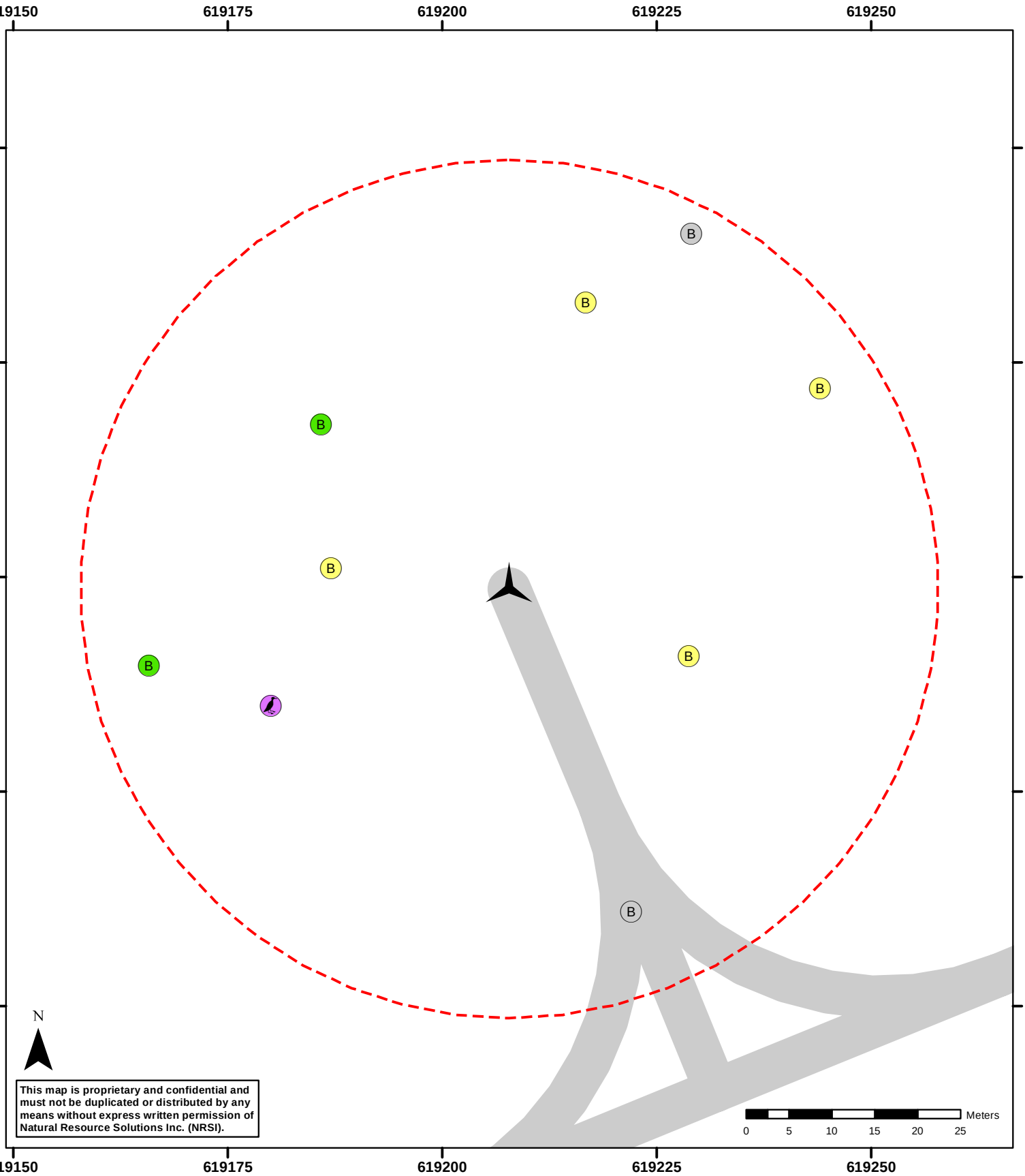
Niagara Region Wind Farm

Turbine T95 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd



Legend

- Turbine
- Search Radius (50m)
- Access Road
- Big Brown Bat
- Silver-haired Bat
- Hoary Bat
- Purple Martin

Appendix VI

Niagara Region Wind Farm

Turbine T99 Mortalities 2017

NAD83 - UTM Zone 17 Scale: 1:600 (8.5x11")	Date: January 11, 2018 Project: 1865A

Natural Resource Solutions Inc.
Aquatic, Terrestrial and Wetland Biologists

Path: X:\1865_NiagaraRegionWF\NRSI_1865A_AppendixVI_TurbineMortalities_2018_01_11_KEF.mxd

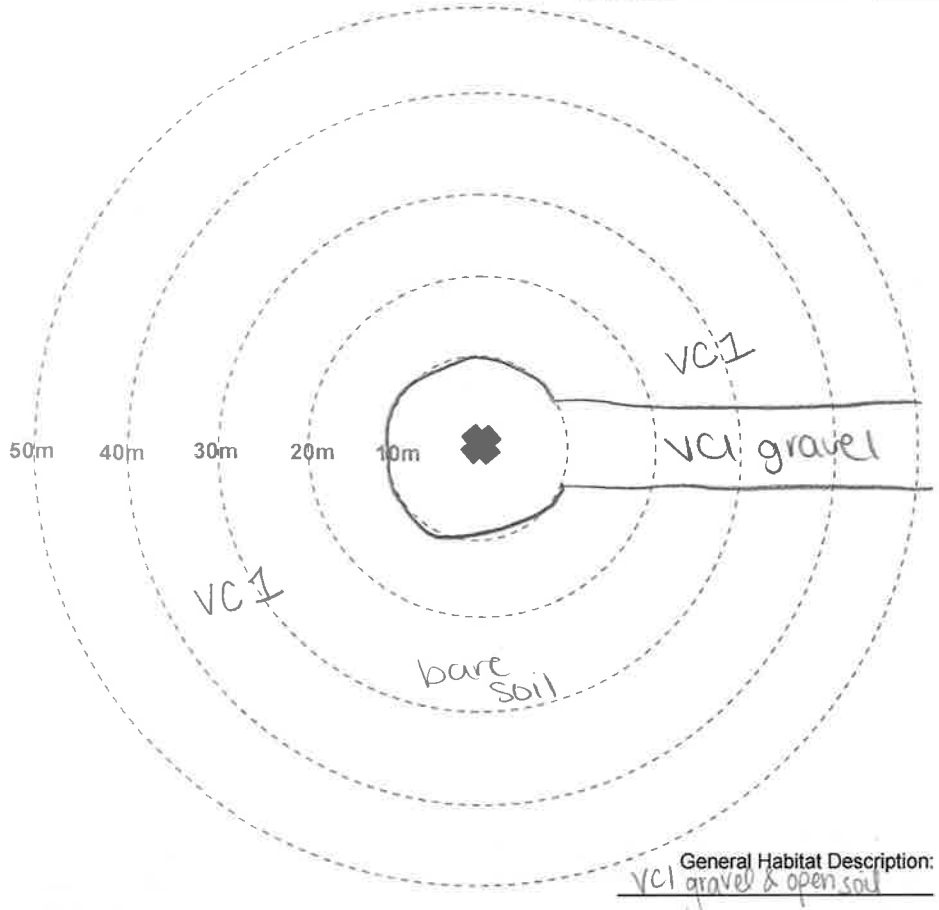
Appendix VII
Visibility Class Mapping

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T01 **Degree of Slope** 1 **degrees** **Slope Orientation** E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

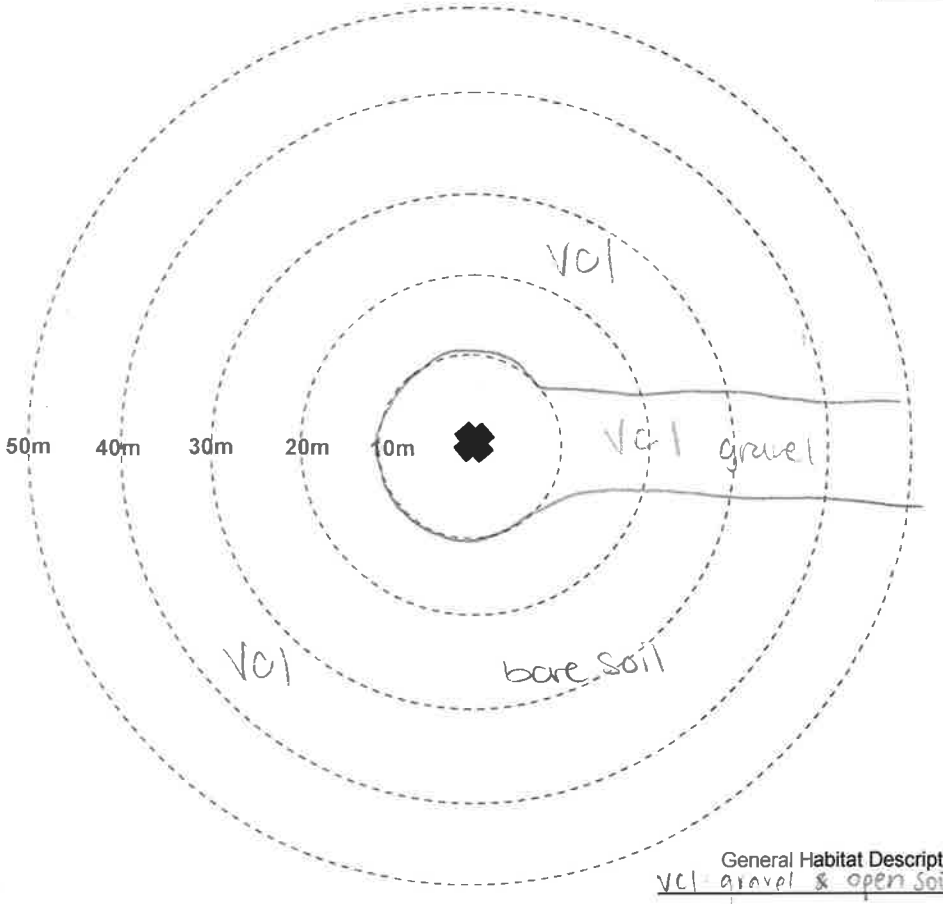
Date (DD/MM/YY): 18/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 gravel & open soil

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 gravel & open soil

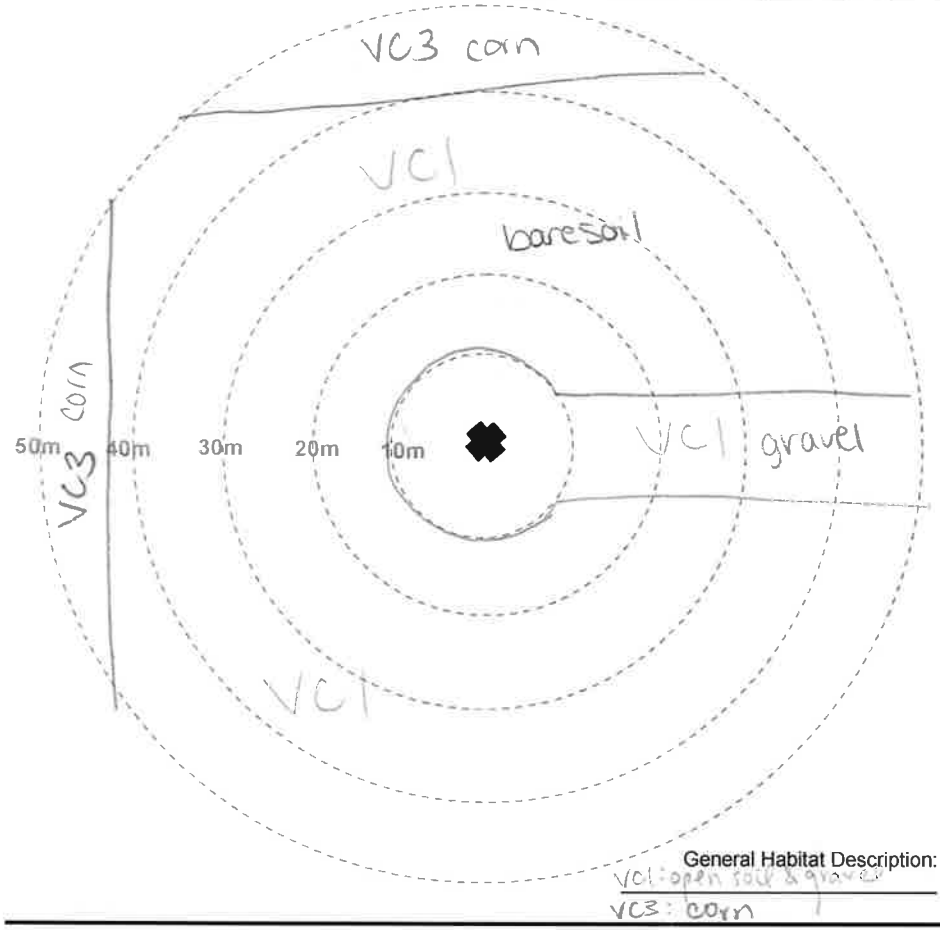
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T01

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

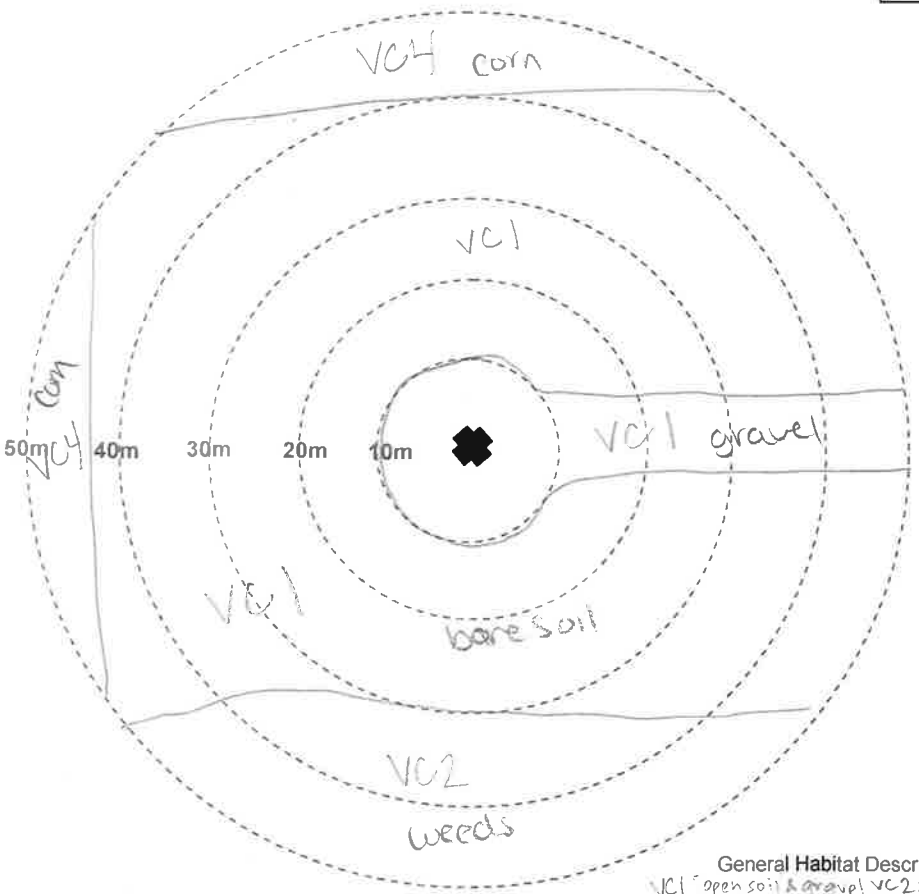
Date (DD/MM/YY): 20/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: open soil & gravel
VC3: corn

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: open soil & gravel VC2: weeds
VC4: corn

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

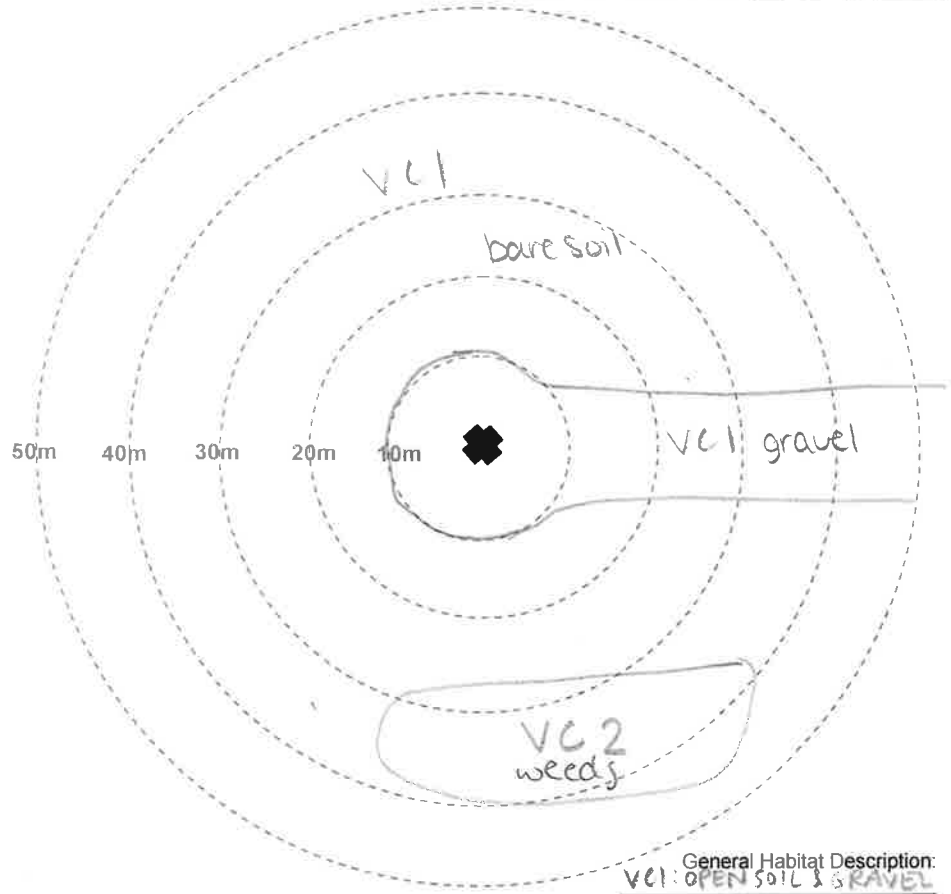
Project Name: NIAGARA REGION WIND FARM **Project #:** 186SA **Turbine #:** T01

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m



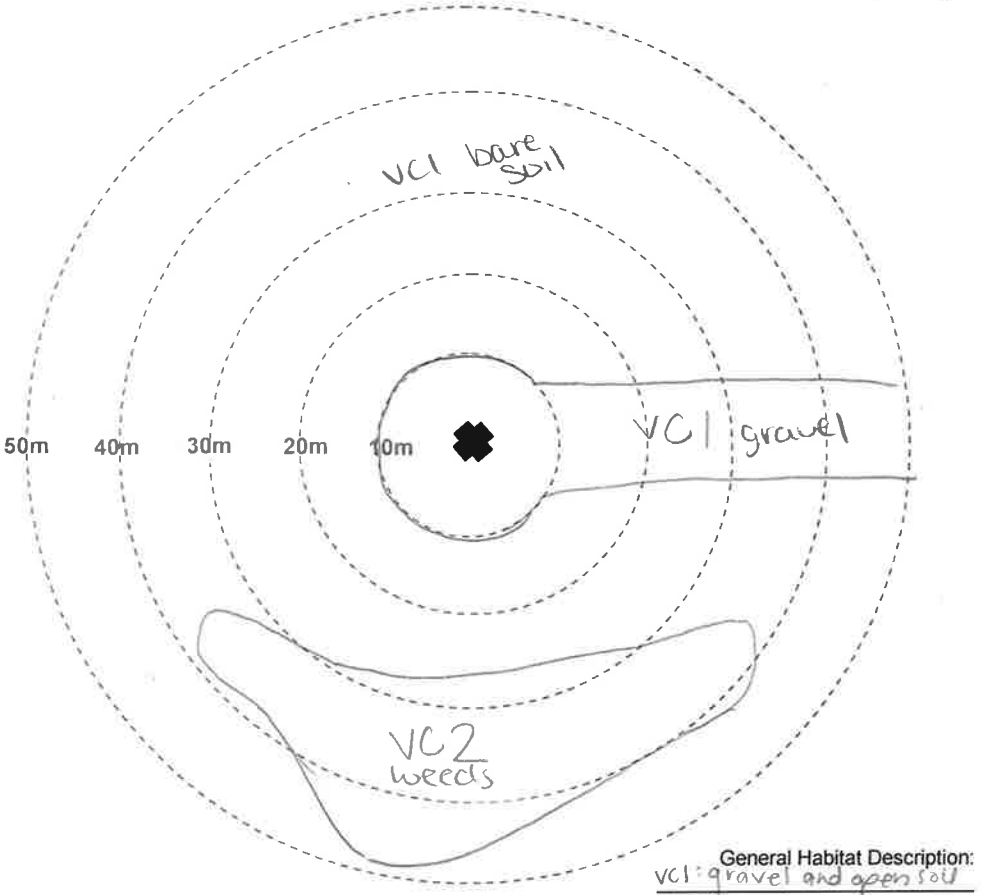
General Habitat Description:
VC1: OPEN SOIL & GRAVEL
VC2: WEEDS

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Hannah Phillips

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel and open soil
VC2: weeds

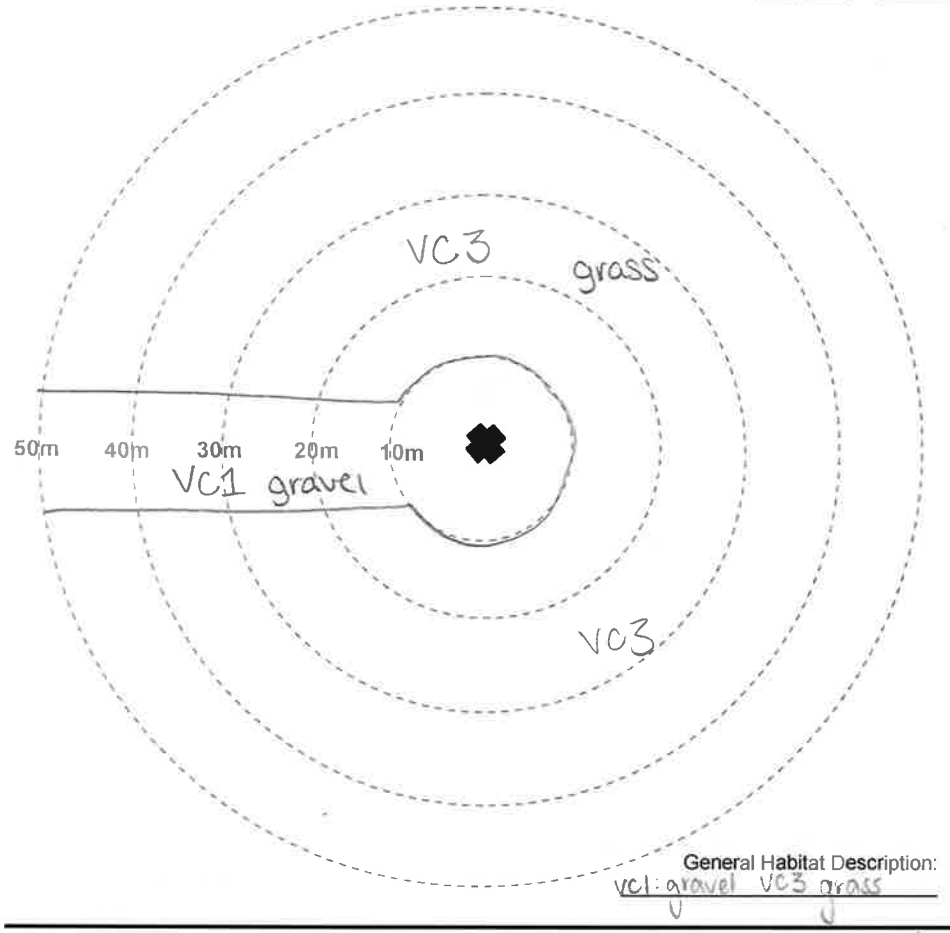
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF - PCM **Project #:** 1865A **Turbine #:** T02 **Degree of Slope** Ø **degrees** **Slope Orientation** — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

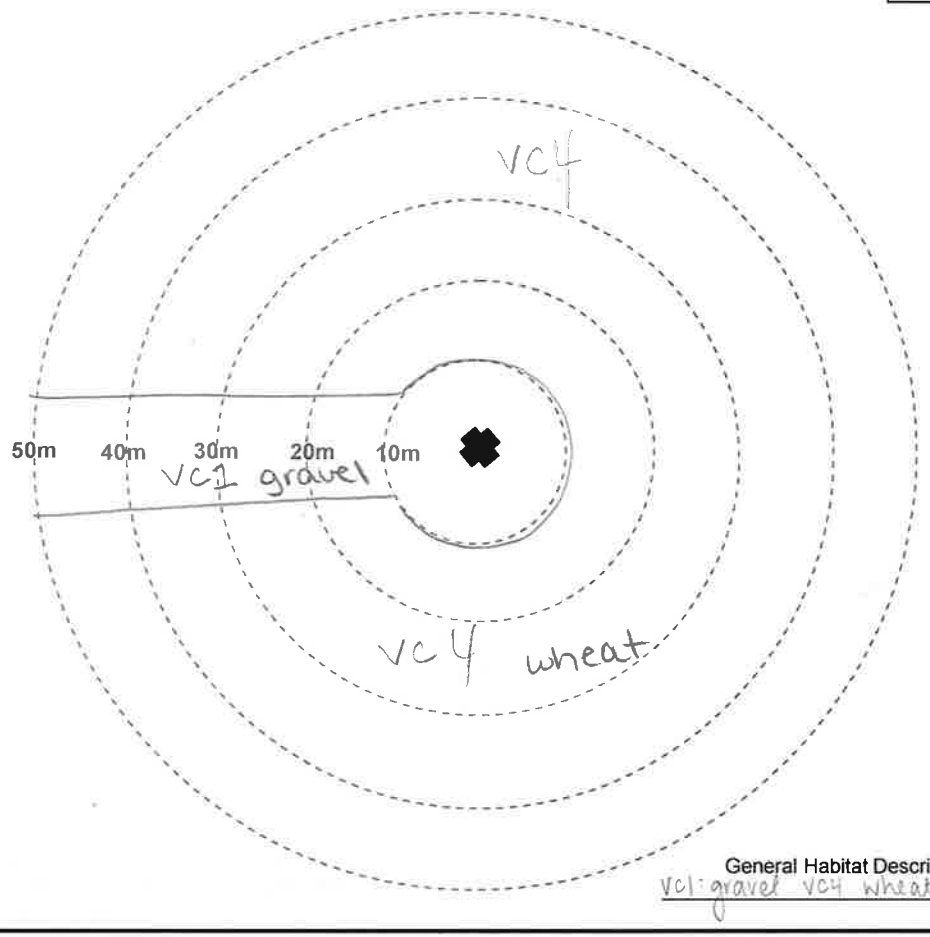
Date (DD/MM/YY): 16 / 05 / 17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC3 grass

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20 / 06 / 17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC4 wheat field

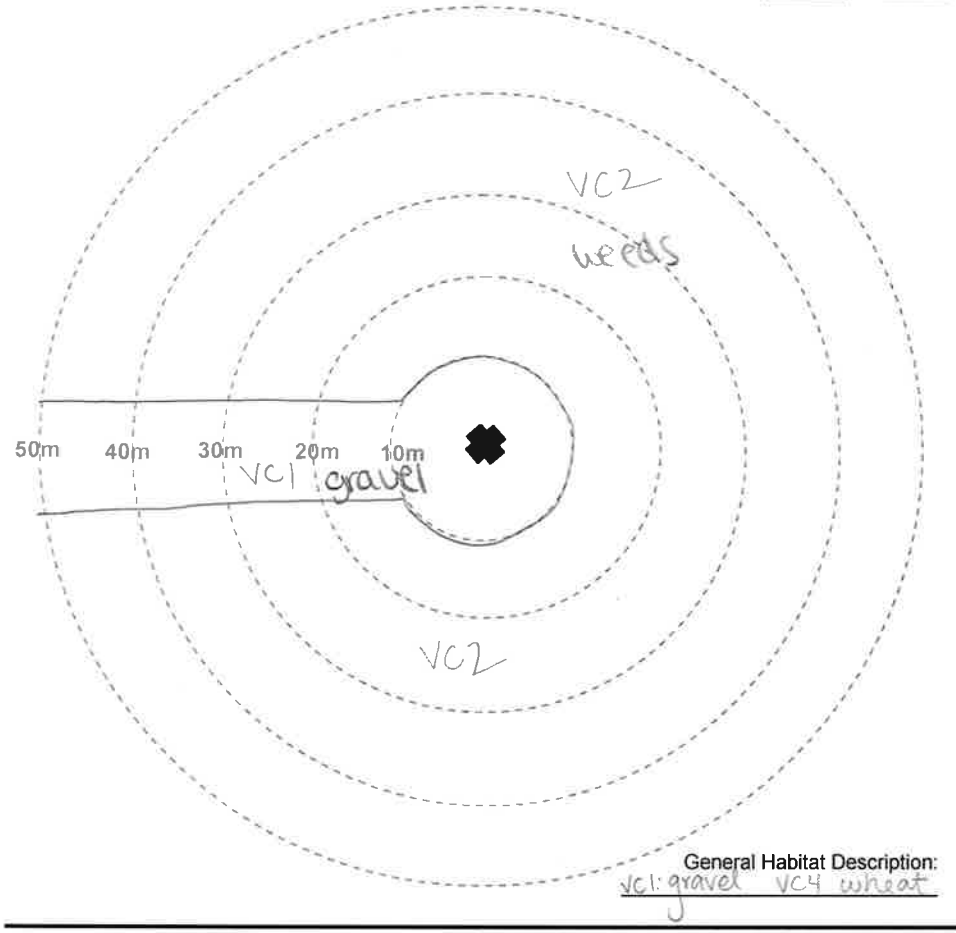
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF - PCM **Project #:** 1865A **Turbine #:** 02

Photo Numbers (from turbine base)
Facing North: 2
Facing East: 3
Facing South: 4
Facing West: 1
(sketch habitat and visibility classes)

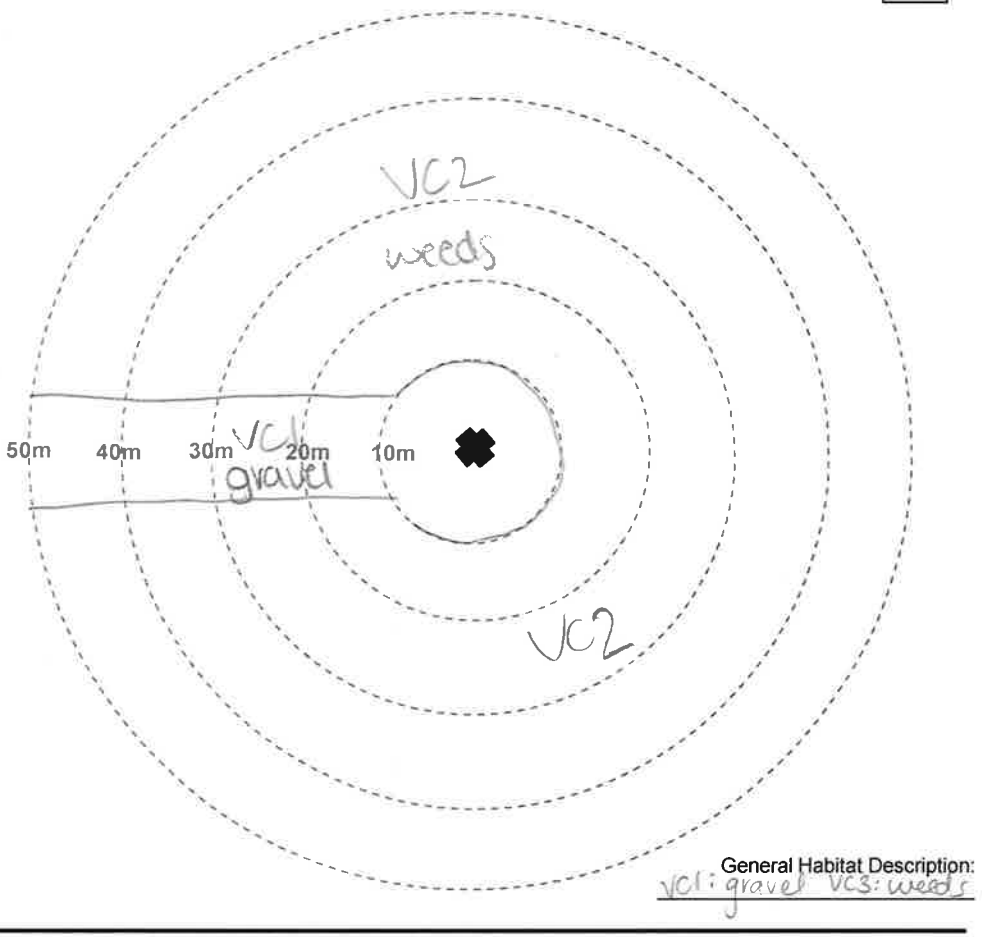
Date (DD/MM/YY): 18/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC4 wheat

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC3: weeds

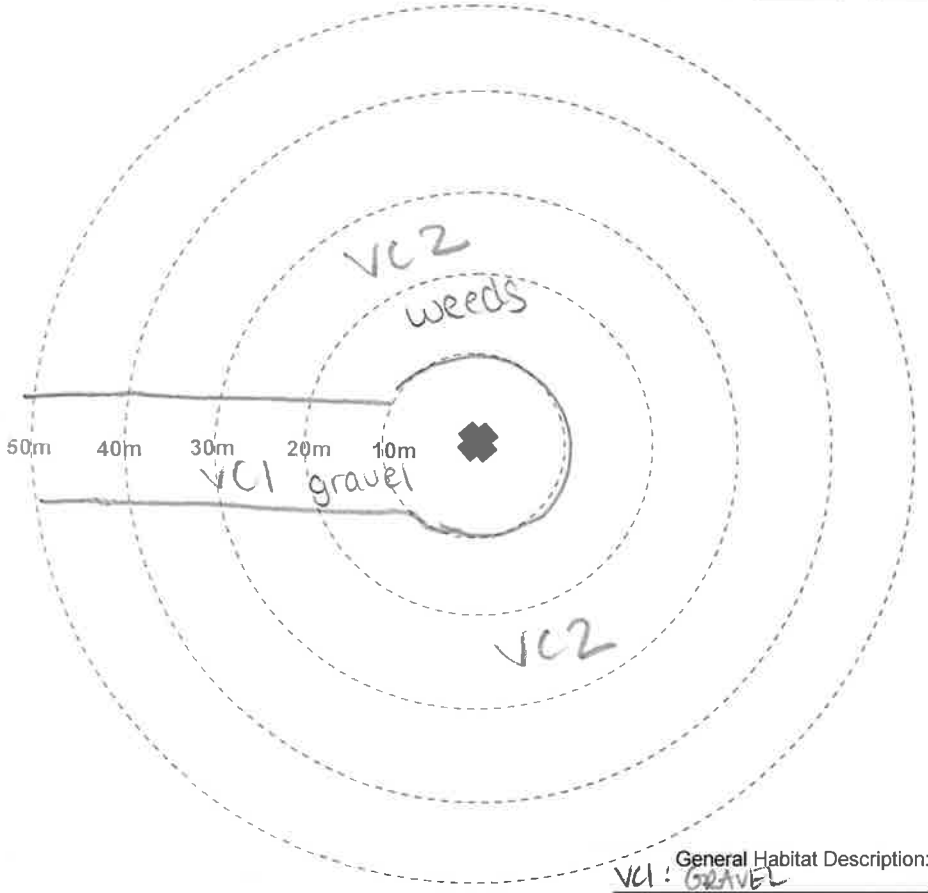
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF - PCM **Project #:** 1865A **Turbine #:** T02

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

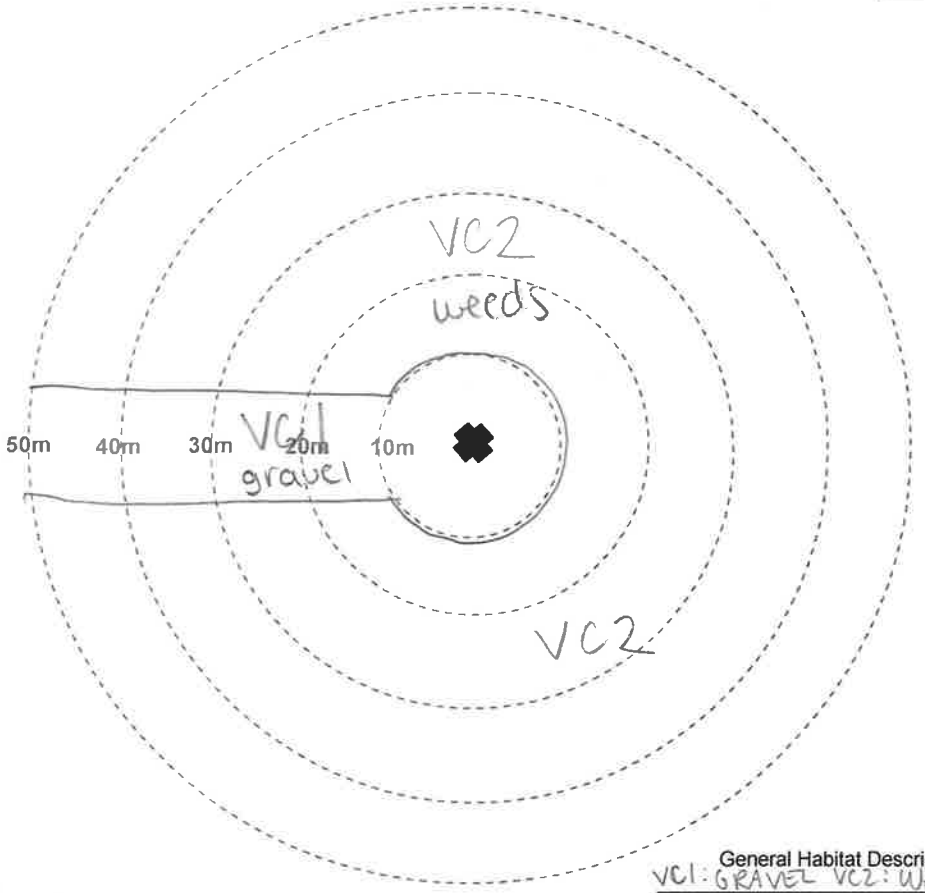
Date (DD/MM/YY): 22/09/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: GRAVEL
VC2: WEEDS

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 27/10/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: GRAVEL VC2: WEEDS

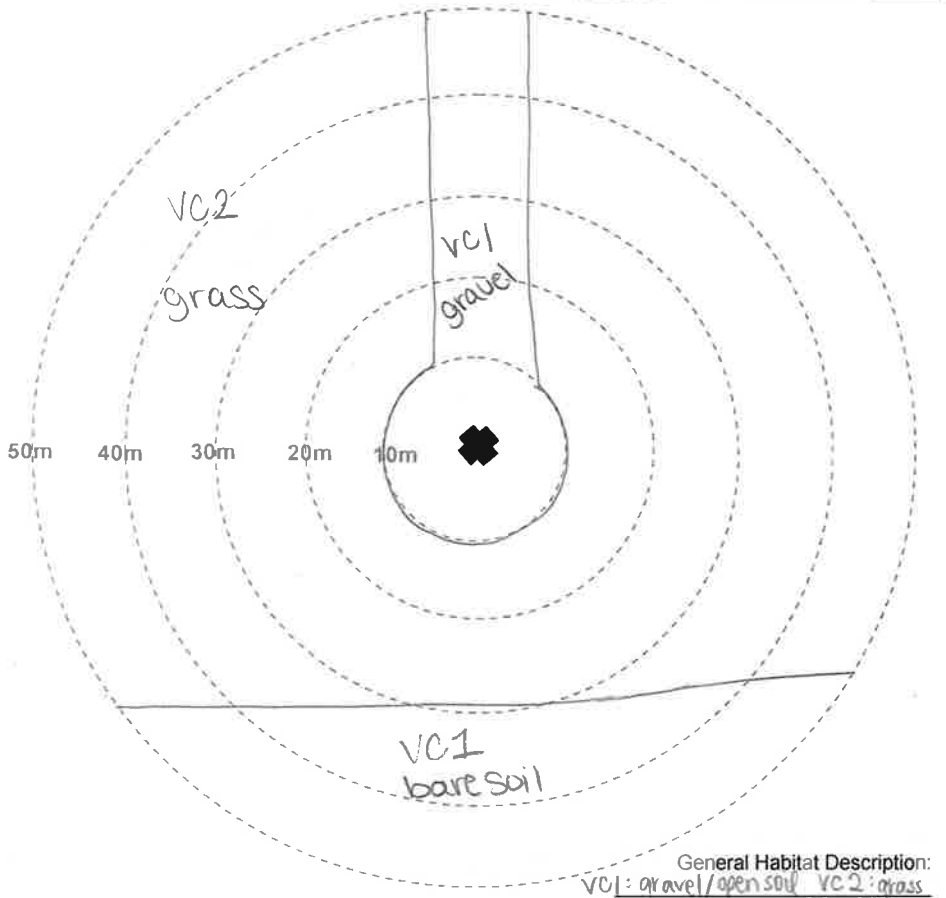
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCN **Project #:** 1865A **Turbine #:** T03 **Degree of Slope** 1 **degrees** **Slope Orientation** S *(e.g. SSW)*

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

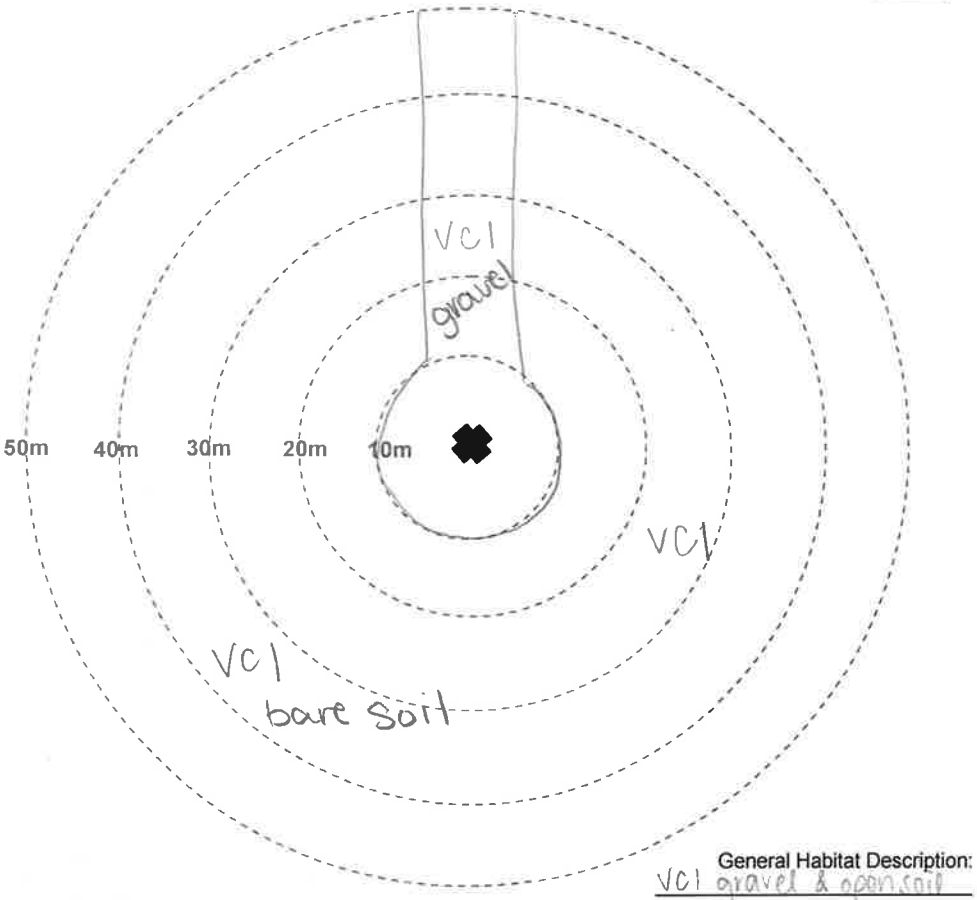
Date (DD/MM/YY): 16/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel/open soil VC2: grass

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 30/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1 gravel & open soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

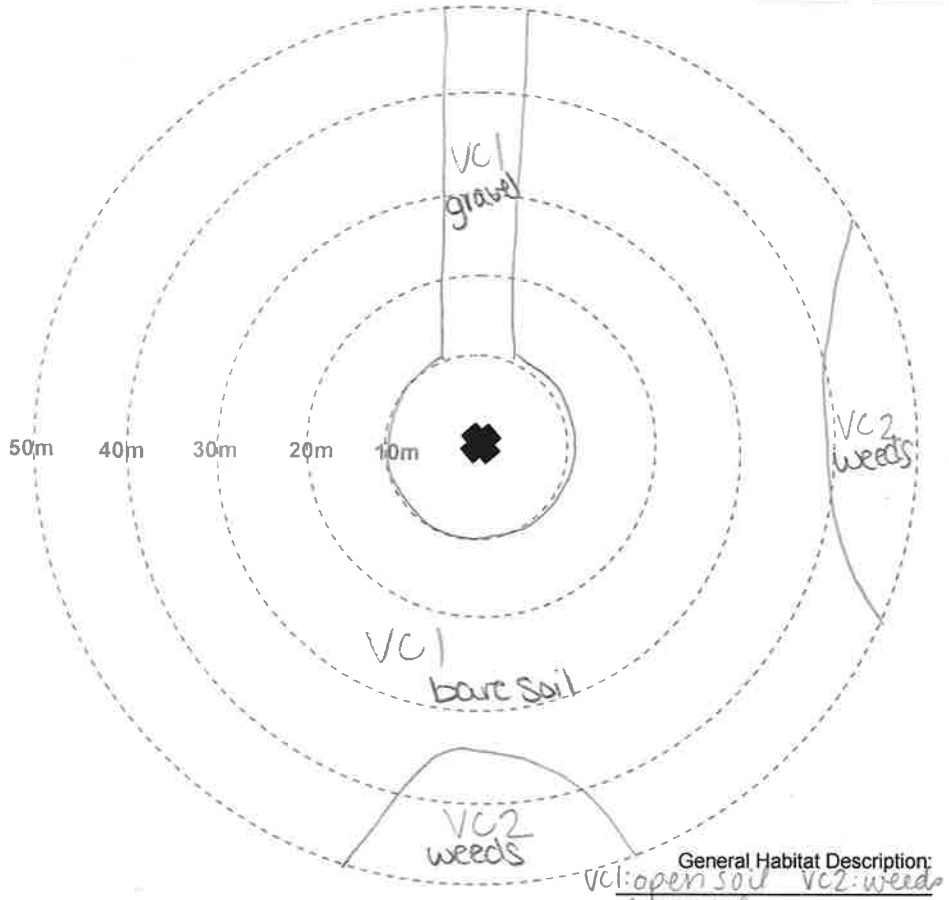
Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T03

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18/07/17

Observer: Hannah P.

Monthly/Seasonal Linear Transect Width: 5 m



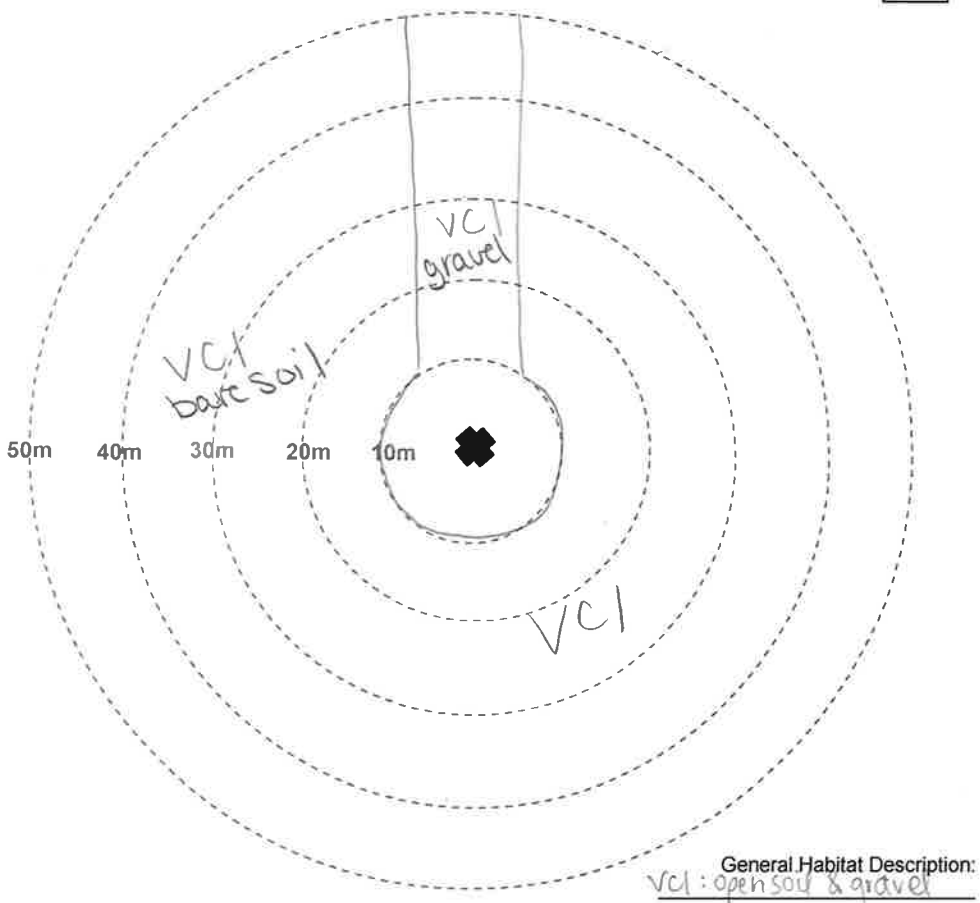
General Habitat Description: VC1: open soil & gravel VC2: weeds

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1: open soil & gravel

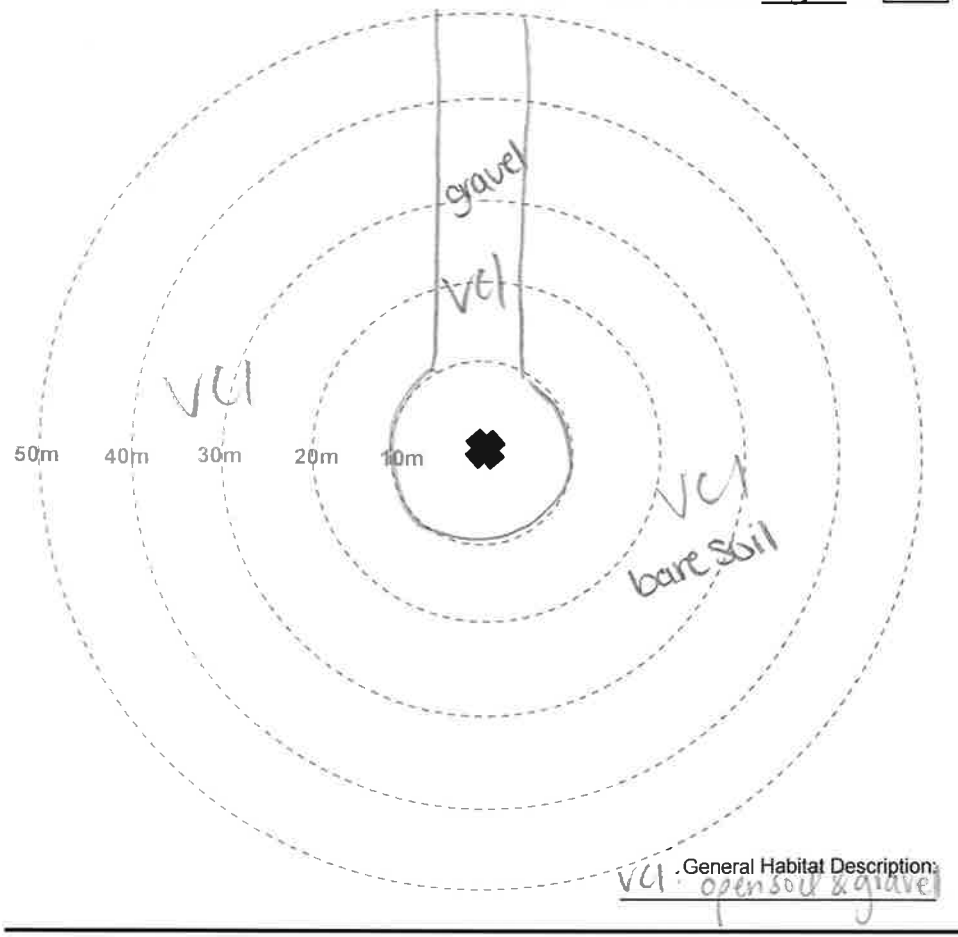
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WIND FARM **Project #:** 1865A **Turbine #:** T03

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

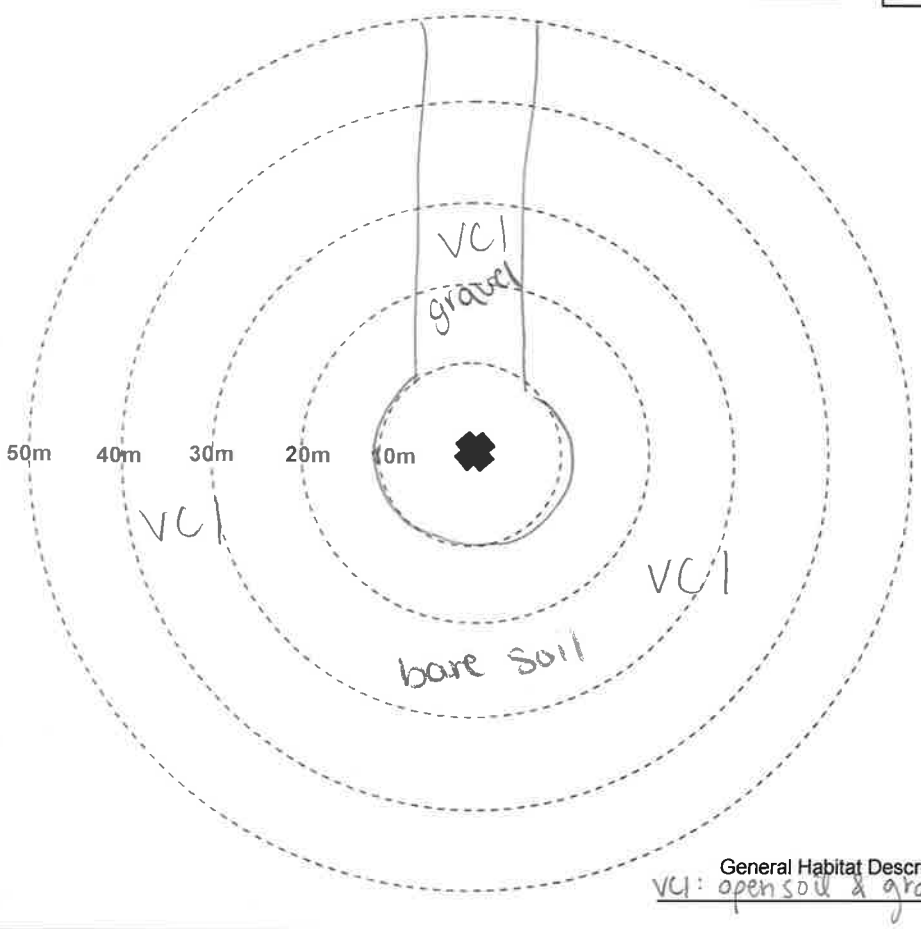
Date (DD/MM/YY): 22/09/17
Observer: Hannah P
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
VC1 : open soil & gravel

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 27/10/17
Observer: Hannah P
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description:
VC1 : open soil & gravel

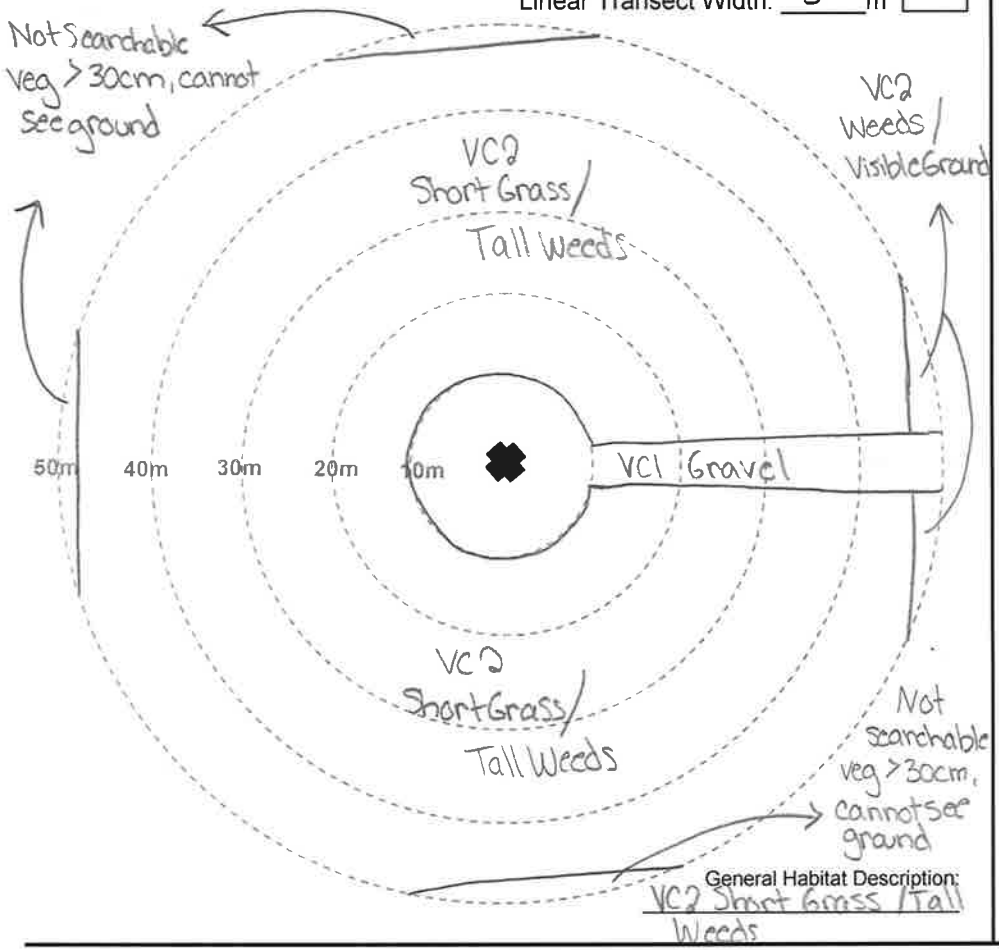
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1965A **Turbine #:** 05 **Degree of Slope** 1 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

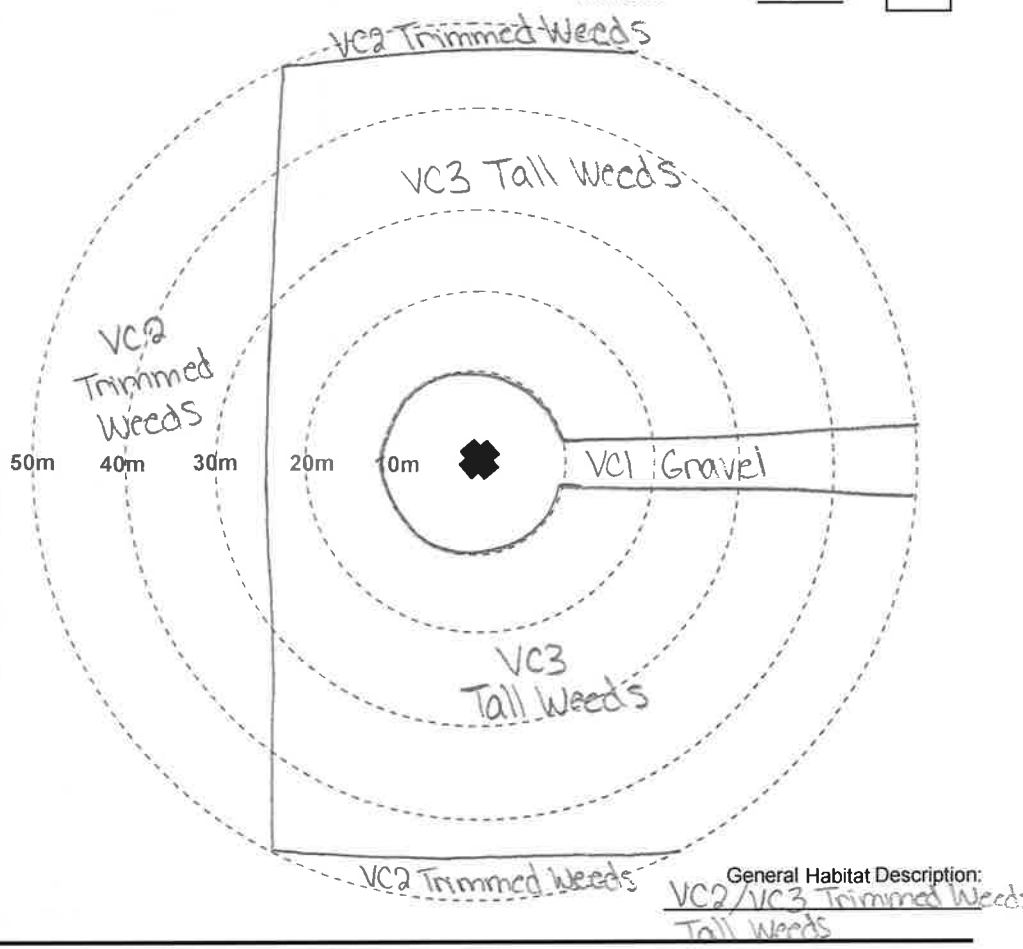
Date (DD/MM/YY): 19/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Short Grass / Tall Weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2/VC3 Trimmed Weeds / Tall Weeds

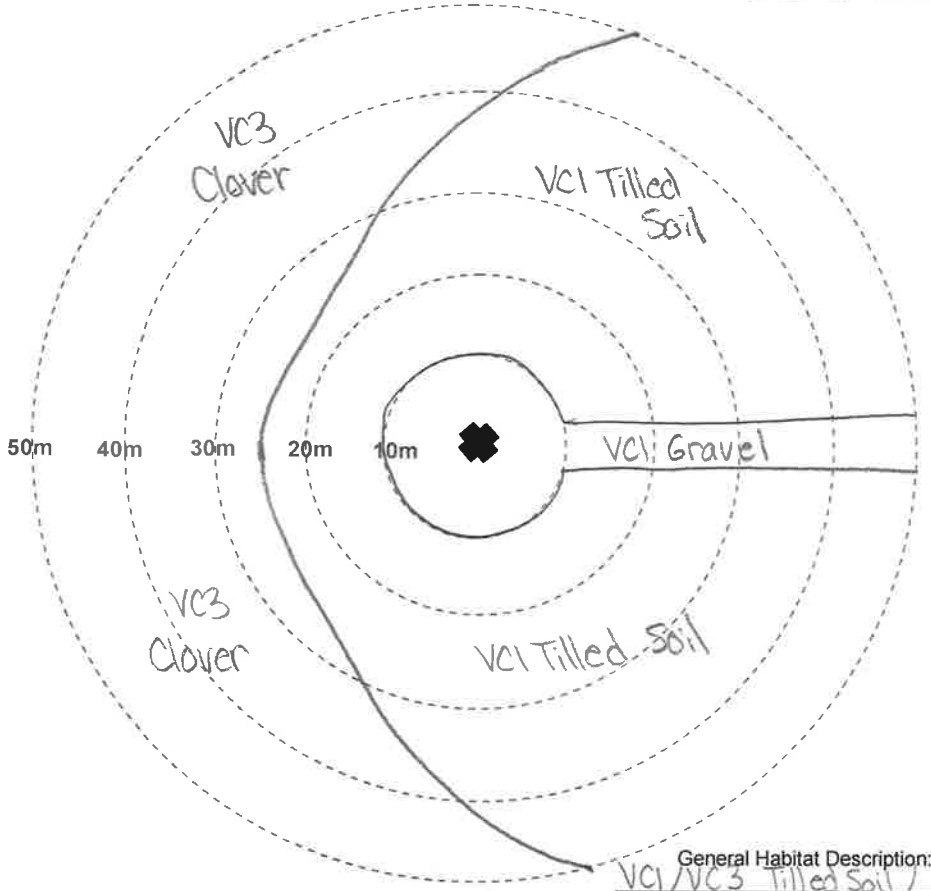
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 05

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

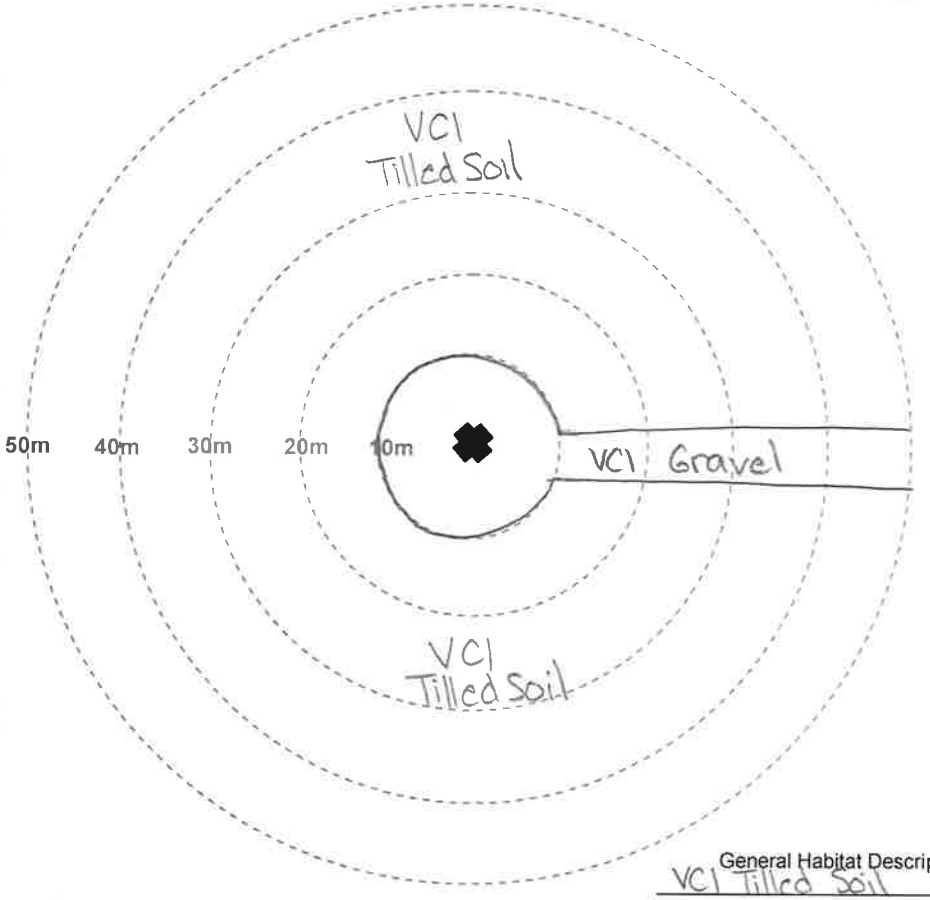
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC3 Tilled Soil / Clover

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Tilled Soil

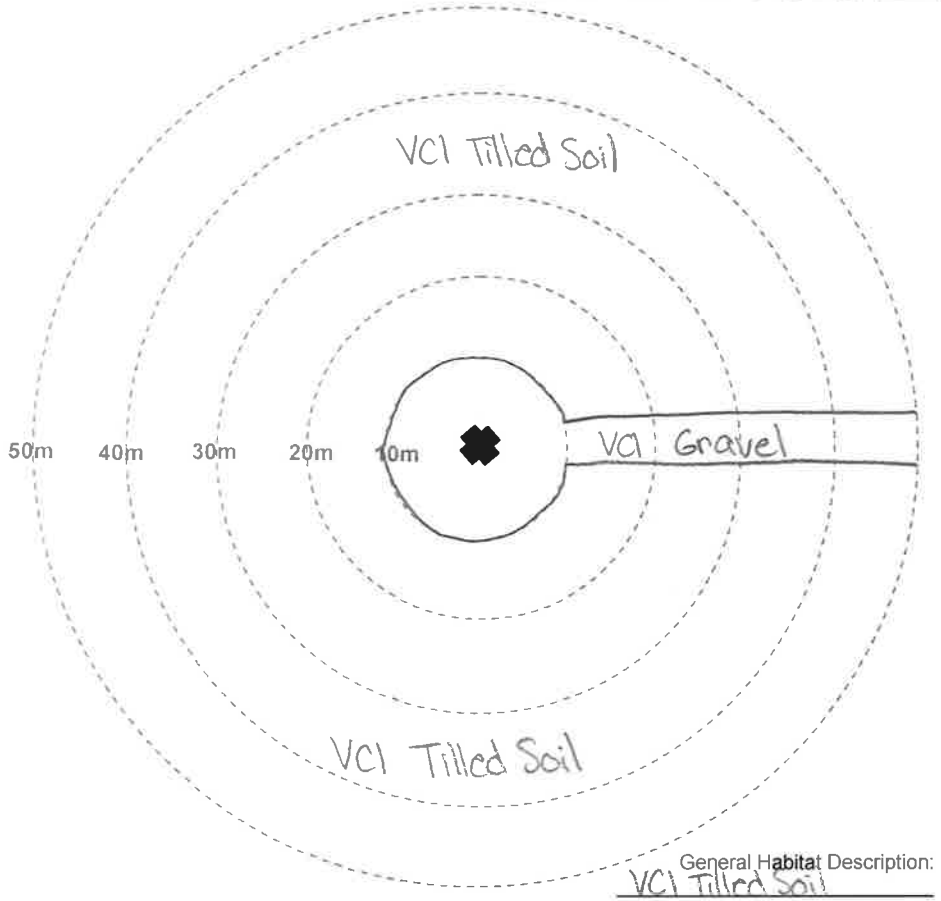
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 05

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

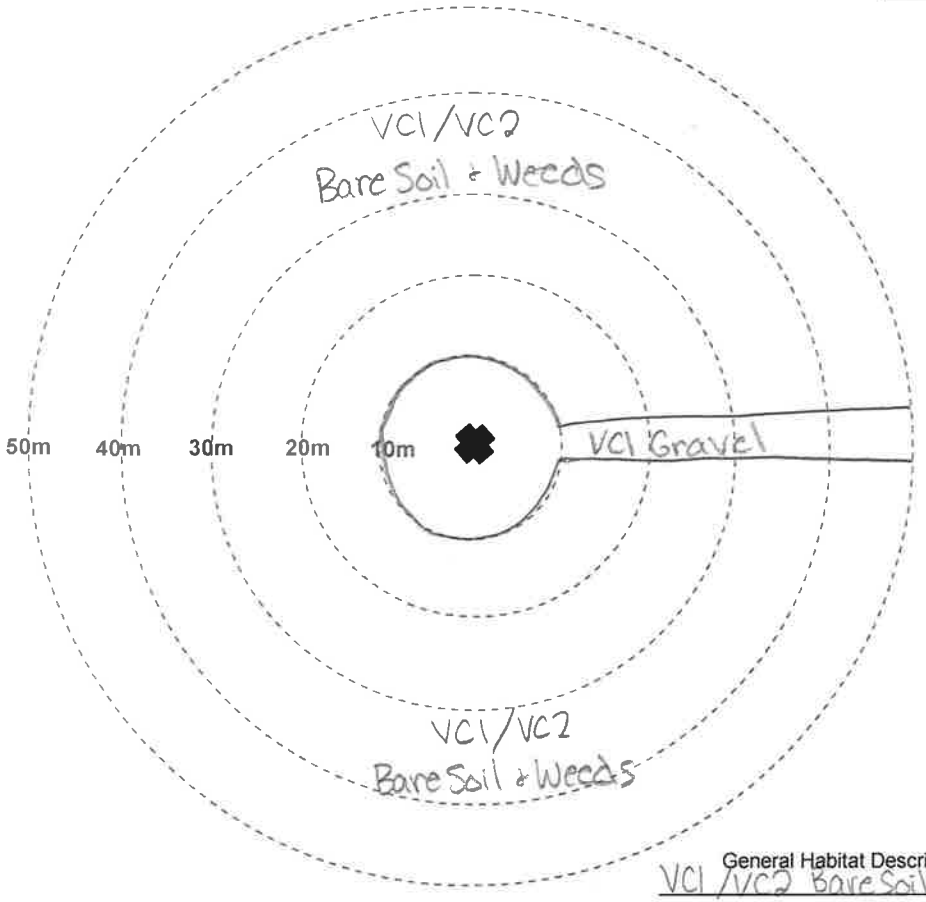
Date (DD/MM/YY): 19/09/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Tilled Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 24/10/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC2 Bare Soil + Weeds

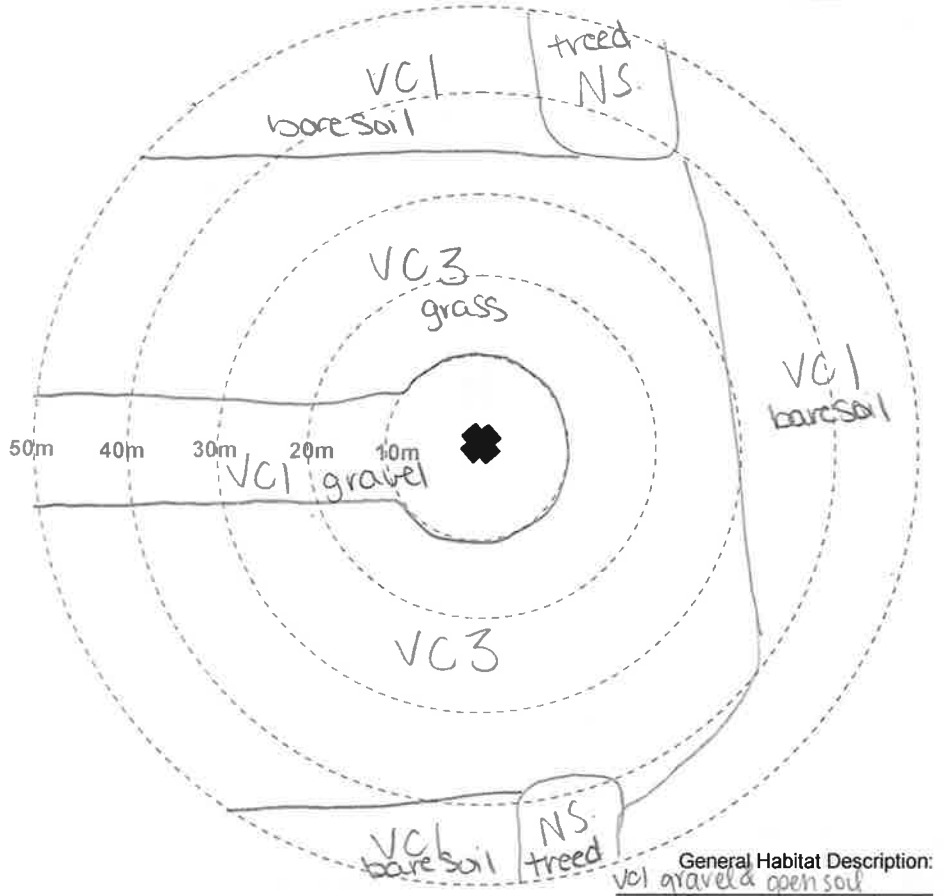
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T07 **Degree of Slope** 0 **degrees** **Slope Orientation** — (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

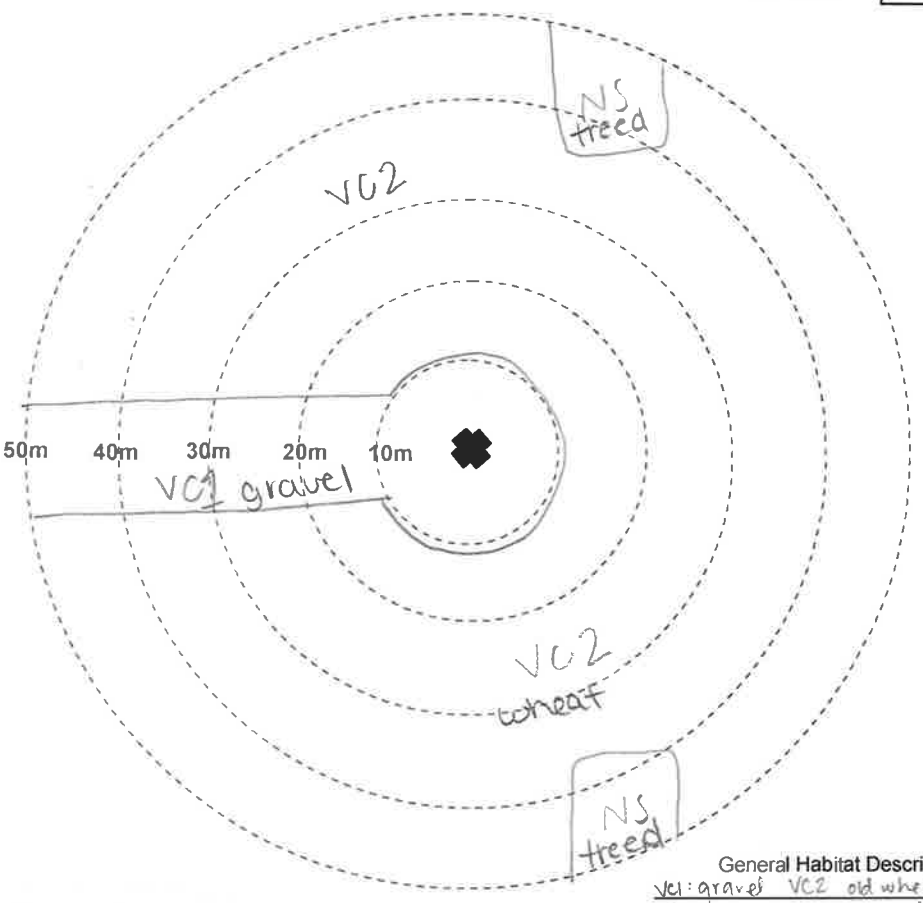
Date (DD/MM/YY): 18 / 05 / 17
Observer: HannahP
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1 gravel & open soil
VC3 grass NS: trees

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19 / 06 / 17
Observer: HannahP
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC2 old wheat field
NS: trees & weeds

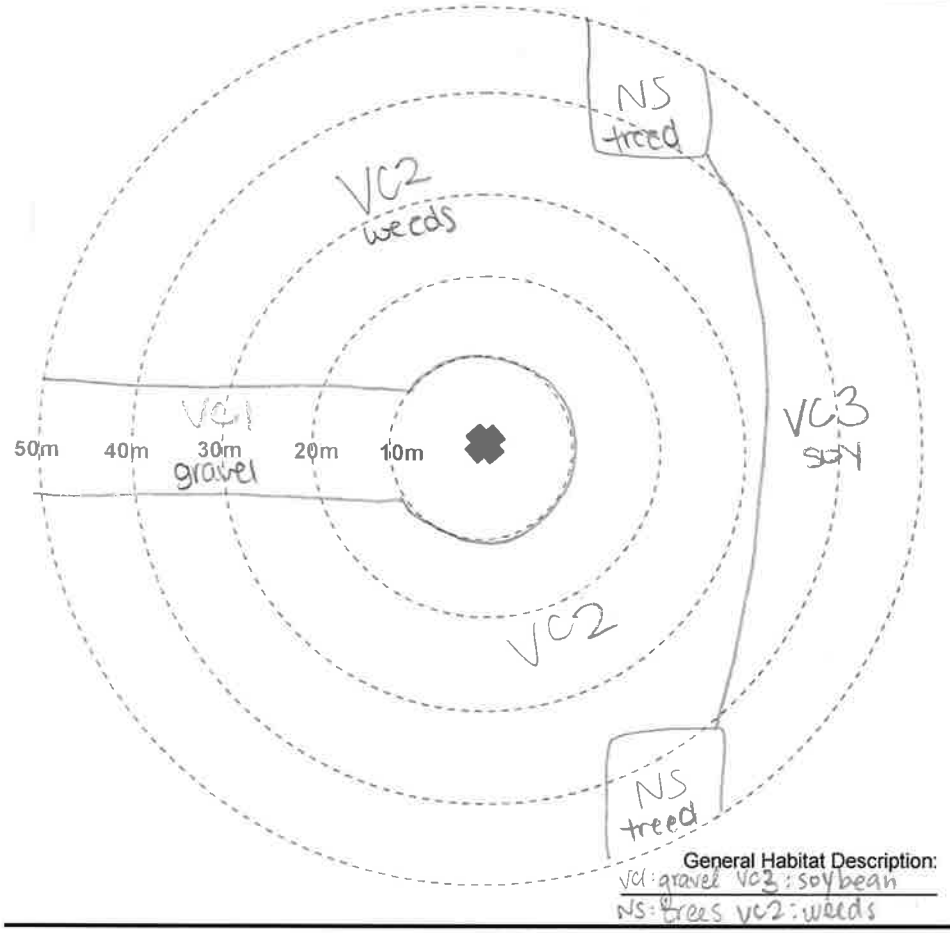
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF - PCM **Project #:** 1865A **Turbine #:** T07

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

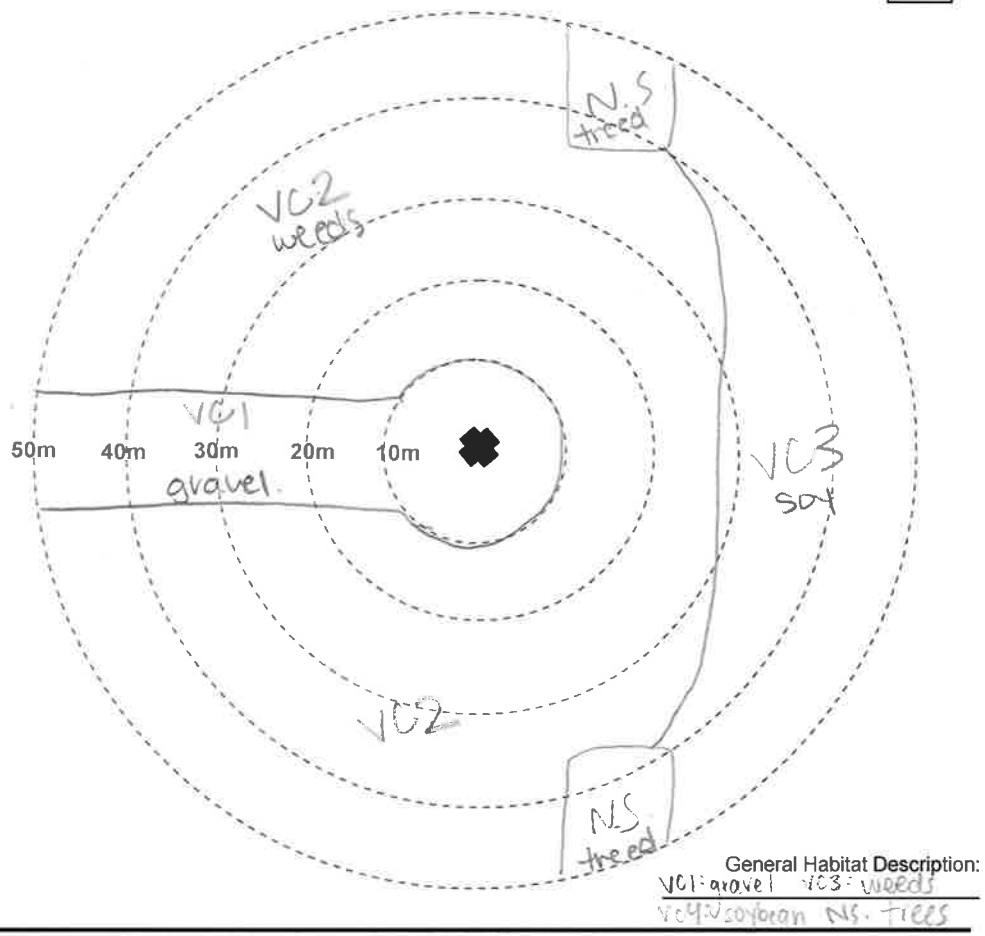
Date (DD/MM/YY): 20/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC3: soybean
NS: trees VC2: weeds

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC3: weeds
VC4: soybean NS: trees

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

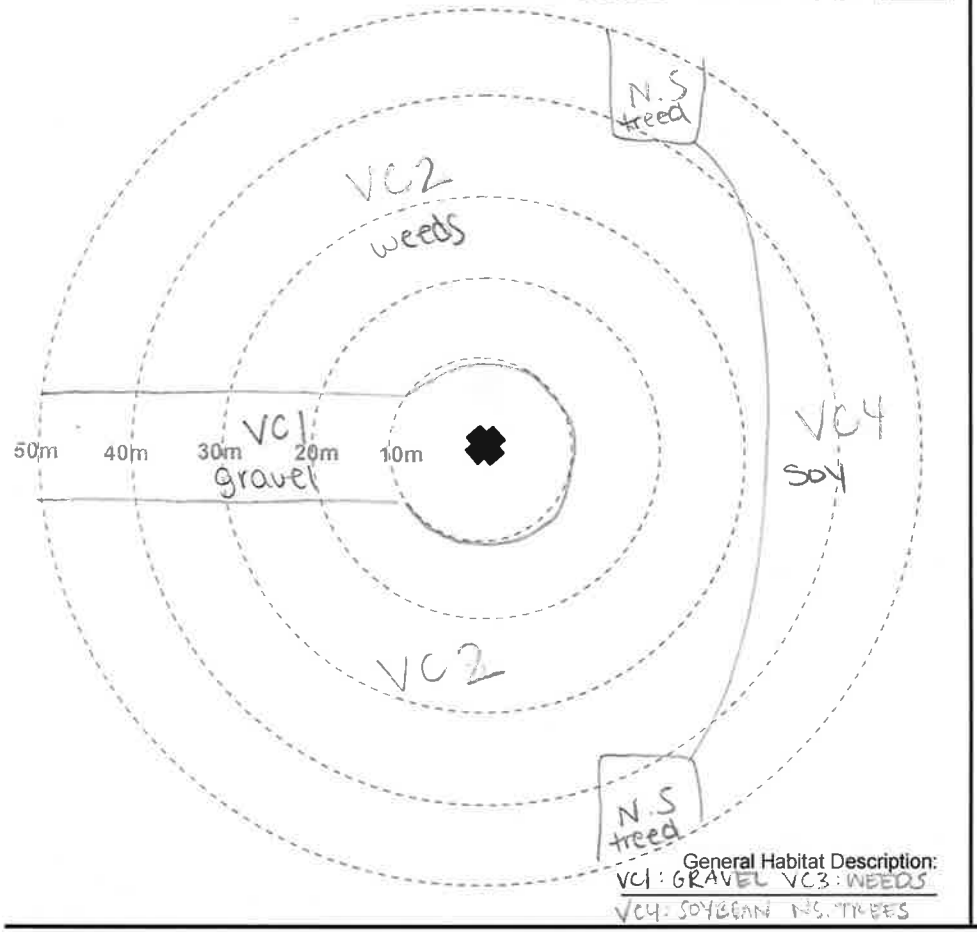
Project Name: NIAGARA REGION WIND FARM **Project #:** 1865A **Turbine #:** T07

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: HANNAH P

Monthly/Seasonal Linear Transect Width: 5 m



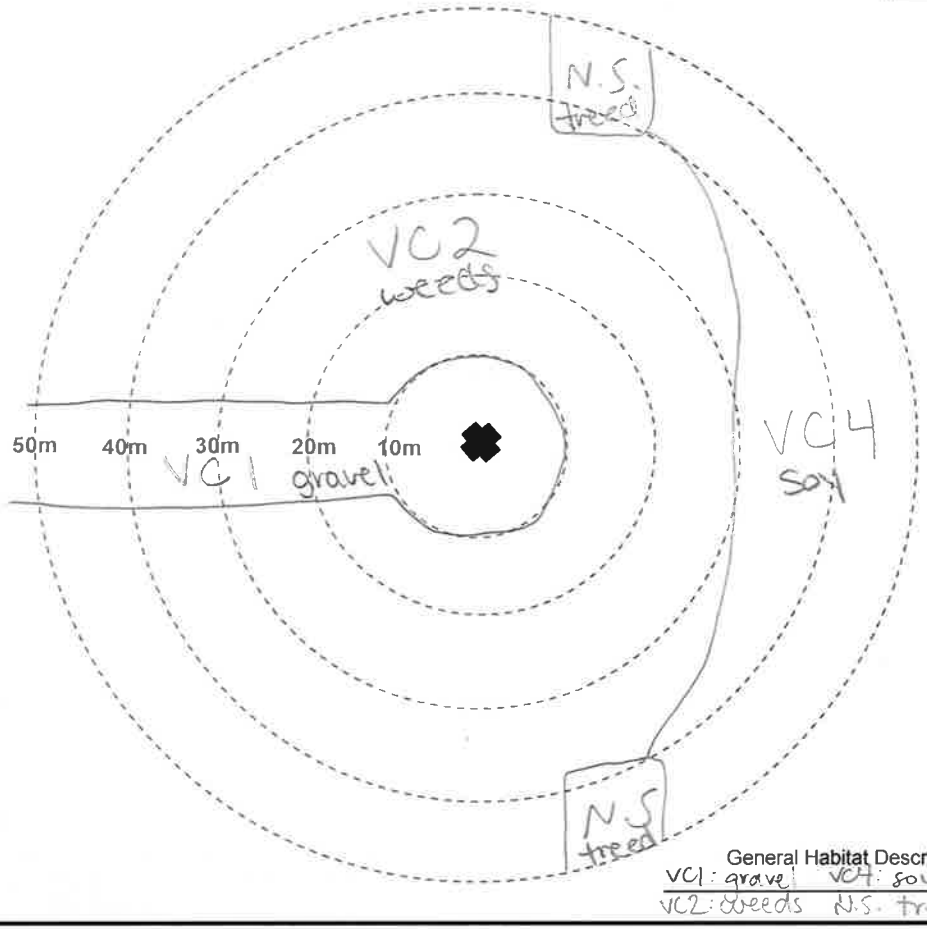
General Habitat Description:
VC1: GRAVEL VC3: WEEDS
VC4: SOYBEAN N.S. TREES

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Hannah Phillips

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC4: soybean
VC2: weeds N.S. trees

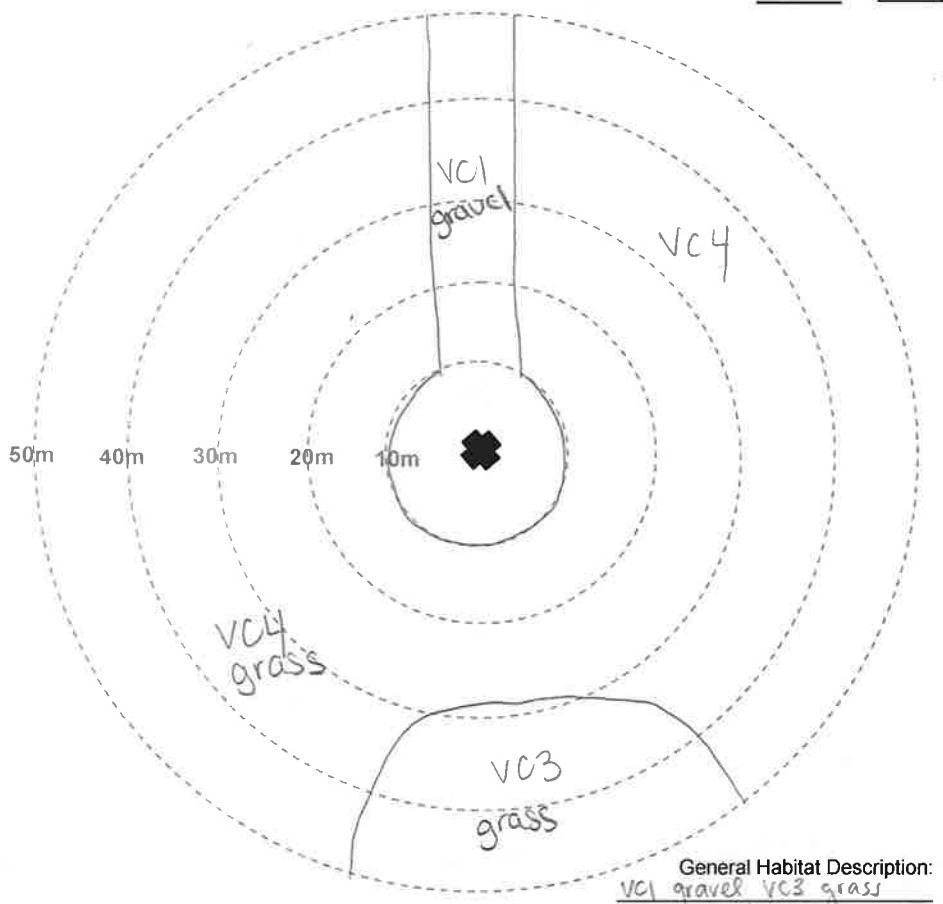
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** 08 **Degree of Slope** 2 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

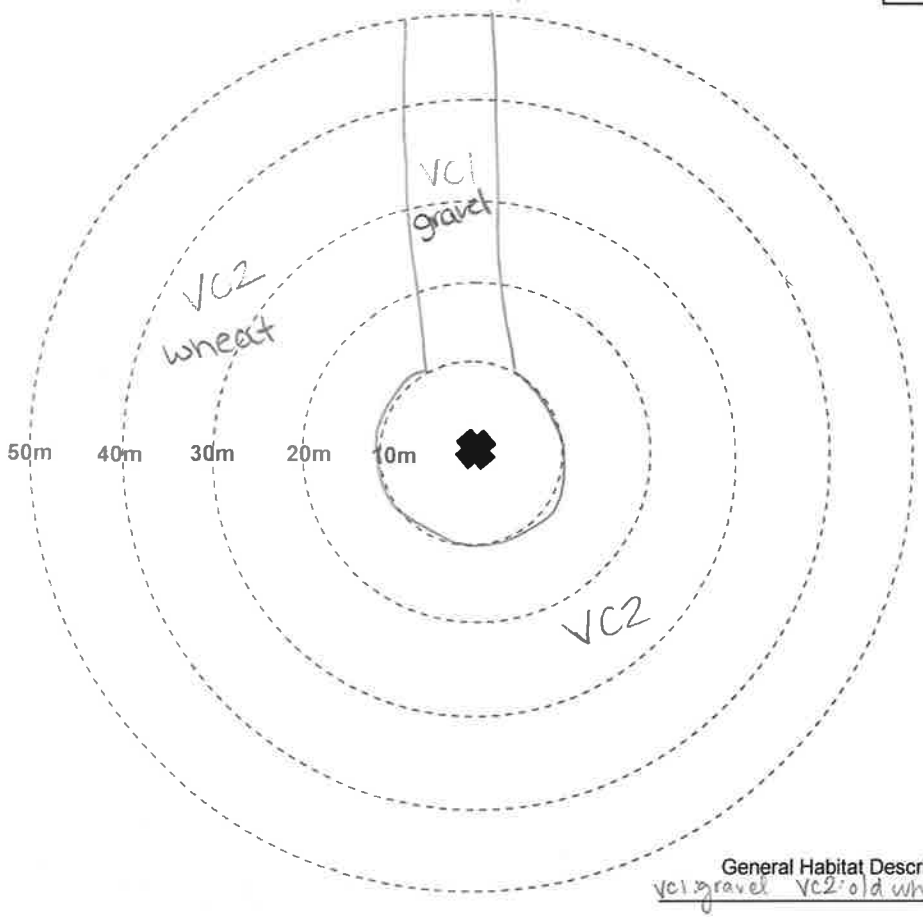
Date (DD/MM/YY): 18/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1 gravel VC3 grass VC4 grass

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel VC2: old wheat field

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T08

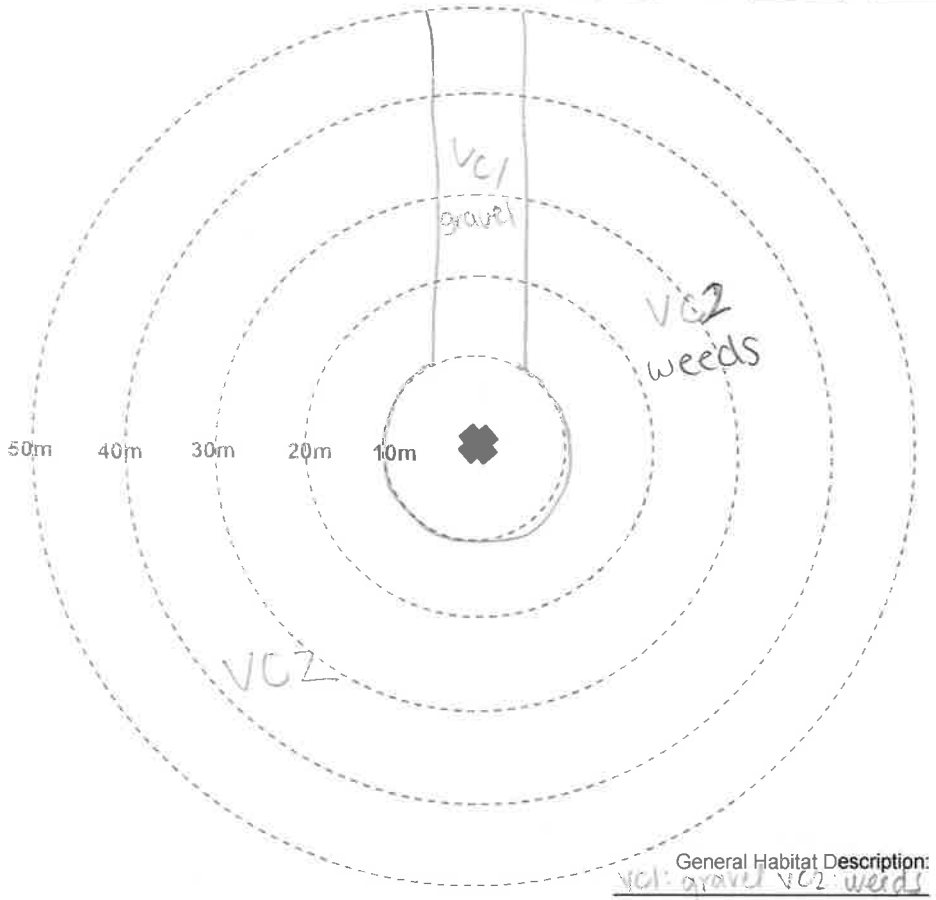
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20 / 07 / 17

Observer: Hannah P

Monthly/Seasonal
Linear Transect Width: 5 m

N



General Habitat Description:
VC1: gravel VC2: weeds

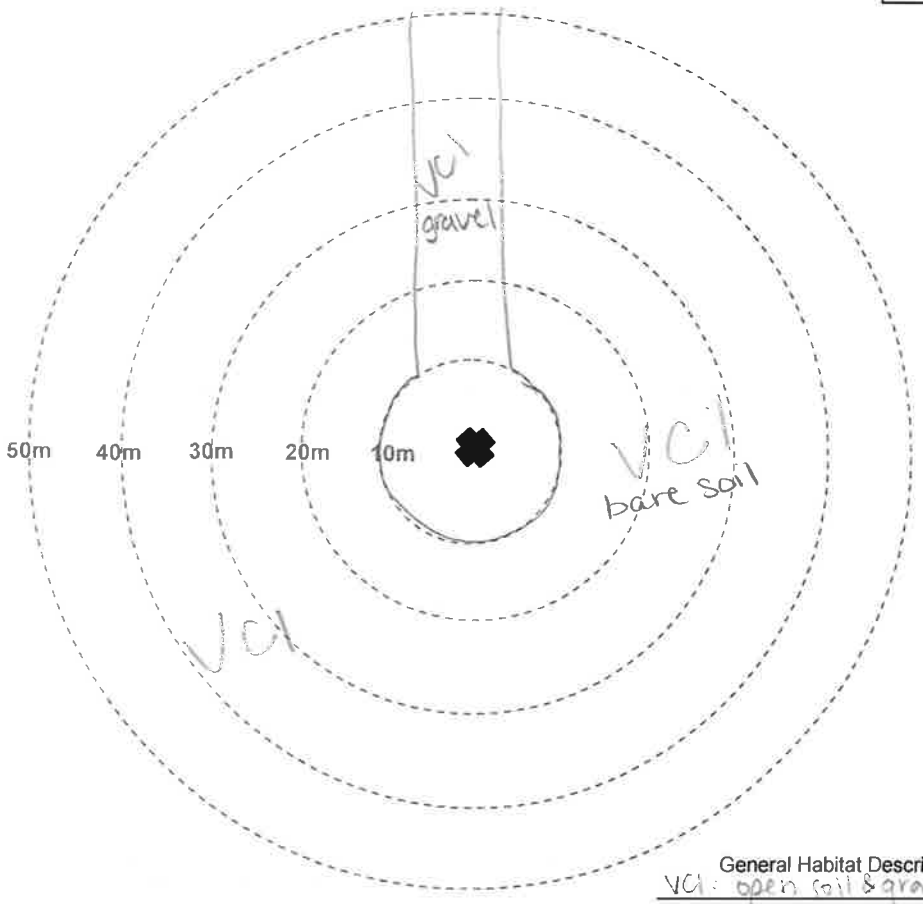
Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21 / 08 / 17

Observer: Hannah P

Monthly/Seasonal
Linear Transect Width: 5 m

N



General Habitat Description:
VC1: open soil & gravel

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WIND FARM **Project #:** 1865A **Turbine #:** T08

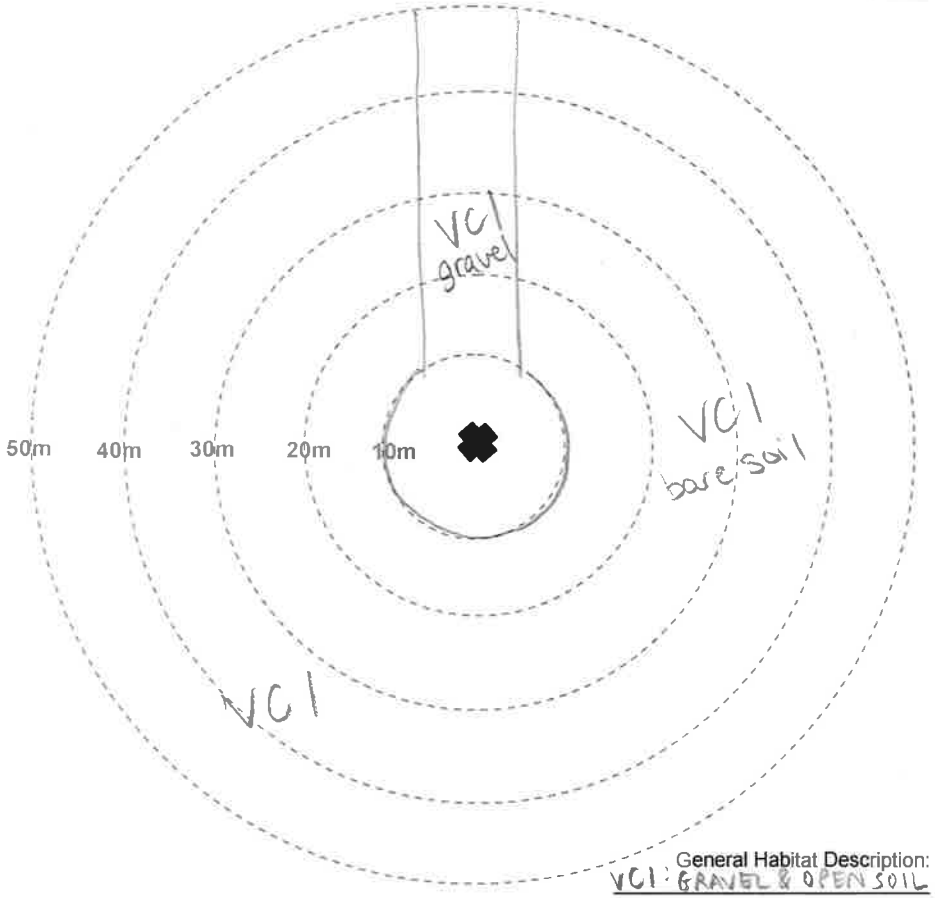
Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: HANNAH P

Monthly/Seasonal Linear Transect Width: 5 m

N



VC1: GRAVEL & OPEN SOIL

General Habitat Description:

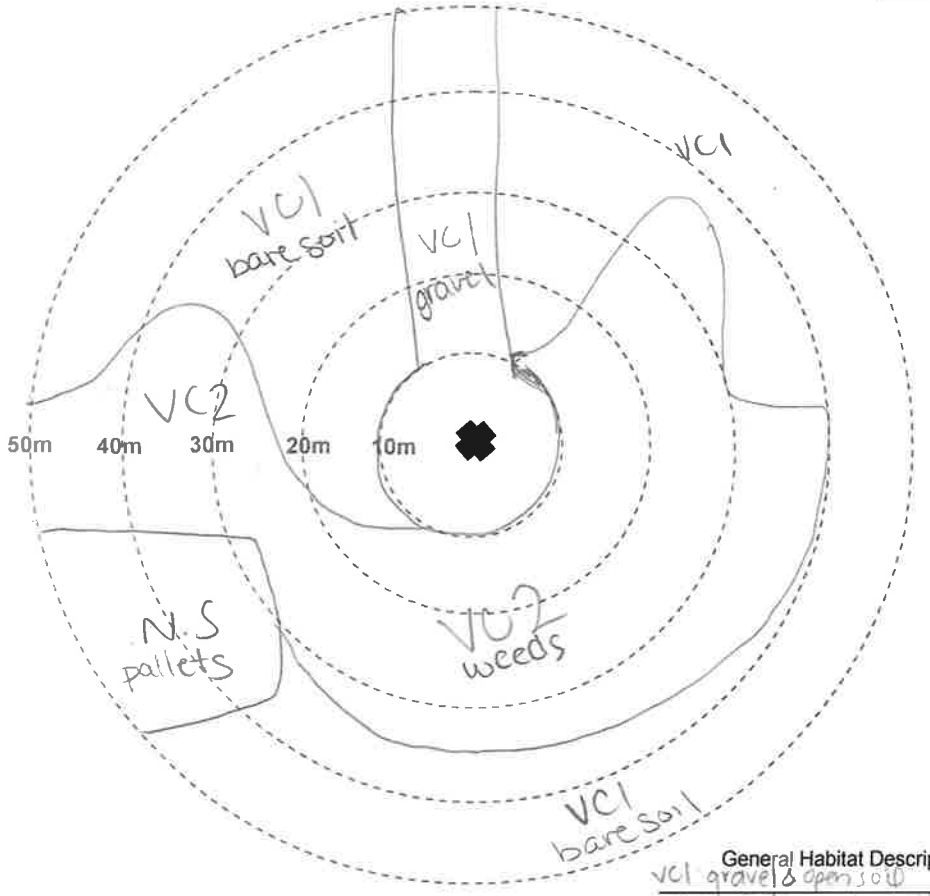
Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Hannah Phillips

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description:
VC1 gravel & open soil
VC2: weeds N.S. pallets

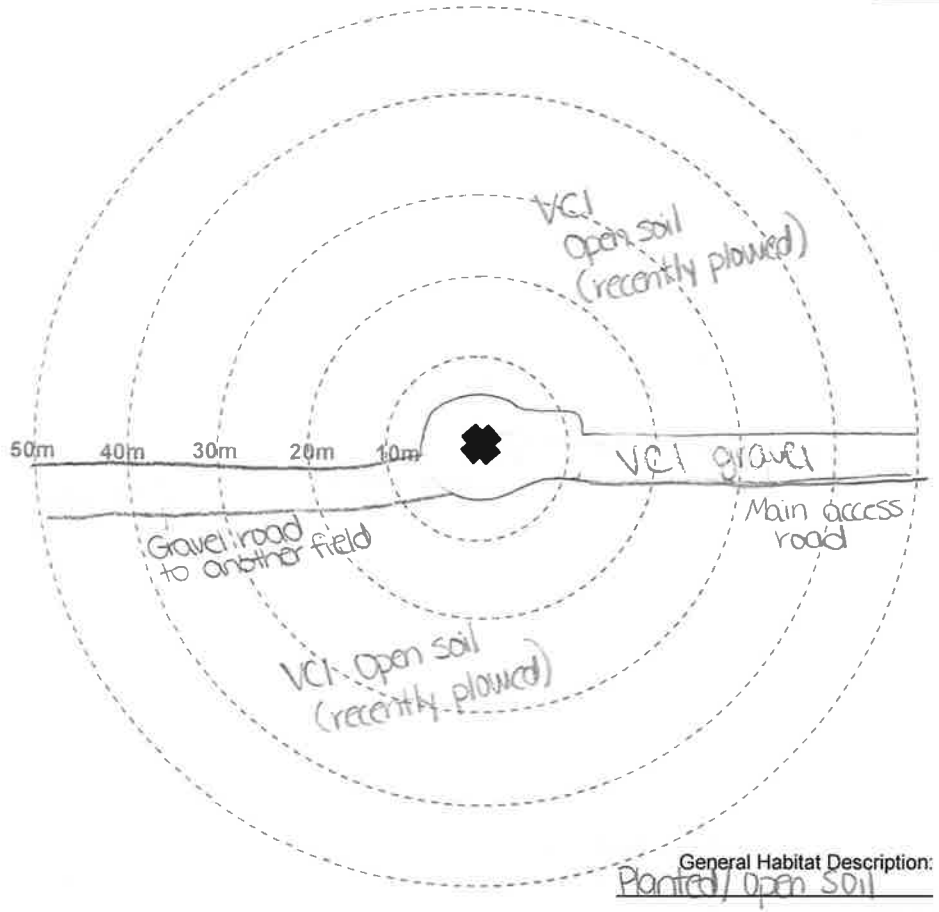
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 12 **Degree of Slope** 1 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

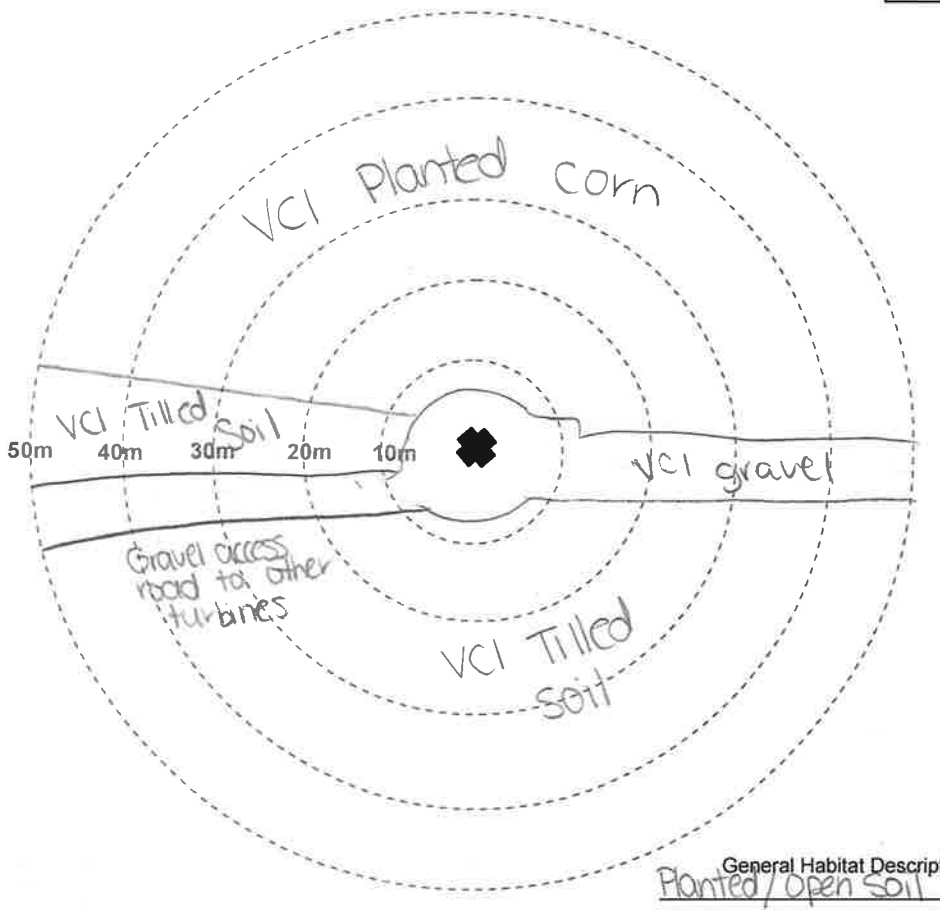
Date (DD/MM/YY): 19/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Planted / Open Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Planted / Open Soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

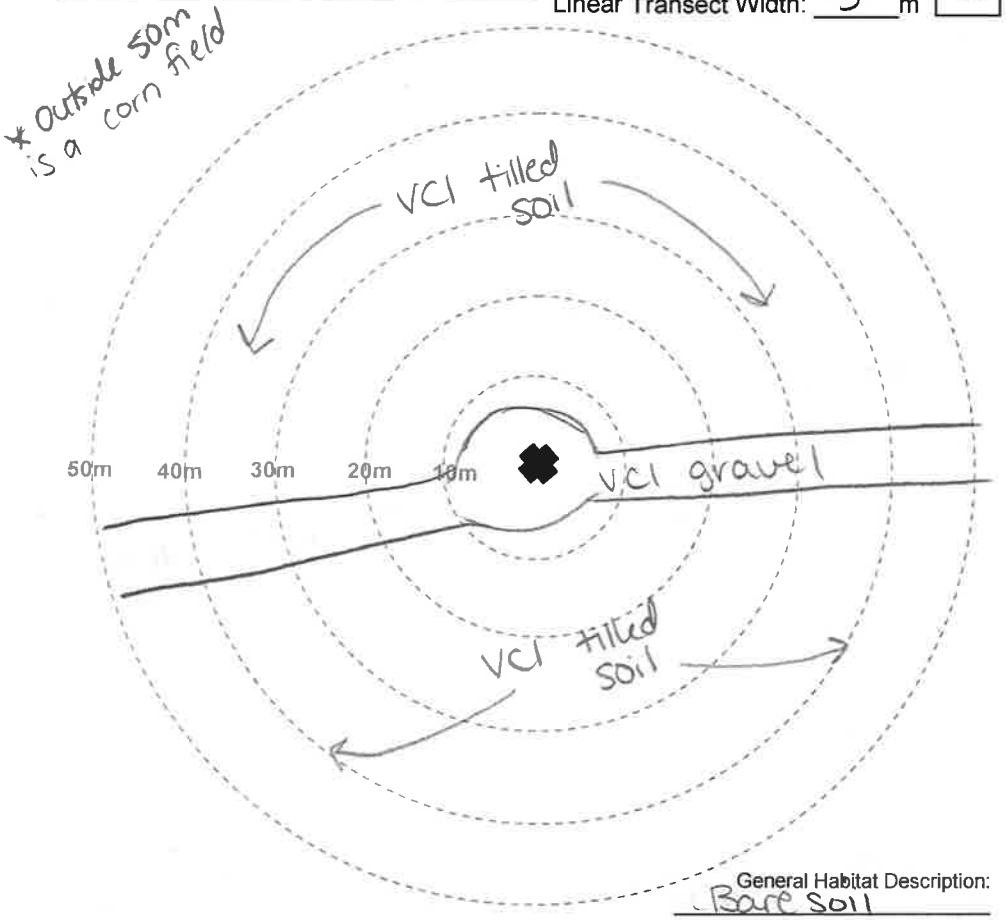
Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 12

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m

N

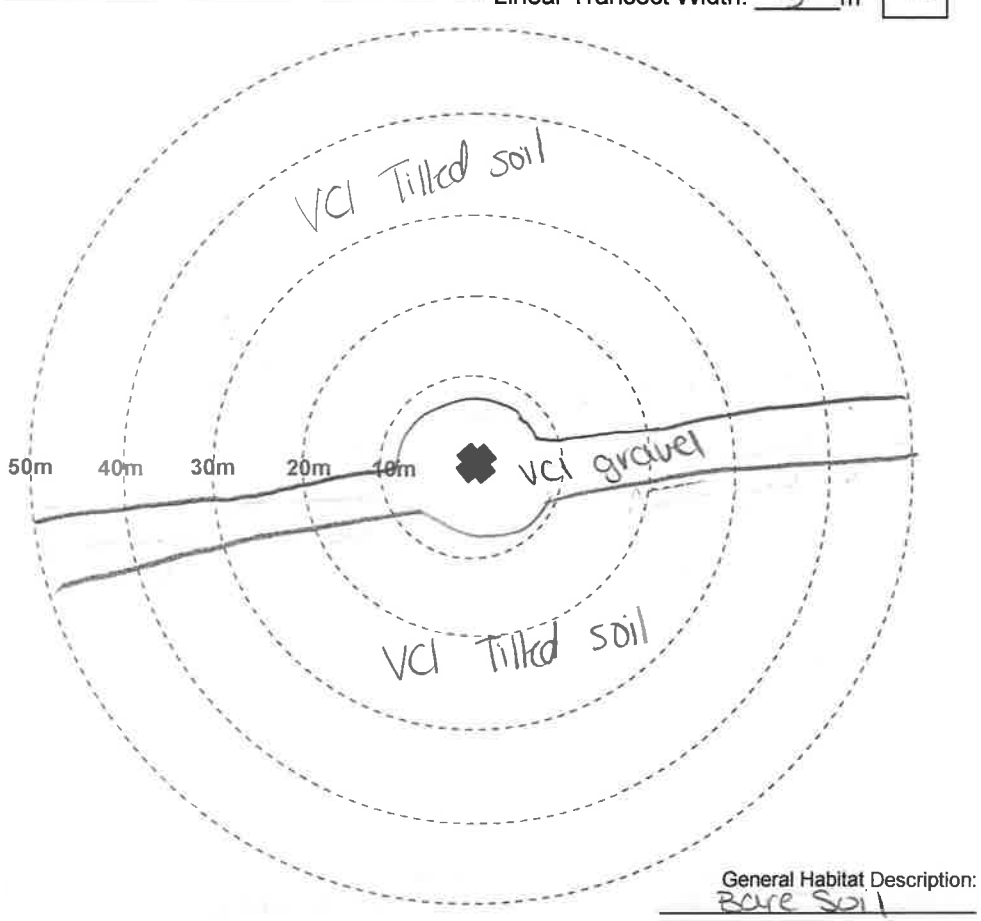


General Habitat Description: Bare Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: Bare Soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

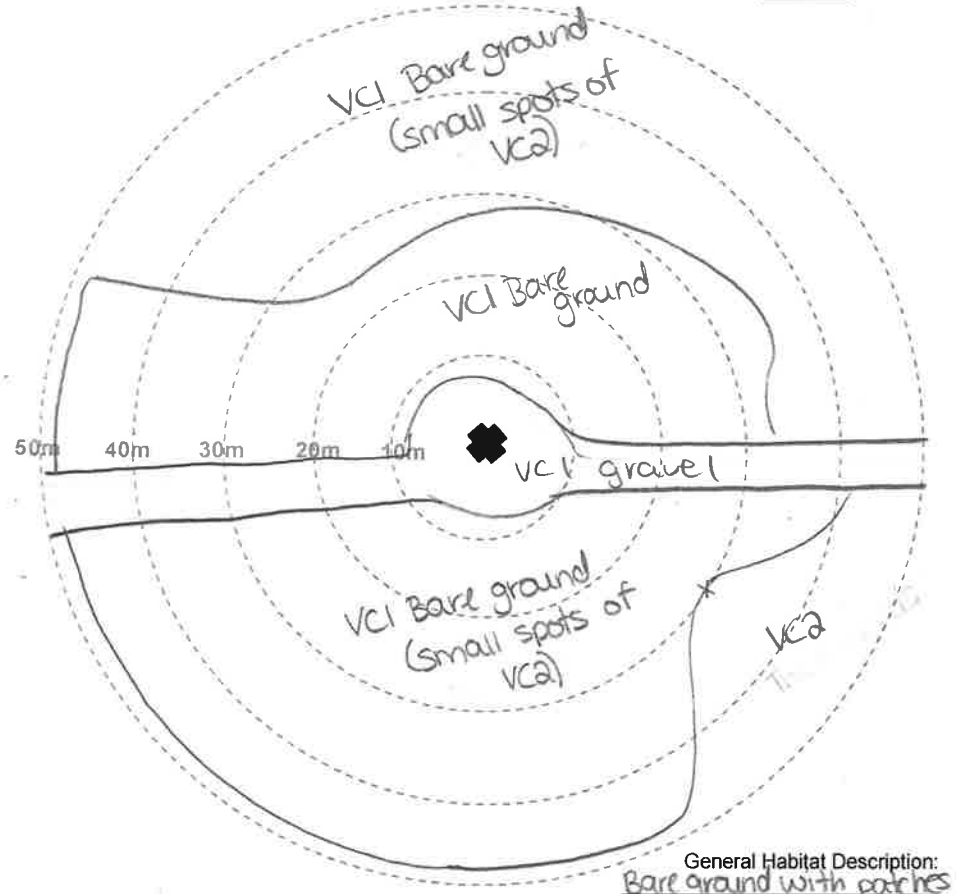
Project Name: NRWF PCM **Project #:** 18-05A **Turbine #:** 12

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



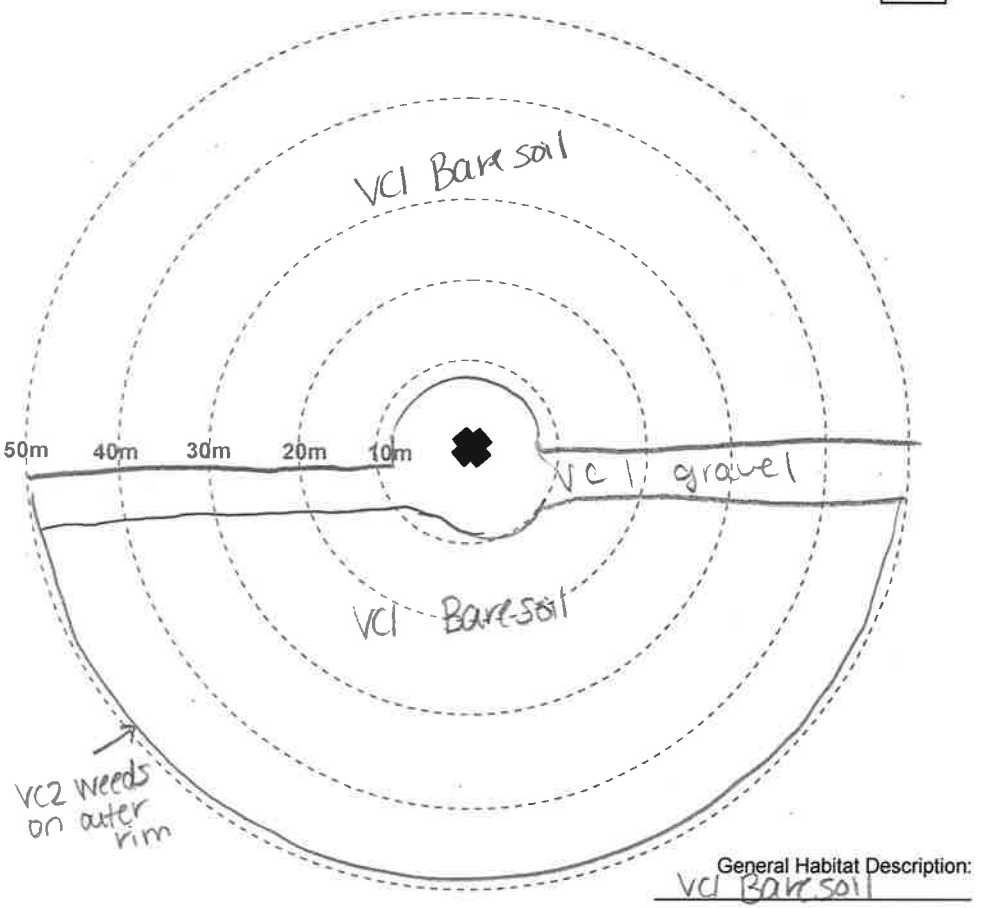
General Habitat Description: Bare ground with patches of thick weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 24/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 18657A **Turbine #:** 16 **Degree of Slope** 0 degrees **Slope Orientation** N/A (e.g. SSW)

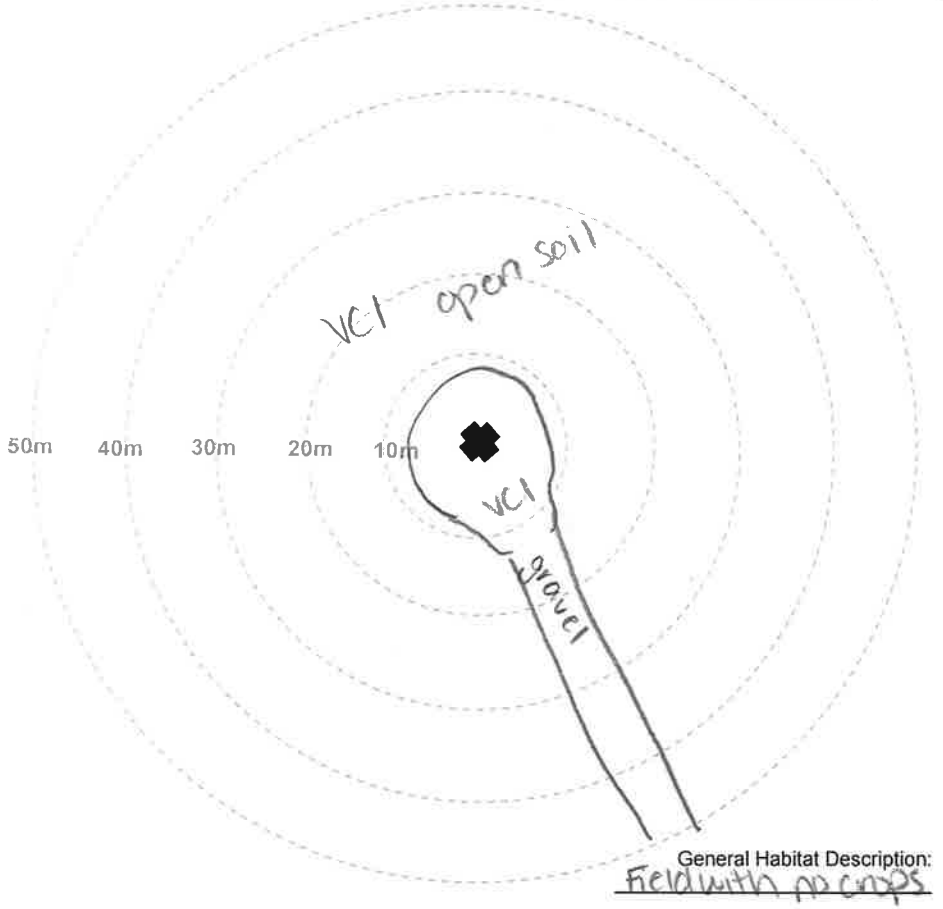
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18/05/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: Field with no crops

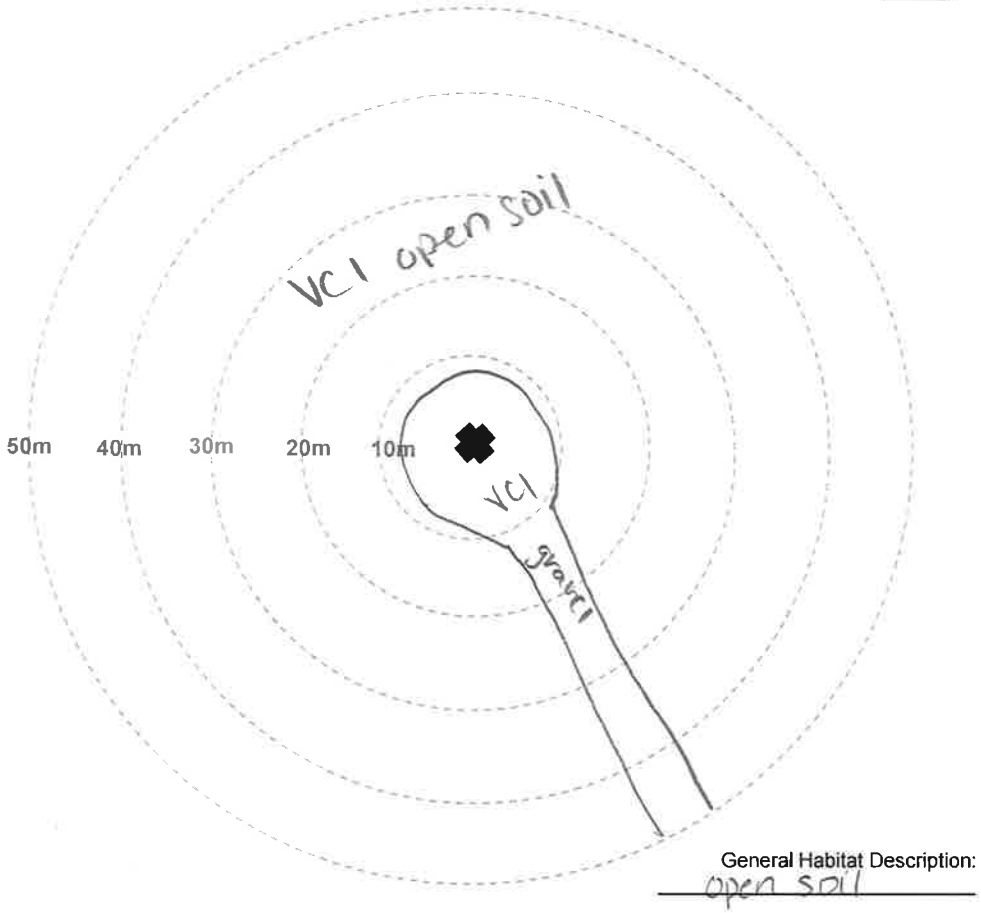
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: open soil

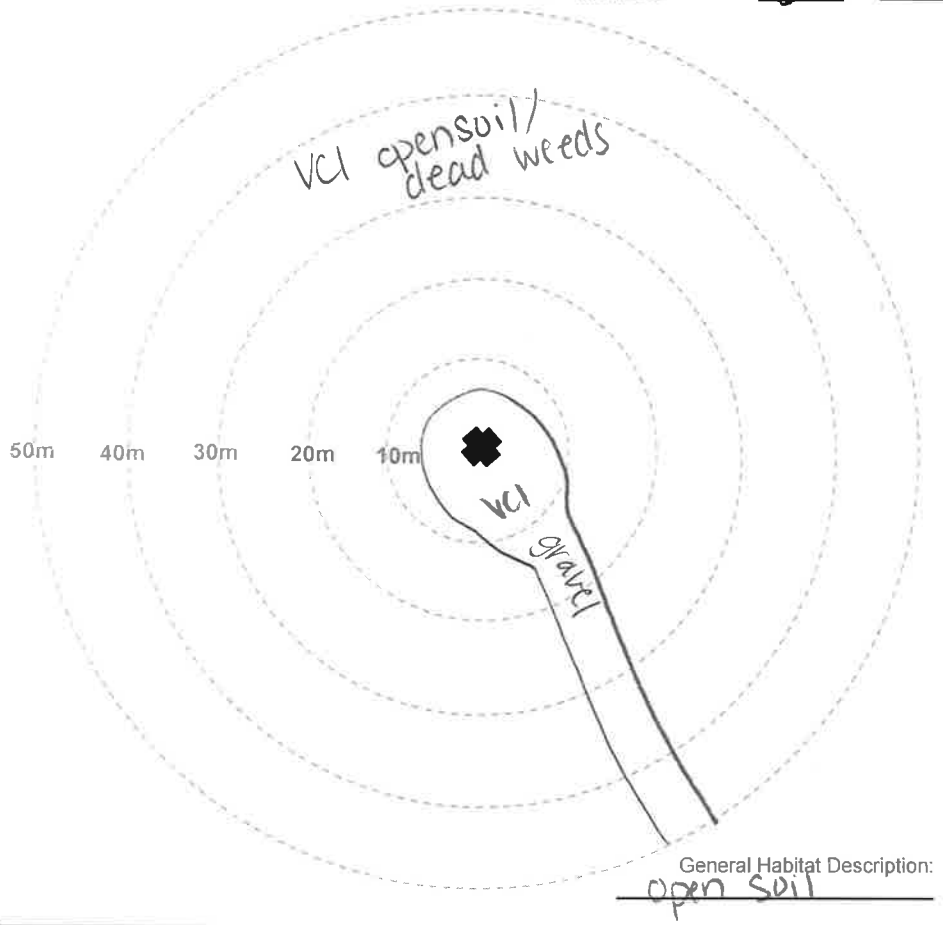
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** [illegible] **Turbine #:** 116

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

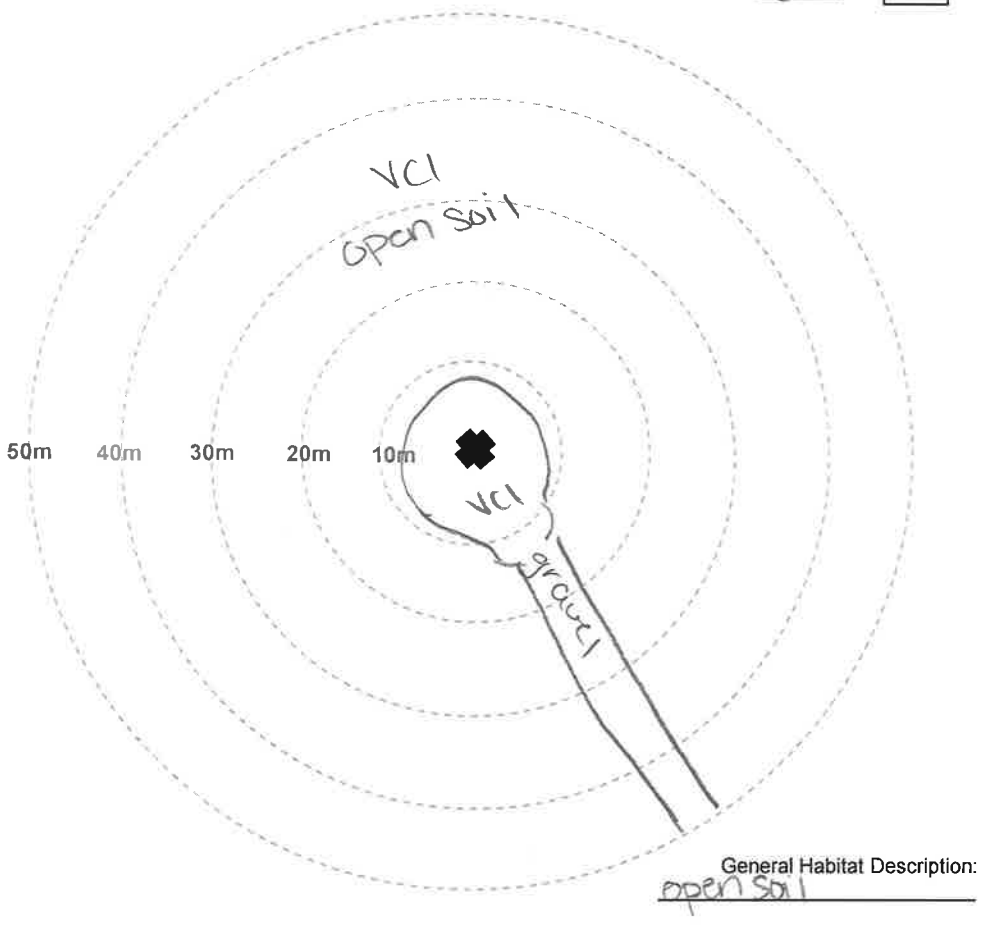
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description: open soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Craig M
Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description: open soil

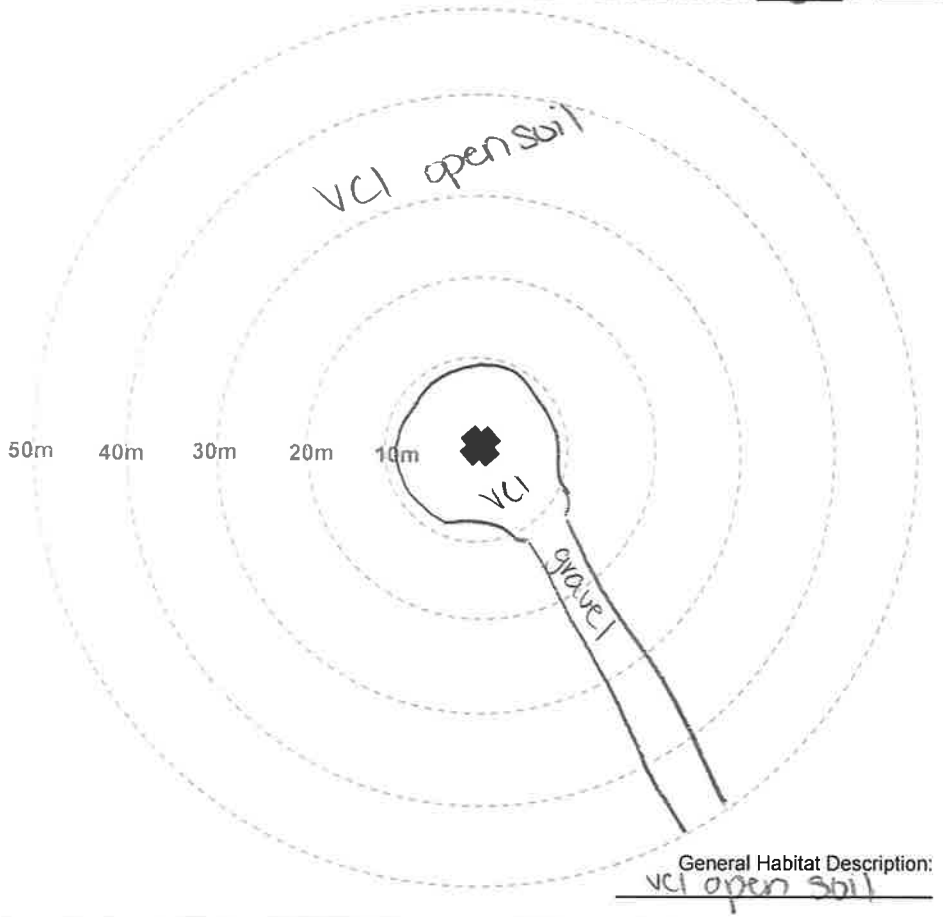
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 16

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

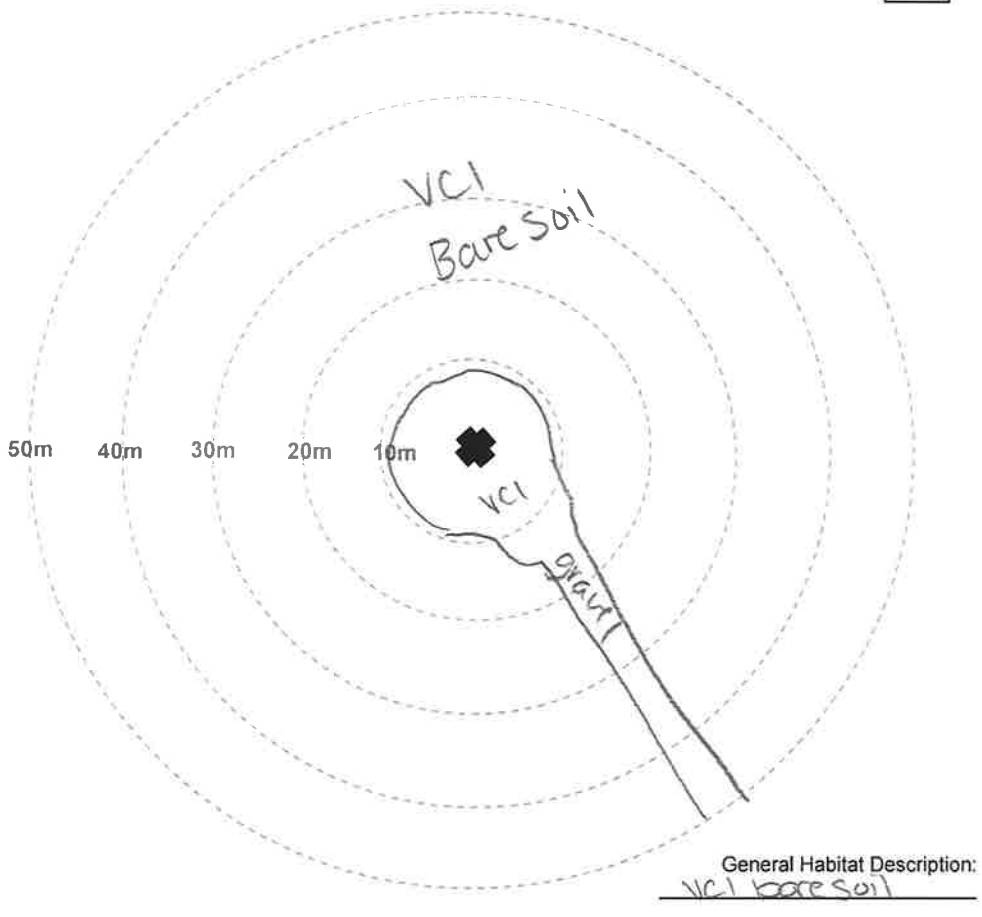
Date (DD/MM/YY): 21/09/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCI open soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCI bare soil

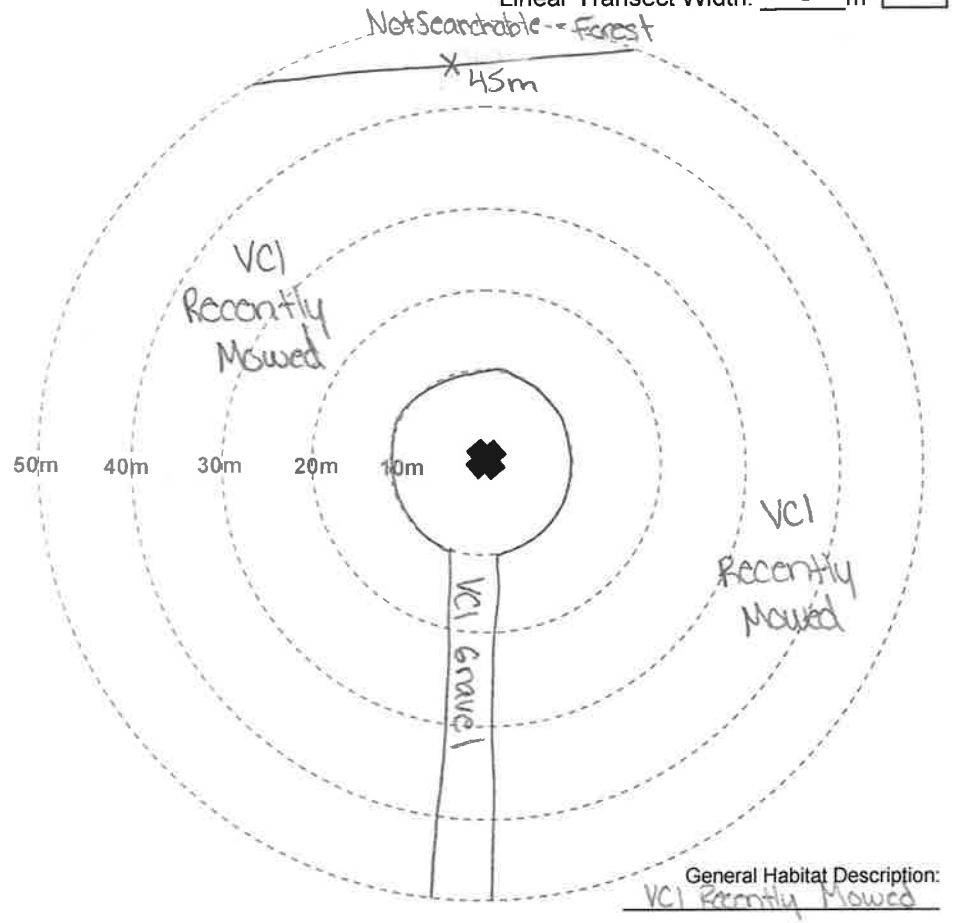
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 24 **Degree of Slope** Ø **degrees** **Slope Orientation** N/A (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

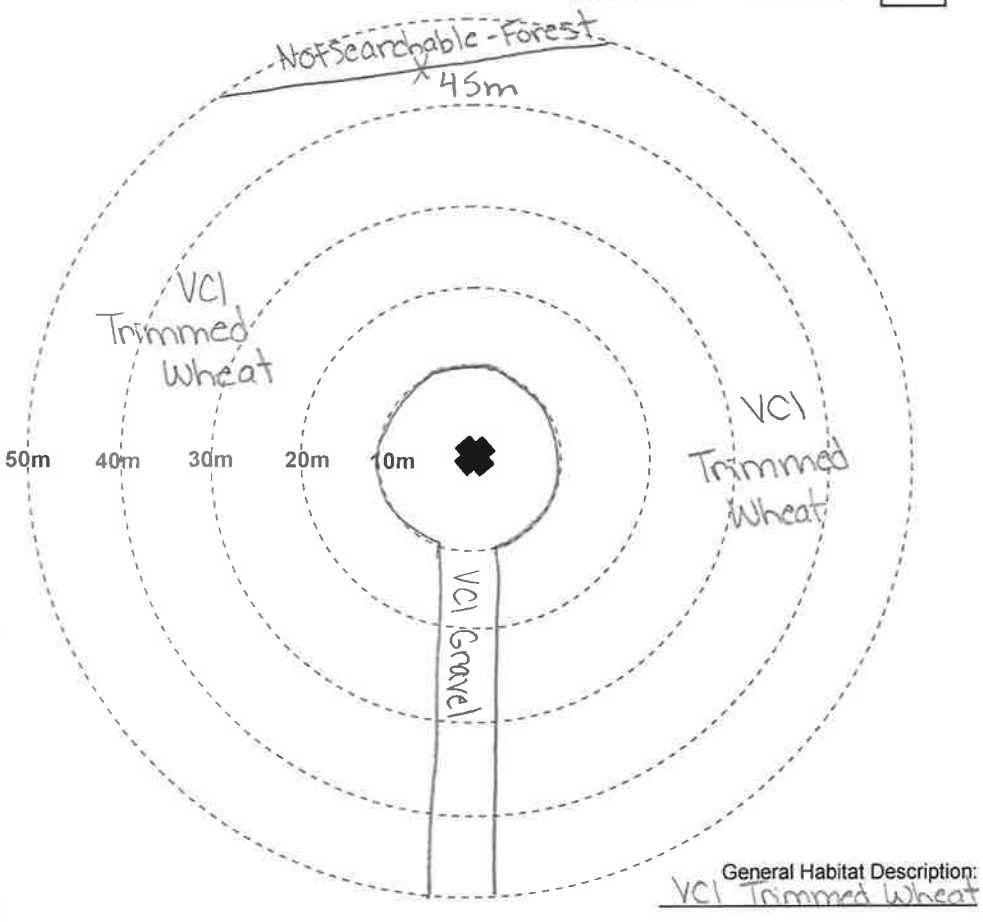
Date (DD/MM/YY): 19/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCI Recently Mowed

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCI Trimmed Wheat

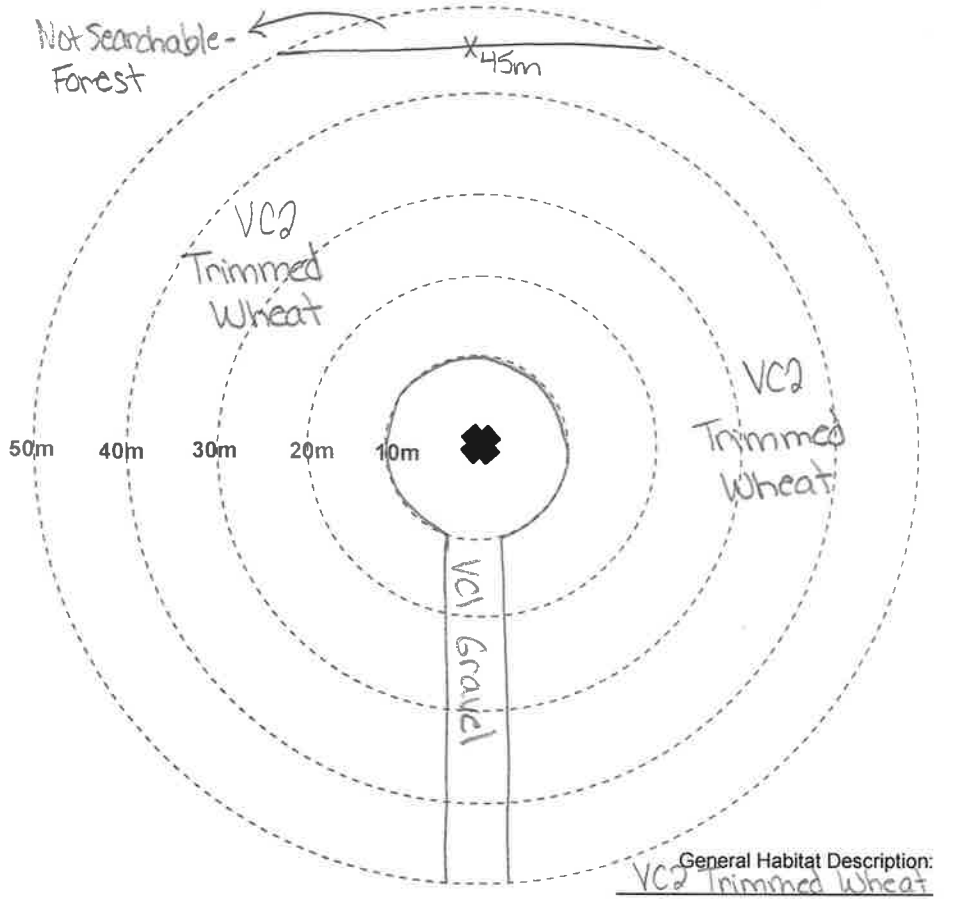
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NBWF PCM **Project #:** 1865A **Turbine #:** 24

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

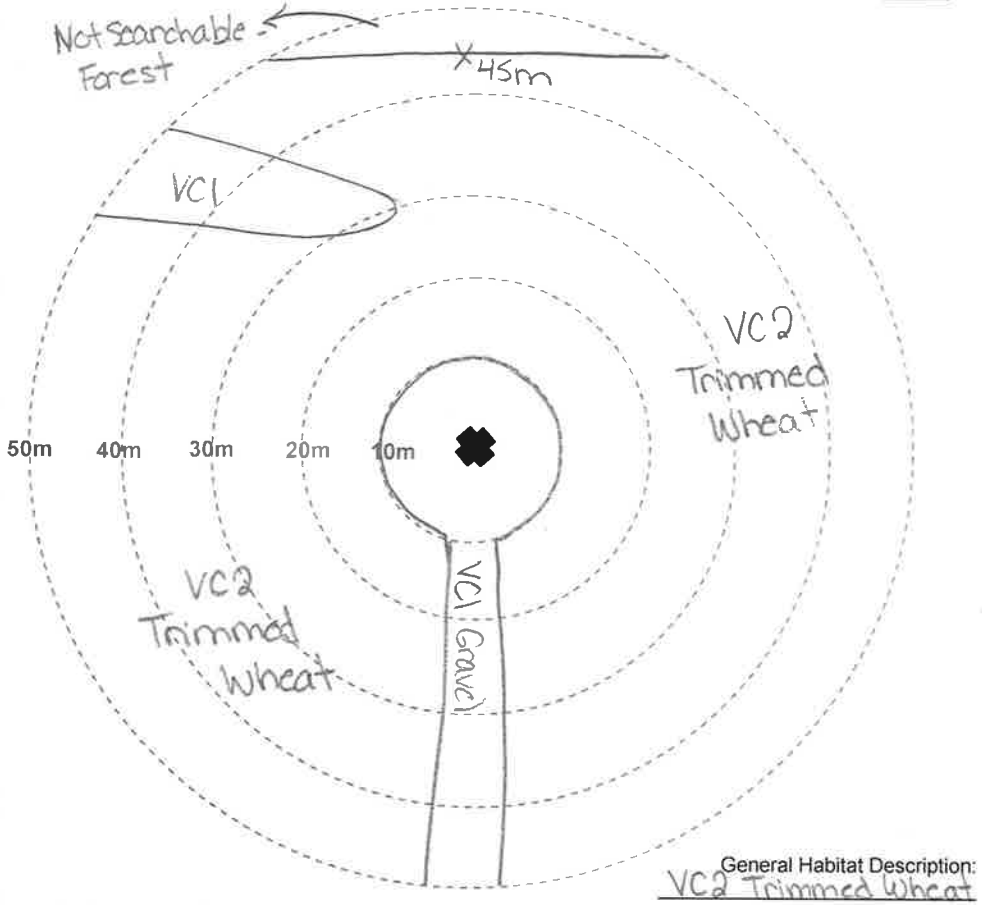
Date (DD/MM/YY): 20/07/17
Observer: Cmig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Trimmed Wheat

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Cmig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Trimmed Wheat

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

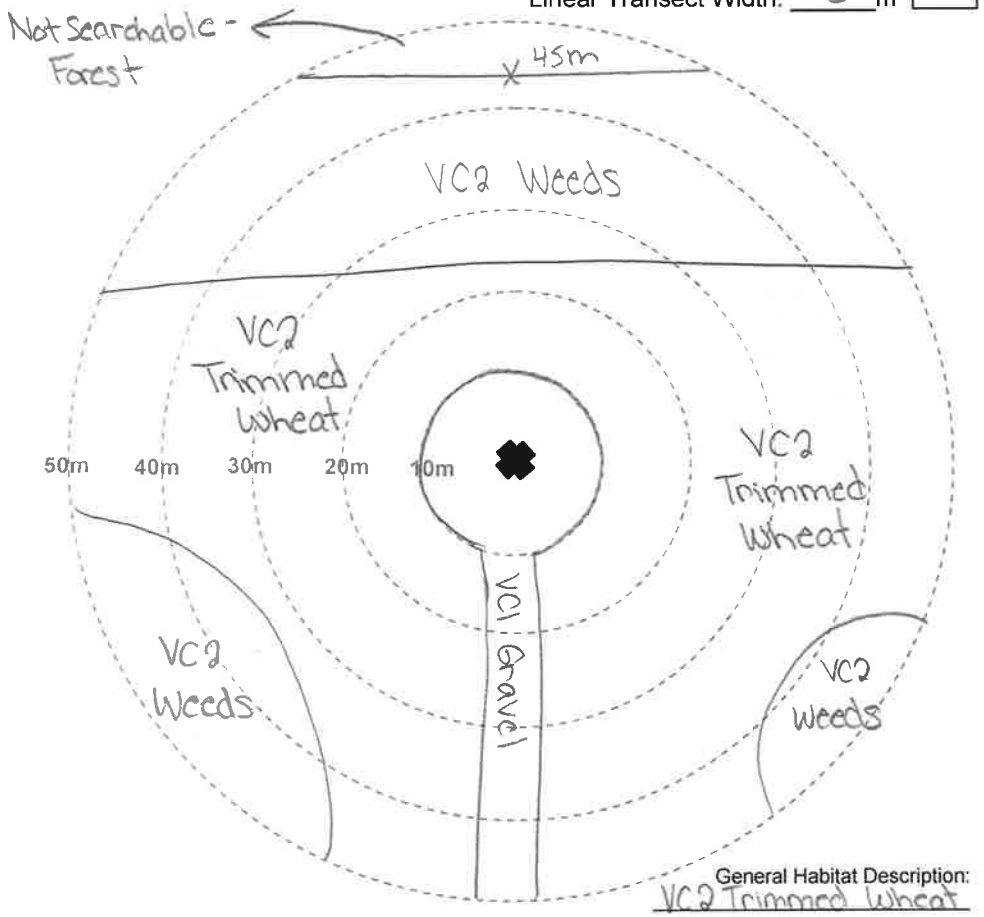
Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 24

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



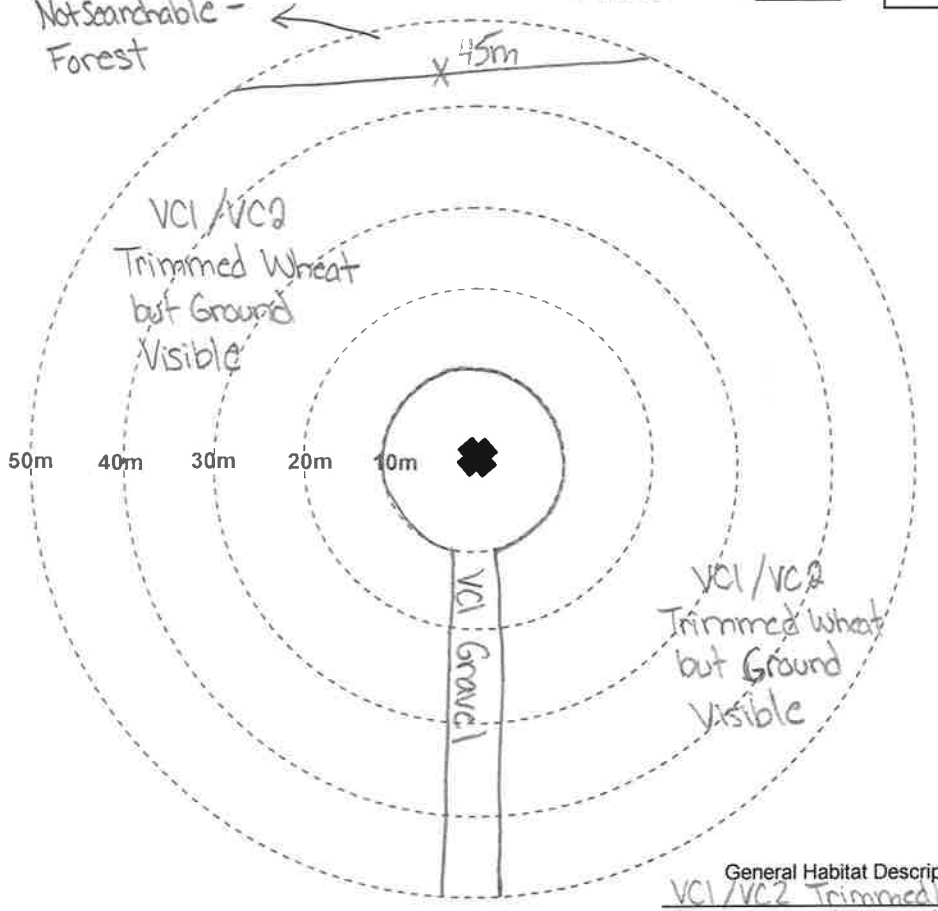
General Habitat Description: VC2 Trimmed Wheat

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 24/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC2 Trimmed Wheat but Ground Visible

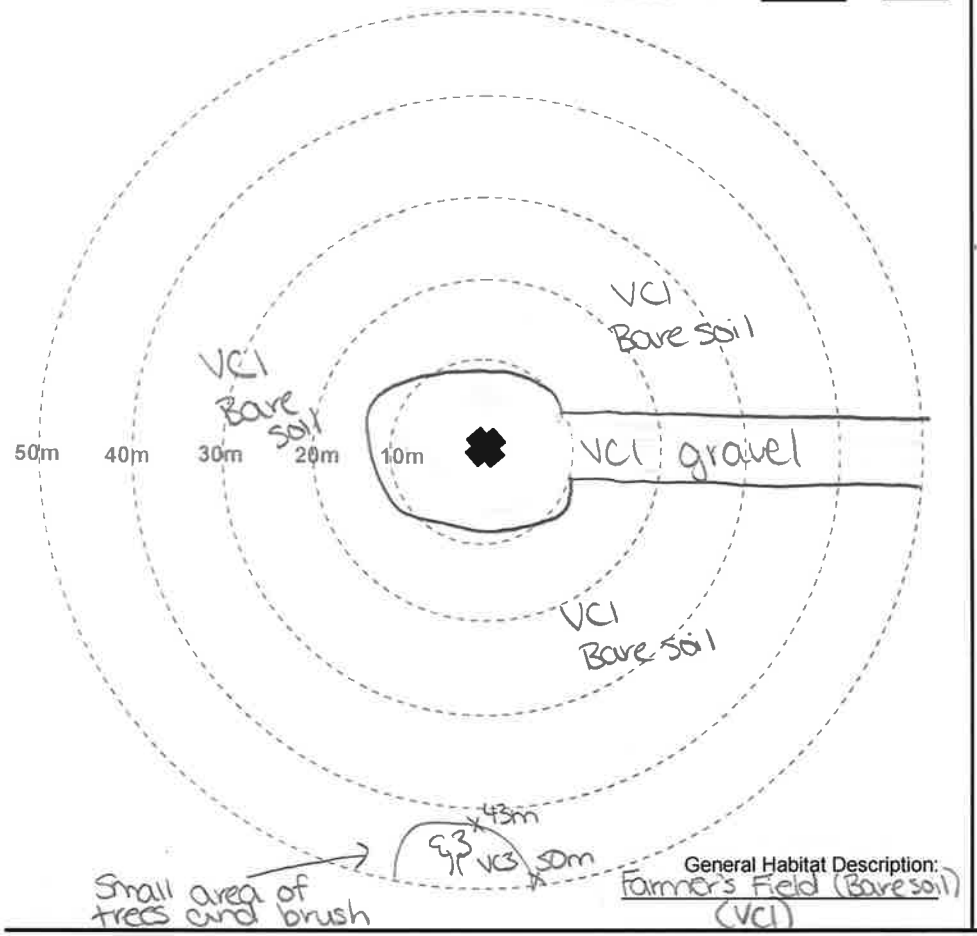
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF RCM **Project #:** 1865A **Turbine #:** 32 **Degree of Slope** 0 **degrees** **Slope Orientation** N/A (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

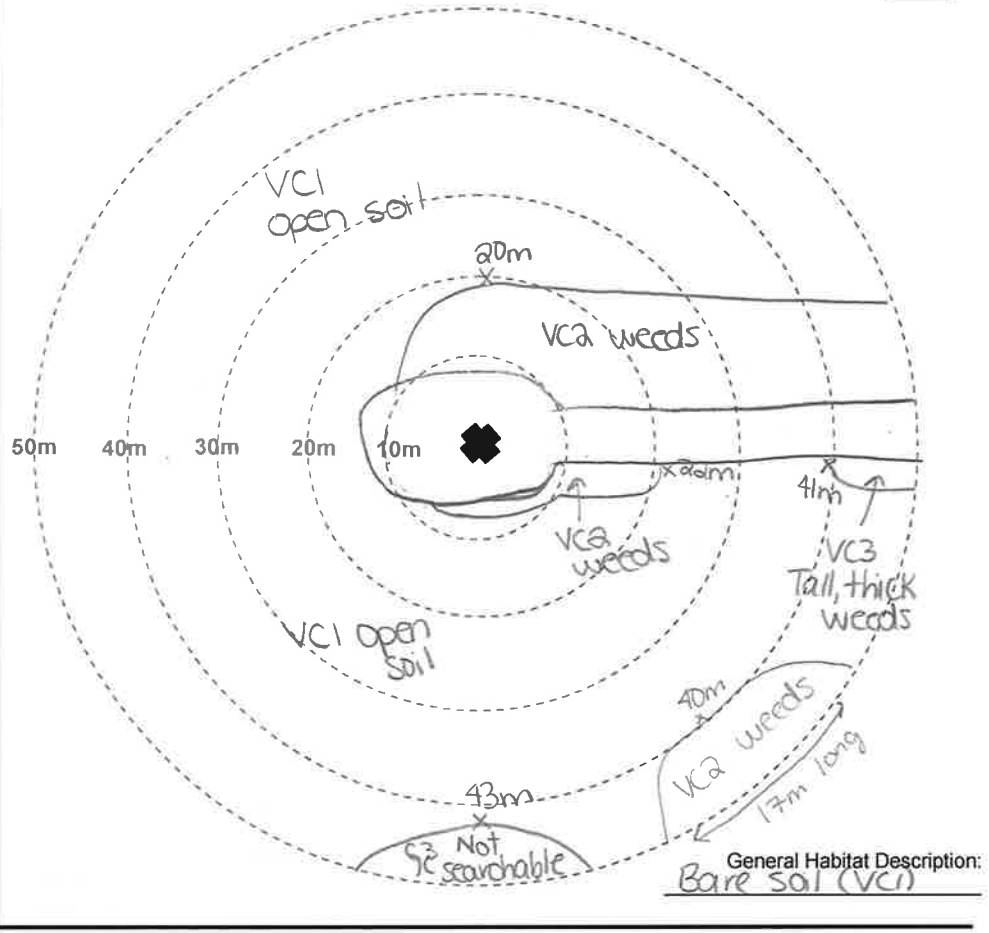
Date (DD/MM/YY): 18/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Farmer's Field (Bare soil) (VC1)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare soil (VC1)

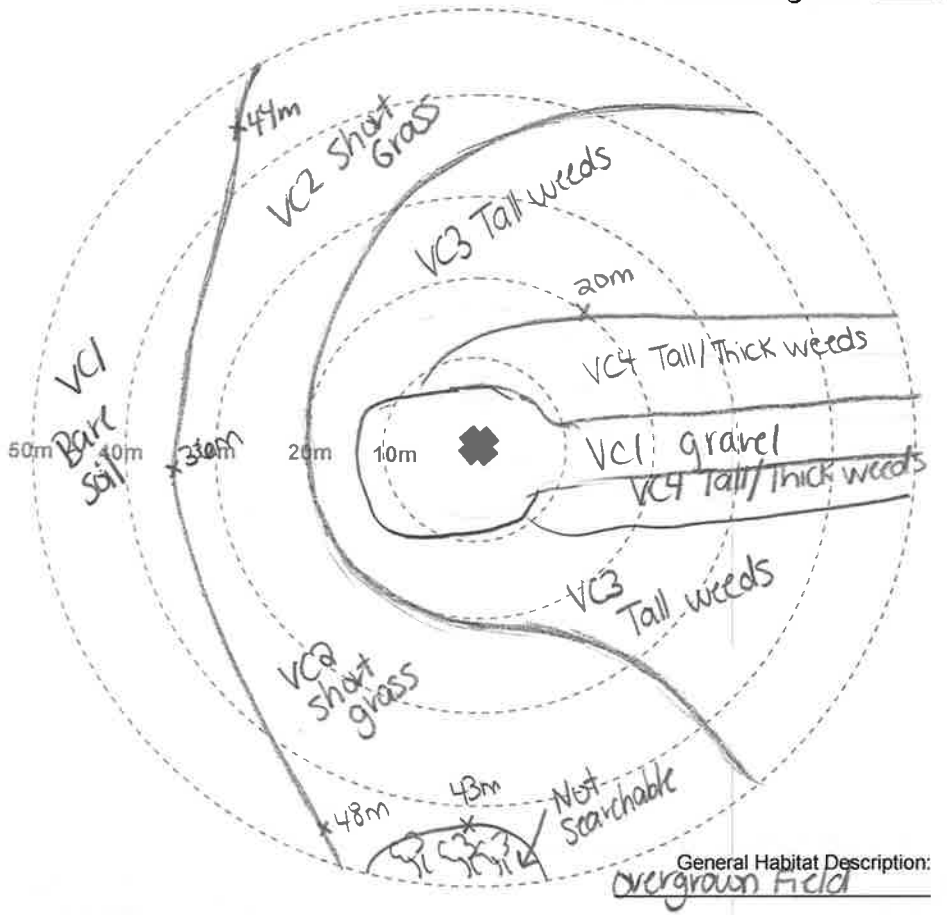
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1816SA **Turbine #:** 32

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

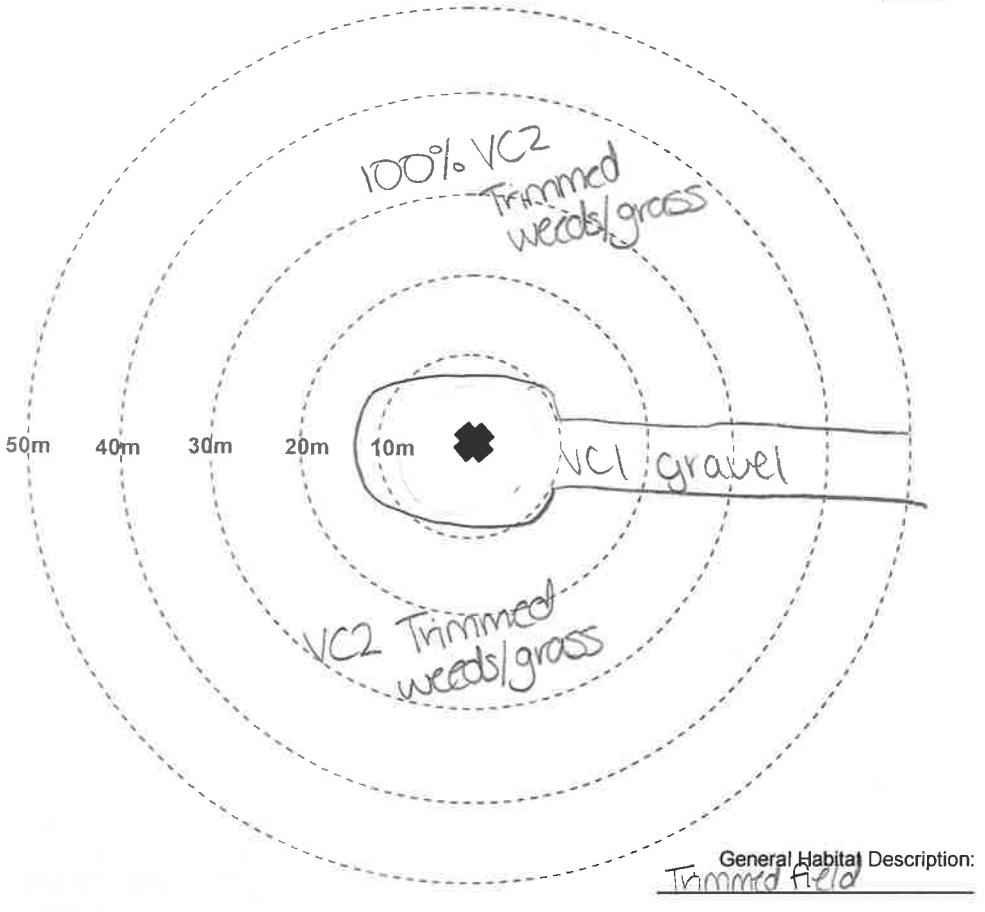
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Overgrown Field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Trimmed field

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

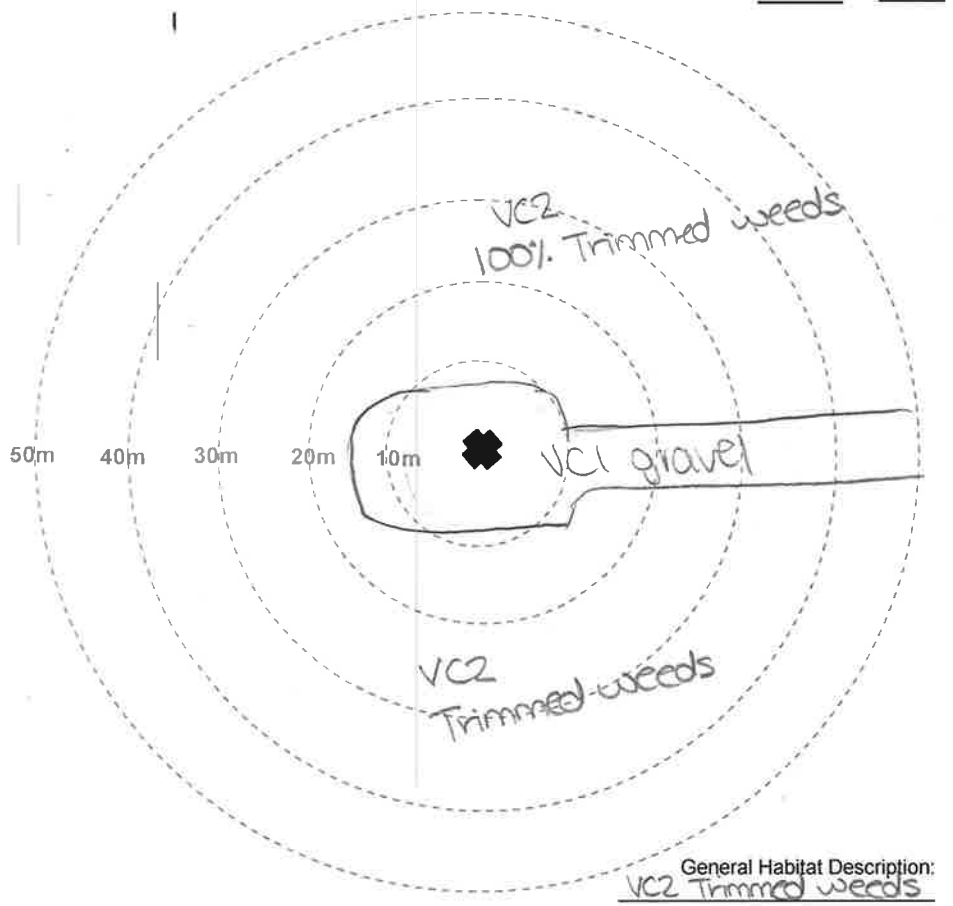
Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 32

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



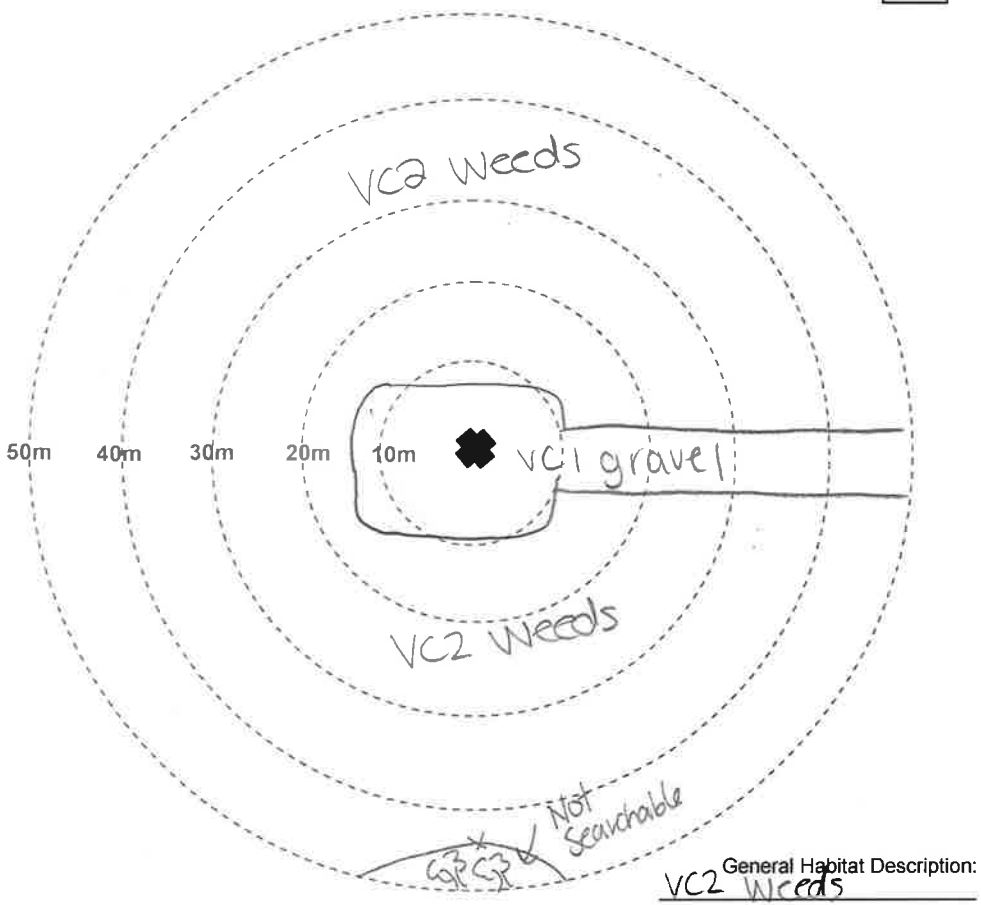
General Habitat Description: VC2 Trimmed weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

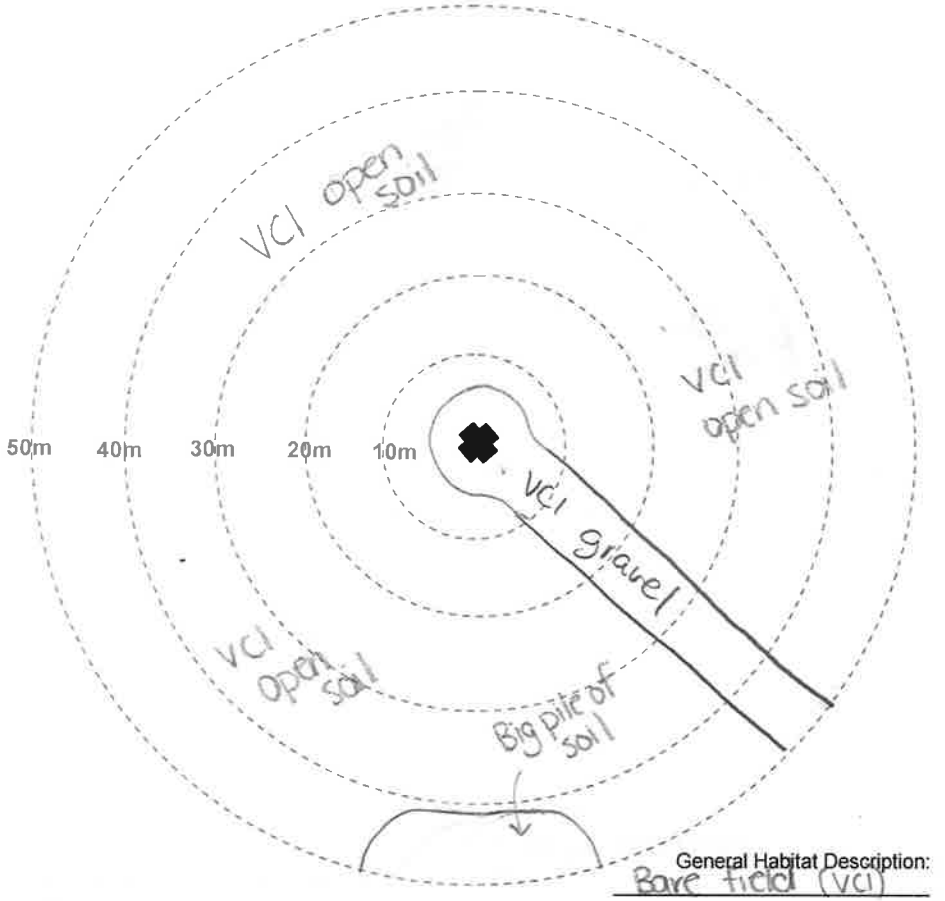
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 18-SA **Turbine #:** 44 **Degree of Slope** 1 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

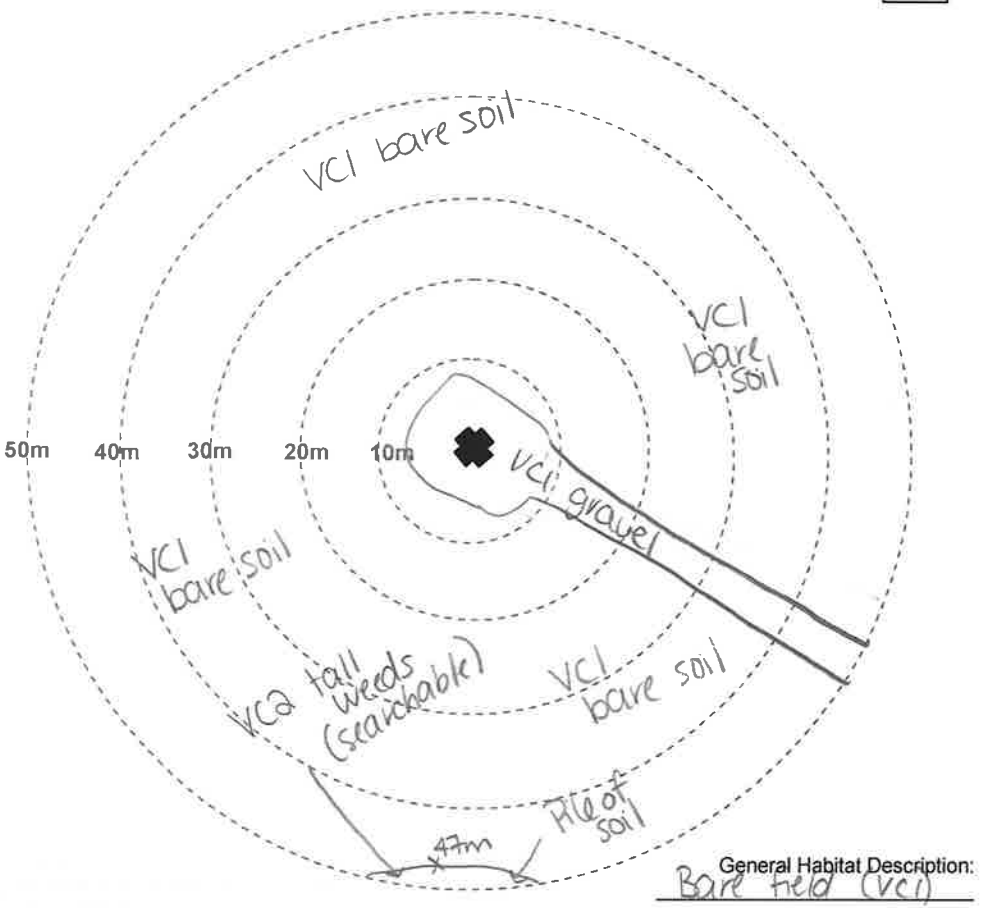
Date (DD/MM/YY): 18/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare field (VC1)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare field (VC1)

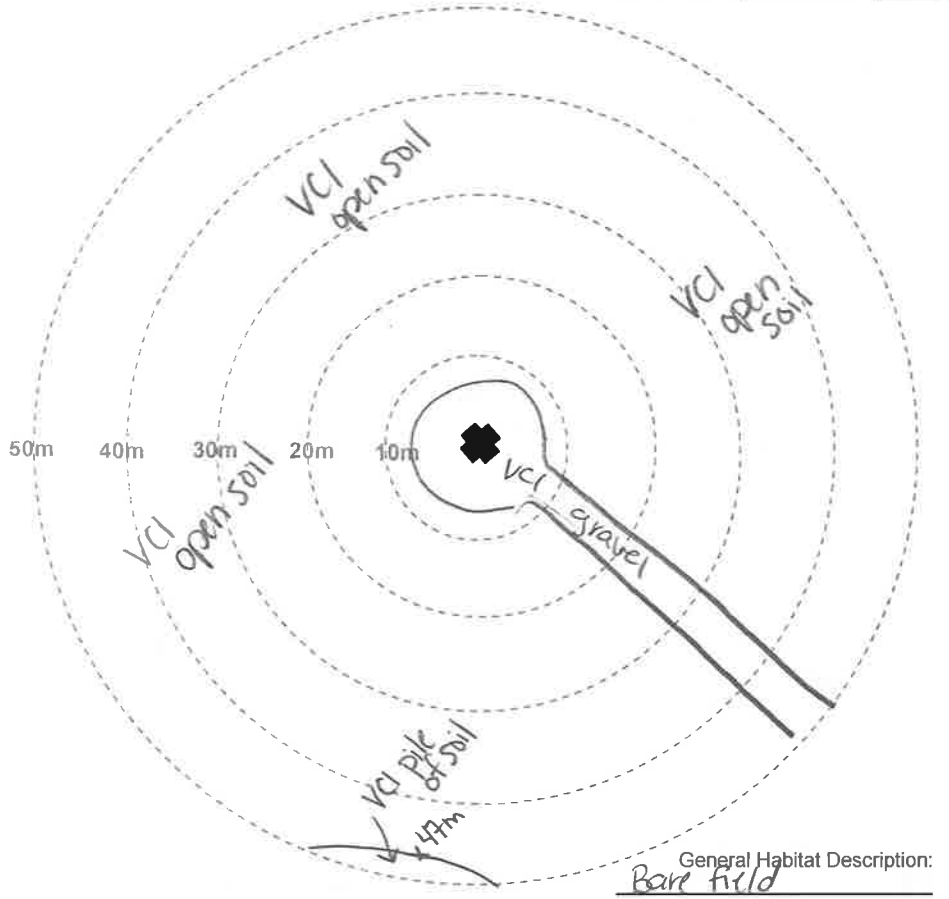
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF RCM **Project #:** 1805A **Turbine #:** 44

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

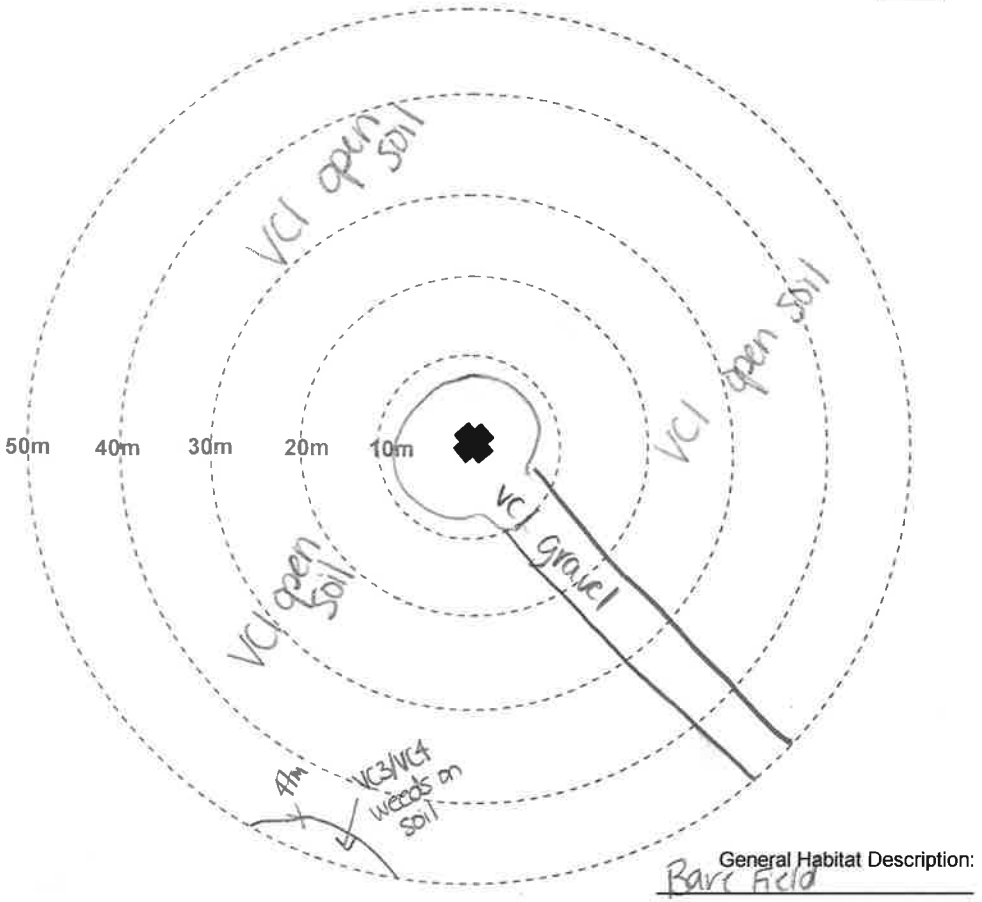
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare field

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

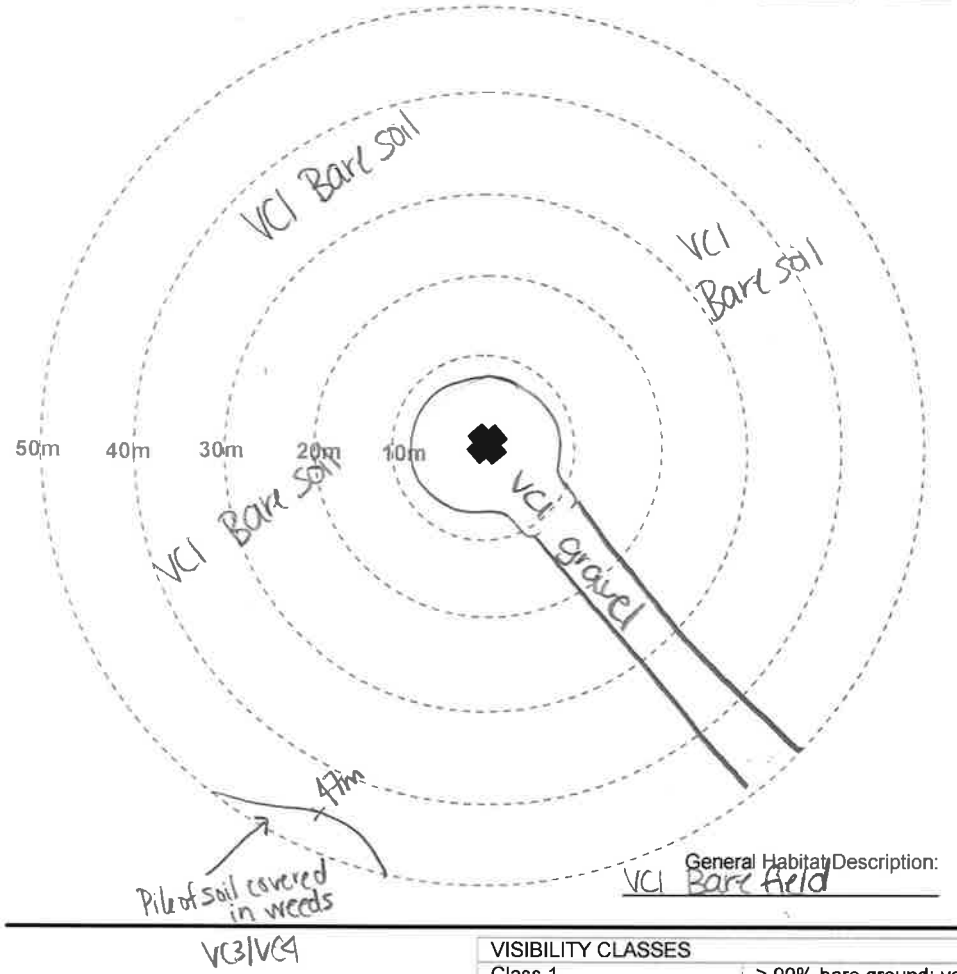
Project Name: NRWF PCM **Project #:** 186A **Turbine #:** 44

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



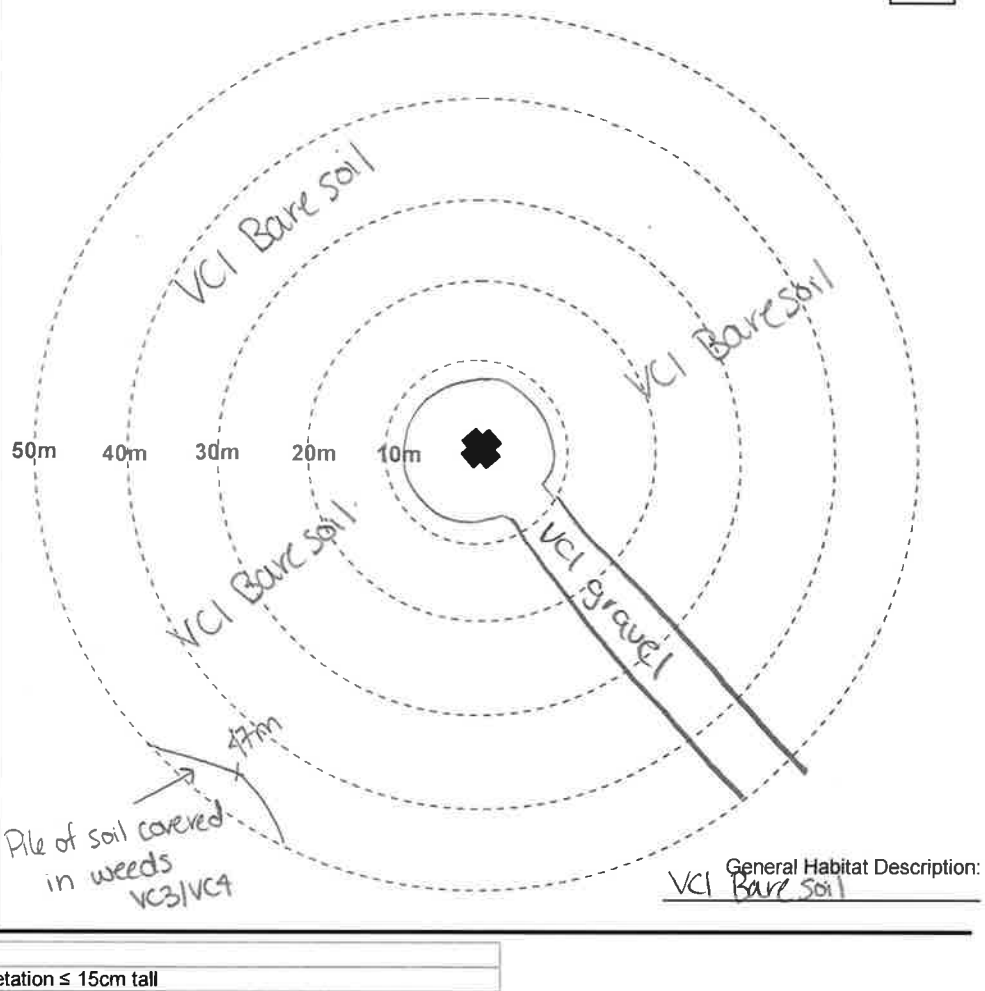
General Habitat Description: VC1 Bare field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare soil

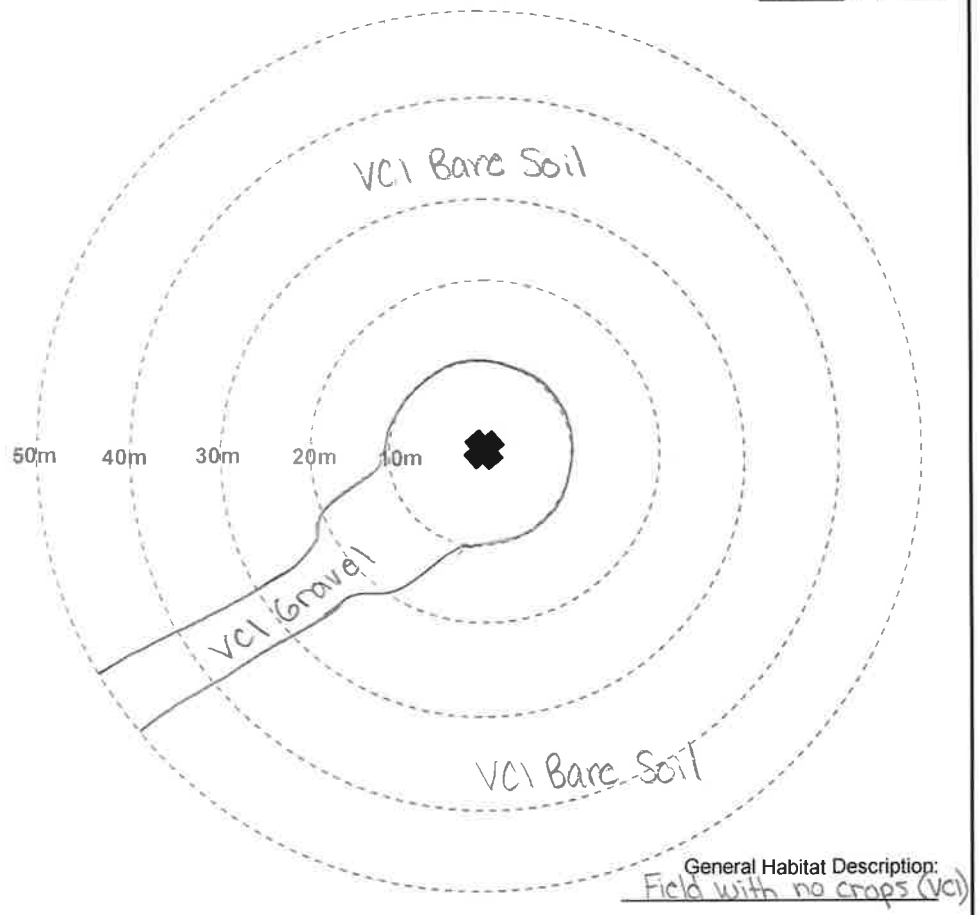
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF **Project #:** 1865A **Turbine #:** 45 **Degree of Slope** Ø **degrees** **Slope Orientation** N/A (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

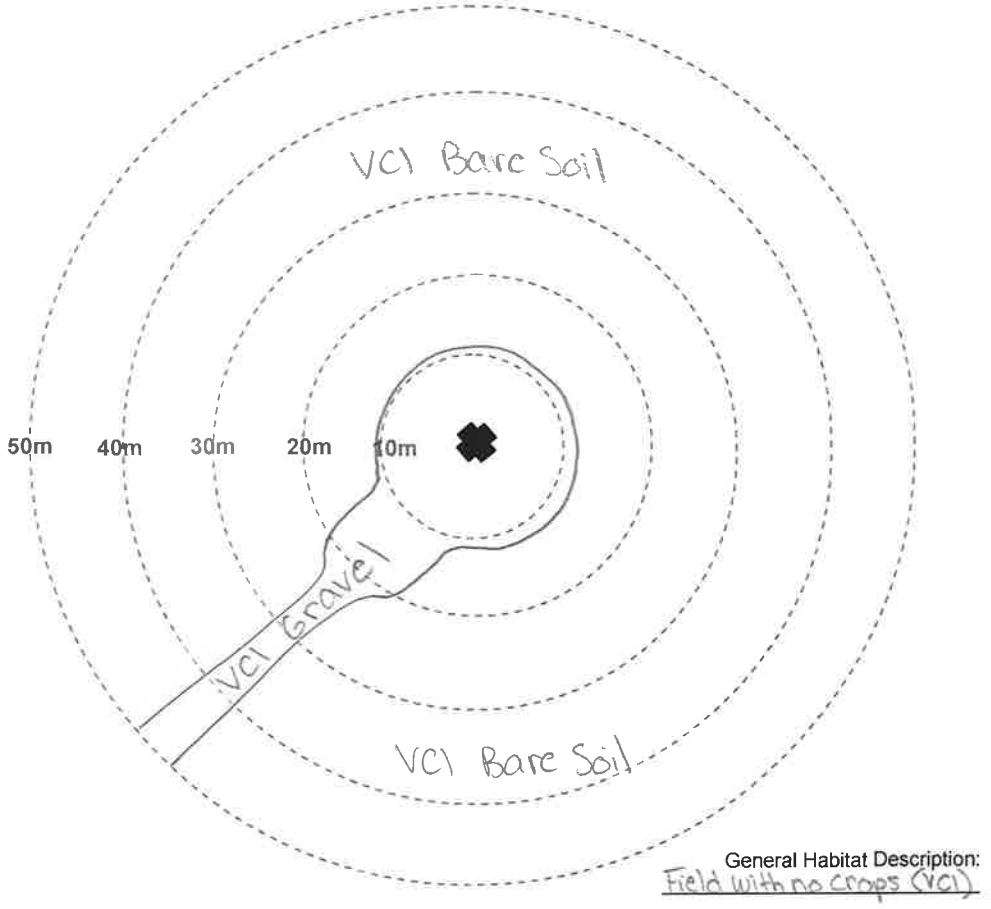
Date (DD/MM/YY): 18/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Field with no crops (VC1)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Field with no crops (VC1)

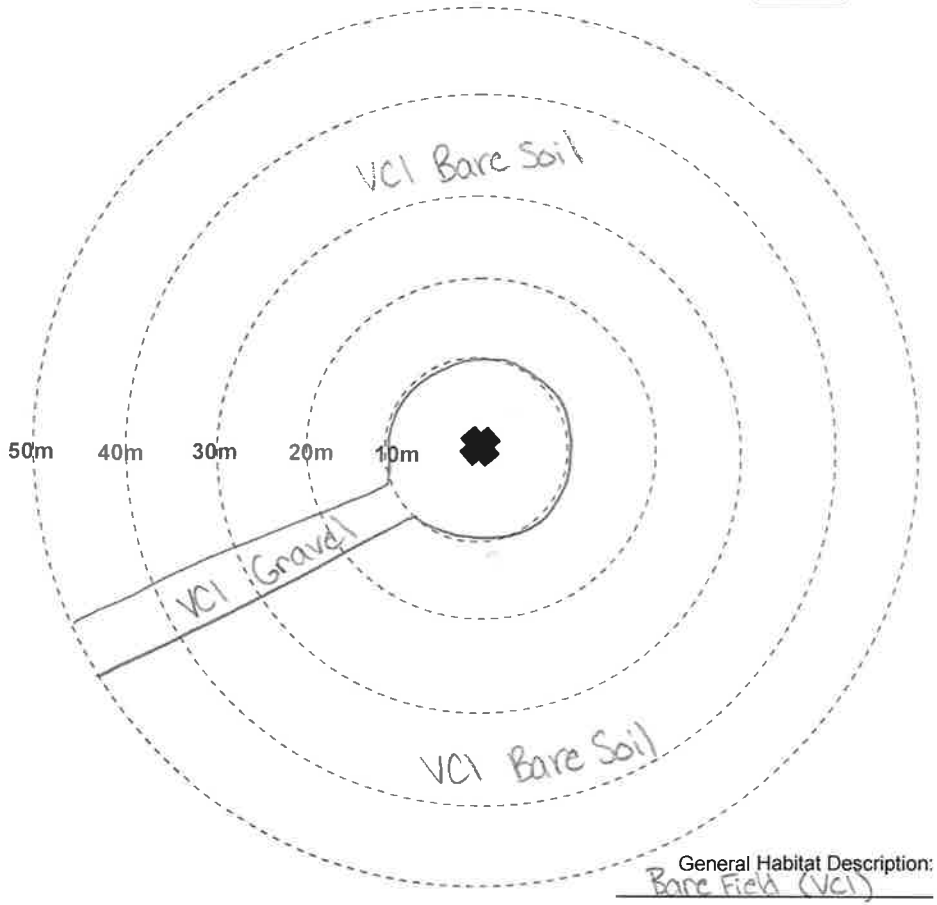
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF **Project #:** 1865A **Turbine #:** 45

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

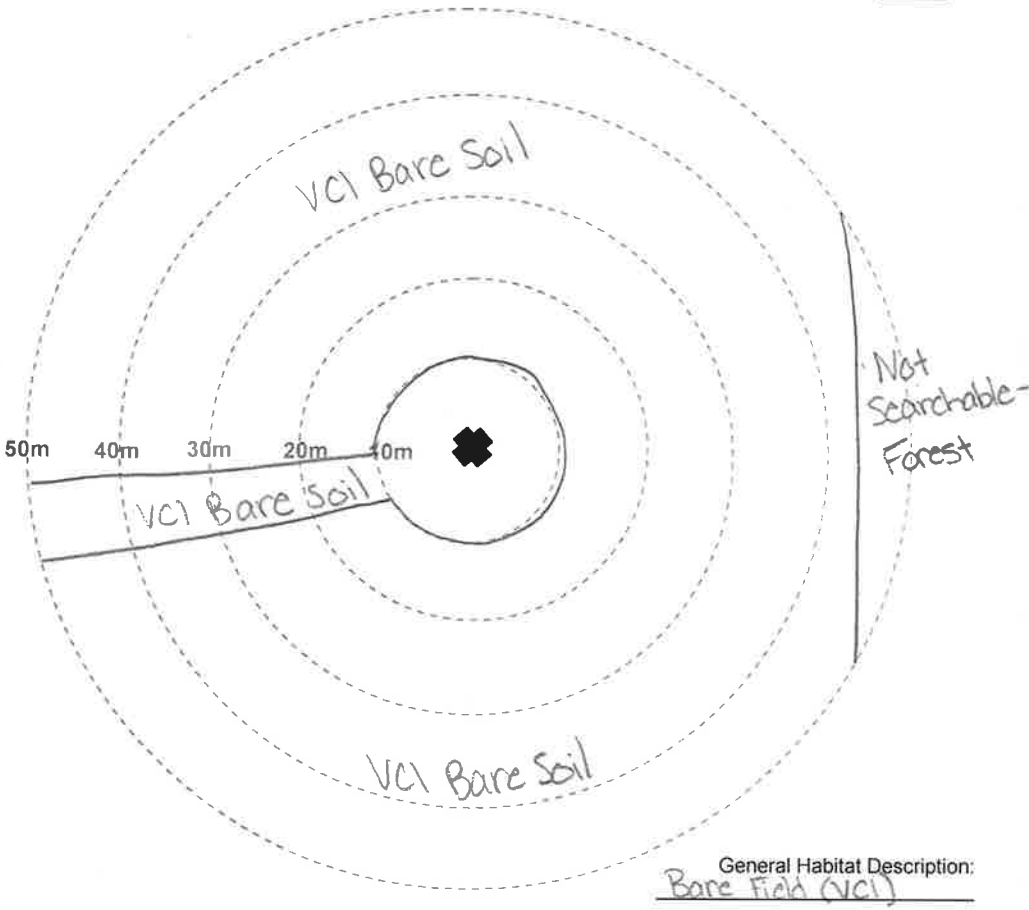
Date (DD/MM/YY): 20/07/17
Observer: Cmig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare Field (VC1)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Cmig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare Field (VC1)

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

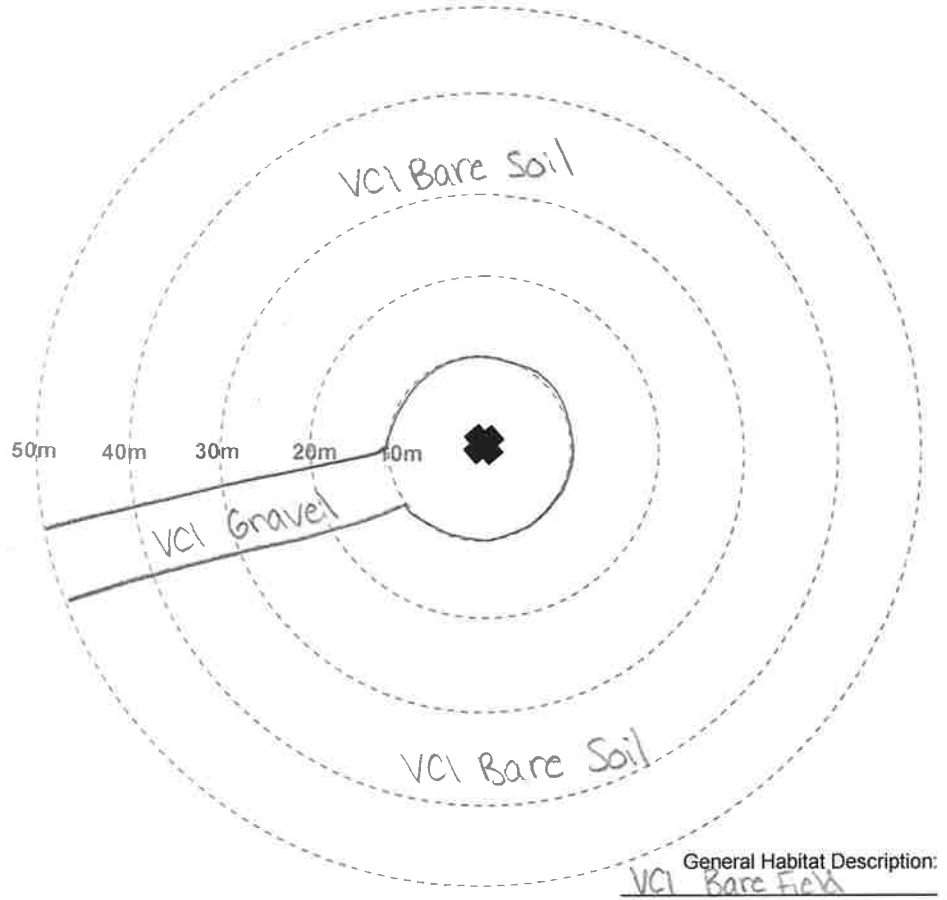
Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 45

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21 / 09 / 17

Observer: Cmig M

Monthly/Seasonal Linear Transect Width: 5 m



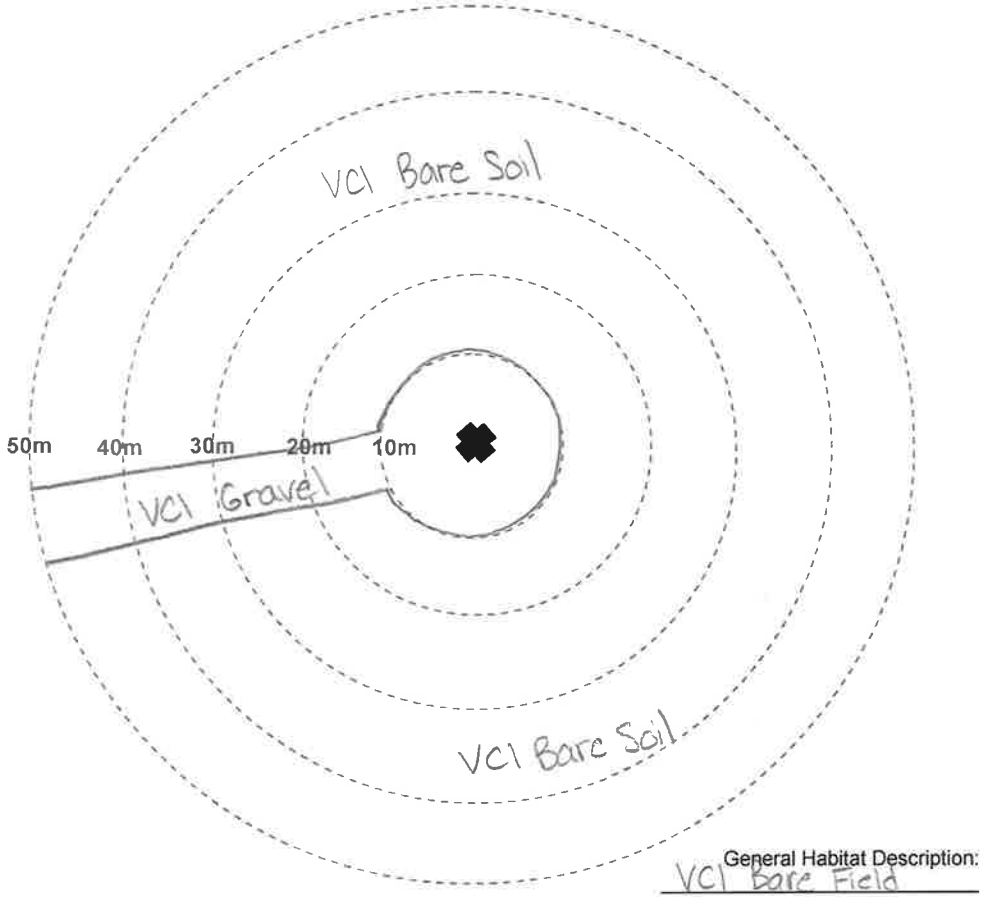
General Habitat Description: VC1 Bare Field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23 / 10 / 17

Observer: Cmig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Field

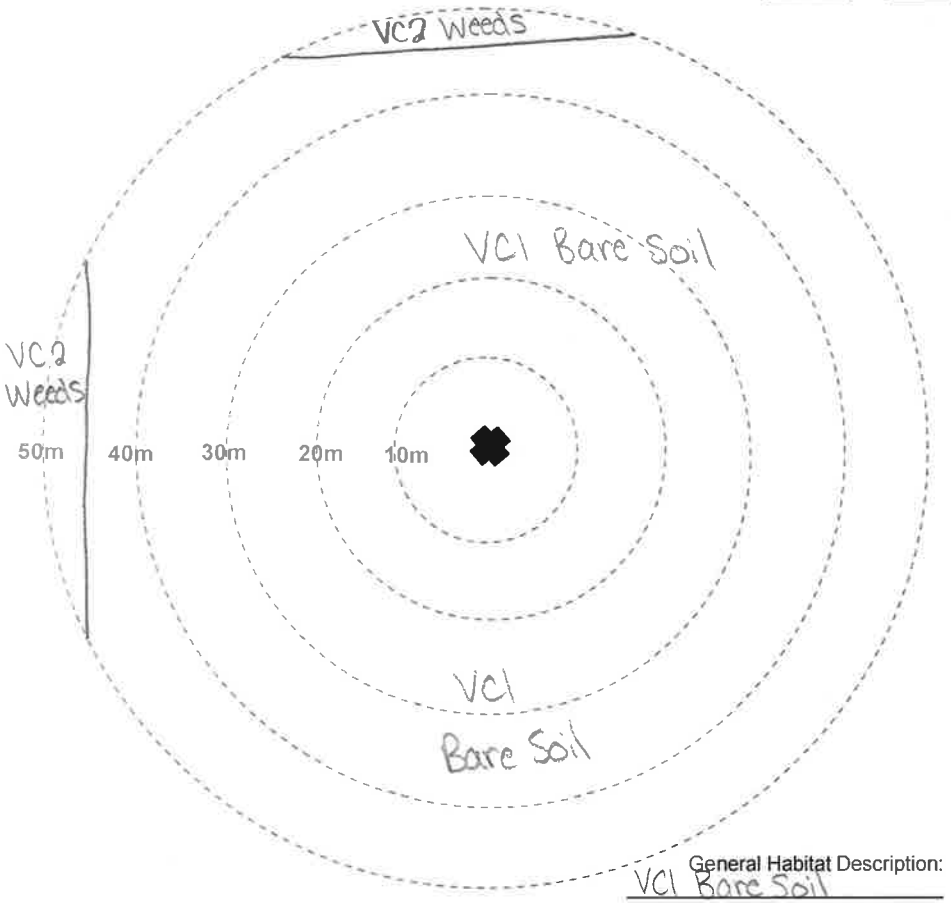
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 57 **Degree of Slope** 2 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

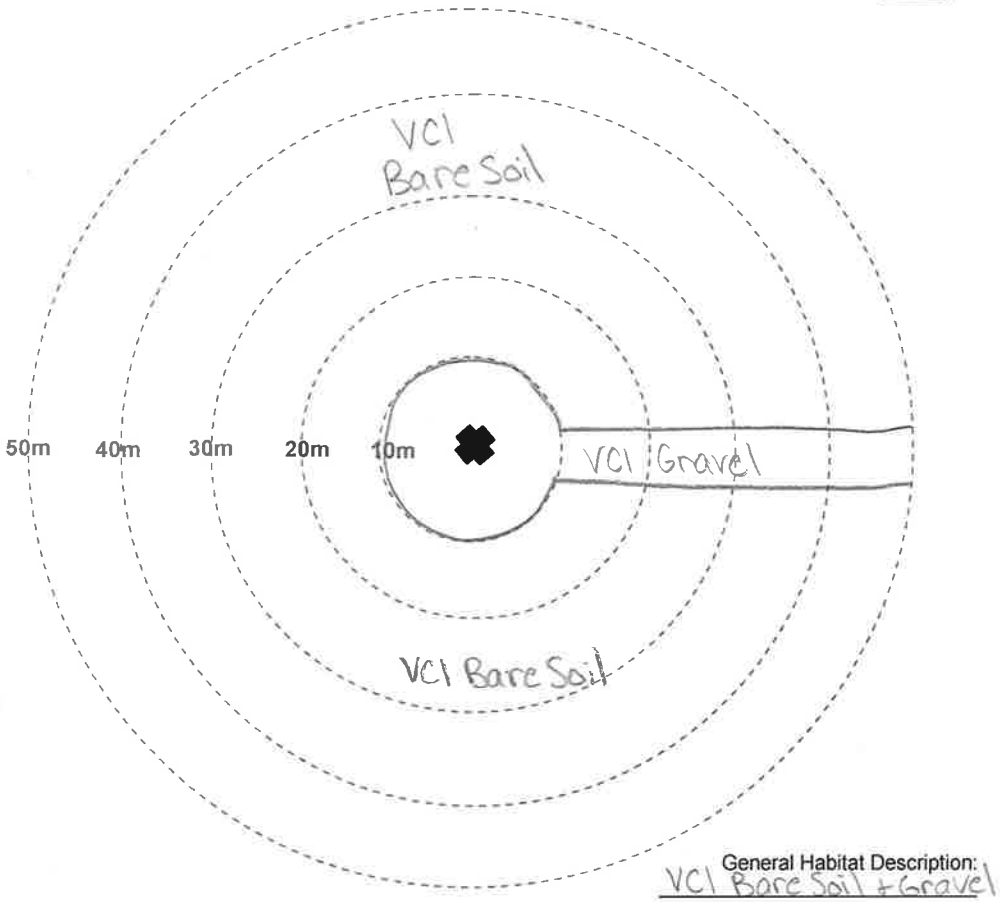
Date (DD/MM/YY): 16/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Hannah P.
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil + Gravel

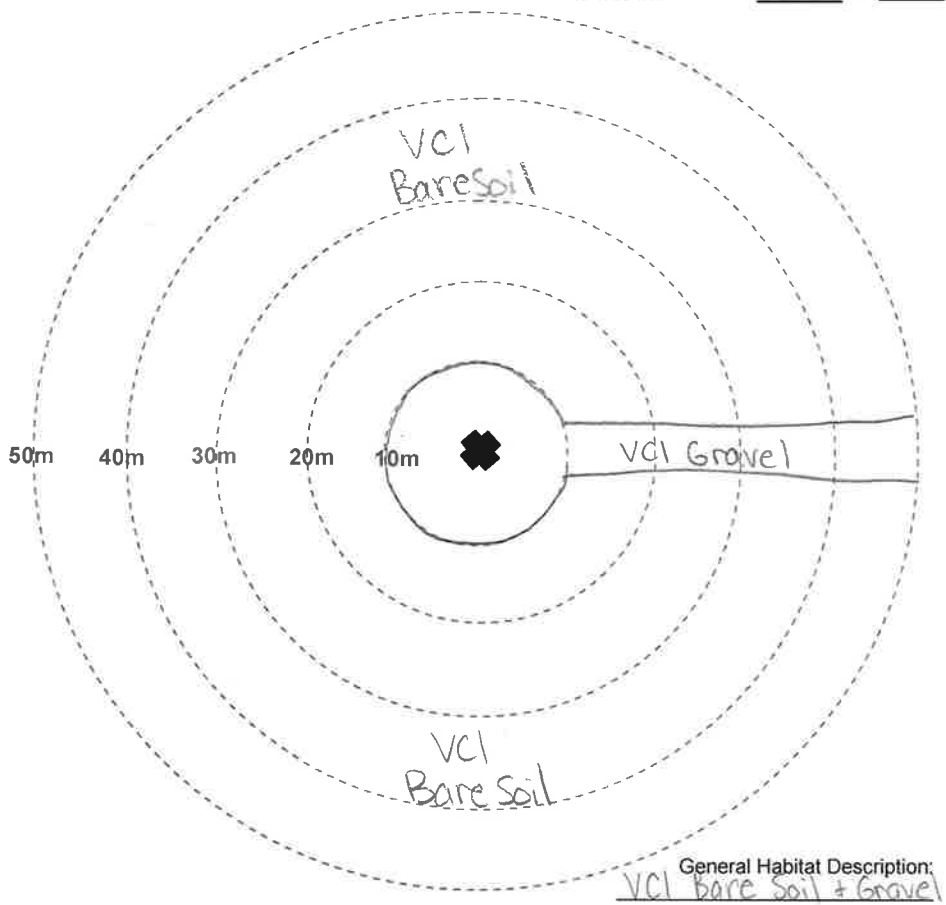
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 57

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

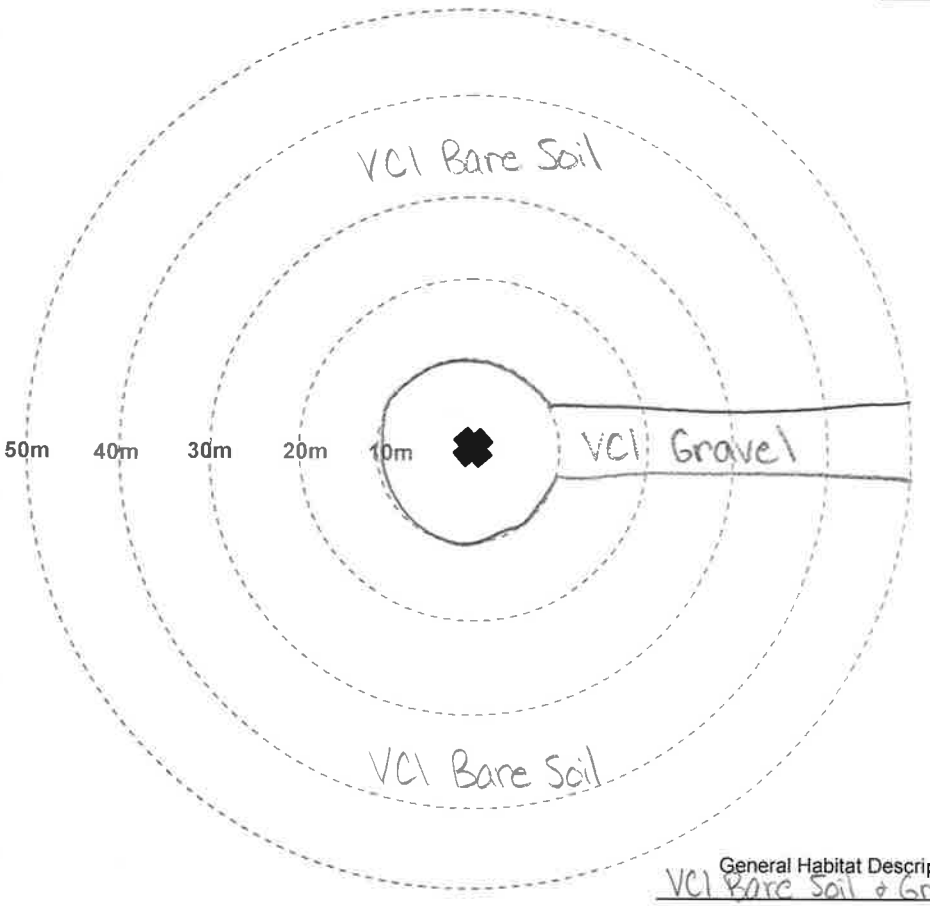
Date (DD/MM/YY): 18/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCl Bare Soil + Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VCl Bare Soil + Gravel

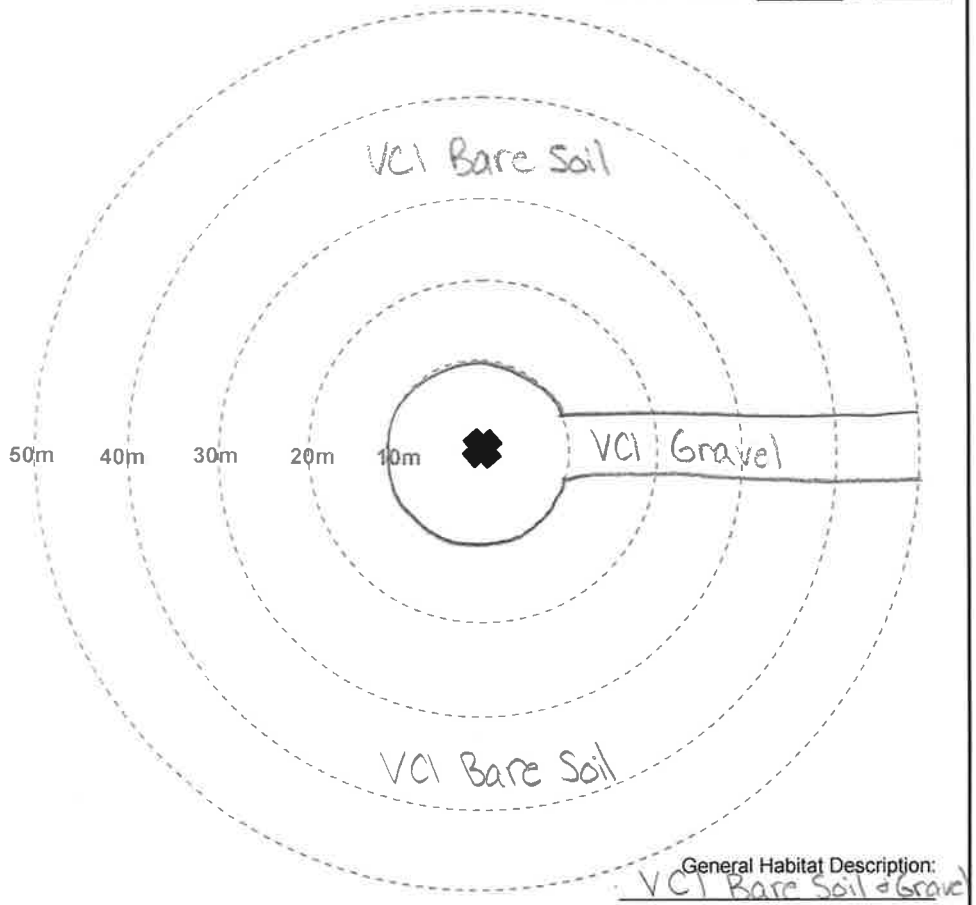
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 57

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

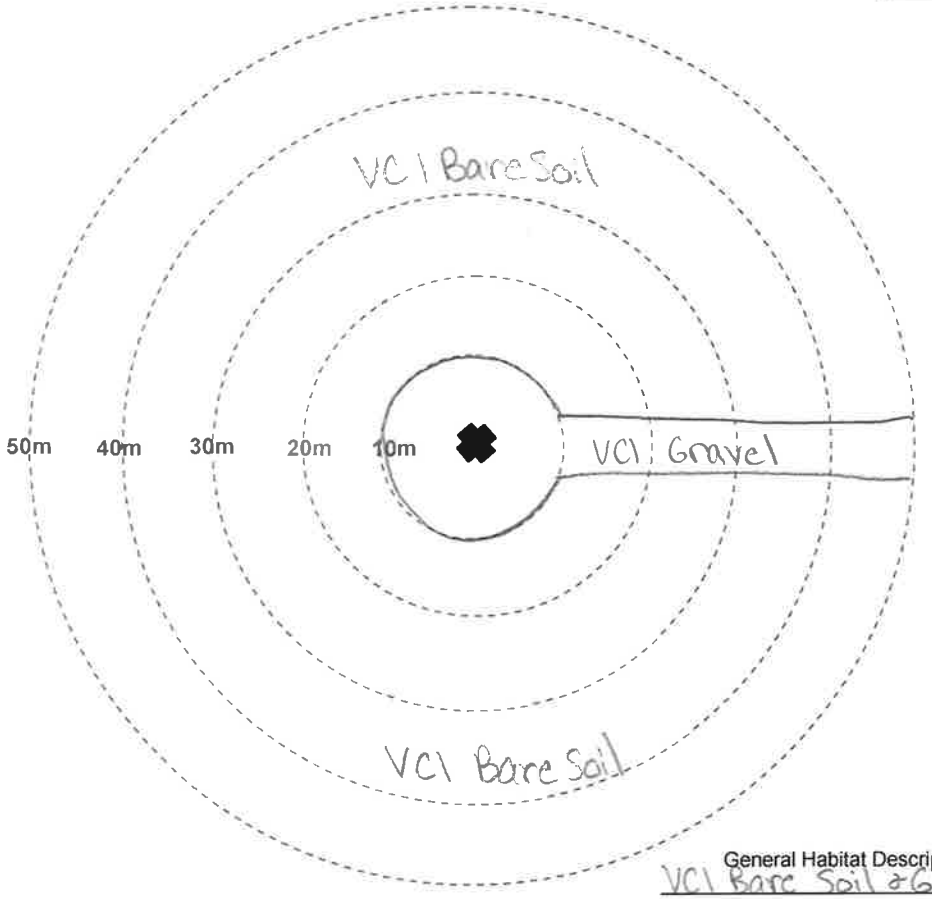
Date (DD/MM/YY): 22/09/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 27/10/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

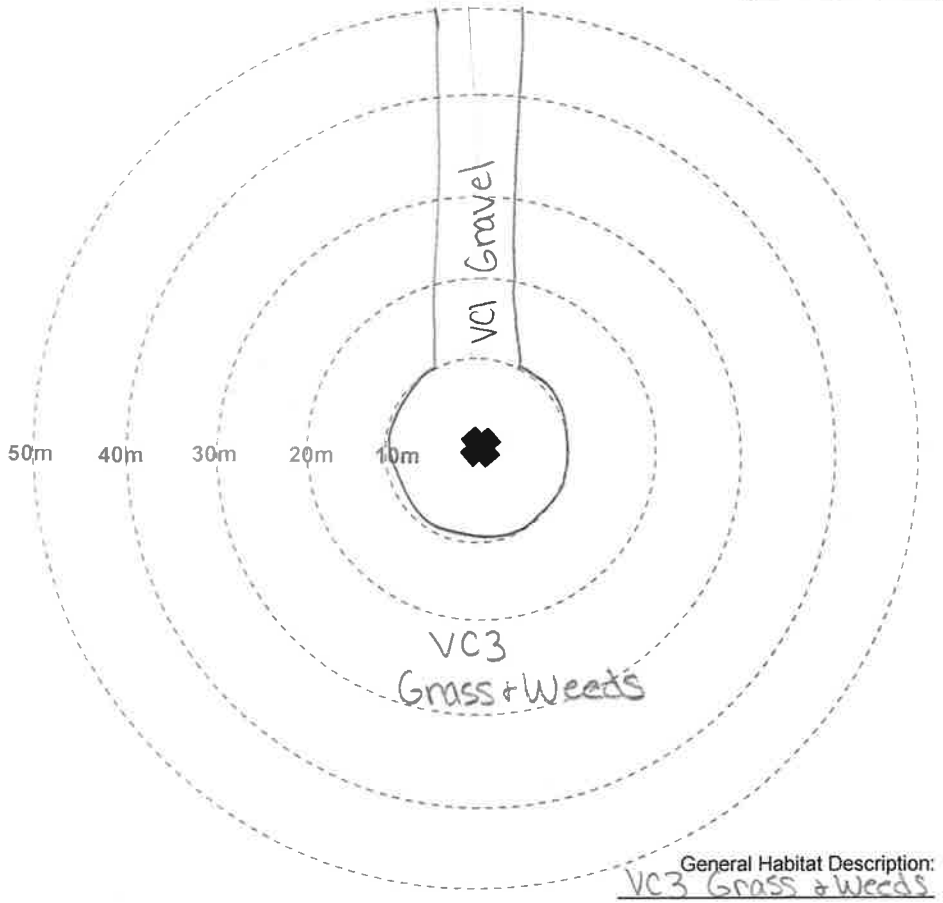
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 58 **Degree of Slope** 1 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

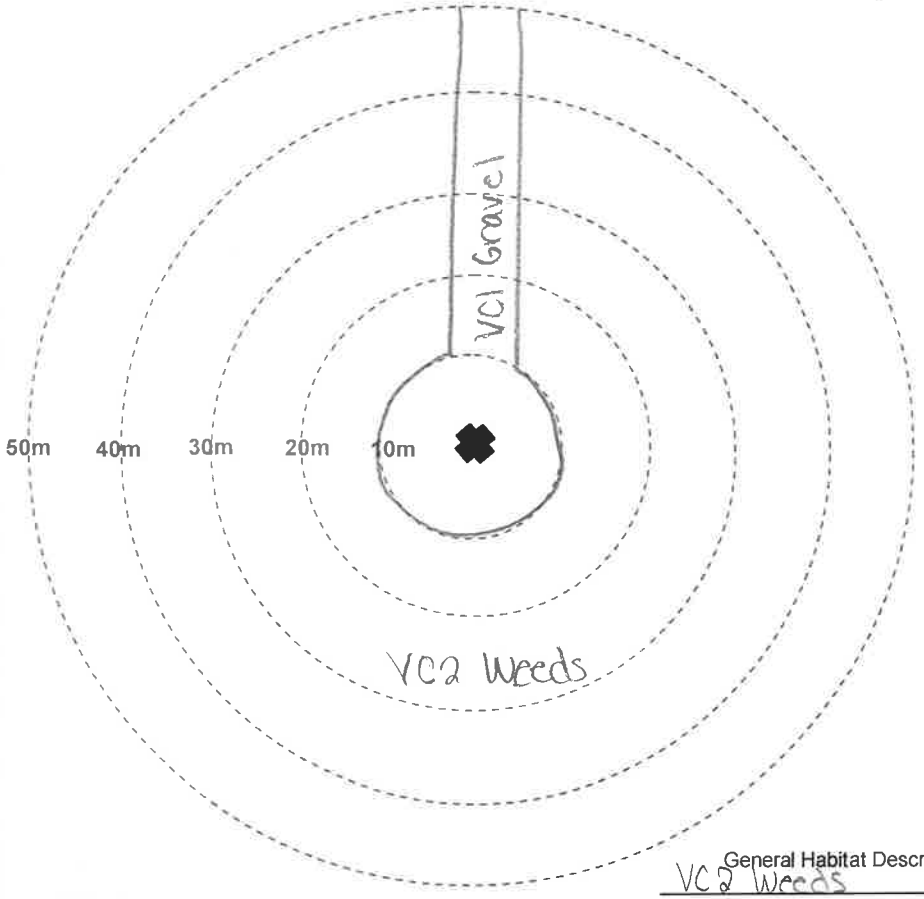
Date (DD/MM/YY): 16/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC3 Grass + Weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

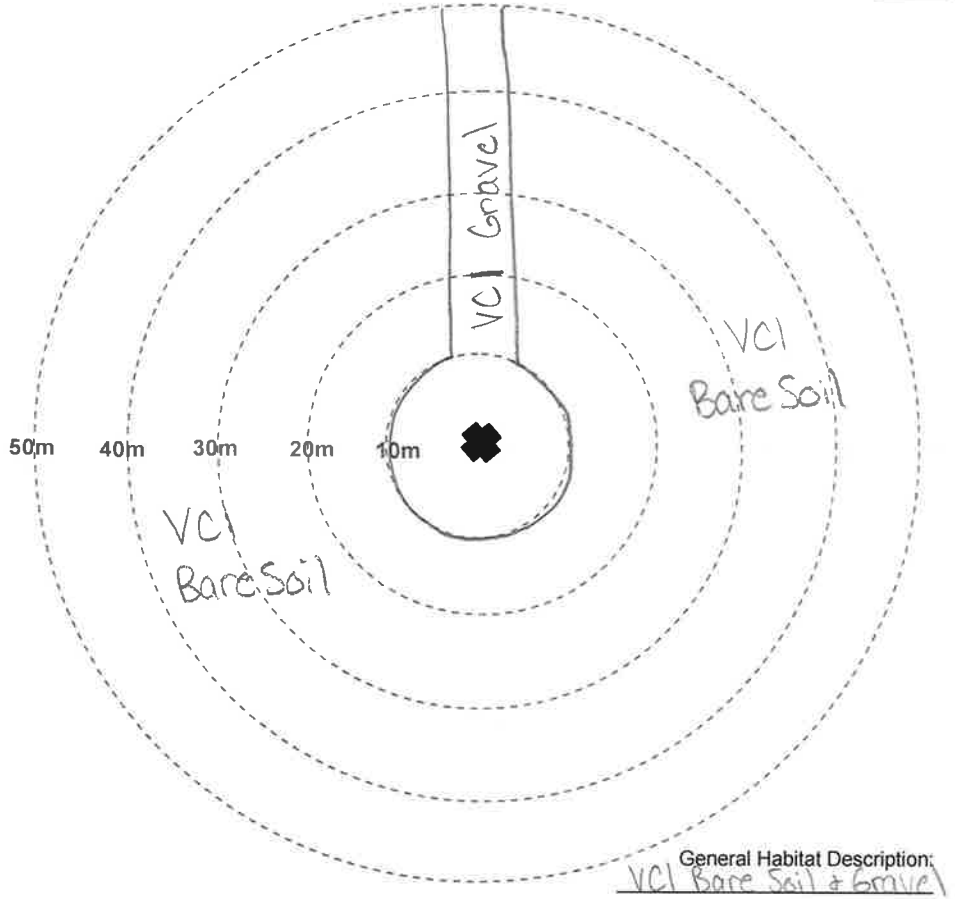
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 58

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

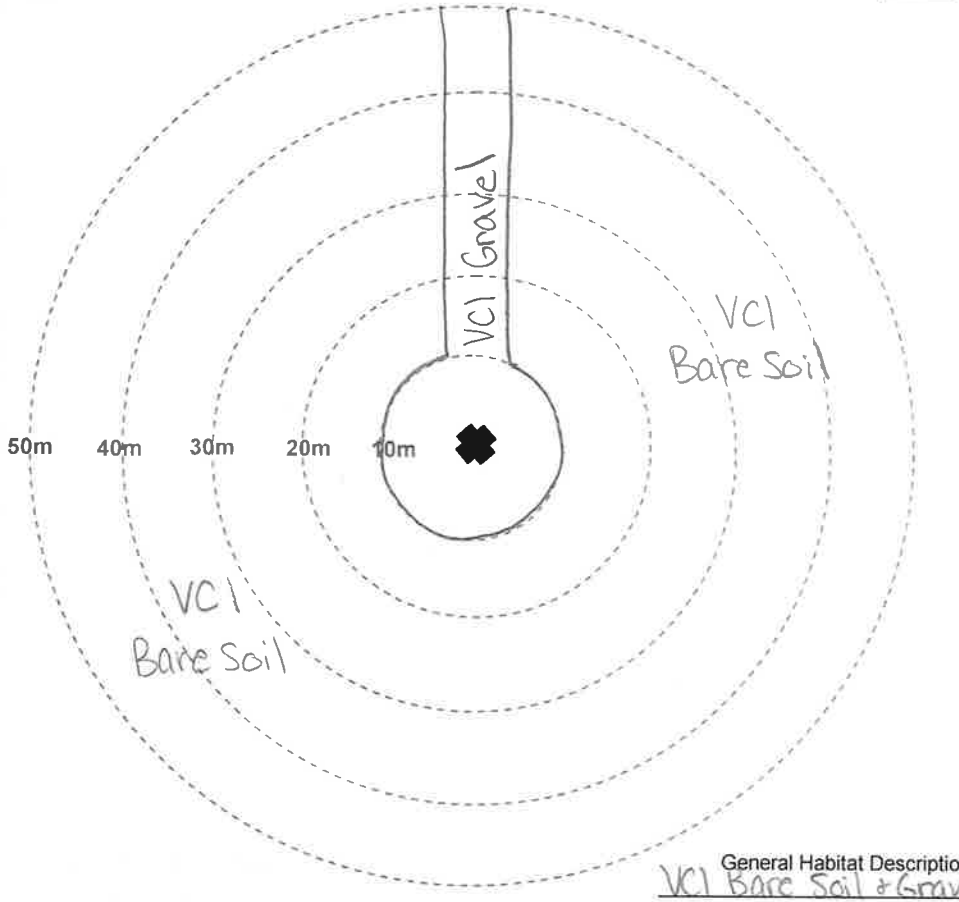
Date (DD/MM/YY): 18/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

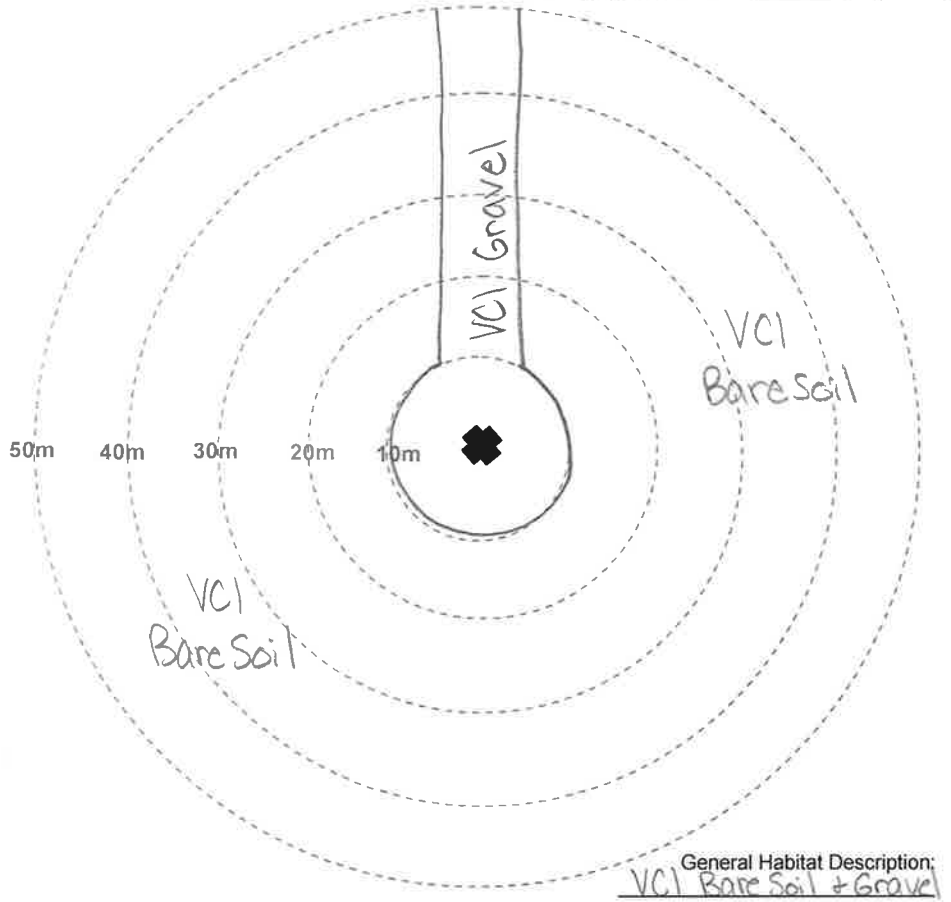
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 58

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

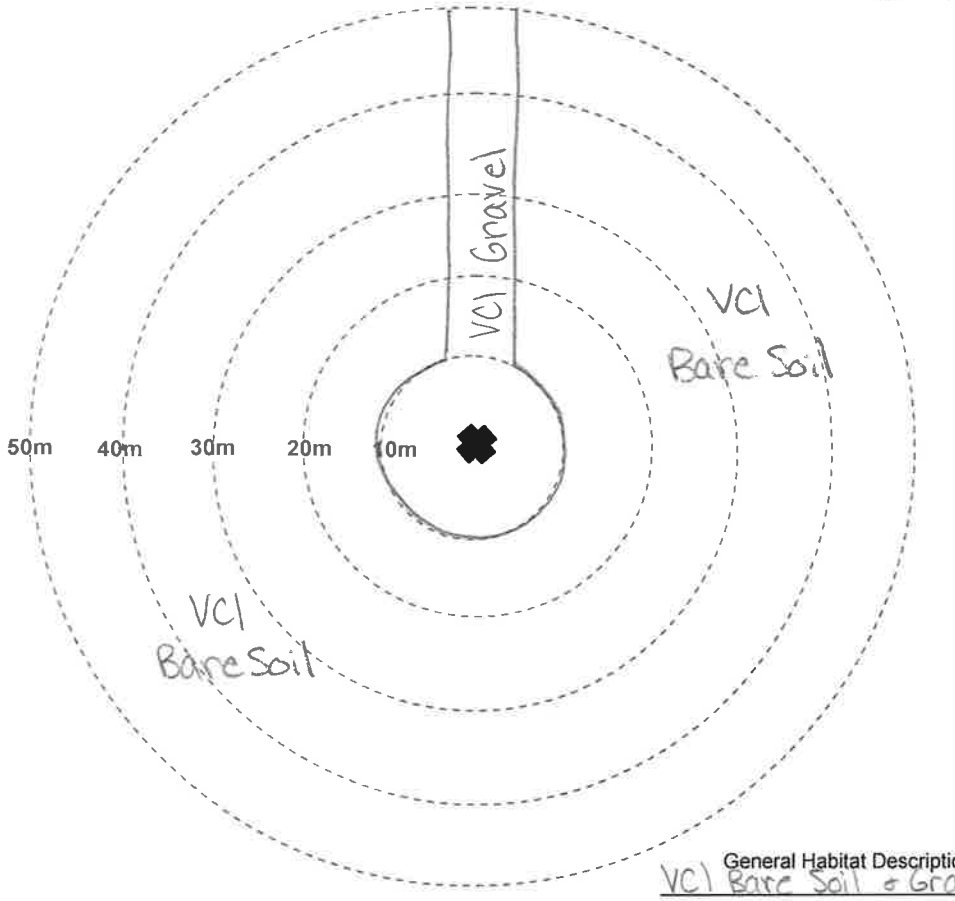
Date (DD/MM/YY): 22/09/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil + Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 27/10/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil + Gravel

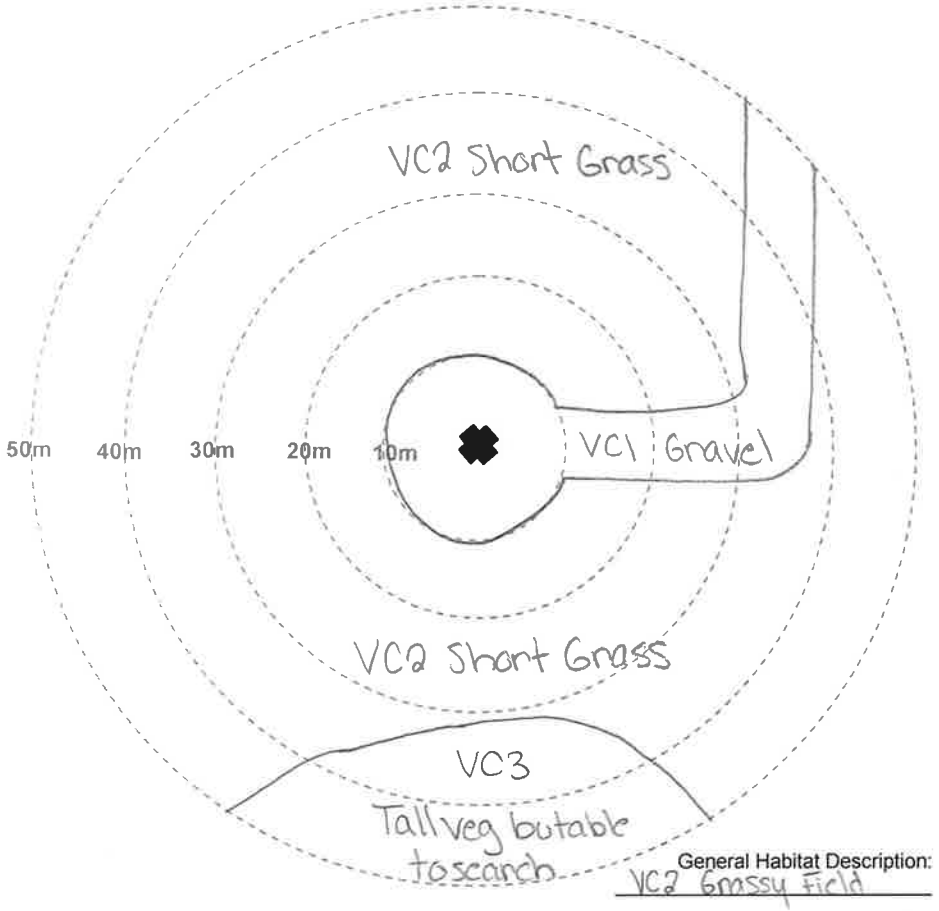
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 61 **Degree of Slope** 1 **degrees** **Slope Orientation** E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

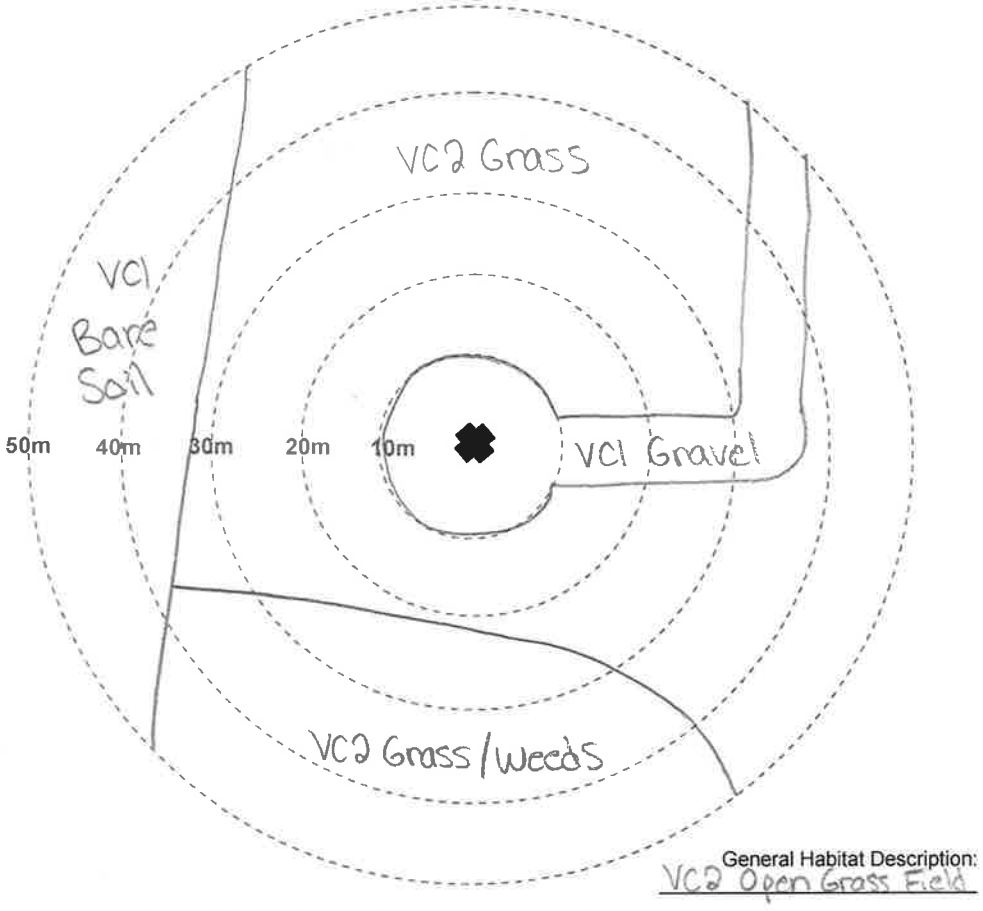
Date (DD/MM/YY): 18/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Grassy field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Open Grass Field

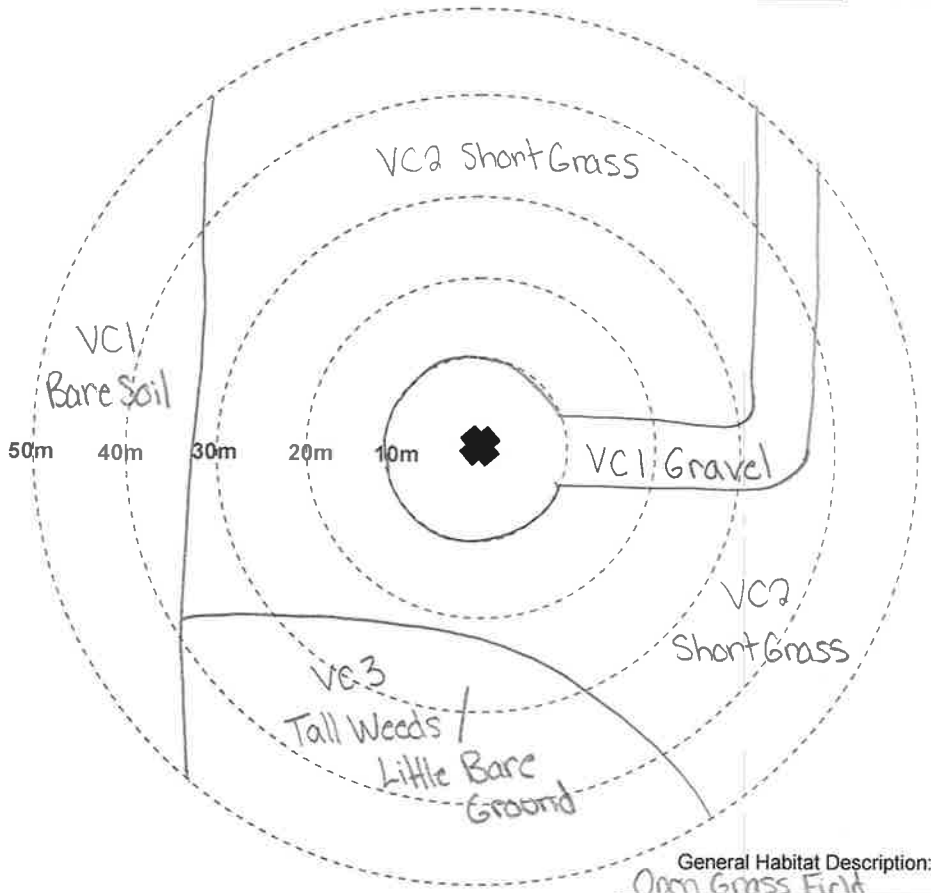
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NBWF PCM **Project #:** 1865A **Turbine #:** 61

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

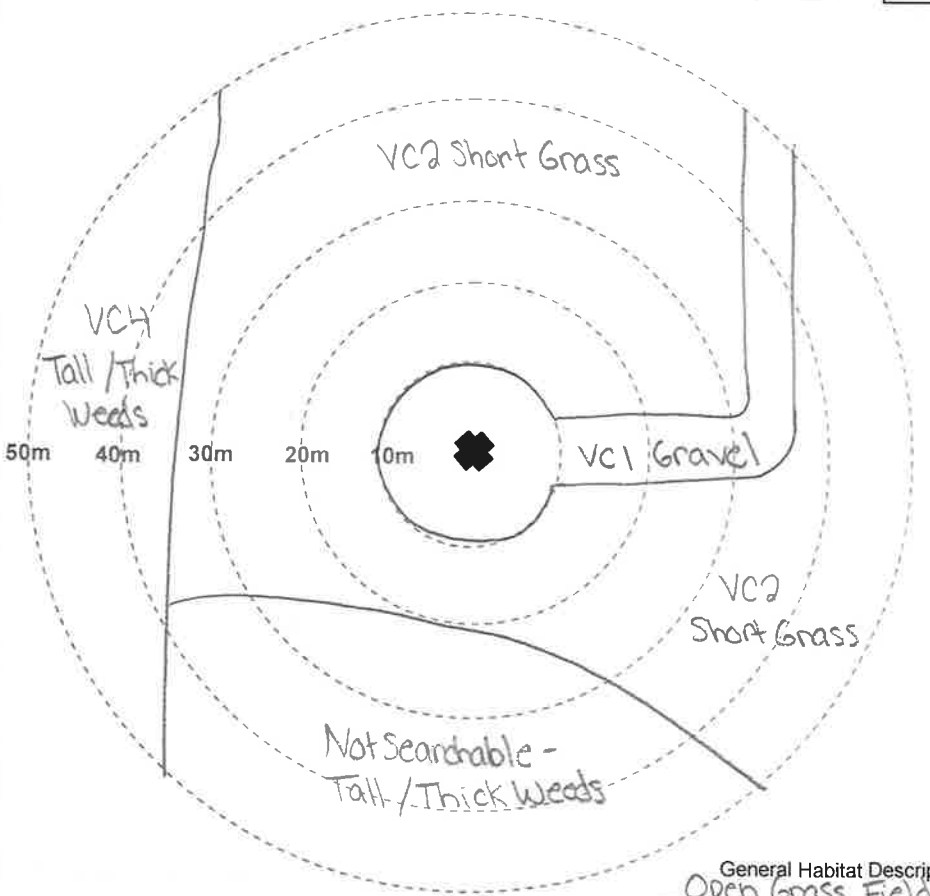
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Open Grass Field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Open Grass Field

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

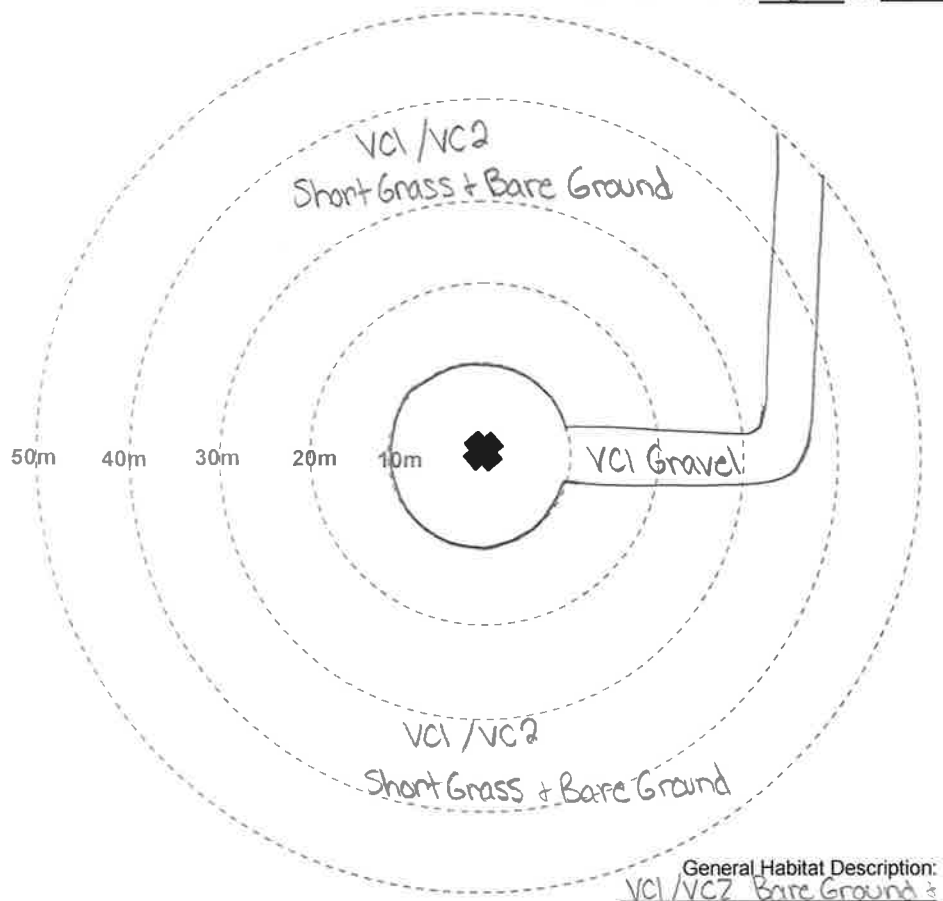
(50% of habitat is VC4 or not searchable)
→ landowner trimmed area but only where it is VC2

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 61

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

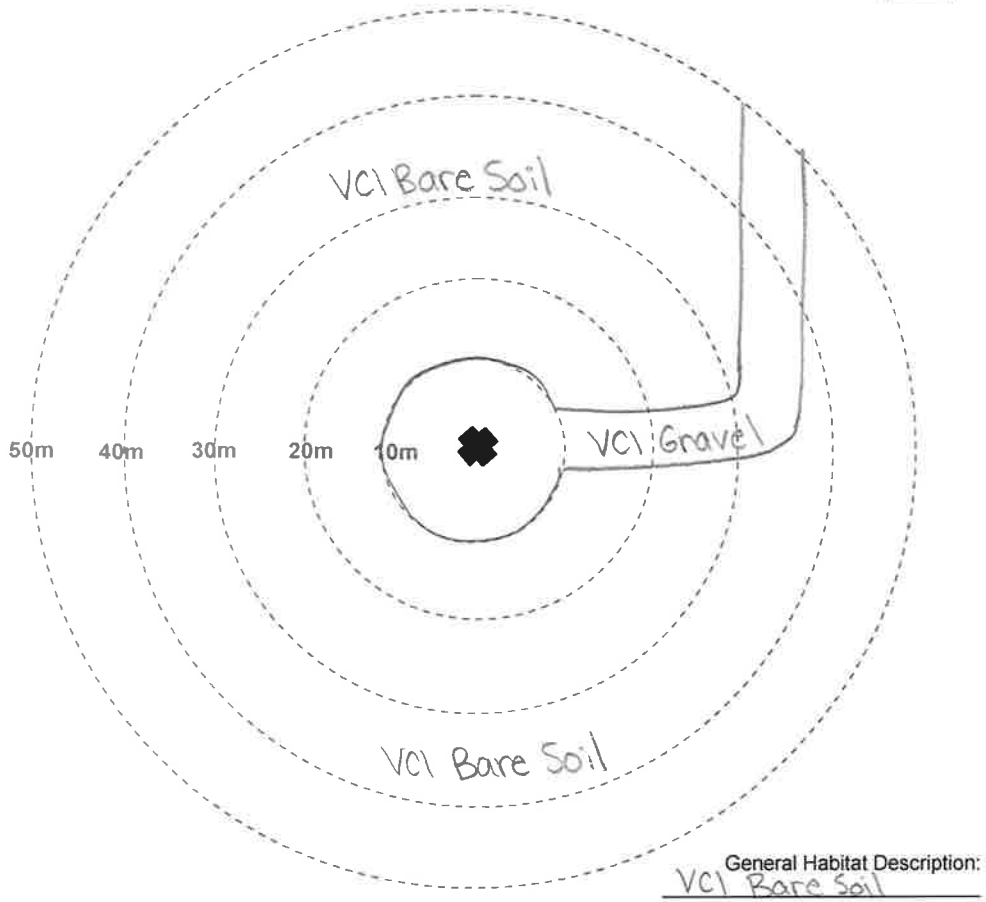
Date (DD/MM/YY): 21/09/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC2 Bare Ground + Short Grass

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

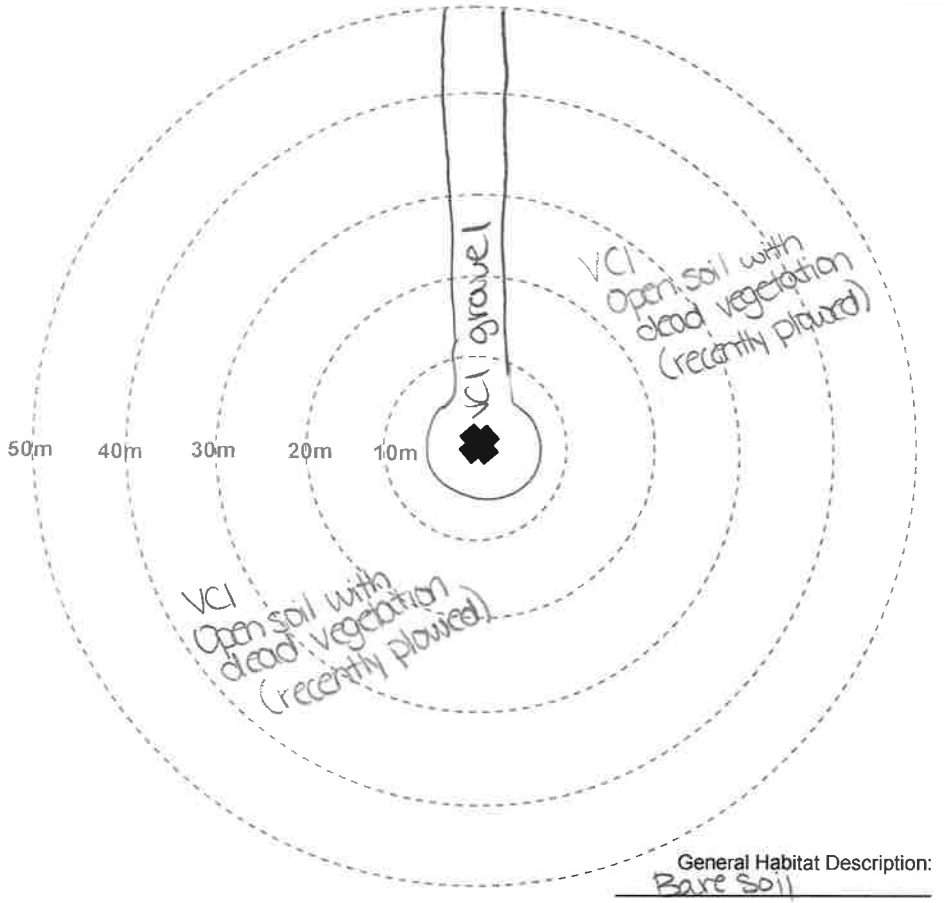
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 62 **Degree of Slope** 1 **degrees** **Slope Orientation** E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

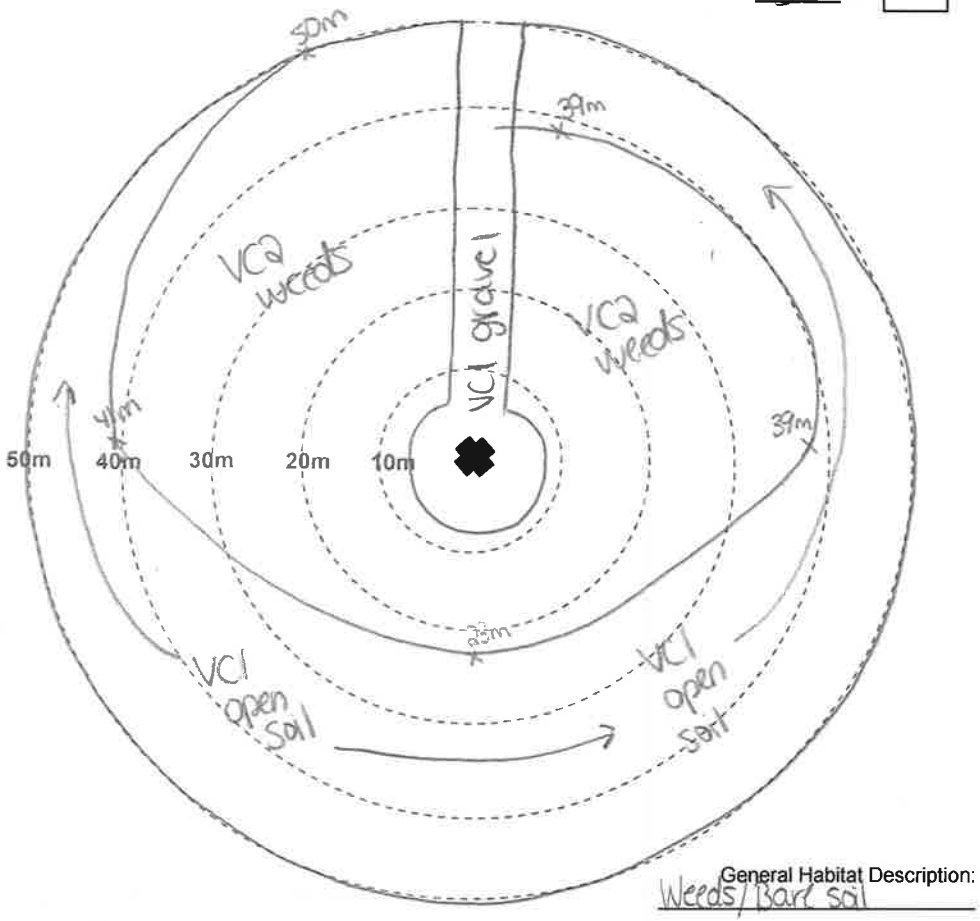
Date (DD/MM/YY): 19/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Weeds/Bare soil

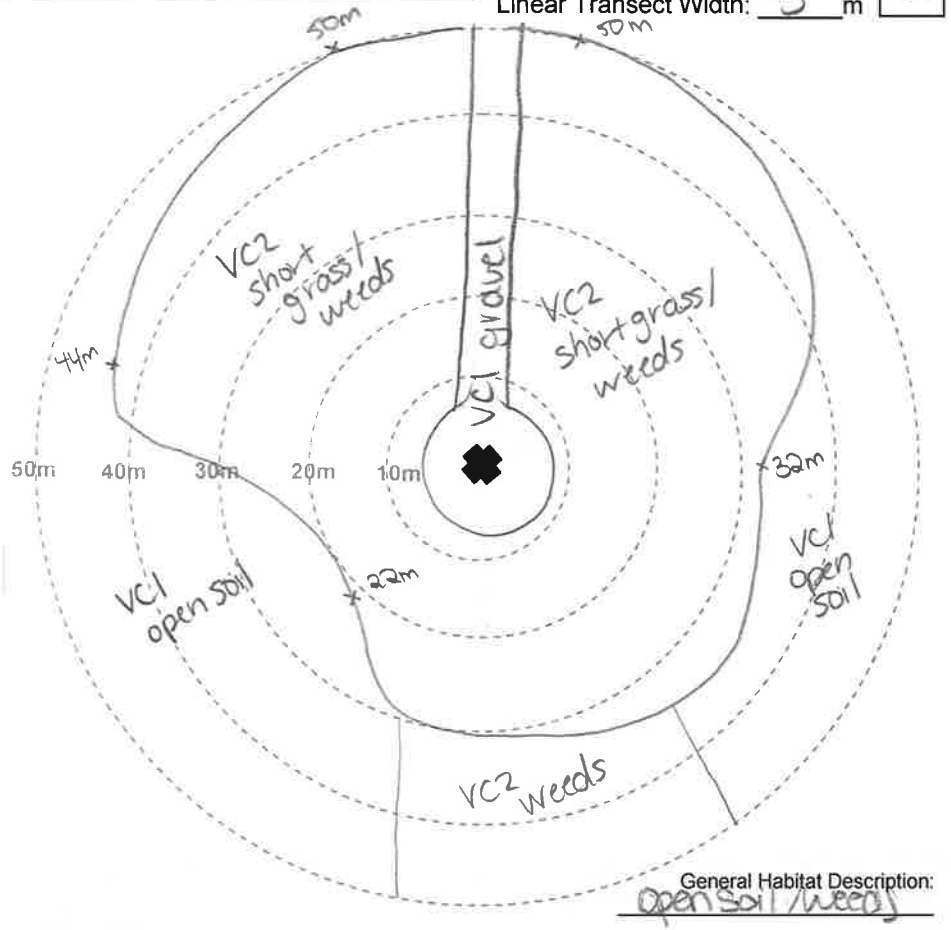
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 62

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

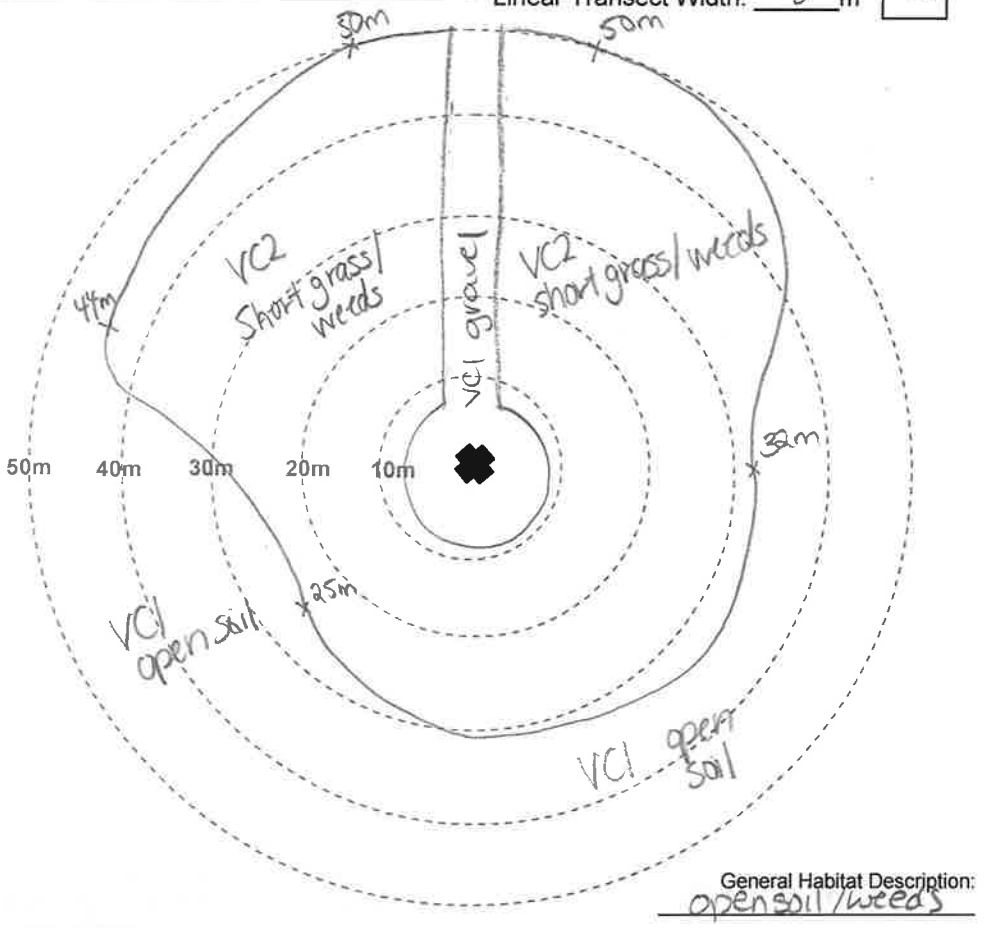
Date (DD/MM/YY): 18/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: open soil / weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: open soil / weeds

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

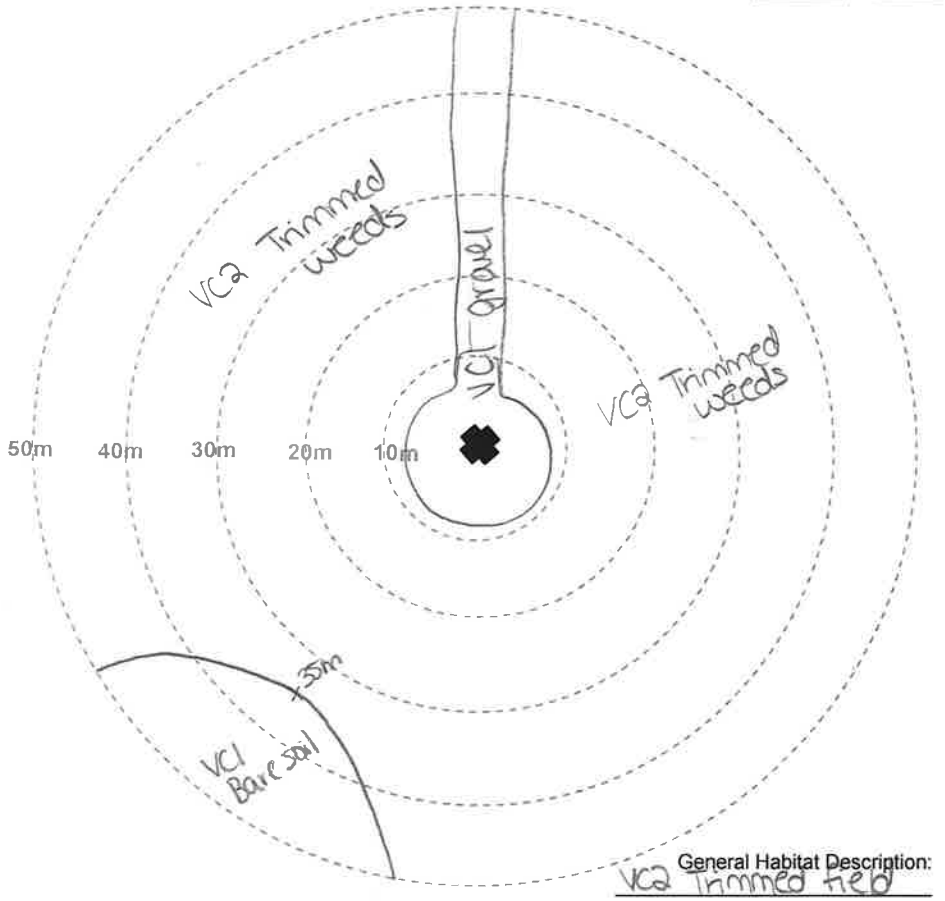
Project Name: NRWF PCM **Project #:** 18EA **Turbine #:** 62

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/09/17

Observer: Craig M

Monthly/Seasonal
Linear Transect Width: 5 m



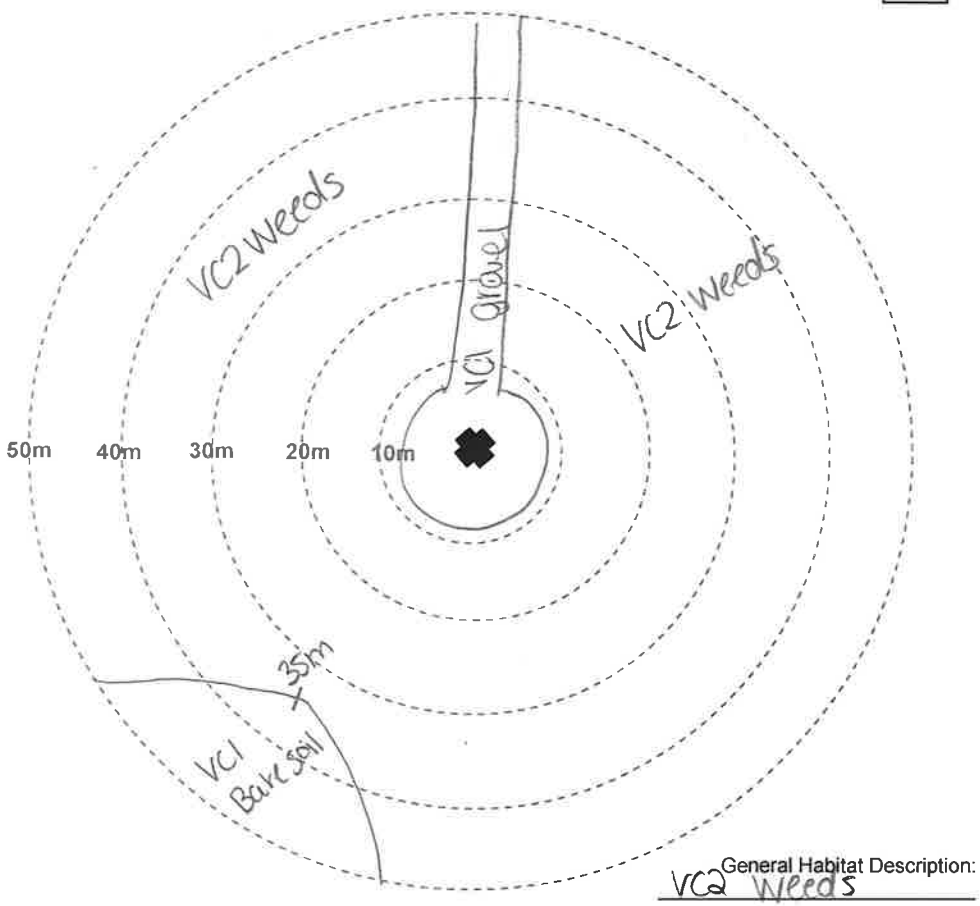
General Habitat Description: VC2 Trimmed field

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 24/10/17

Observer: Craig M

Monthly/Seasonal
Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

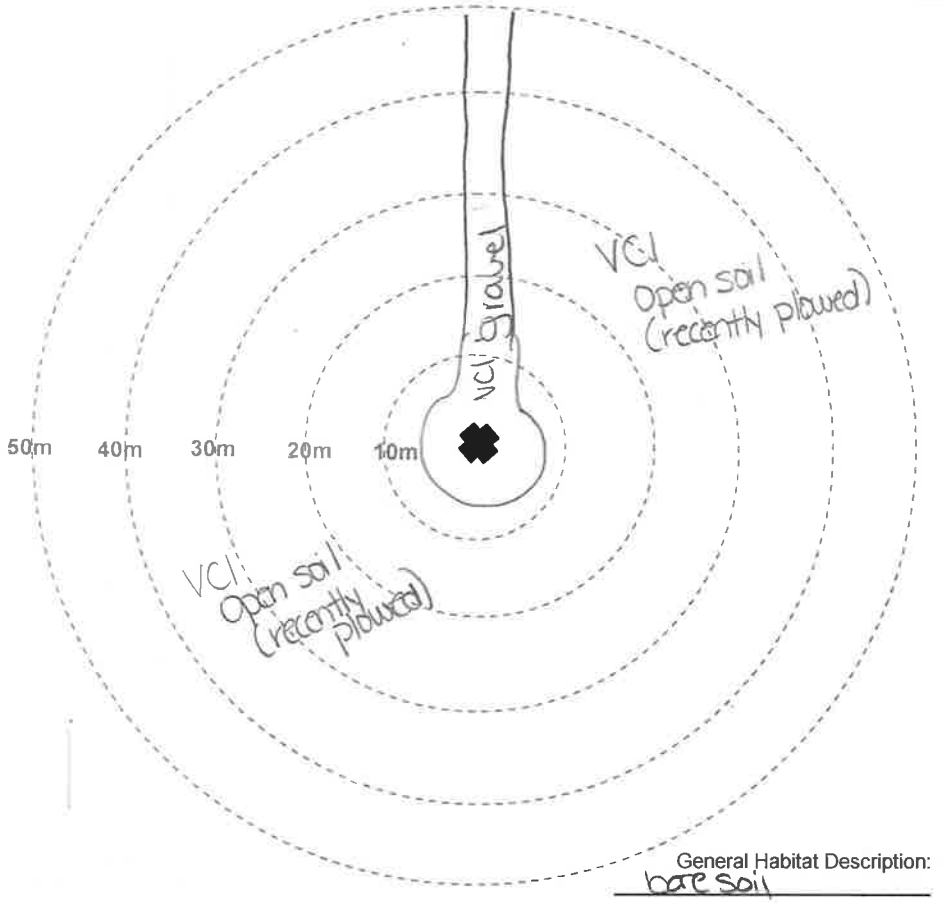
Project Name: NRWF RCM **Project #:** 1865A **Turbine #:** 63 **Degree of Slope** 1 **degrees** **Slope Orientation** N (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/05/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



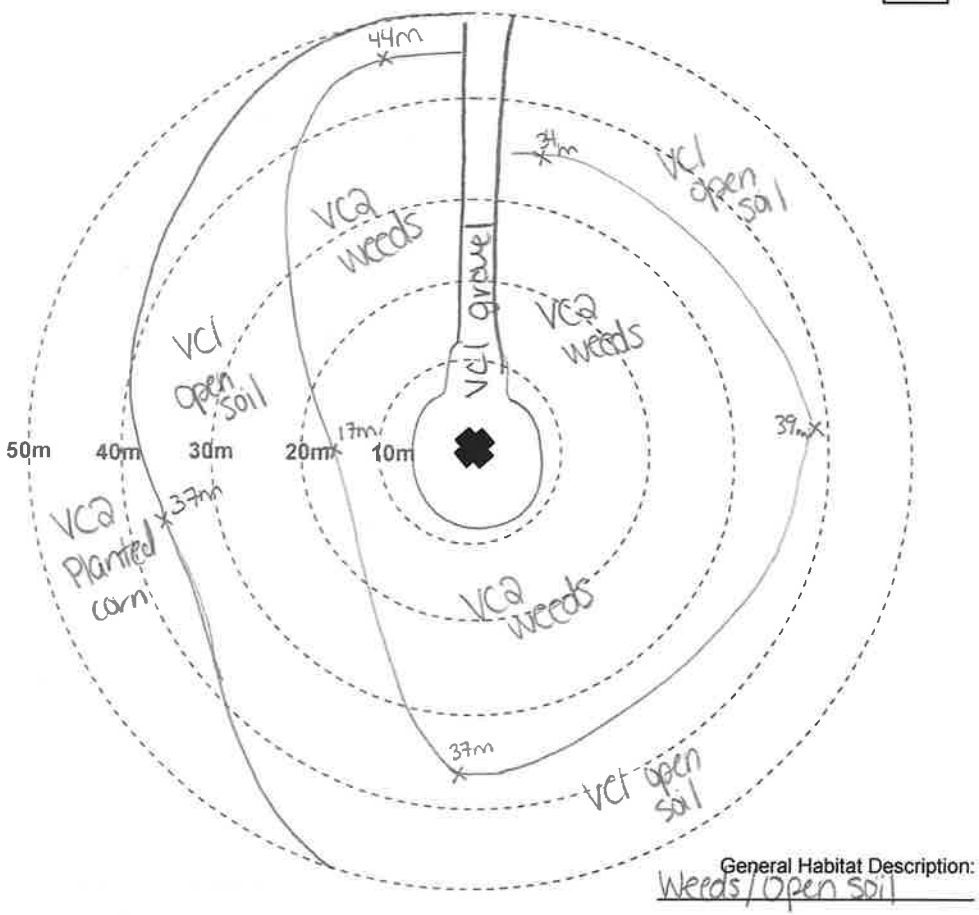
General Habitat Description: bare soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/06/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Weeds / Open soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

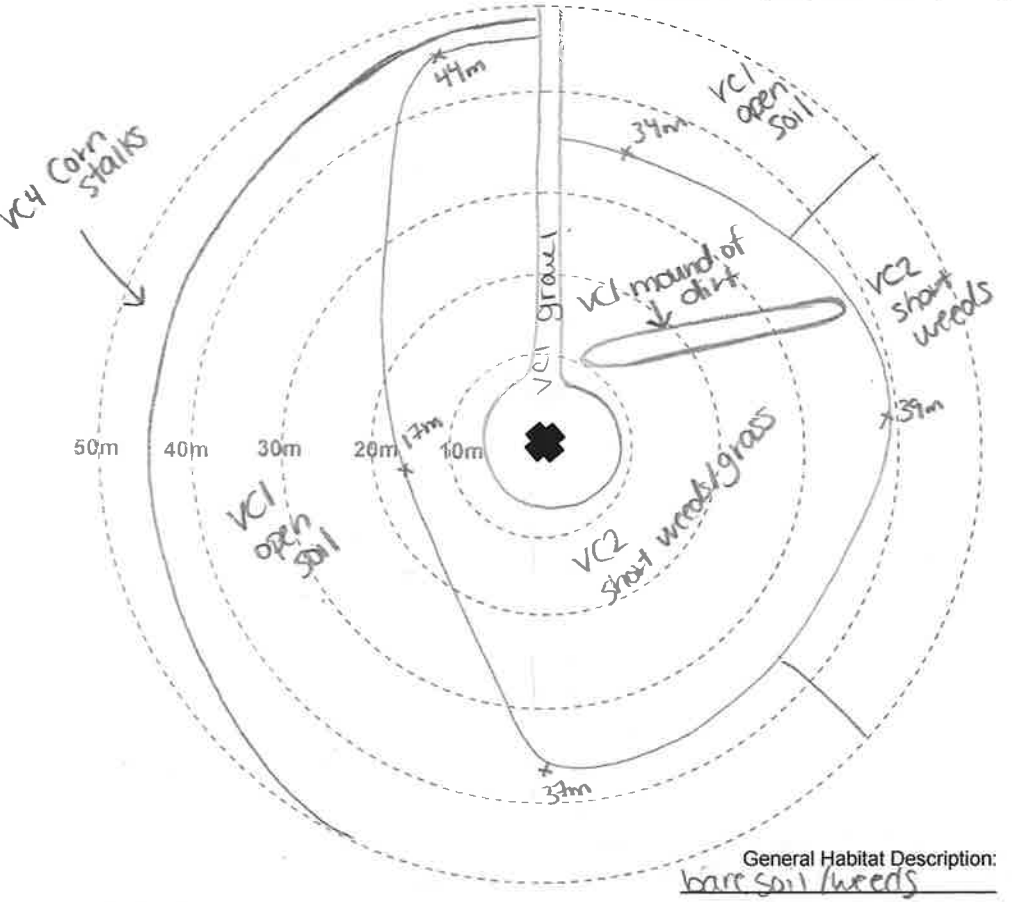
Project Name: NRWF PCM **Project #:** 186SA **Turbine #:** 63

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18/07/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



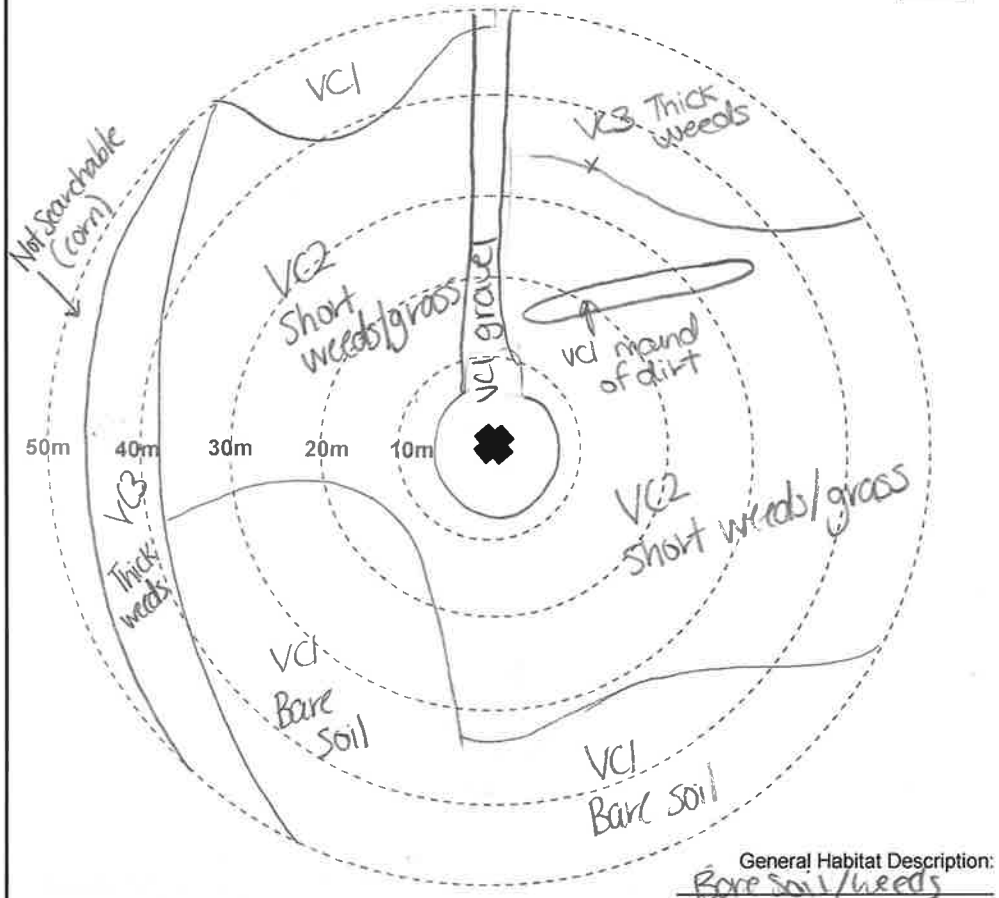
General Habitat Description: bare soil/weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Bare soil/weeds

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

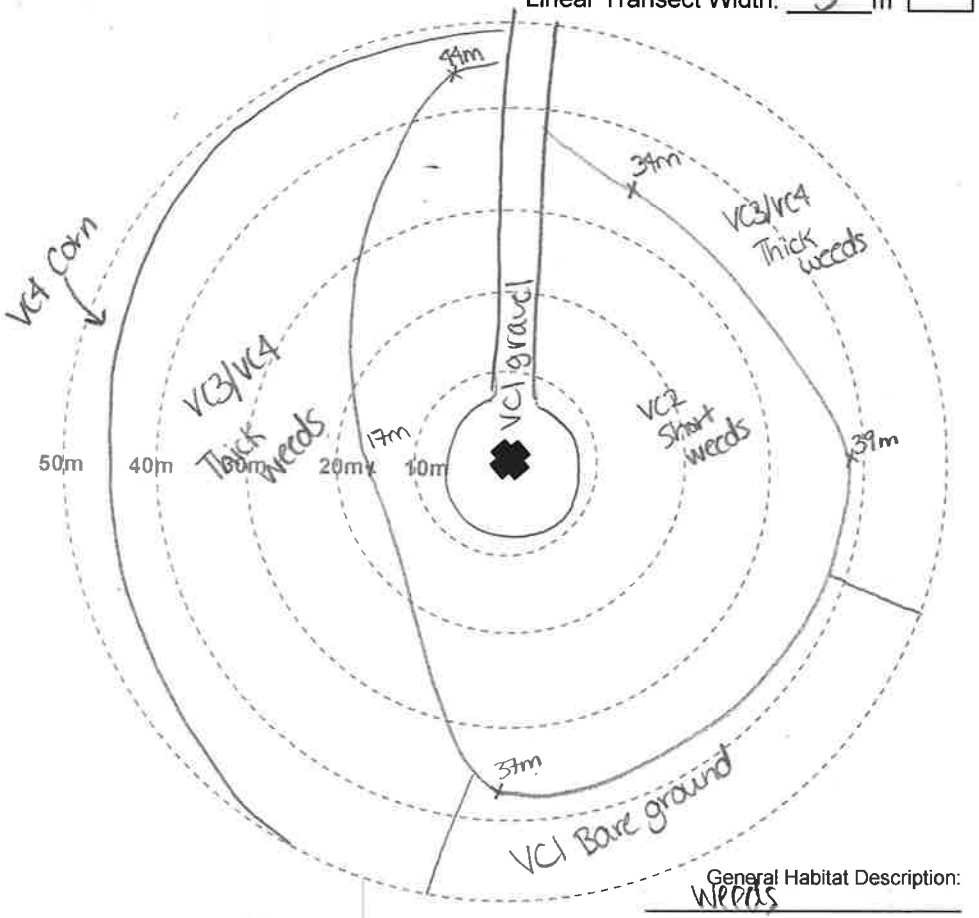
Project Name: NRWF PCN **Project #:** 1865A **Turbine #:** 63

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



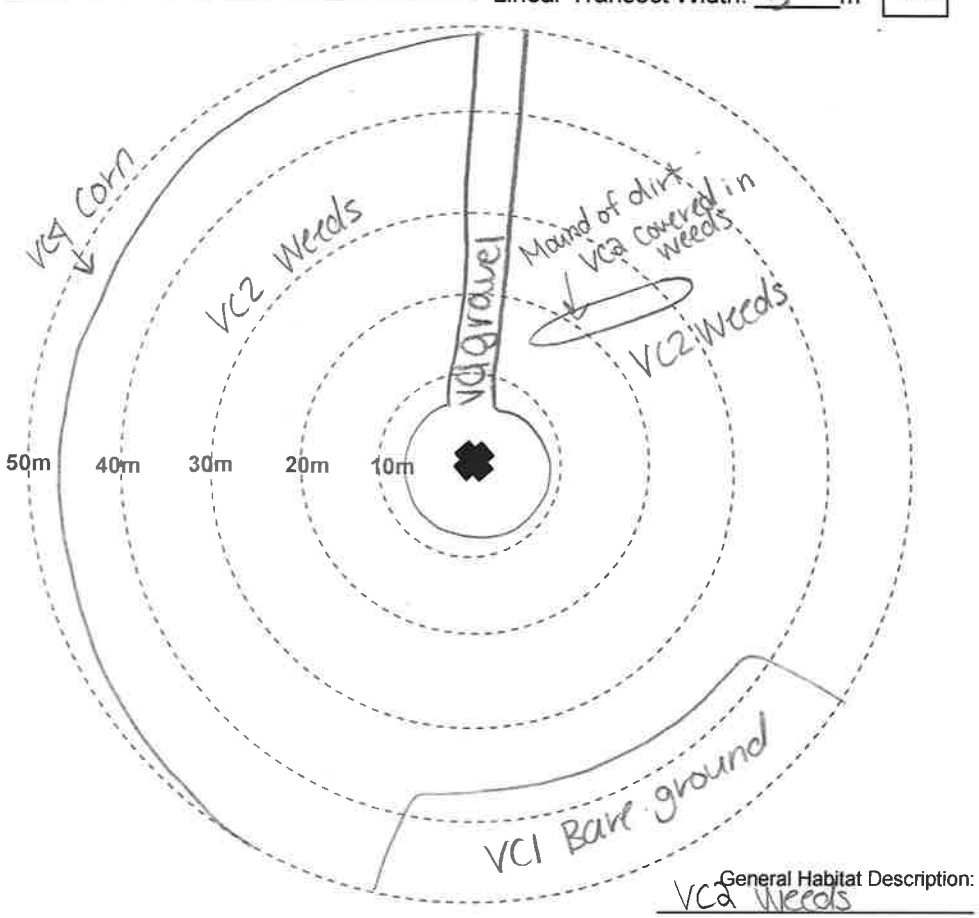
General Habitat Description: Weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 24/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

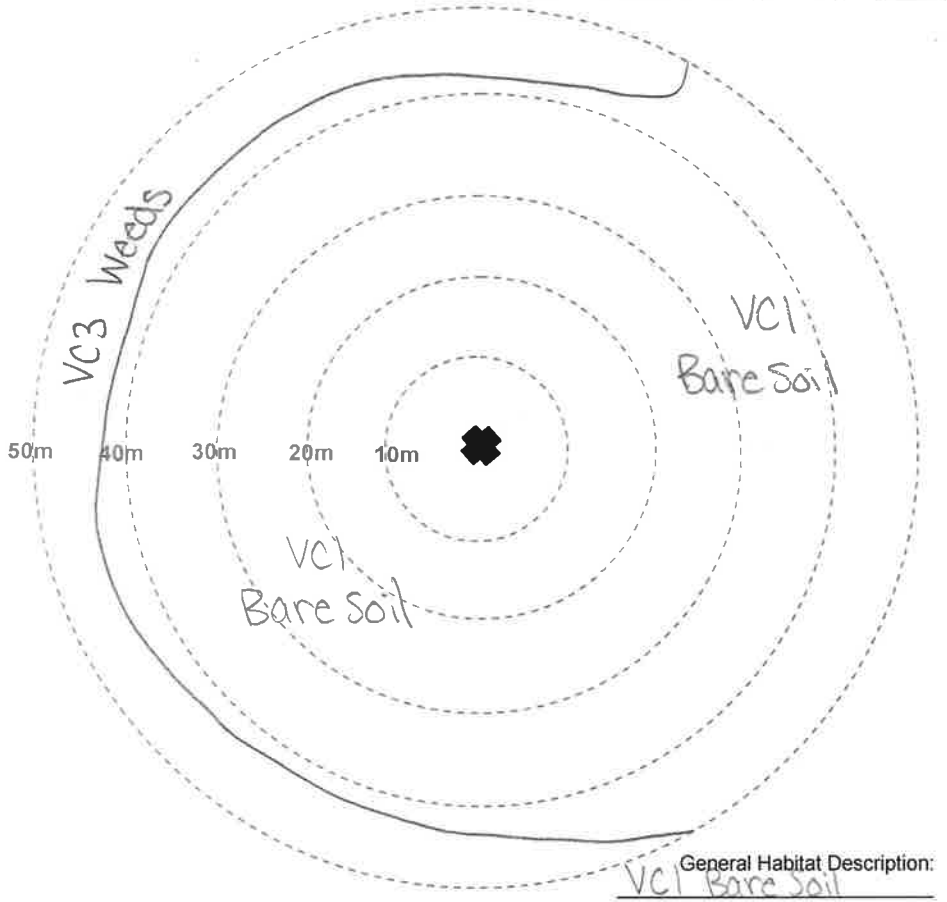
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 66 **Degree of Slope** 2 **degrees** **Slope Orientation** W (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

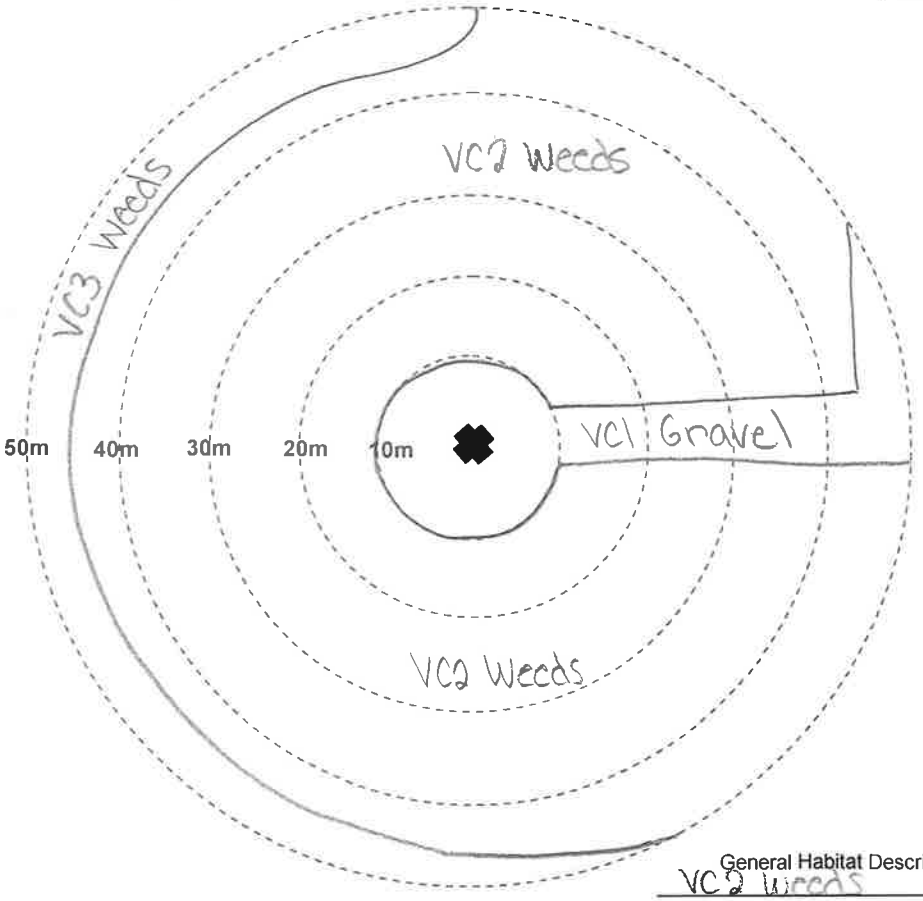
Date (DD/MM/YY): 18/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

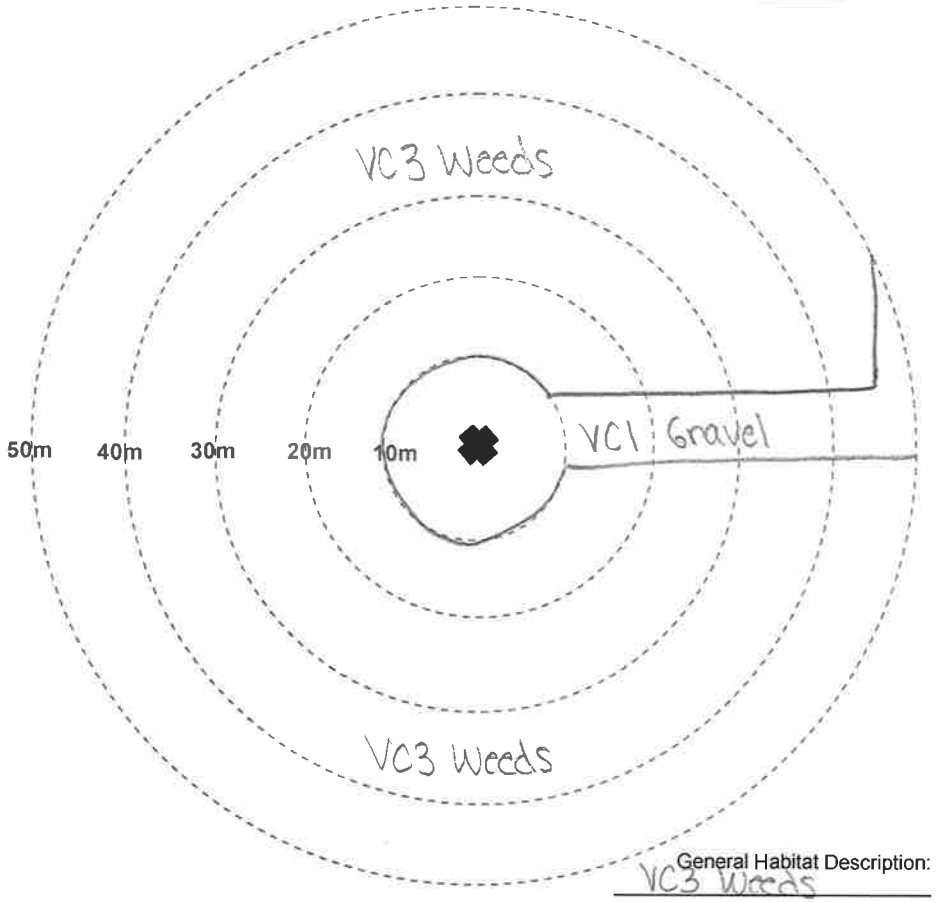
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 66

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

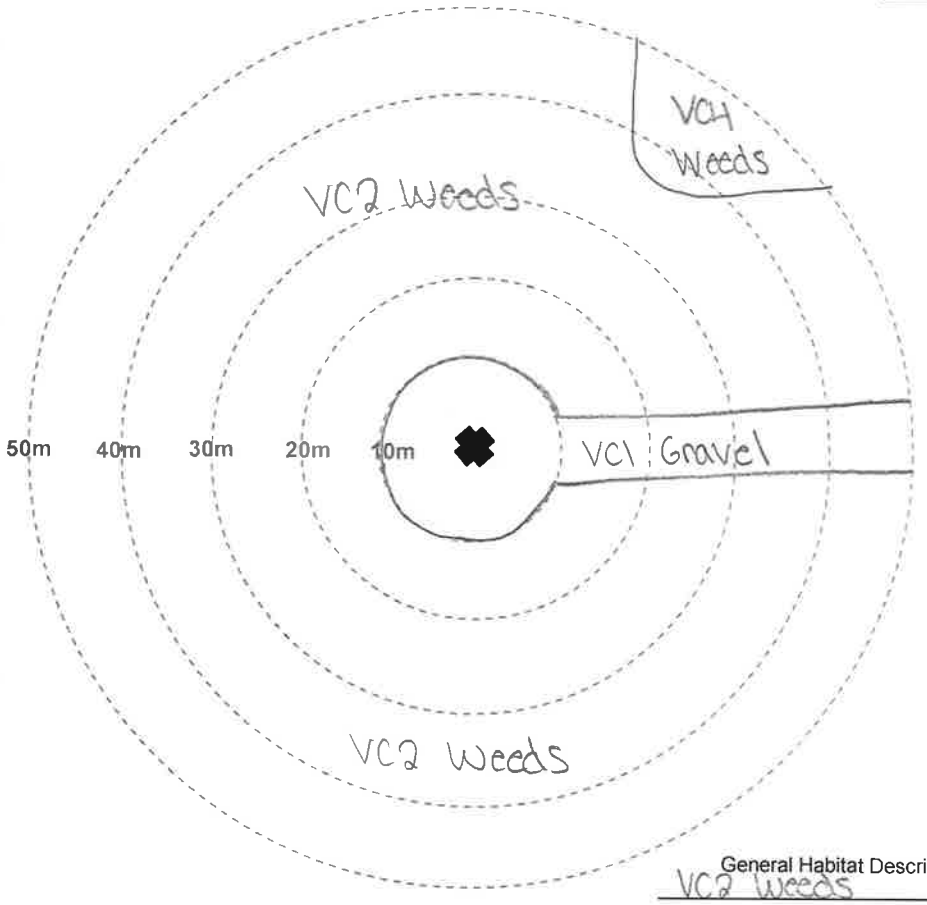
Date (DD/MM/YY): 20/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC3 Weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 66

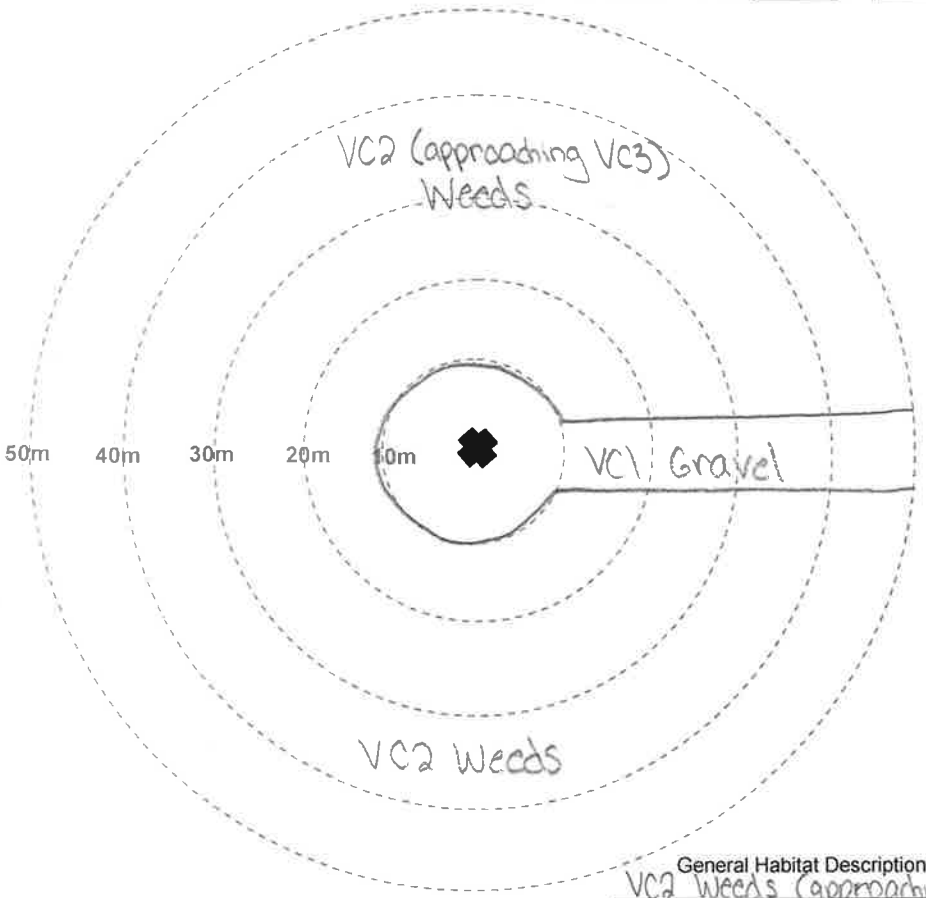
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: VC2 Weeds (approaching VC3)

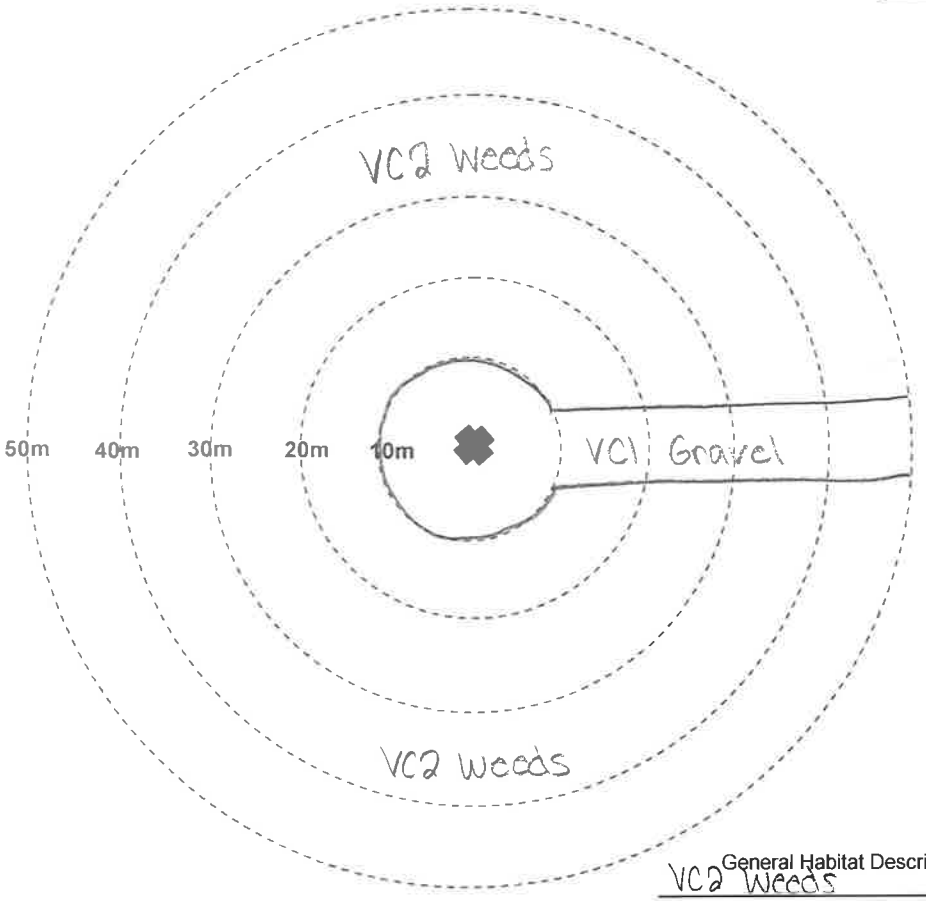
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: VC2 Weeds

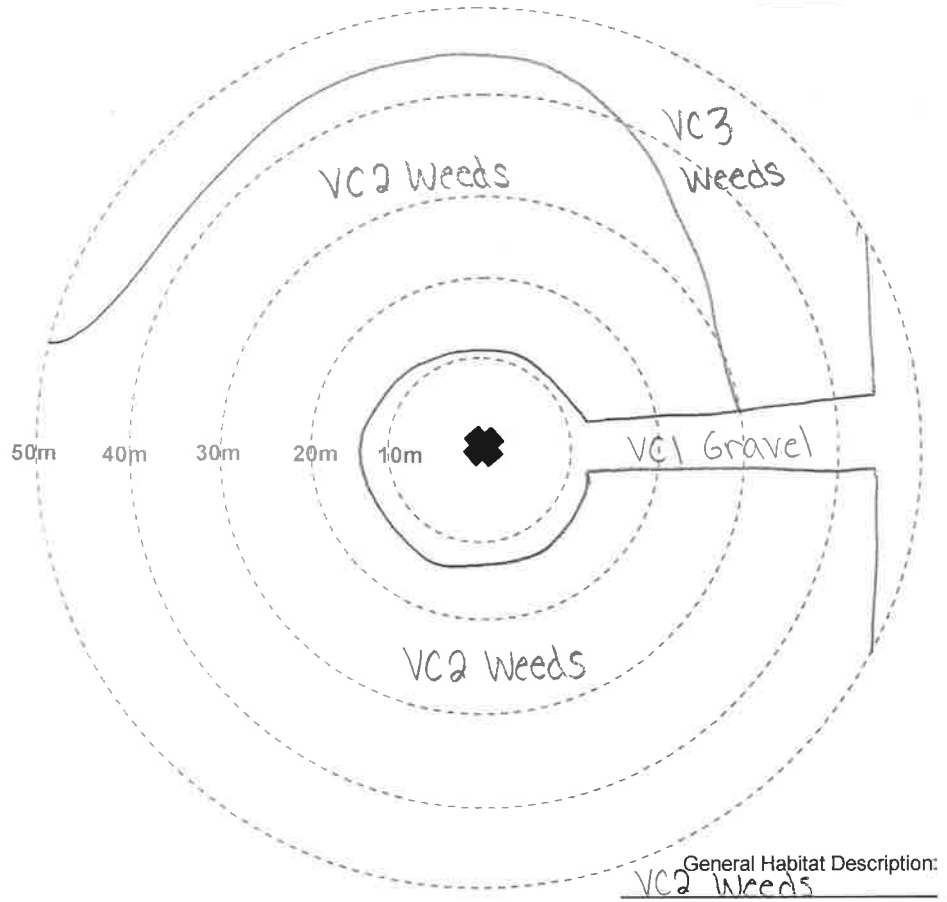
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 80 **Degree of Slope** Ø **degrees** **Slope Orientation** N/A (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

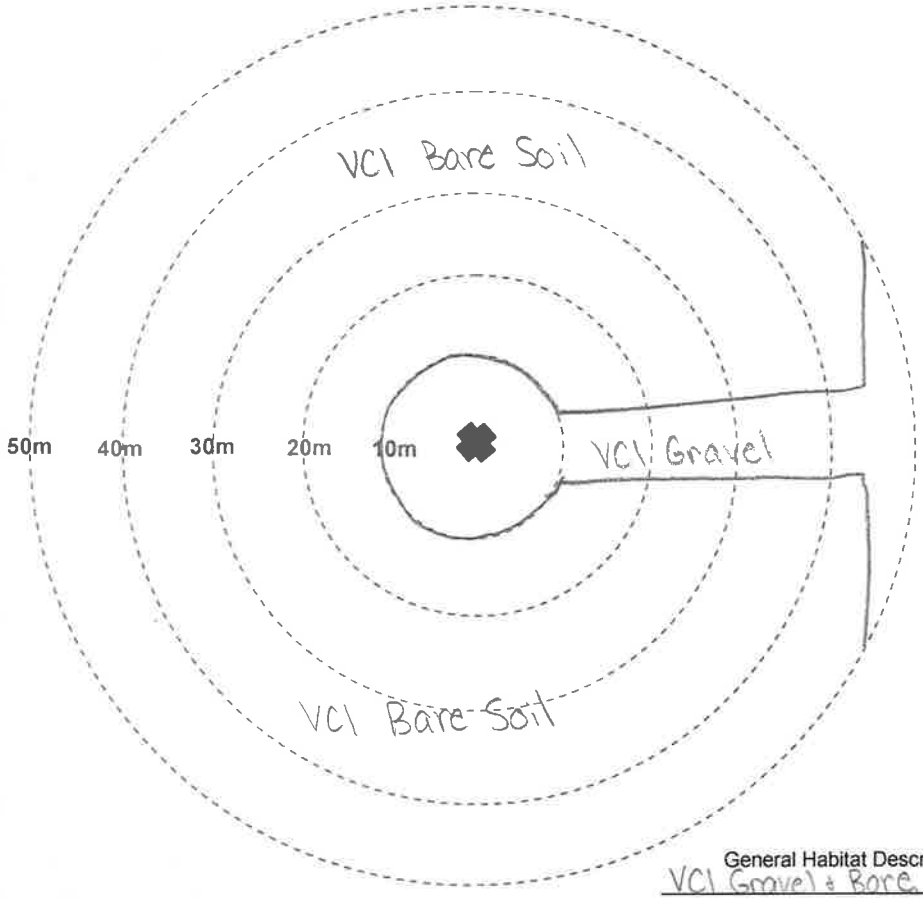
Date (DD/MM/YY): 16/05/17
Observer: Hannah P.
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Gravel & Bare Soil

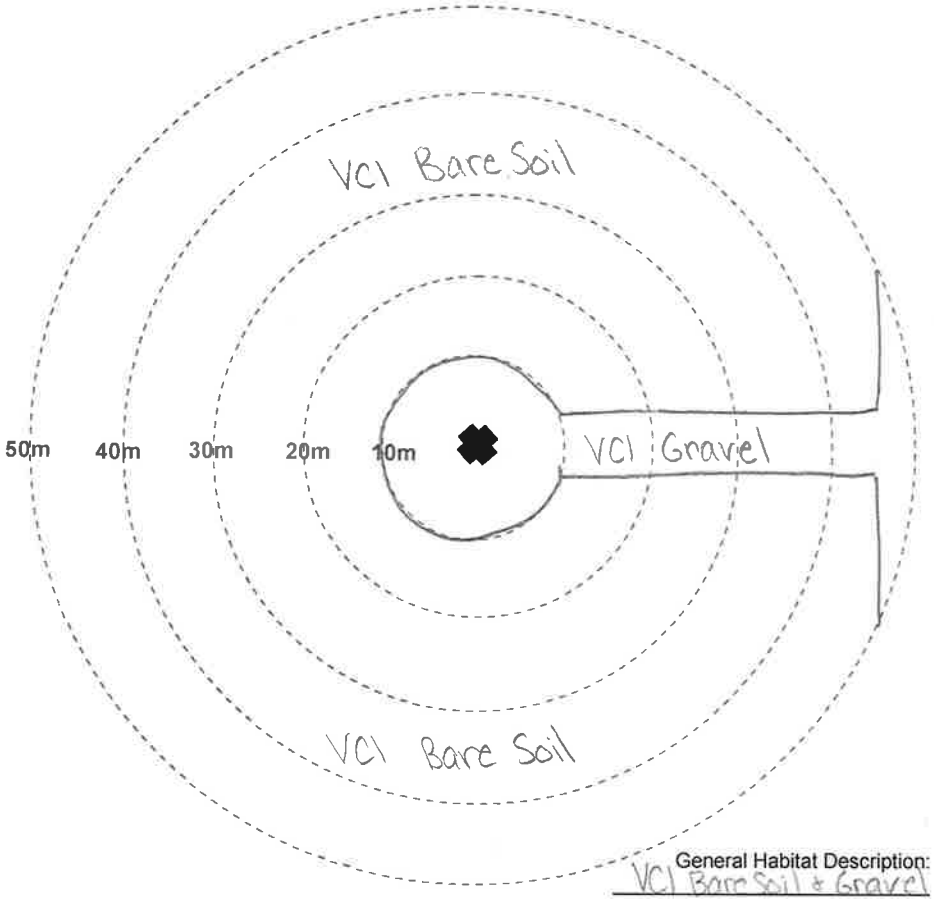
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 80

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

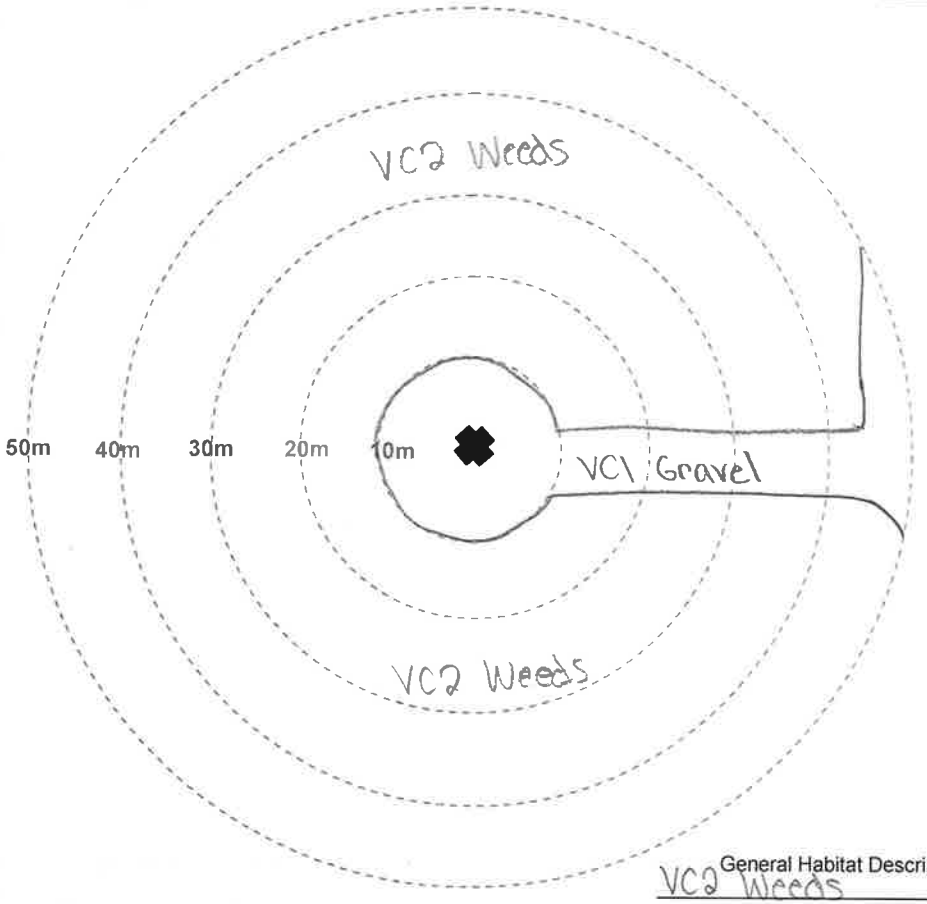
Date (DD/MM/YY): 18/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil + Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 22/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

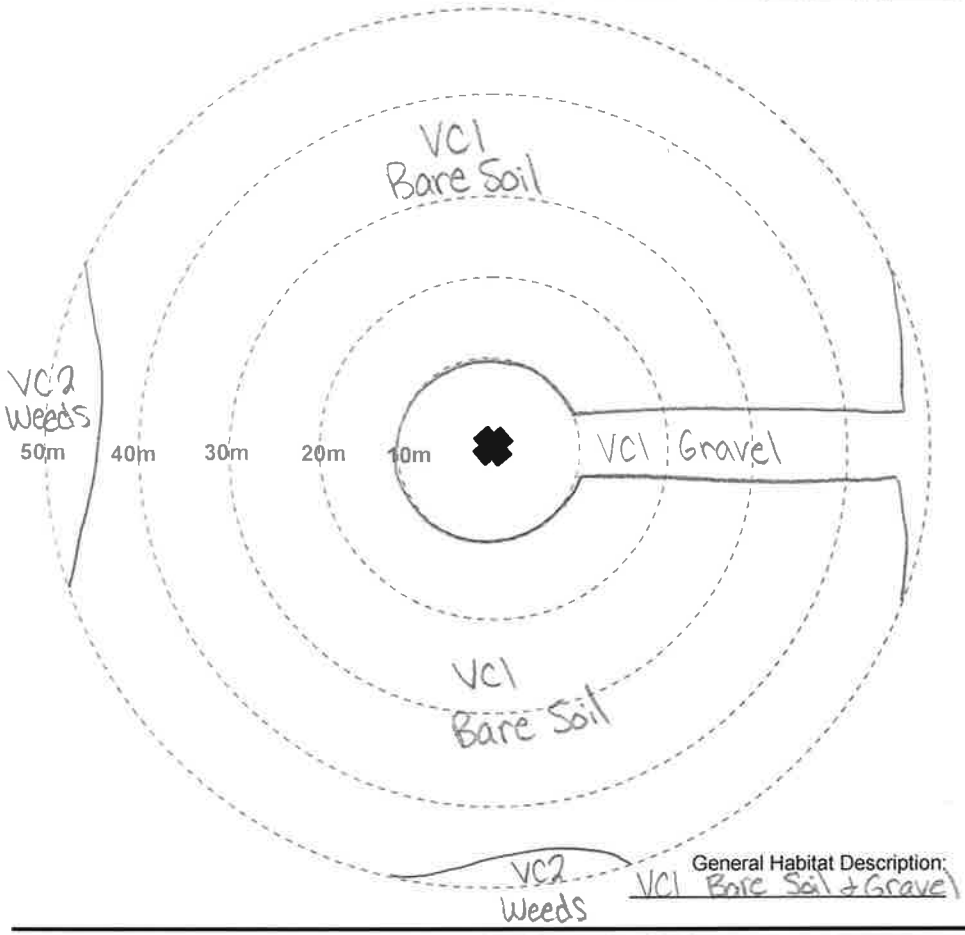
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class.3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 80

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

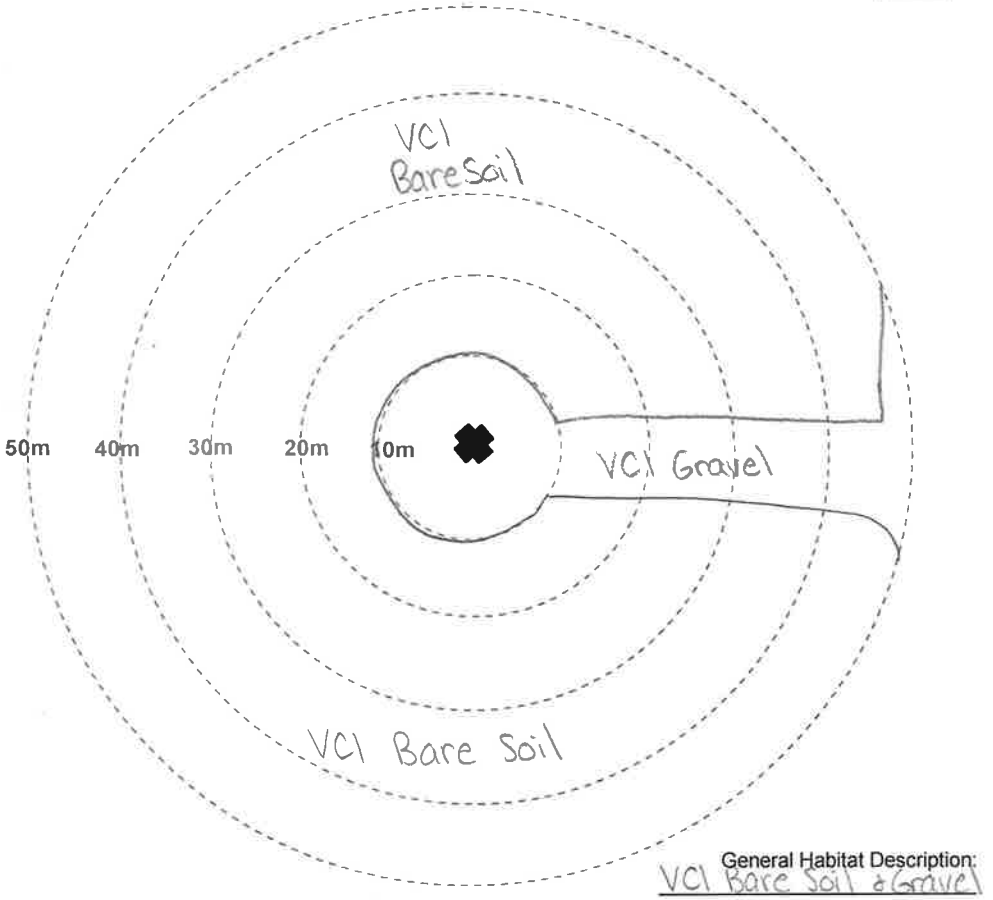
Date (DD/MM/YY): 22/09/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 27/10/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

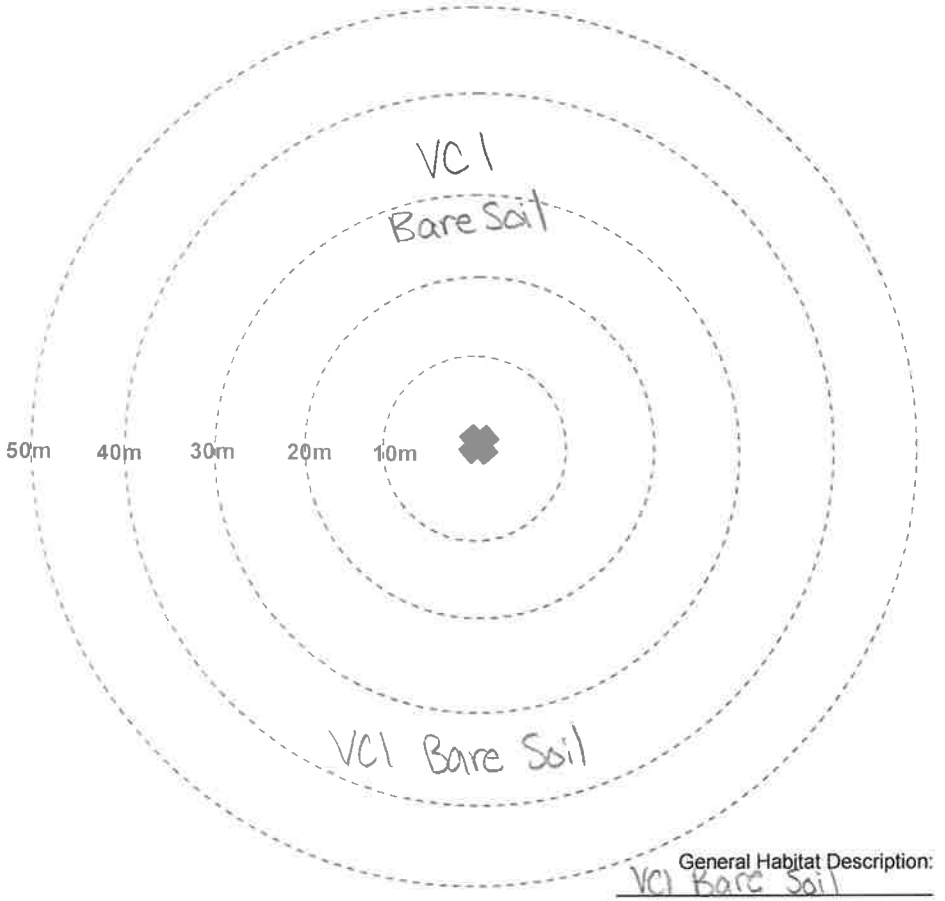
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 81 **Degree of Slope** 2 **degrees** **Slope Orientation** E (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

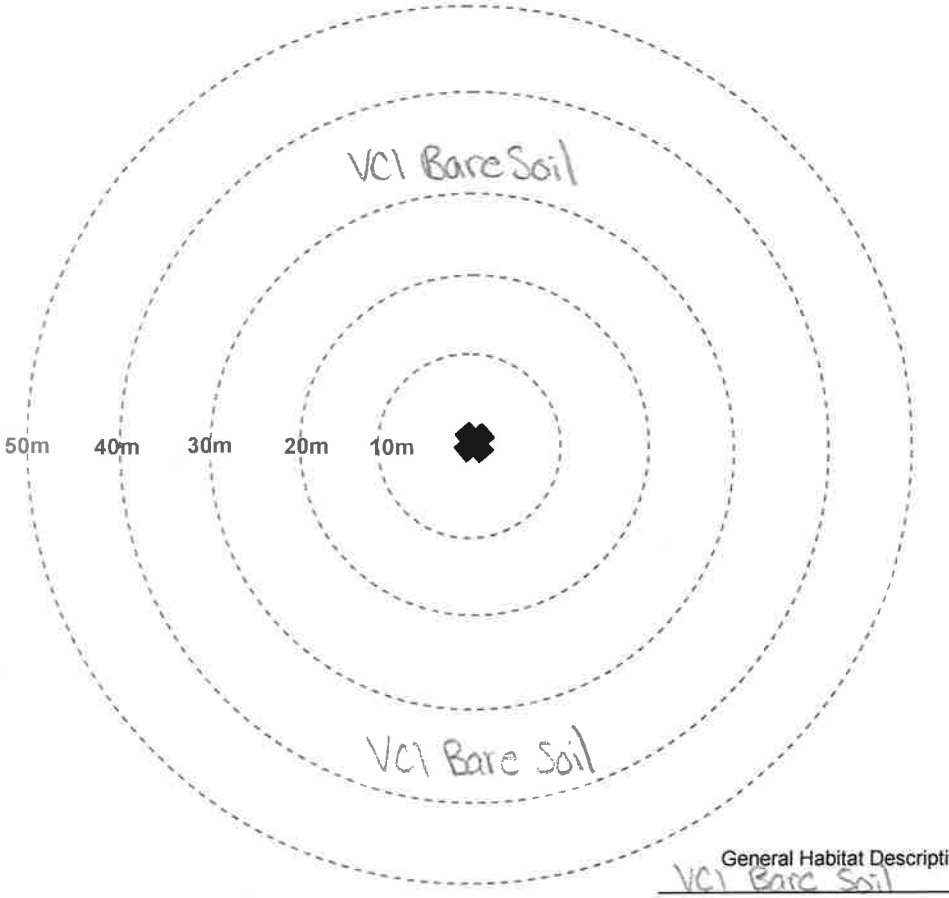
Date (DD/MM/YY): 18/05/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

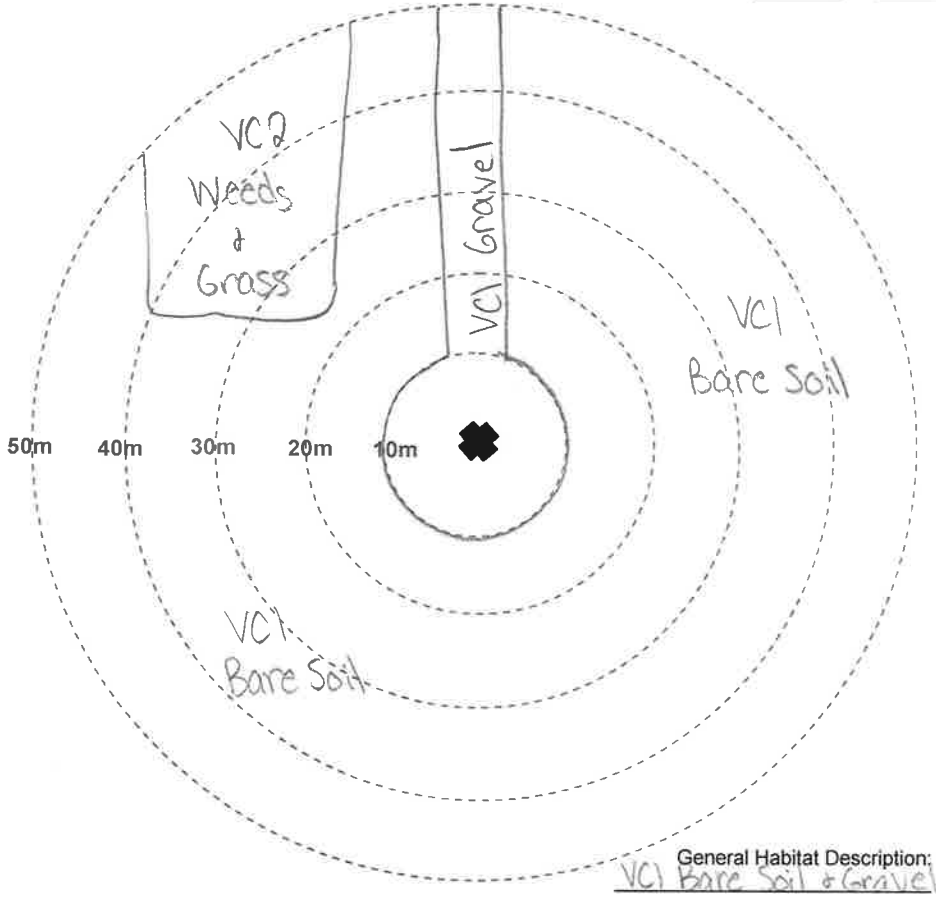
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 81

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

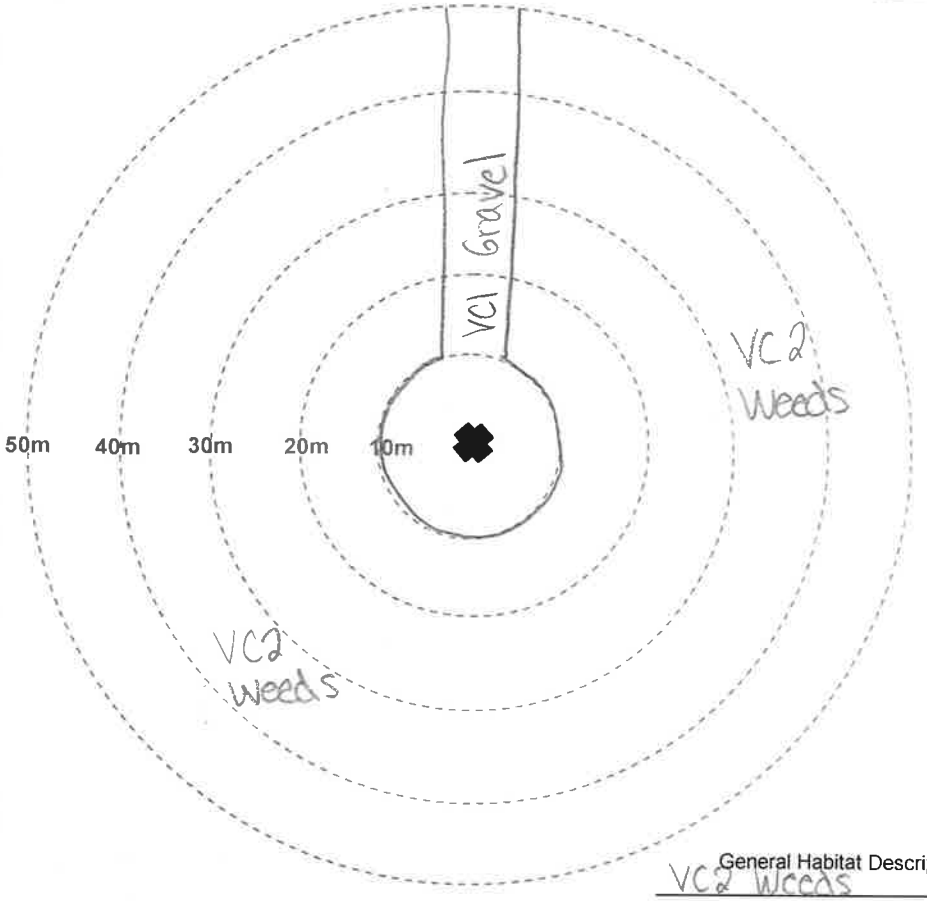
Date (DD/MM/YY): 20/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Weeds

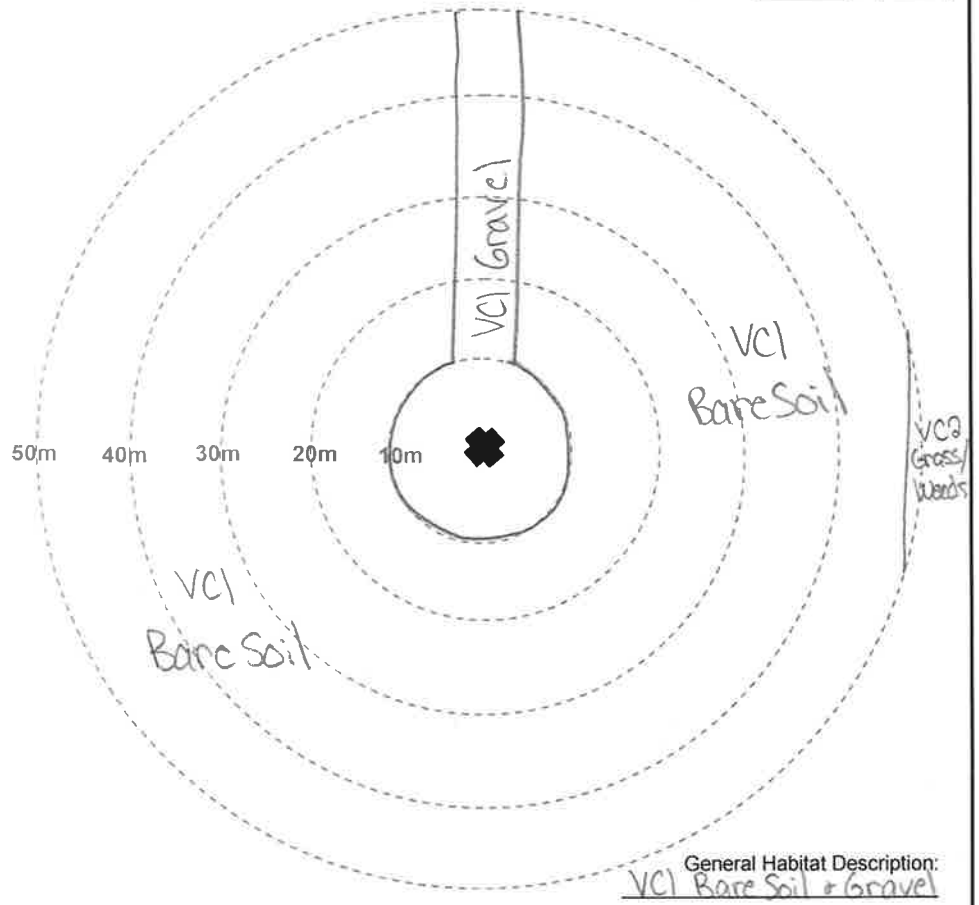
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 81

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

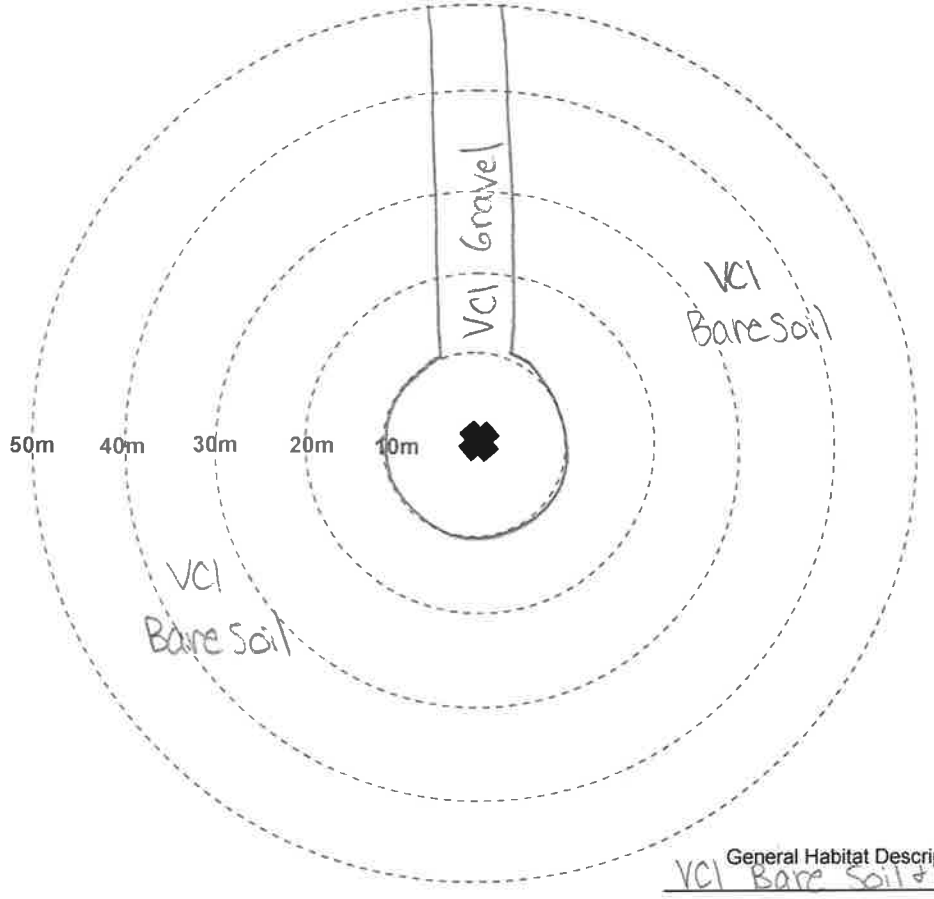
Date (DD/MM/YY): 21/09/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Gravel

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

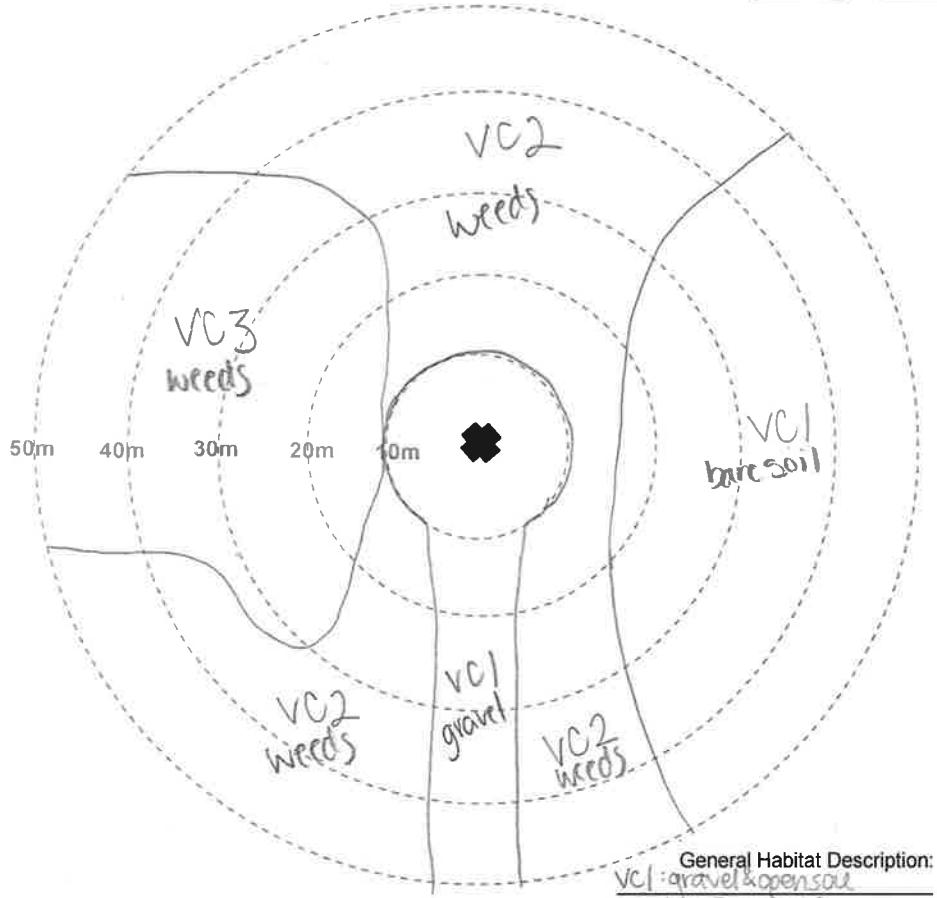
Project Name: NRWF- PCM **Project #:** 1865A **Turbine #:** T94 **Degree of Slope** 1 **degrees** **Slope Orientation** N (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 18 / 05 / 17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m



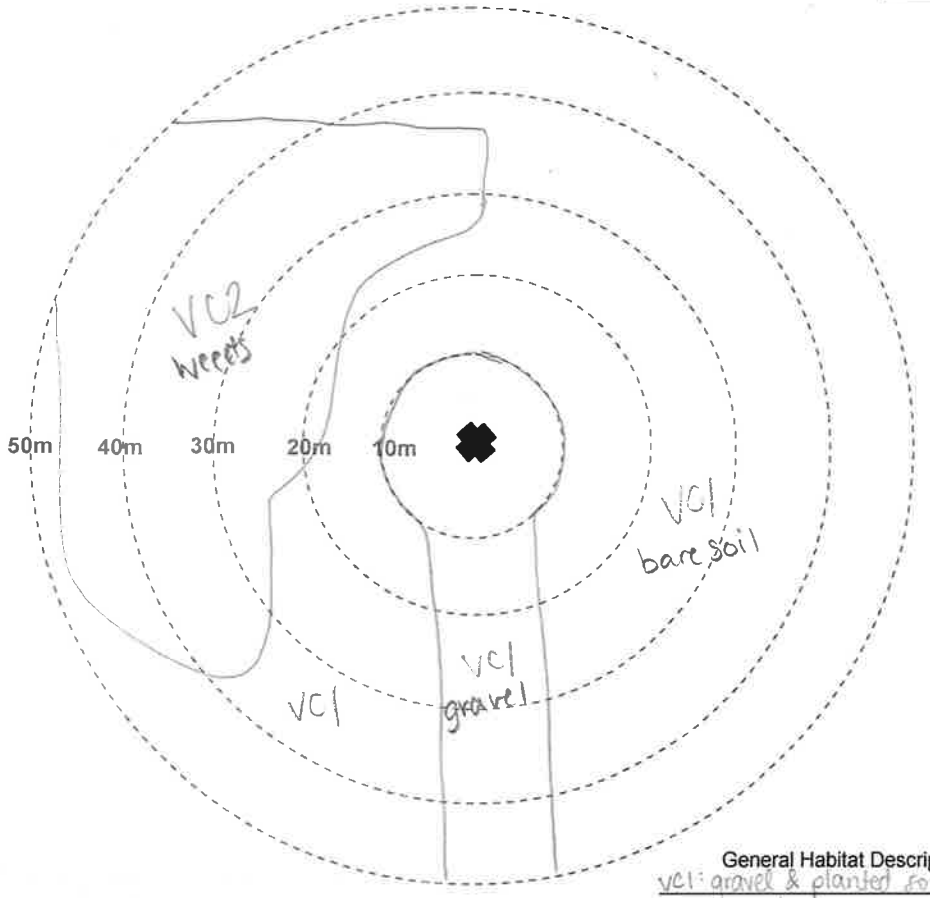
General Habitat Description:
VC1: gravel & open soil
VC2 & VC3: weeds

Photo Numbers (from turbine base)
Facing North: 001
Facing East: 002
Facing South: 003
Facing West: 004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19 / 06 / 17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel & planted soybean
VC2: weeds

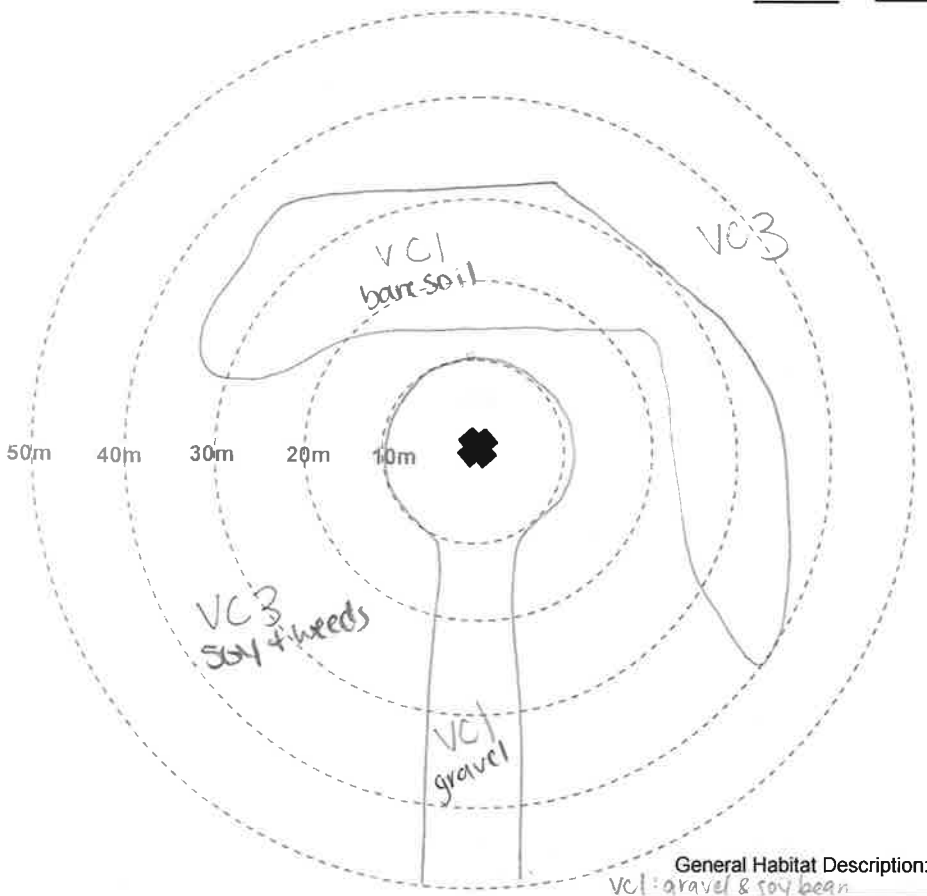
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF-PCM **Project #:** 1865A **Turbine #:** T94

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

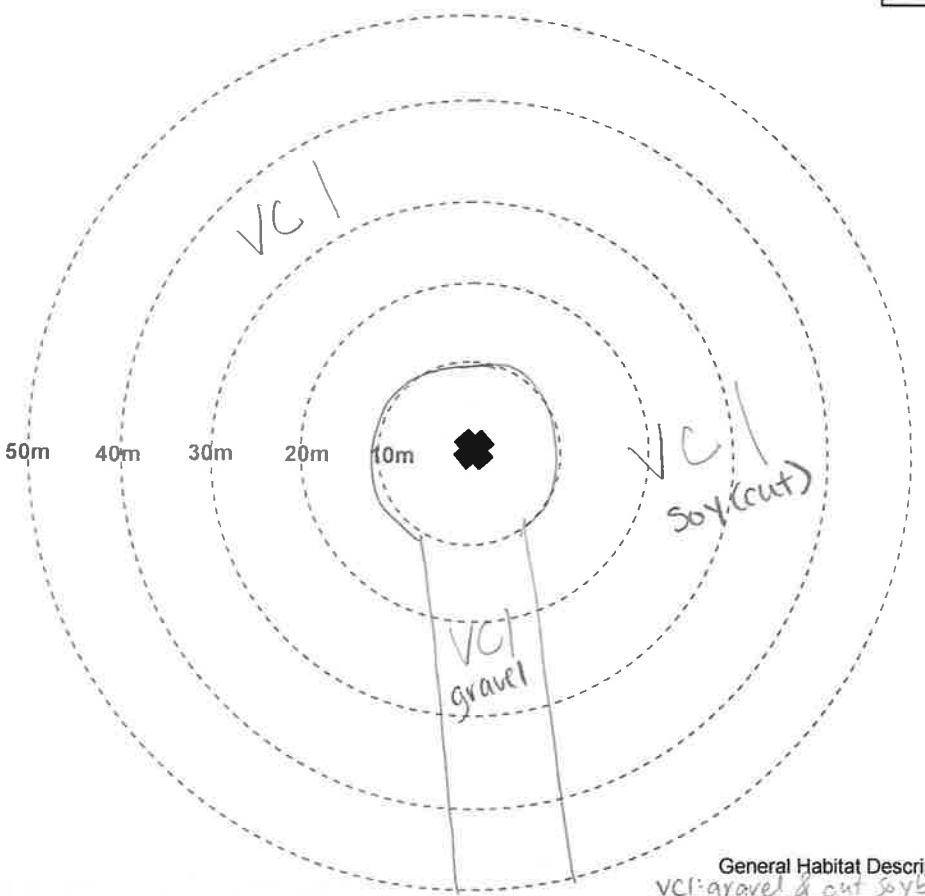
Date (DD/MM/YY): 20/07/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel & soybean
VC3: soybean & weeds

Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Hannah P
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description:
VC1: gravel & cut soybeans

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NIAGARA REGION WIND FARM **Project #:** 1865A **Turbine #:** 194

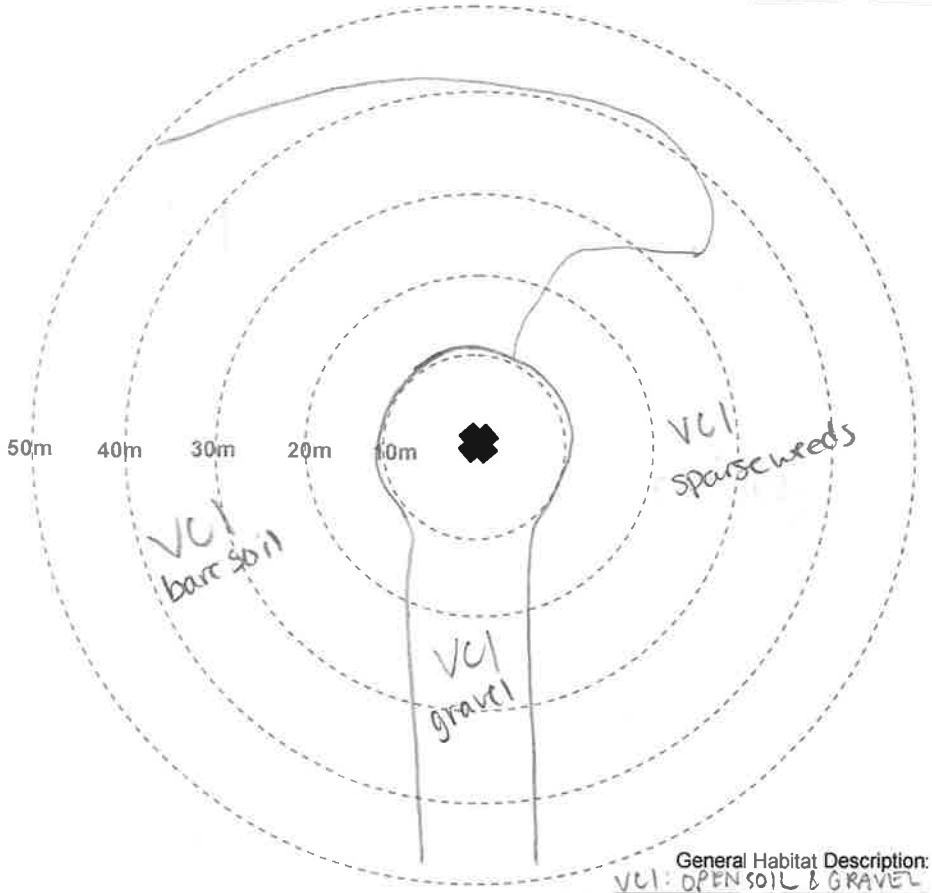
Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Hannah P

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description:
VC1: OPEN SOIL & GRAVEL
Reaching VC2: WEEDS

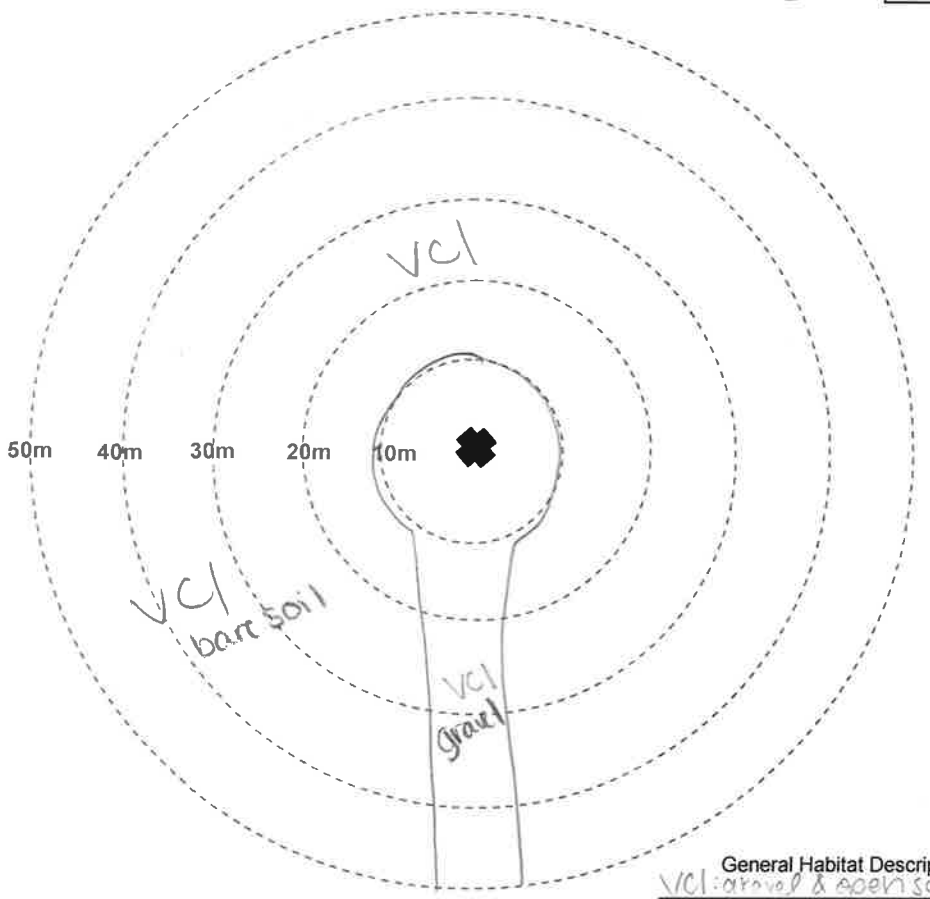
Photo Numbers (from turbine base)
Facing North: 0001
Facing East: 0002
Facing South: 0003
Facing West: 0004
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Hannah Phillips

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description:
VC1: gravel & open soil

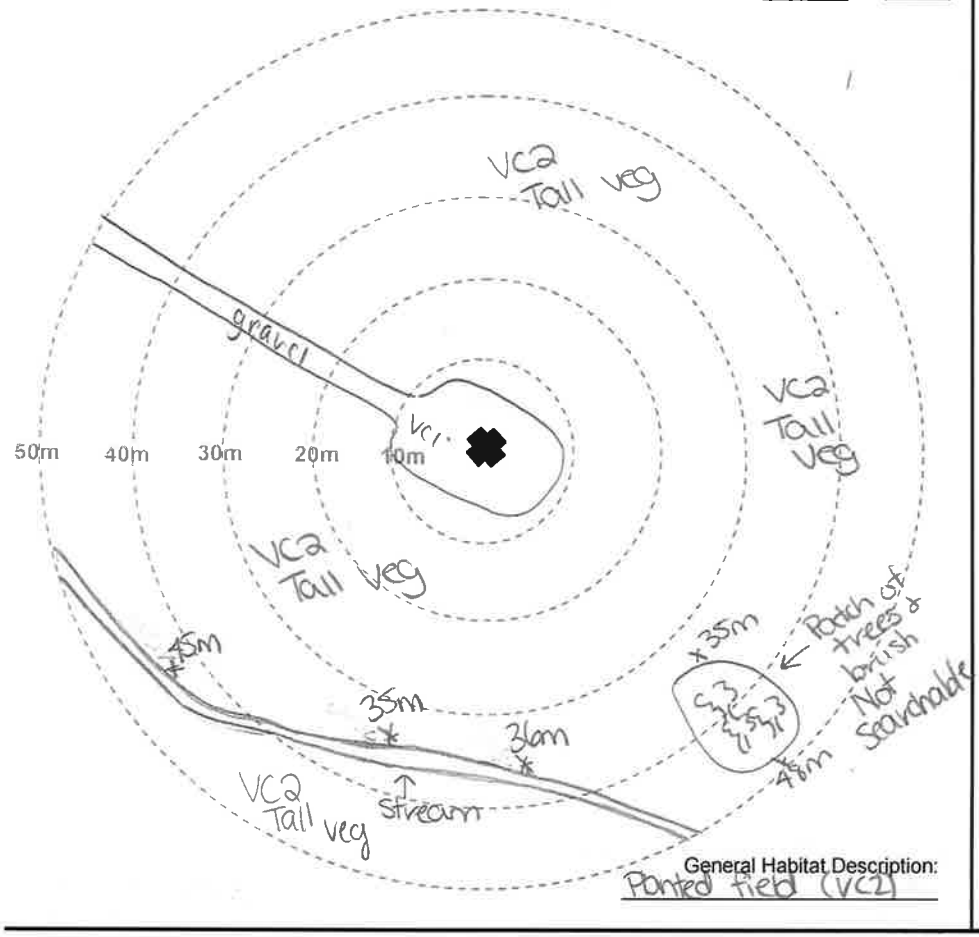
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 95 **Degree of Slope** 1 **degrees** **Slope Orientation** S (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

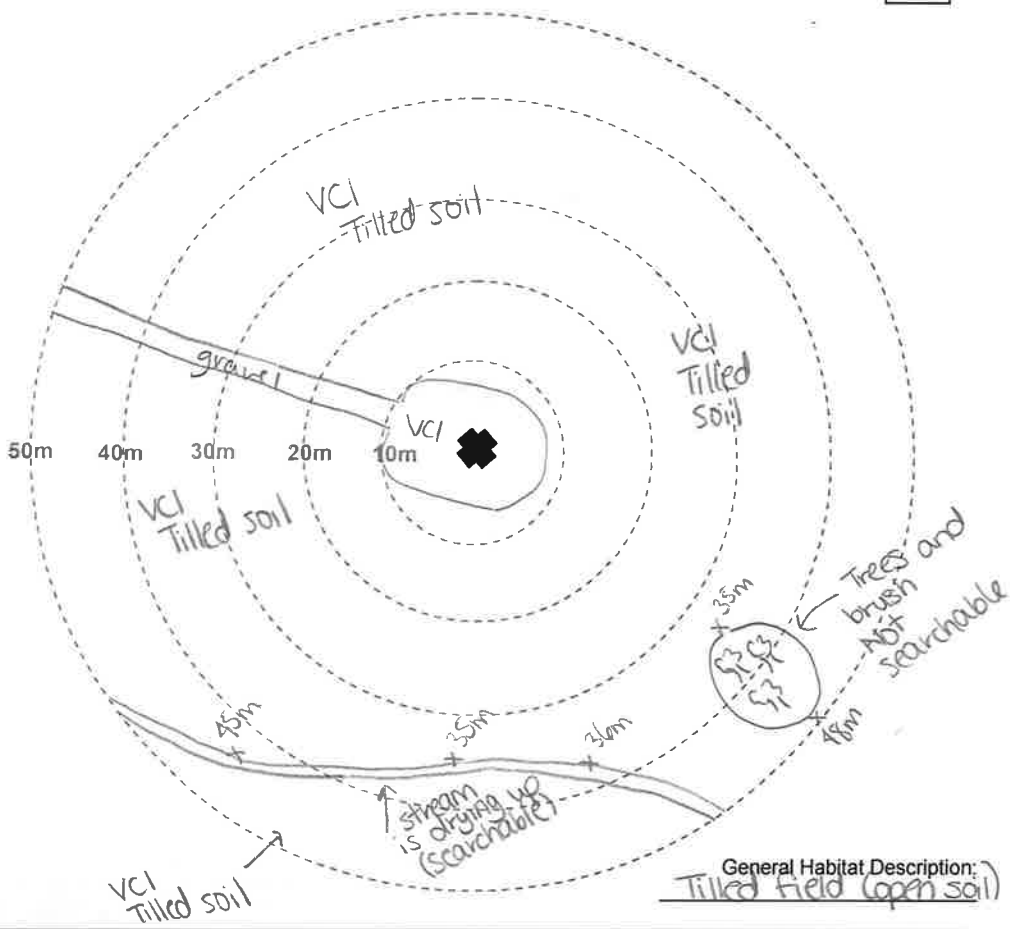
Date (DD/MM/YY): 18/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Planted field (VC2)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: Tilled field (open soil)

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF RCM **Project #:** 1865A **Turbine #:** 95

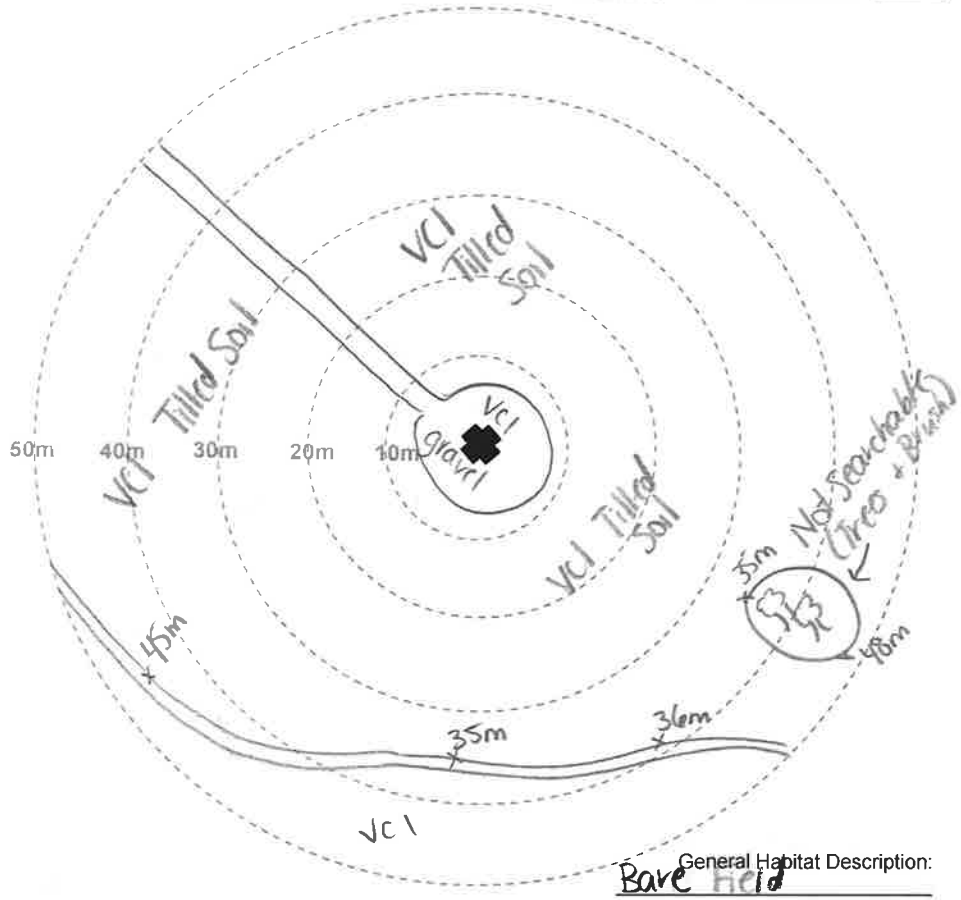
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 20/07/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: Bare field

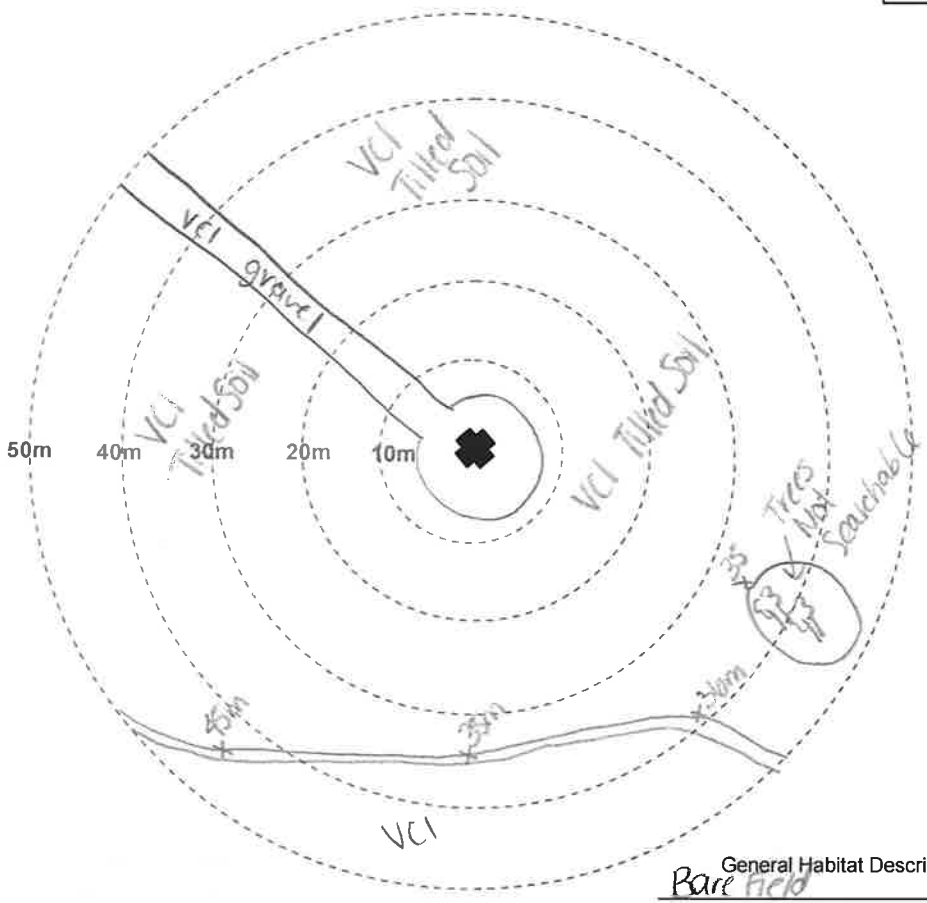
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: Bare field

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 95

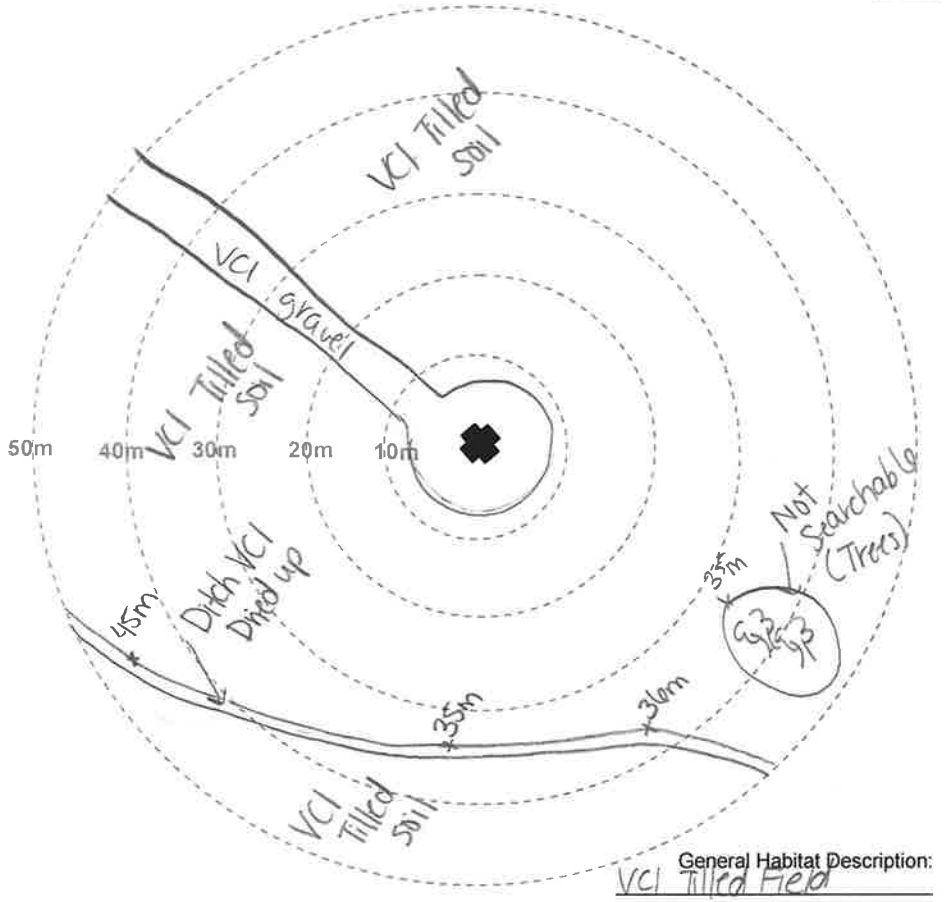
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/09/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: VCI Tilled Field

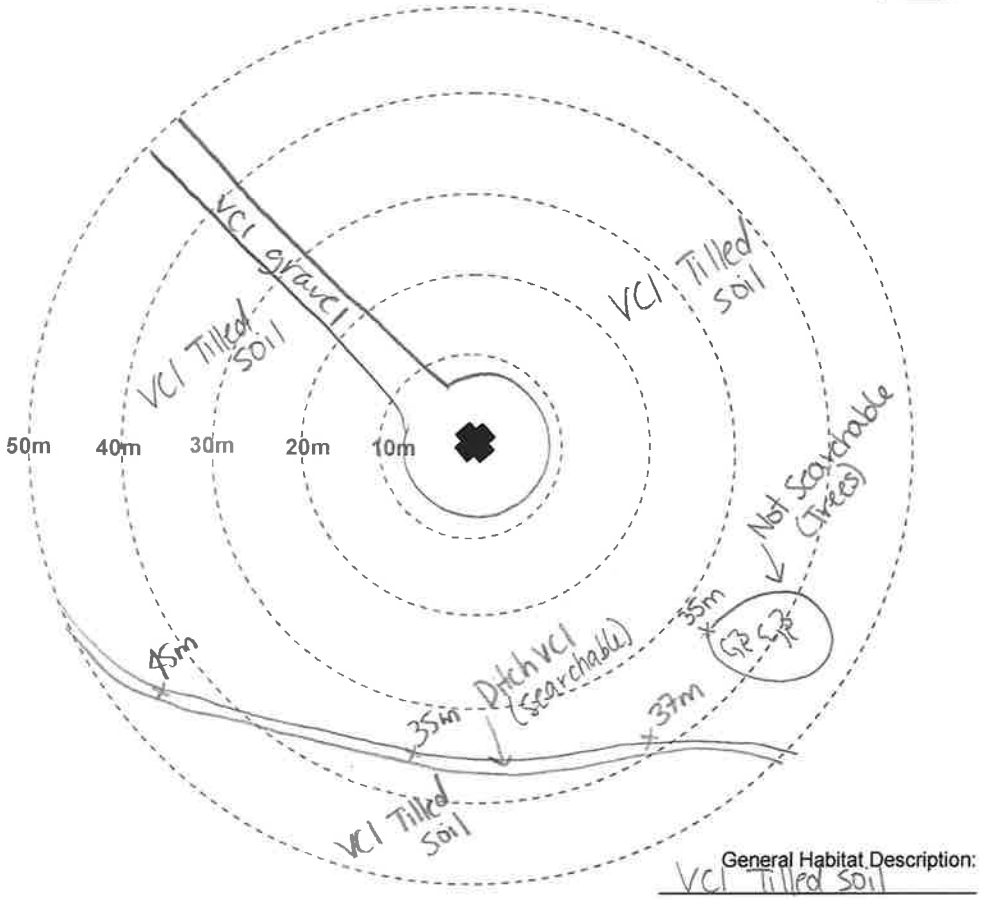
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: VCI Tilled Soil

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 98 **Degree of Slope** 0 **degrees** **Slope Orientation** N/A (e.g. SSW)

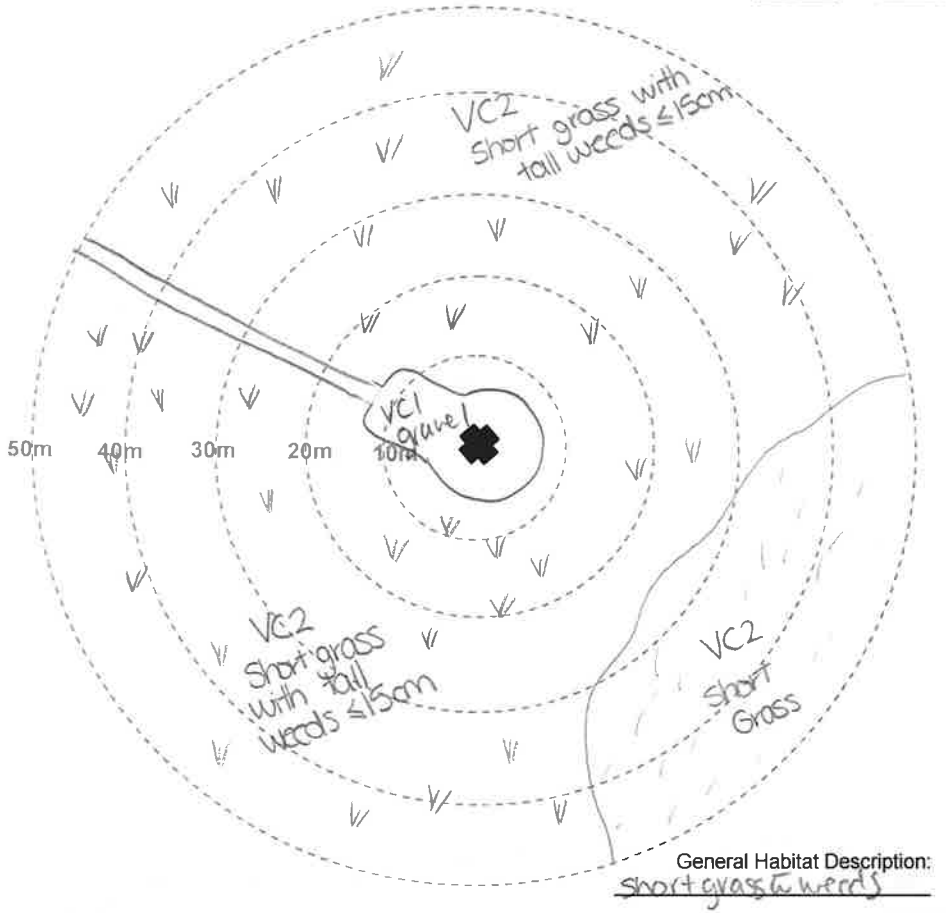
Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/05/17

Observer: Craig M

Monthly/Seasonal Linear Transect Width: 5 m

N



General Habitat Description: Short grass & weeds

Photo Numbers (from turbine base)
Facing North: _____
Facing East: _____
Facing South: _____
Facing West: _____
(sketch habitat and visibility classes)

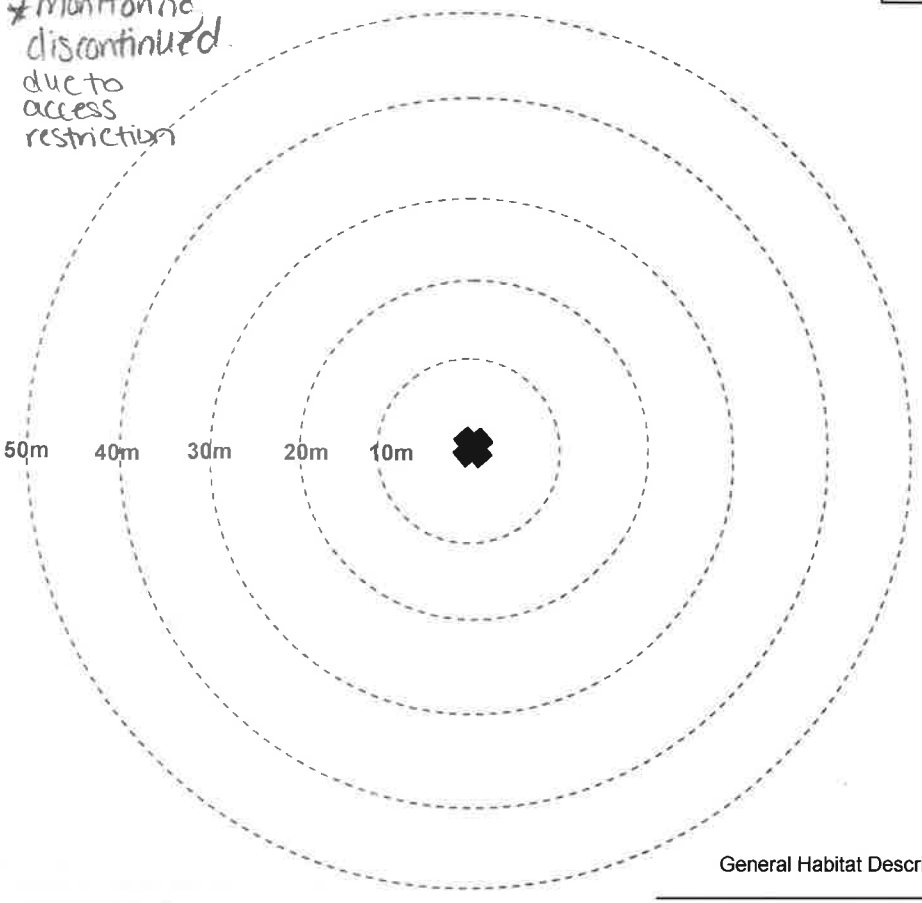
Date (DD/MM/YY): ___/___/___

Observer: _____

Monthly/Seasonal Linear Transect Width: _____m

N

*monitoring discontinued due to access restriction



General Habitat Description: _____

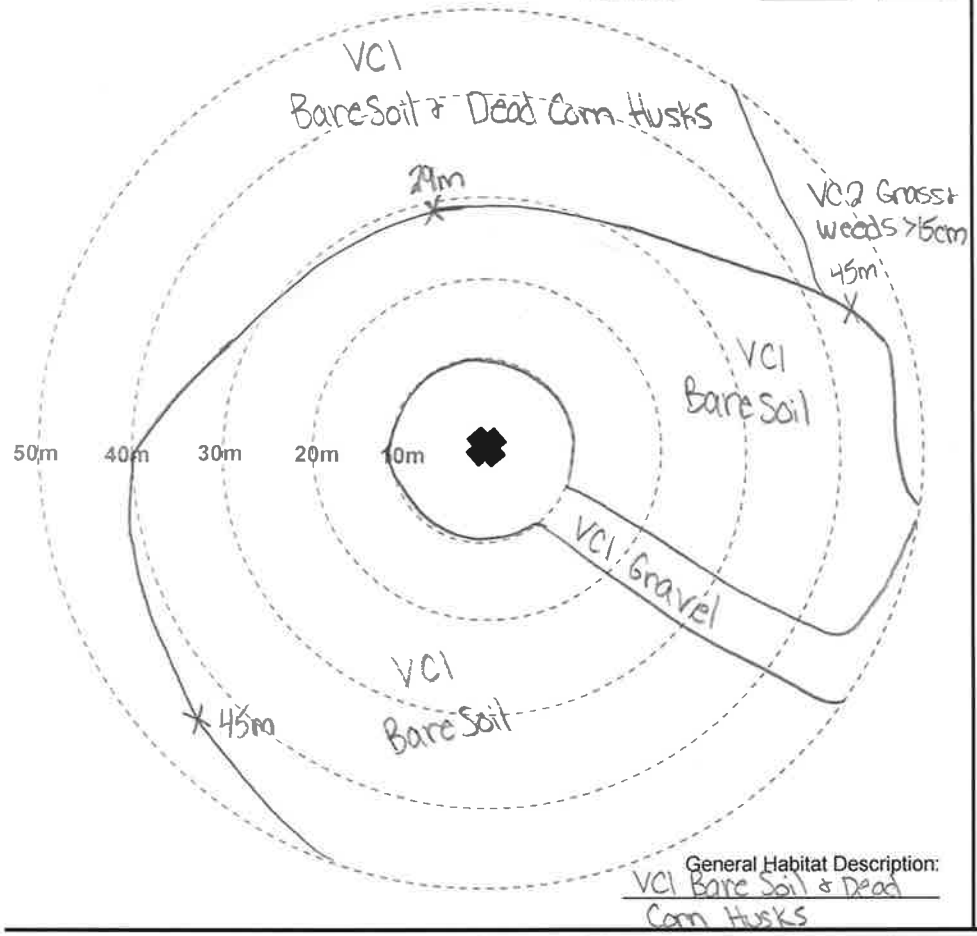
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 99 **Degree of Slope** Ø degrees **Slope Orientation** N/A (e.g. SSW)

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

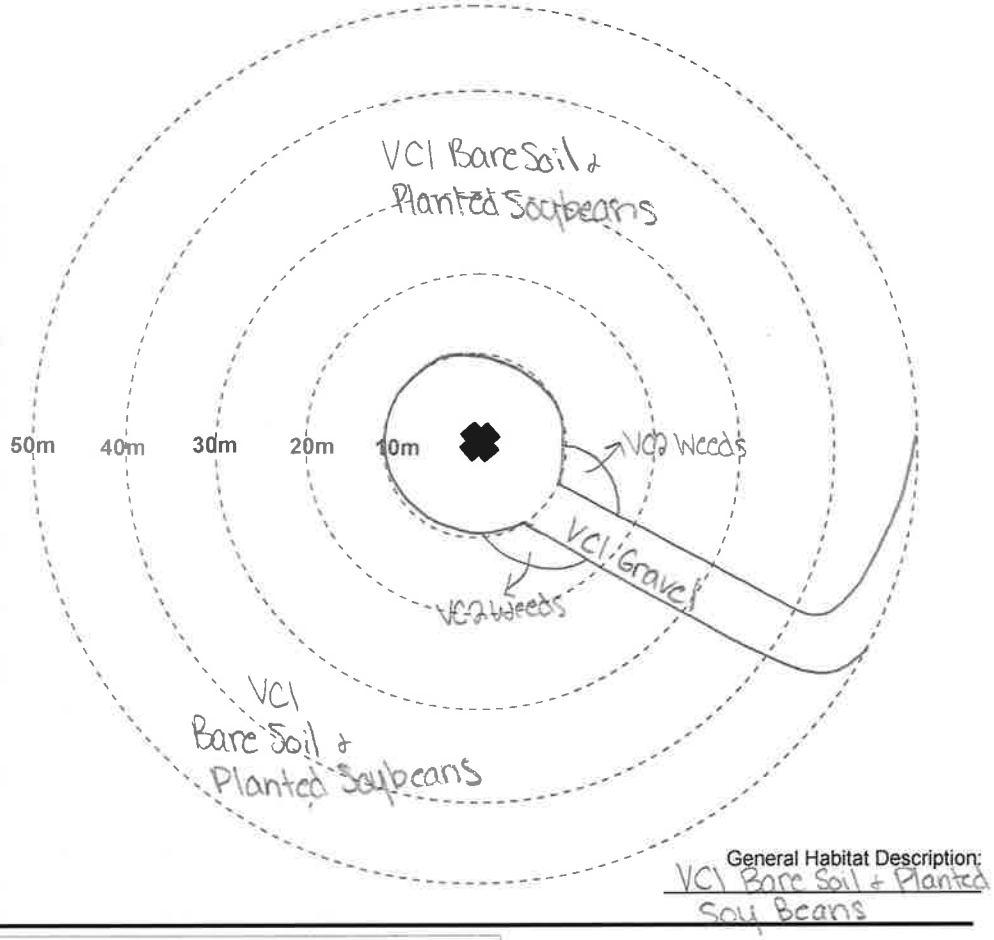
Date (DD/MM/YY): 25/05/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Dead Corn Husks

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 19/06/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil & Planted Soy Beans

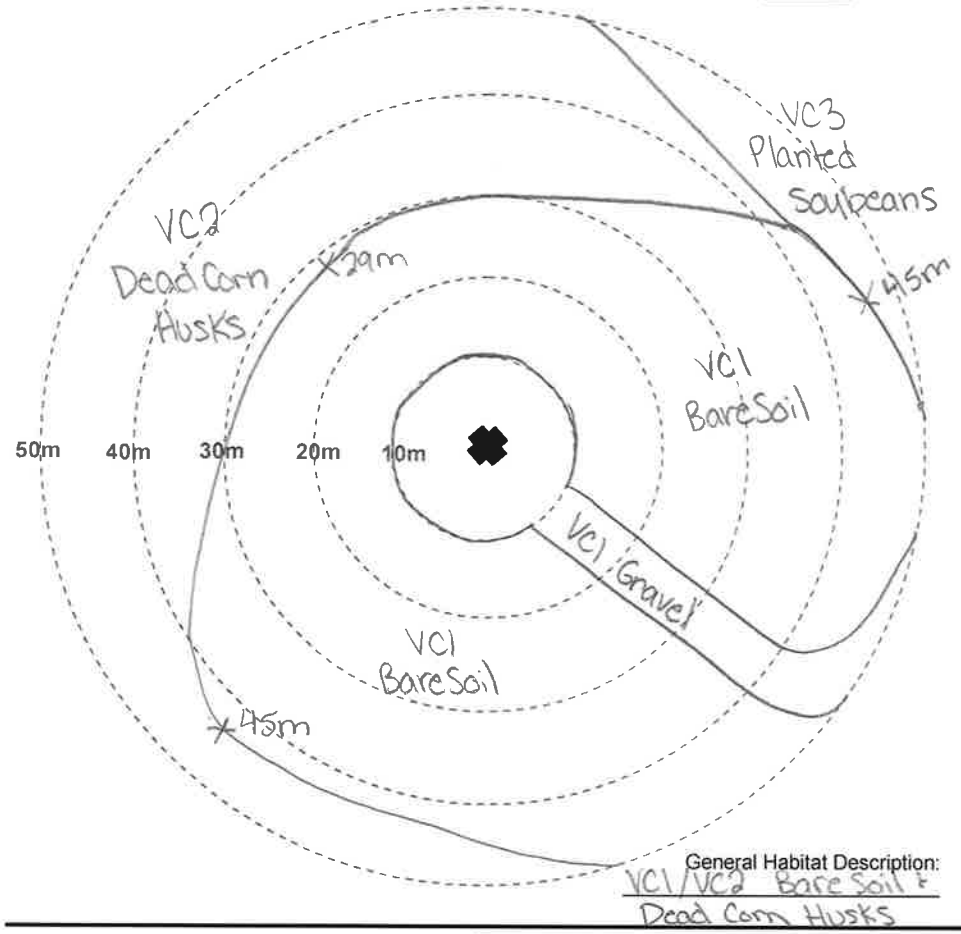
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NRWF PCM **Project #:** 1865A **Turbine #:** 99

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

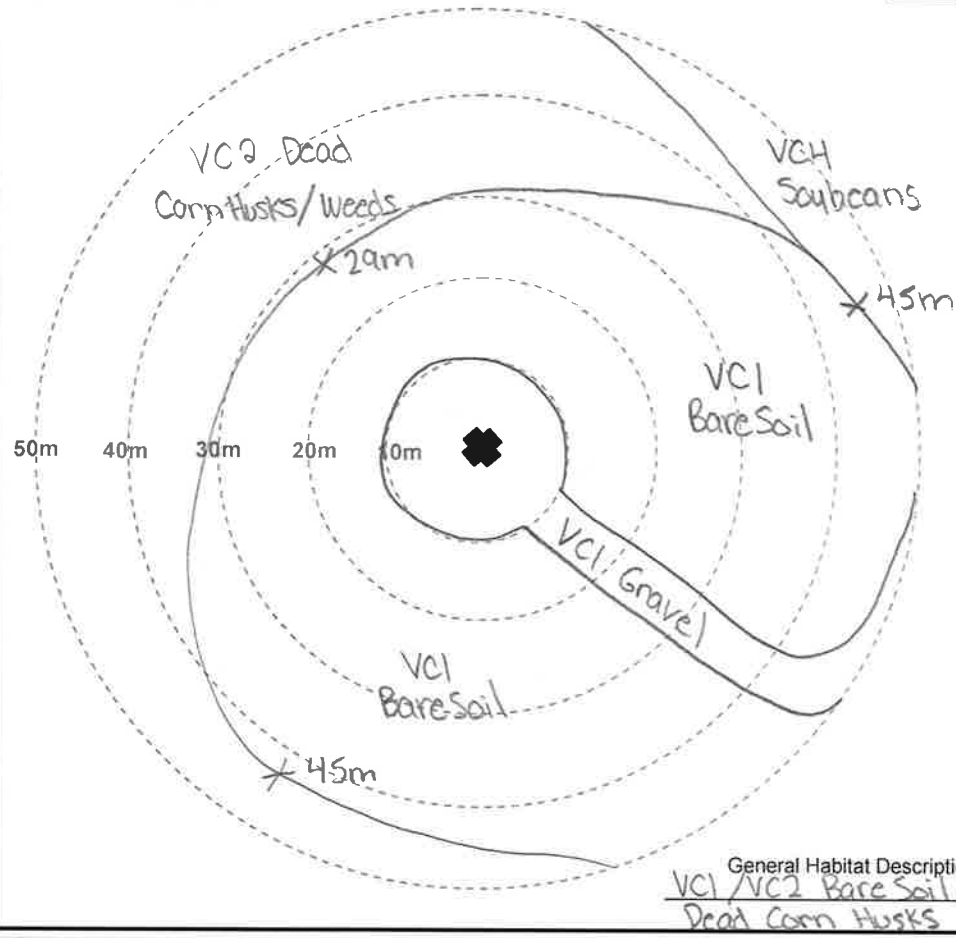
Date (DD/MM/YY): 20/07/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC2 Bare Soil & Dead Corn Husks

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 21/08/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1/VC2 Bare Soil & Dead Corn Husks

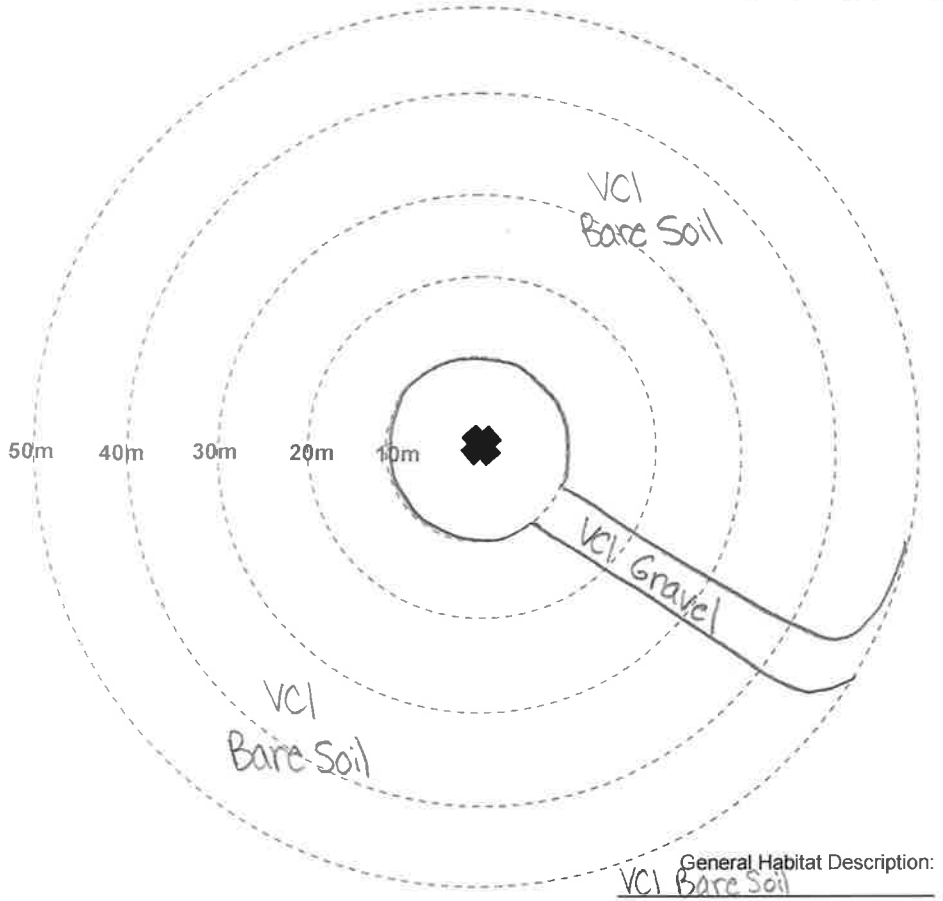
VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats

Visibility Class Map

Project Name: NBWF PCM **Project #:** 1865A **Turbine #:** 99

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

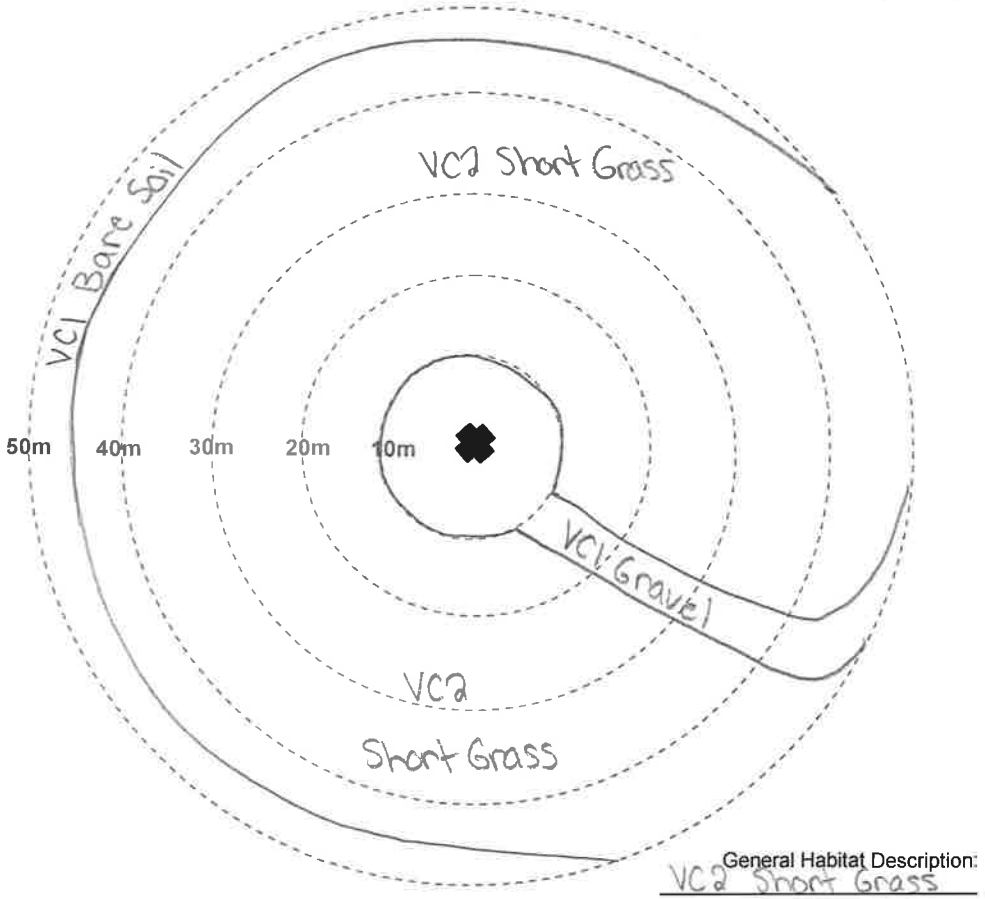
Date (DD/MM/YY): 21/09/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC1 Bare Soil

Photo Numbers (from turbine base)
Facing North: 1
Facing East: 2
Facing South: 3
Facing West: 4
(sketch habitat and visibility classes)

Date (DD/MM/YY): 23/10/17
Observer: Craig M
Monthly/Seasonal Linear Transect Width: 5 m



General Habitat Description: VC2 Short Grass

VISIBILITY CLASSES	
Class 1	≥ 90% bare ground; vegetation ≤ 15cm tall
Class 2	≥ 25% bare ground; vegetation ≤ 15cm tall
Class 3	≤ 25% bare ground; less than 25% of veg. > 30cm tall
Class 4	Little or no bare ground; more than 25% of veg. > 30cm tall
Not Searchable	Dense shrubs, woods, or other unsearchable habitats