

## **Section 10.4**

# **Northern Long-Eared Bat Phase I Habitat Assessment Survey**

NORTHERN LONG-EARED BAT  
PHASE I BAT HABITAT ASSESSMENT

GRANITE STATE LANDFILL, LLC  
DALTON, NEW HAMPSHIRE

PREPARED FOR:

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NOVEMBER 2023

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# NORTHERN LONG-EARED BAT HABITAT ASSESSMENT

## 1.0 INTRODUCTION

This report serves to summarize the completion of a Phase 1 Bat Habitat Assessment of an approximate 200 acre area (Figure 1) located within an approximate 713 acre property (Tax Map 406-2.1 and 406-3) in the Town of Dalton, New Hampshire. In addition to this area, general observations were conducted along Douglas Drive, an existing gravel road which provides access to the site from Route 116. As planned, Douglas Drive is proposed to be upgraded as part of the project.

An approximate 150 acre area of disturbance within the subject property is planned in order to construct an approximate 70 acre regional landfill facility known as Granite State Landfill, LLC. In addition to the landfill and containment berm, the facility will require infrastructure such as offices, maintenance building, scales, leachate collection system, perimeter access road and other associated improvements.

In addition to improving the existing Douglas Drive, much of the infrastructure shall be located largely within existing disturbed and/or cleared areas associated with the active sand and gravel mining operations. The landfill, perimeter road, and other associated structures shall be principally be located east of Douglas Drive within a forested area.

## 2.0 PURPOSE

The purpose of this assessment centers on evaluating and characterizing the presence of potential northern long-eared bat (*Myotis septentrionalis*) habitat within the site. The work was performed by Certified Wildlife Biologist, Barry Keith, during the fall of 2019 and spring of 2020 with follow up site visits during the 2021-2023 field seasons.

This study shall be used, in part, to satisfy state and federal permitting associated with the proposed project.

The U.S. Fish and Wildlife Service (USFWS) previously listed the northern long-eared bat as a Federally Threatened specie under the Endangered Species Act (ESA). A species status assessment conducted by the USFWS determined continued decline in the specie population warranting a re-classification of the specie from threatened to endangered under the ESA. The Final Rule published in the Federal Register January 30, 2023 went into effect on March 31, 2023. Since the status of the specie changed from Threatened to Endangered, the previous specie specific 4(d) rule was removed.

In lieu of specie specific rule 4(d), the USFWS has provided “Interim Voluntary Guidance for the Northern Long-Eared Bat: Forest Habitat Modifications (Version Date: March 6, 2023).

The guidance describes a three stepped approach. Step One centers on evaluating the presence or absence of the specie in a given area. Four options within this step include: Option 1 – Conduct a site-specific presence/probability absence survey; Option 2 – Assume presence; Option 3 – Determine if the bats are reasonably certain to occur; and Option 4 – After evaluating options 1-3 consult with USFWS Ecological Services Field Office.

Step 2 centers on avoiding and/or minimizing impacts when presence is known or assumed. Step 3 provides guidance to seek recommendations for incidental take coverage when take is reasonably certain to occur.

### 3.0 BACKGROUND

The northern long-eared bat (NLEB) utilizes large live trees, typically with loose bark, cavities, cracks/crevices and dead snags as summer maternity roost trees. Typically, the trees are greater than 3 inches in diameter at breast height. The bats use various forested land cover types during the spring, summer and fall where they roost, forage and travel. During the winter, this specie seeks out caves or abandoned mines as a hibernaculum, or winter hibernation site.

Factors that influence habitat quality include the size or maturity of the forest, the nature and extent of suitable roost trees and unfragmented forest cover. Preferred habitat has been typically found to consist of large contiguous forested areas with limited open areas such as fields, large cleared areas and clear cuts.

USFWS lists the inactive season dates for swarming and/or staging areas (5 miles surrounding hibernacula) for New Hampshire from November 1 – April 14<sup>th</sup>. During these dates, the NLEBs are likely to be in hibernacula and are *not likely to occur in forested habitat*. The inactive season when NLEBs are *not likely to be present outside of fall swarming and spring staging areas* in New Hampshire is from November 1- April 14<sup>th</sup>.

### 4.0 METHODOLOGY

The habitat assessment was conducted in accordance with the USFWS “2020 Range-Wide Indiana Bat Survey Guidelines” which is the method currently has been required by USFWS for northern-long eared bat surveys in New Hampshire.

Phase 1 Habitat Assessment data sheets (Appendix A) were used to document existing dominant vegetative site conditions within the principal existing habitat types found within the proposed project area (Figure 2). The approximate location of data plots are depicted on (Figure 3) the Aerial Photo Map. Using a 10X factor prism, data plots determined tree species, tree diameter at breast height (DBH), closure/density, dominant species of mature trees, percentage of exfoliating bark, size composition of live trees, and number of suitable snags within the

representative areas from plot center. The forest types were classified using the report entitled “Natural Communities of New Hampshire” (Sperduto & Nichols, 2011). A photo log of the respective data plot is found in Appendix B.

## 5.0 OBSERVATIONS

As previously mentioned, the project area encompasses (Figure 2) approximately 150 acres. Approximately 100+ acres of proposed tree cutting is planned, primarily within the proposed footprint for the landfill, perimeter access road, and stormwater management features. The proposed infrastructure area is largely within an existing disturbed site adjacent to an existing rock quarry and former asphalt plant. These infrastructure features are largely planned to be sited within a former sand and gravel mining site, which is currently utilized as a materials stockpile area. The improvements to Douglas Drive will require limited tree cutting. These improvements center largely on road widening and the installation of proper stormwater management features.

Figure 3 depicts existing land use and principal forest cover types. In general, the dominant forest communities include: lowland spruce-fir, northern hardwood-spruce/fir, sugar maple-beech-yellow birch forest types. The wooded wetland areas are largely northern conifer and hardwood swamps.

The dominant tree species within the lowland spruce areas are red spruce (*Picea rubens*) and balsam fir (*Abies balsamea*). Other tree species include red maple (*Acer rubrum*), white birch (*Betula papyrifera*), and yellow birch (*Betula alleghaniensis*).

The northern hardwood-spruce-fir forest is a transitional forest type often positioned between spruce-fir forests and the northern hardwood forest type. In addition to those species found within the spruce-fir forest, other hardwood species such as American Beech (*Fagus grandifolia*), and sugar maple (*Acer saccharum*) are dominant. Nearly no Eastern hemlock (*Tsuga canadensis*) is found within this forest cover type. An occasional white pine (*Pinus strobus*) was periodically observed. Generally, spruce and fir are more dominant in the lower elevations while northern hardwoods become dominant with increased elevation.

As previously stated, the northern hardwood forest is the primary forest type in the higher elevations within the site. Other hardwoods which are found within this forest type include quaking aspen (*Populus tremuloides*), white ash (*Fraxinus americana*), striped maple (*Acer pensylvanicum*), and black cherry (*Prunus serotina*). Red oak (*Quercus rubra*) is occasionally found within this forest type.

The balance of the forested area consists of forested wetlands. These northern conifer and hardwood swamps are generally thickly vegetated areas with a variable mix of conifers and hardwood species. Pockets of scrub-shrub wetland is often interspersed within the forested

areas. Common species typically include red maple, yellow birch, red spruce, balsam fir, black ash (*Fraxinus nigra*), and Tamarack (*Larix laricina*). The most common shrubs are winterberry (*Ilex verticillata*) and speckled alder (*Alnus rugosa*).

The lower elevations within the site are west of Douglas Drive while the higher elevations are positioned east of Douglas Drive. The lower areas contain more softwoods and mixed transitional forest cover. The base of the higher elevations are largely vegetated with transitional northern hardwood-spruce-fir forest. The northeast portion of the site consists of northern hardwood forest.

The proposed landfill area of disturbance is located east of Douglas Drive. The majority of the forest clearing will center on the removal of early successional hardwood forest.

Historically, this property has been a working forest for many years. The Diamond Match Company managed the property as commercial forest land prior to the ownership by Rancourt Associates, a land speculation company. Rancourt sold the property to J.W. Chipping, the current owner of record.

J.W. Chipping has heavily logged the property over a period of time. In addition, portions of the property have been mined for sand and gravel. An existing rock quarry and former asphalt plant are positioned immediately south of the proposed landfill footprint area.

Patch clearcut logging operations were observed in 2021-2023. These operations are conducted by the owner typically during the winter months. While limited recent harvesting has occurred west of Douglas Drive, various sections of the property east of Douglas Drive in and adjacent to the proposed project area, have been recently harvested. Given the intensive and on-going logging operations, the forestland within the site is best characterized as “early successional.” Young pole-sized trees dominate the size-class. Tree diameters (DBH) largely fall between 3 to 5 inches. The mean tree diameter was estimated to be 3.75 inches. Other areas that were recently clearcut are reverting to hardwood sapling growth, dominated by quaking aspen. The majority of the larger diameter trees have been harvested. Occasional remnant trees are found throughout the respective stands. See Figure 3.

## 6.0 SUMMARY

USFWS guidelines define potentially suitable northern long-eared bat (NLEB) summer habitat as habitat that *“consists of a wide variety of forested/wooded habitats where they roost, forage, and travel and may also include some adjacent and interspersed non-forested habitats such as emergent wetlands and adjacent edges of agricultural fields, old fields and pasture. This includes forest and woodlots containing potential roost (eg. live trees and/or snags greater than 3” dbh that have exfoliating bark, cracks, crevices, and/or hollows), as well as linear features such as fencerows, riparian forests, and other wooded corridors. These wooded corridors may be dense or loose aggregates of trees with variable amounts of canopy closure. Individual trees may be*

*considered suitable habitat when they exhibit the characteristics of a potential roost tree and are located within 1,000 feet (305 meters) of other forested/wooded habitat.”*

In summary, the overall lack of larger diameter trees, the extent of smaller diameter smoothed bark forest and proximity to large open areas (eg. gravel mining and clearcuts) likely do not provide potentially suitable northern long-eared bat habitat. However, where the probable presence or absence of the specie is not known- Assume Presence (Step 1 Option 2).

Based on this determination, Step 2, avoiding and minimizing impacts during sensitive life stages for the NLEB:

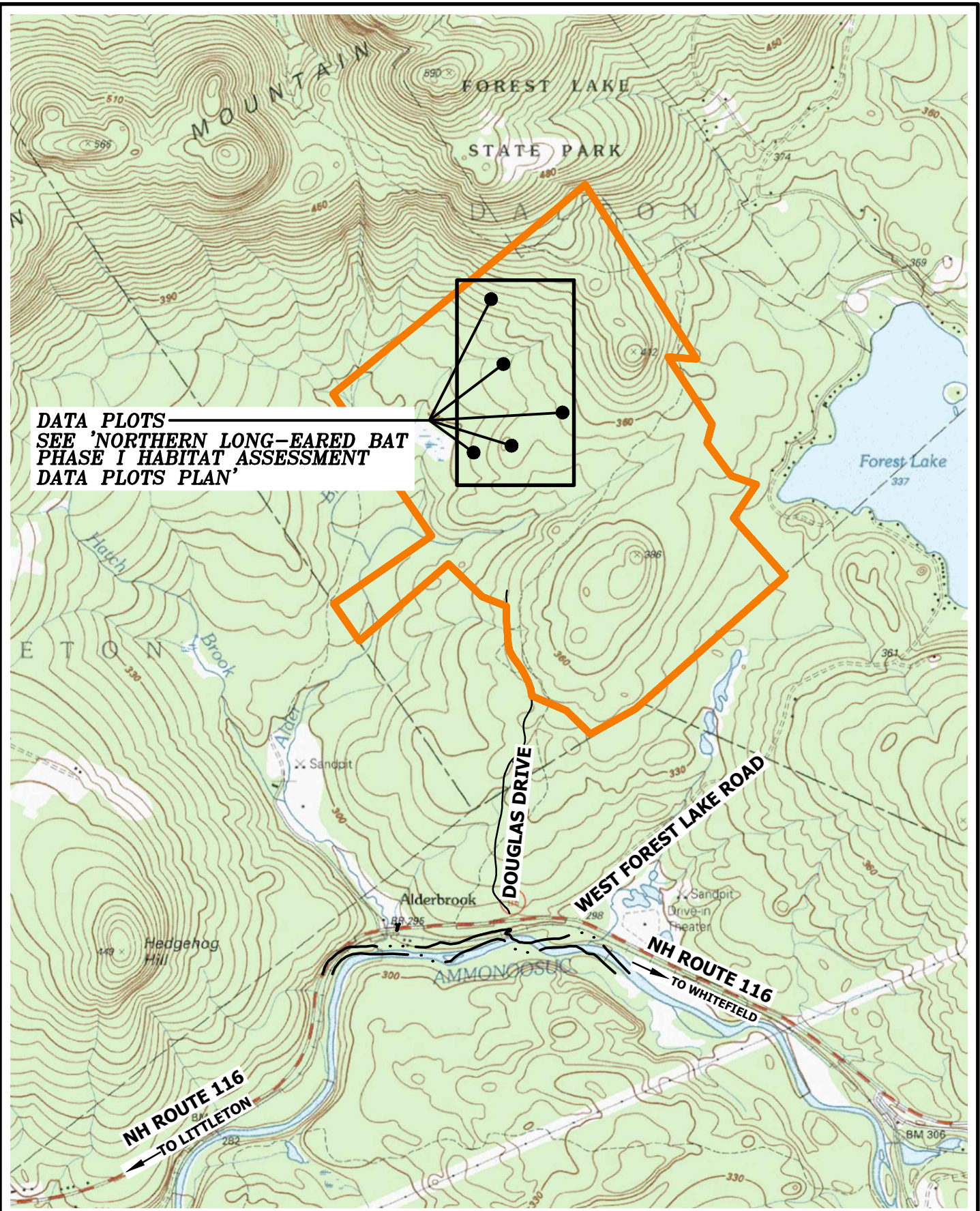
1. During hibernation
2. During the pup season
3. During torpor (lowering of body temperature and metabolic activity)

No hibernacula is known to exist within the project area or immediate vicinity. Assuming presence, the USFWS cite the inactive season in New Hampshire for NLEBs in summer habitat outside of swarming/staging areas and in swarming and staging areas is from November 1 through April 14<sup>th</sup>. Based on these dates, tree removal/land clearing activities shall be planned during the inactive season, in accordance with USFWS guidelines at that time.

The USFWS (Appendix C) was consulted (Project Code: 2023-0019103) and found that “there are not critical habitats within your project area under this office’s jurisdiction.”



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**GRANITE STATE LANDFILL, LLC**  
 DALTON, NEW HAMPSHIRE

**NORTHERN LONG-EARED BAT  
 PHASE 1 DATA PLOTS - LOCATION PLAN**

PROJECT #:	19045
DRAWN BY:	BHK/KRP
DATE:	NOV 2023

**General Construction Sequence Notes:**

1. Prepare Stormwater Pollution Prevention Plan (SWPPP) and establish coverage under EPA's Construction General Permit and implement SWPPP training.
2. Complete DigSafe notifications (811 or 888-DIG-SAFE).
3. Establish horizontal and vertical control.
4. Site mobilization.
5. Install perimeter erosion controls including silt fencing, compost sock or ECM Berm. Erosion controls shall be maintained throughout construction.
6. Construct stormwater infiltration basins, stormwater ponds, forebays, and swales. Clearing to be kept to the minimum area practical. Anytime that greater than 5-acres of soil is exposed, an Environmental Monitor (EM) shall be utilized to monitor the site and complete the required reporting in compliance with Section Env-Wq 1505.03(d) of the Aot Rules.
7. Construct improvements at site entrance and Route 116.
8. Construct improvements to Douglas Drive.
9. Construct internal landfill roads, infrastructure area, Stage I, Cell I lined landfill and berm construction.
10. Installation of leachate and landfill gas conveyance and other utilities.
11. Once Engineer has determined the site to be stabilized in compliance with Aot Rules, remove erosion controls and sediment to a location designated by the Owner.
12. Site demobilization and termination of EPA CGP coverage

EXISTING OFF-ROAD SNOW RALLY DRIVING SCHOOL

PROPOSED SITE ENTRANCE GATE

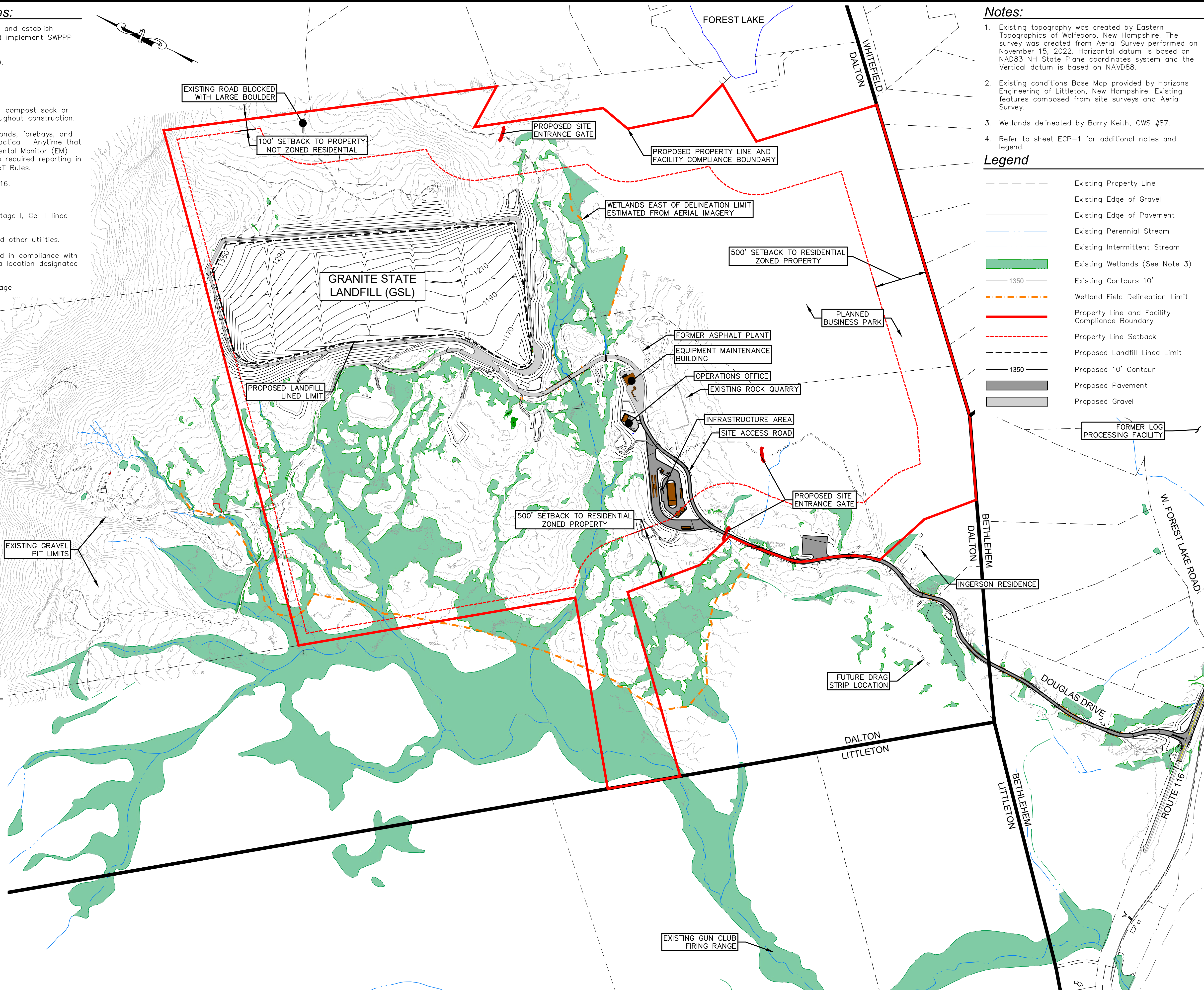
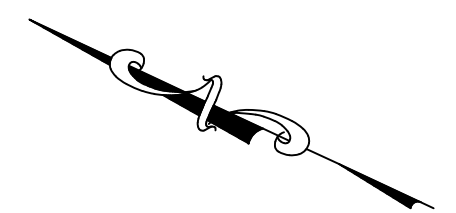
EXISTING GRAVEL PIT LIMITS

**Wildlife Protection Notes:**

Env-Wq 1504.18 Wildlife Protection Notes.

(a) In addition to the requirements of Env-Wq 1504.06, the plans shall also contain the following wildlife protection notes:

- (1) All observations of threatened or endangered species on the project site shall be reported immediately to the NHF&G nongame and endangered wildlife environmental review program by phone at 603-271-2461 and by email at NHFGreview@wildlife.nh.gov, with the email subject line containing the NHB DataCheck tool results letter assigned number (NHB22-3682), the project name (Granite State Landfill), and the term Wildlife Species Observation;
- (2) Photographs of the observed species and nearby elements of habitat or areas of land disturbance shall be provided to NHF&G in digital format at the above email address for verification, as feasible;
- (3) In the event a threatened or endangered species is observed on the project site during the term of the permit, the species shall not be disturbed, handled, or harmed in any way prior to consultation with NHF&G and implementation of corrective actions recommended by NHF&G, if any, to assure the project does not appreciably jeopardize the continued existence of threatened and endangered species as defined in Fis 1002.04; and
- (4) The NHF&G, including its employees and authorized agents, shall have access to the property during the term of the permit.



**Notes:**

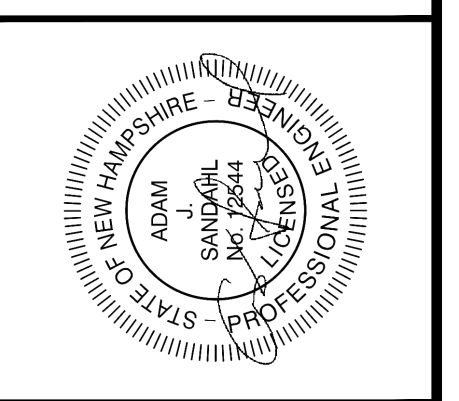
1. Existing topography was created by Eastern Topographics of Wolfeboro, New Hampshire. The survey was created from Aerial Survey performed on November 15, 2022. Horizontal datum is based on NAD83 NH State Plane coordinates system and the vertical datum is based on NAVD88.
2. Existing conditions Base Map provided by Horizons Engineering of Littleton, New Hampshire. Existing features composed from site surveys and Aerial Survey.
3. Wetlands delineated by Barry Keith, CWS #87.
4. Refer to sheet ECP-1 for additional notes and legend.

**Legend**

	Existing Property Line
	Existing Edge of Gravel
	Existing Edge of Pavement
	Existing Perennial Stream
	Existing Intermittent Stream
	Existing Wetlands (See Note 3)
	Existing Contours 10'
	Wetland Field Delineation Limit
	Property Line and Facility Compliance Boundary
	Property Line Setback
	Proposed Landfill Lined Limit
	Proposed 10' Contour
	Proposed Pavement
	Proposed Gravel

by	
date	
revision	
no.	

**CMA ENGINEERS**  
 CIVIL/ENVIRONMENTAL/STRUCTURAL  
 Portsmouth, NH • 603/431-6196  
 Manchester, NH • 603/627-0708  
 Portland, ME • 207/641-4223  
 c m a e n g i n e e r s . c o m



date:	October 2023	designed by:	ATRN/JMSTF/AJS
project no.:	1101	drawn by:	ATRN/JMSTF
checked by:	AJS	approved by:	AJS

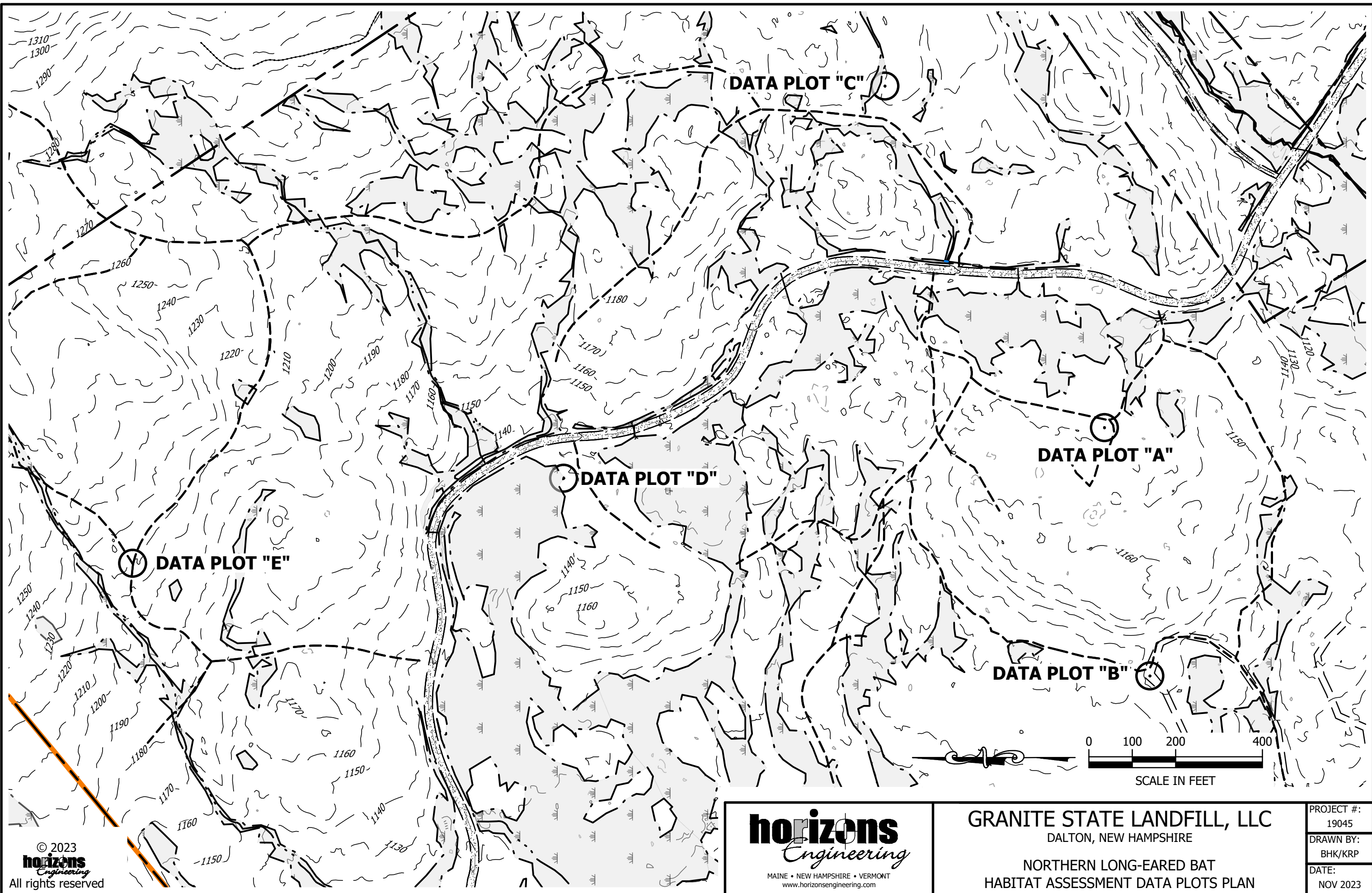
scale: 1" = 450'  
 0 450' 900'

Granite State Landfill, LLC  
 Dalton, New Hampshire  
 Permitting Plan Set  
 Overall Site Plan

drawing no.  
**OVSP-1**

sheet: 3 of 50

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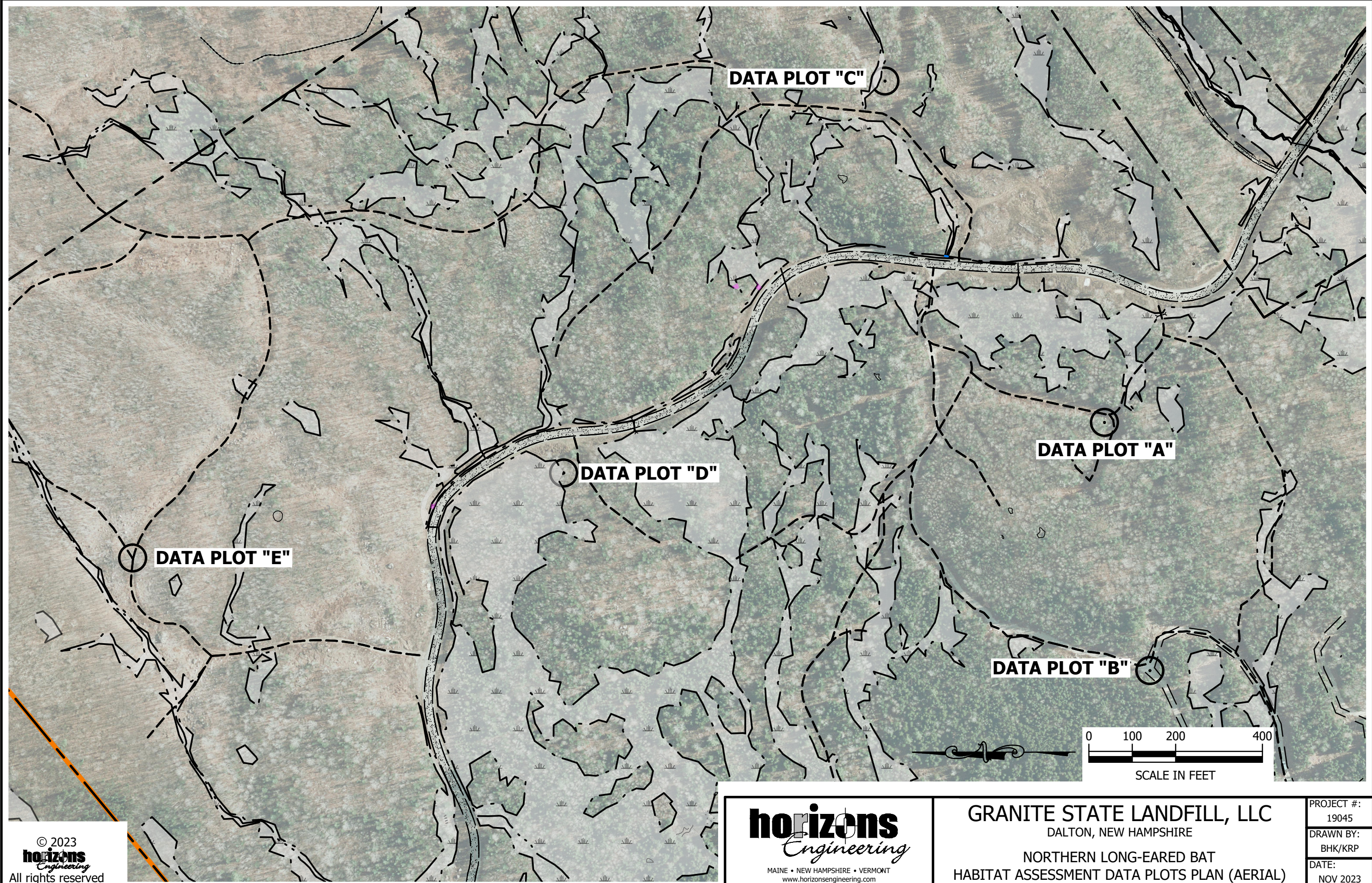
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**GRANITE STATE LANDFILL, LLC**  
DALTON, NEW HAMPSHIRE  
NORTHERN LONG-EARED BAT  
HABITAT ASSESSMENT DATA PLOTS PLAN

PROJECT #:  
19045  
DRAWN BY:  
BHK/KRP  
DATE:  
NOV 2023

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**DATA PLOT "C"**

**DATA PLOT "A"**

**DATA PLOT "D"**

**DATA PLOT "E"**

**DATA PLOT "B"**

0 100 200 400

SCALE IN FEET

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**GRANITE STATE LANDFILL, LLC**  
DALTON, NEW HAMPSHIRE  
NORTHERN LONG-EARED BAT  
HABITAT ASSESSMENT DATA PLOTS PLAN (AERIAL)

PROJECT #:  
19045  
DRAWN BY:  
BHK/KRP  
DATE:  
NOV 2023

# APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

## INDIANA BAT HABITAT ASSESSMENT DATASHEET

Project Name: Granite State Landfill Date: 5/14/2020  
 Township/Range/Section: Dalton, NH  
 Lat Long/UTM/ Zone: N44° 21' W71° 41' 38" Surveyor: B. Keith, CWB, CWS, PWS

Brief Project Description
New Regional landfill.

Project Area	Total Acres	Forest Acres		Open Acres
Project	200+-	80%		20%
Proposed Tree Removal (ac)	Completely cleared	Partially cleared (will leave trees)	Preserve acres- no clearing	
	X			

Vegetation Cover Types	
Pre-Project	Post-Project
Early successional spruce/fir-N. forest Hdwd	Open grassland Open facility areas

Landscape within 5 mile radius
Flight corridors to other forested areas?
largely forested
Describe Adjacent Properties (e.g. forested, grassland, commercial or residential development, water sources)
forestland, S&G mining, clearcuts, asphalt plant, log yard, and powerplant.

Proximity to Public Land
What is the distance (mi.) from the project area to forested public lands (e.g., national or state forests, national or state parks, conservation areas, wildlife management areas)?
Less than 0.25 miles (Forest Lake State Park).

## APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area

A single sheet can be used for multiple sample sites if habitat is the same

<b>Sample Site Description</b>
Sample Site No.(s): <u>A</u>
juncture of woods roads-West of Douglas Drive

Water Resources at Sample Site			
<b>Stream Type (# and length)</b>	Ephemeral	Intermittent	Perennial
<b>Pools/Ponds (# and size)</b> X	Open and accessible to bats?		
<b>Wetlands (approx. ac.)</b> X	Permanent	Seasonal	See Plans
	X		
Describe existing condition of water sources: VP-1 & VP-2 (see VP Assessments)			

Forest Resources at Sample Site			
<b>Closure/Density</b>	Canopy (> 50')	Midstory (20-50')	Understory (<20')
	3	3	4
<b>Dominant Species of Mature Trees</b>	Balsam Fir & Spruce		
<b>% Trees w/ Exfoliating Bark</b>	1	1	1
<b>Size Composition of Live Trees (%)</b>	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	6	1	0
<b>No. of Suitable Snags</b>	0	0	

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? No

<b>Additional Comments:</b>
Dense hardwood-softwoods with pole-sized trees dominant. Mean DBH=5.14".

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

**Photographic Documentation:** habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

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<b>Sample Site Description</b>
Sample Site No.(s): <u>  B  </u>
Lowland spruce fir forest

Water Resources at Sample Site			
<b>Stream Type (# and length)</b>	Ephemeral	Intermittent	Perennial
<b>Pools/Ponds (# and size)</b>	X	Open and accessible to bats? <input type="checkbox"/>	
<b>Wetlands (approx. ac.)</b>	X	Permanent	Seasonal
			see plans
Describe existing condition of water sources: Beaver ponds out of project area.			

Forest Resources at Sample Site			
<b>Closure/Density</b>	Canopy (> 50')	Midstory (20-50')	Understory (<20')
	1	2	6
<b>Dominant Species of Mature Trees</b>	None		
<b>% Trees w/ Exfoliating Bark</b>	1	1	1
<b>Size Composition of Live Trees (%)</b>	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	6	1	1
<b>No. of Suitable Snags</b>	0	0	0

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%,  
5=61-80%, 6=81-100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS?   No  

<b>Additional Comments:</b>
Majority of plot dominated by balsalm fir less than 20' in height. Mean stand diameter (DBH)= 3.0".

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

**Photographic Documentation:** habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

## APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

Use additional sheets to assess discrete habitat types at multiple sites in a project area

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<b>Sample Site Description</b>	
Sample Site No.(s): <u>  C  </u>	
Northern hardwoods off woods road east of Douglas Drive.	

Water Resources at Sample Site				Describe existing condition of water sources:  See VP-3 (Vernal Pool Assessment)
<b>Stream Type (# and length)</b>	Ephemeral	Intermittent	Perennial	
<b>Pools/Ponds (# and size)</b> 400 sf	Open and accessible to bats? <input checked="" type="checkbox"/>			
<b>Wetlands (approx. ac.)</b> X	Permanent	Seasonal	see plans	

Forest Resources at Sample Site				
<b>Closure/Density</b>	Canopy (> 50')	Midstory (20-50')	Understory (<20')	1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%, 5=61-80%, 6=81-100%
	1	5	1	
<b>Dominant Species of Mature Trees</b>	No mature trees.			
<b>% Trees w/ Exfoliating Bark</b>	1	1	1	
<b>Size Composition of Live Trees (%)</b>	Small (3-8 in)	Med (9-15 in)	Large (>15 in)	
<b>No. of Suitable Snags</b>	6	0	0	

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS?   No  

<b>Additional Comments:</b>	<p>Dense stand of even-aged pole-sized northern hardwoods.</p> <p>Mean tree DBH= 3.47".</p>
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**Attach aerial photo of project site with all forested areas labeled and a general description of the habitat**

**Photographic Documentation:** habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources



## APPENDIX A: PHASE 1 HABITAT ASSESSMENTS

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<b>Sample Site Description</b>
Sample Site No.(s): <u>  D  </u>
Forested wetland west of Douglas Drive.

Water Resources at Sample Site			
<b>Stream Type (# and length)</b>	Ephemeral	Intermittent	Perennial
<b>Pools/Ponds (# and size)</b>	Open and accessible to bats? <u>N</u>		
<b>Wetlands (approx. ac.)</b> <u>X</u>	Permanent	Seasonal	see plans
Describe existing condition of water sources: Poorly drained PSS/FO1E			

Forest Resources at Sample Site			
<b>Closure/Density</b>	Canopy (> 50')	Midstory (20-50')	Understory (<20')
	1	4	3
<b>Dominant Species of Mature Trees</b>	No mature trees.		
<b>% Trees w/ Exfoliating Bark</b>	0	0	0
<b>Size Composition of Live Trees (%)</b>	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	5	1	0
<b>No. of Suitable Snags</b>	0	0	

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%,  
5=61-80%, 6=81=100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS? No

<b>Additional Comments:</b>	Plot is west of Douglas Drive.  Dominant species are sapling and pole-sized red maple, gray birch, and yellow birch. Mean tree DBH=3.5".
-----------------------------	--

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

**Photographic Documentation:** habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources

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Include a map depicting locations of sample sites if assessing discrete habitats at multiple sites in a project area  
A single sheet can be used for multiple sample sites if habitat is the same

<b>Sample Site Description</b>
Sample Site No.(s): <u>  E  </u>
North of MW off of woods road - East of Douglas Drive

Water Resources at Sample Site			
<b>Stream Type (# and length)</b>	Ephemeral	Intermittent	Perennial
<b>Pools/Ponds (# and size)</b>	Open and accessible to bats? <input checked="" type="checkbox"/>		
<b>Wetlands (approx. ac.)</b>	Permanent	Seasonal	see plans
Describe existing condition of water sources: small intermittent stream			

Forest Resources at Sample Site			
<b>Closure/Density</b>	Canopy (> 50')	Midstory (20-50')	Understory (<20')
	1	5	2
<b>Dominant Species of Mature Trees</b>	No mature trees except 1 red oak.		
<b>% Trees w/ Exfoliating Bark</b>	0	0	0
<b>Size Composition of Live Trees (%)</b>	Small (3-8 in)	Med (9-15 in)	Large (>15 in)
	6	1	0*
<b>No. of Suitable Snags</b>	0	0	

1=1-10%, 2=11-20%, 3=21-40%, 4=41-60%,  
5=61-80%, 6=81=100%

Standing dead trees with exfoliating bark, cracks, crevices, or hollows. Snags without these characteristics are not considered suitable.

IS THE HABITAT SUITABLE FOR INDIANA BATS?   No  

<b>Additional Comments:</b>
Pole-sized northern hardwood stand dominated by quaking aspen.
* Note: One (1) large diameter (24"+ tree is at the edge of the woods road. Mean tree DBH= 3.65".

Attach aerial photo of project site with all forested areas labeled and a general description of the habitat

**Photographic Documentation:** habitat shots at edge and interior from multiple locations; understory/midstory/canopy; examples of potential suitable snags and live trees; water sources