

Section 10.5

Canada Lynx – Winter Tracking Survey

WINTER WILDLIFE TRACKING SURVEY

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

PREPARED FOR:

**GRANITE STATE LANDFILL, LLC
1855 VERMONT ROUTE 100
HYDE PARK, VERMONT 05655**

PREPARED BY:

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OCTOBER 2023

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WINTER WILDLIFE TRACKING SURVEY

1.0 INTRODUCTION

This report serves to summarize the findings of a Winter Wildlife Tracking Survey conducted within an approximate 712 acre area (Figure 1) associated with lands within and in the immediate vicinity of an approximate 70 acre proposed landfill site located within a 415.32 acre lot (Tax Map 406-2.1) in the Town of Dalton, New Hampshire.

The "site" is proposed to be developed as a 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.

2.0 PURPOSE

The purpose of this survey centered on cataloguing wildlife tracks, sign, scat, direct observations, and evaluating the general wildlife habitat within the site and immediate environs for the presence of potential critical Canada lynx (*Lynx canadensis*) habitat. The work was performed by Certified Wildlife Biologist, Barry Keith, during the winters of 2019-2020, 2021-2022 and 2022-2023.

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

Consultations with the U.S. Fish and Wildlife Service (USFWS) listed the Canada lynx as a Federally Threatened specie under the Endangered Species Act. Pursuant to Section 7 of the Act, any federal project or projects which have a federal nexus (ie. U.S. Army Corps of Engineers permit) are required to "request to the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action."

The USFWS "IPaC" data search identified two Threatened species, Canada lynx and Northern long-eared Bat as potentially having "critical habitats that may lie wholly or partially within the project area." The data search screening determined that "there are no critical habitats within your project area under this office's jurisdiction."

3.0 BACKGROUND

The USFWS describes the Canada lynx as “an elusive forest-dwelling cat of northern latitudes.” The cat is approximately 30-35 inches long and can weigh between 14 to 31 pounds. The lynx can be distinguished from bobcats (*Lynx rufus*) by its gray fur, large furred paws, long black ear tufts, and short black-tipped tail.

Canada Lynx are often strongly associated with populations of snowshoe hare (*Lepus americanus*). Habitats such as dense spruce-fir forests that are capable of supporting high snowshoe hare densities can provide food and cover for lynx. Snowshoe hare provide the majority of the lynx diet throughout its range. The USFWS noted that “in the northern contiguous U.S., boreal forests transition to more temperate forest types, where lynx populations cannot be sustained, even though snowshoe hare may still be present.”

4.0 METHODOLOGY

In order to assess the potential for critical Canada lynx habitat, and to assess general winter mammal habitat usage, a Winter Wildlife Tracking Survey was conducted on March 1st and March 14-15, 2019, February 5th, 12th, and 20th of 2020, February 22 and March 21, 2022 and February 8th and 22nd of 2023.

Using 2019 and 2022 aerial photography overlaid with the tax map parcels, a series of four (4) line transects (A-D) or traverses (Figure 3) were established. Where possible, traverse layout employed utilizing existing woods roads and other significant land features (ie. wetlands) that would cross through the various principal natural communities found within the study area. In this way, the traverse route can be repeatedly traveled over a period of time, providing comparative sampling data. Each traverse was walked within 24 hours after a 1” snowfall or more. This method serves to identify recent wildlife tracks allowing the observer to distinguish between “fresh and old” tracks. Other wildlife evidence included scat, sign, and direct observations.

The forest types were classified using the report entitled “Natural Communities of New Hampshire” (Sperduto & Nichols, 2011). Representative photos of the traverse travel routes are found in Appendix B.

Traverse “A” was positioned to the east of Douglas Drive. This approximate 1.6 mile traverse incorporates Douglas Drive its western limits. Traverse “B” is an approximate 0.7 mile loop positioned west of Douglas Drive. Both Traverse A and B are positioned within the general project area. Traverse “C” incorporates the roadway to the western gravel pit and existing woods roads north and west of the project area. The route encompasses approximately 1.5 miles. Much of this traverse was positioned within Tax Map 406 Lot 1. Traverse “D” is an approximate 0.8 mile travel route located near Route 116 in the southern portion of the overall site. It is bisected by Douglas Drive.

The 2019 and 2020 winter tracking surveys were conducted employing all (A-D) traverse routes. The 2022 and 2023 surveys focused on Traverse routes A and B positioned in and adjacent to the project area.

5.0 OBSERVATIONS

5.1 Land Use

From an historical perspective, this property has been heavily logged as commercial forestland for many years. The current owner has continued periodic block or clearcutting logging operations. The most recent logging operations are evident on the 2022 aerial photo. These logging practices have served to establish the early successional forest as the dominant existing land use feature.

The overall existing conditions of the general site incorporate a mixture of land uses. Much of the area proposed for the landfill consists of generally young to pole-sized forestland interspersed with forest and scrub-shrub wetland habitat. The wetlands serve as headwater wetlands for Alder Brook, a tributary to the Ammonosuc River. This area is bisected by Douglas Drive, an improved gravel access road that provides access from Route 116 to the existing gravel mining operation within the northern portions of the site.

An existing rock quarry, open materials stockpile area and former asphalt plant are within or adjacent to an area designated for portions of the project's planned infrastructure. Other land use features include a drag strip, residential home and garage, and recently clearcut areas planned for potential future industrial development.

5.2 Natural Communities

Four (4) principal natural communities were identified. In general, the dominant forest communities include: lowland spruce-fir, northern hardwood-spruce/fir, sugar maple-beech-yellow birch forest types. The forested wetland areas are largely northern conifer and hardwood swamps which are intermixed with areas of scrub-shrub wetland.

5.2.1. Lowland Spruce-Fir Forest

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*).

5.2.2. Northern Hardwood-Spruce-Fir Forest

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.

5.2.3. Northern Hardwood Forest

The northern hardwood forest is the primary forest type in the higher elevations within the northern and eastern portions of the study area. 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.

5.2.4. Forested and Scrub-Shrub Wetland Community

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 northern and eastern forestland consists principally of northern hardwood forest.

5.3 Wildlife Tracking Observations

As previously mentioned, the initial winter tracking survey was conducted over a 6 day period during February and March of 2019 and 2020. Deep snow and cold weather conditions prevailed during the 2019 season. During the late winter period of 2020, somewhat warmer temperatures and a reduced snow pack prevailed.

The 2022 and 2023 tracking survey was conducted within Traverse A and B over a 4 day period in the months of February and March. See Appendix A – Wildlife Tracking Survey Forms.

The principal natural communities within Traverse A included early successional northern hardwood and transitional northern hardwood – spruce-fir forest. A series of forested wetlands are positioned within the core of this area and a former beaver colony wetland complex associated with a permanent stream is positioned to the immediate south of the traverse.

Snowshoe hare tracks were the most prolific sign, particularly within the mixed forest, softwood forest and wetland areas. Coyotes (*Canis latrans*) and moose (*Alces alces*) sign were the other most prevalent species. A bobcat track was observed in the 2019 season.

Traverse B encompasses an area west of Douglas Drive. This 0.7 mile traverse crosses through spruce-fir forest, transitional forest and forested wetland. A high density of snowshoe hare tracks were observed throughout the traverse. White-tailed deer (*Odocoileus virginianus*), moose, and ruffed grouse (*Bonasa umbellus*) tracks comprise the majority of the other track observations. No sign of deer wintering habitat or usage was observed.

Traverse C consists of two loops. The southern loop crosses through extensive wetlands and pole-sized spruce-fir and transitional softwood-hardwood stands. The northern loop is positioned in higher elevation terrain dominated by young northern hardwood forest, transitional forest, and headwater forested wetland habitat. Snowshoe hare tracks comprise the majority of the tracks. These tracks tended to congregate within the spruce-fir and transitional forested area which were dominated by a higher percentage of softwoods. Other primary species included ruffed grouse and coyote. The coyote tracks were widespread. The grouse observations tended to be near or within aspen stands.

The approximate 0.8 mile Traverse D was positioned in the southern portion of the study area to document wildlife use nearer to Route 116. This traverse crosses Douglas Drive at two locations and is partially positioned along the south southeastern edge of the gravel drag strip. Lowland spruce-fir forest, forested wetlands, and an early successional clearcut are the primary habitat types in this area. Whereas dense softwood cover is most prevalent, the dominant species recorded was snowshoe hare. Moose and coyote sign indicate that these species may periodically congregate in this area.

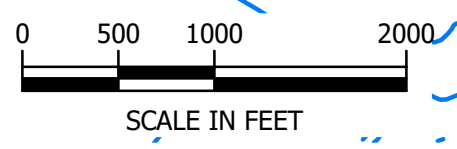
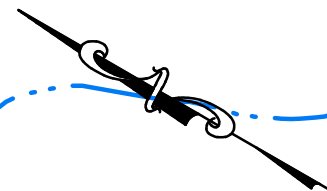
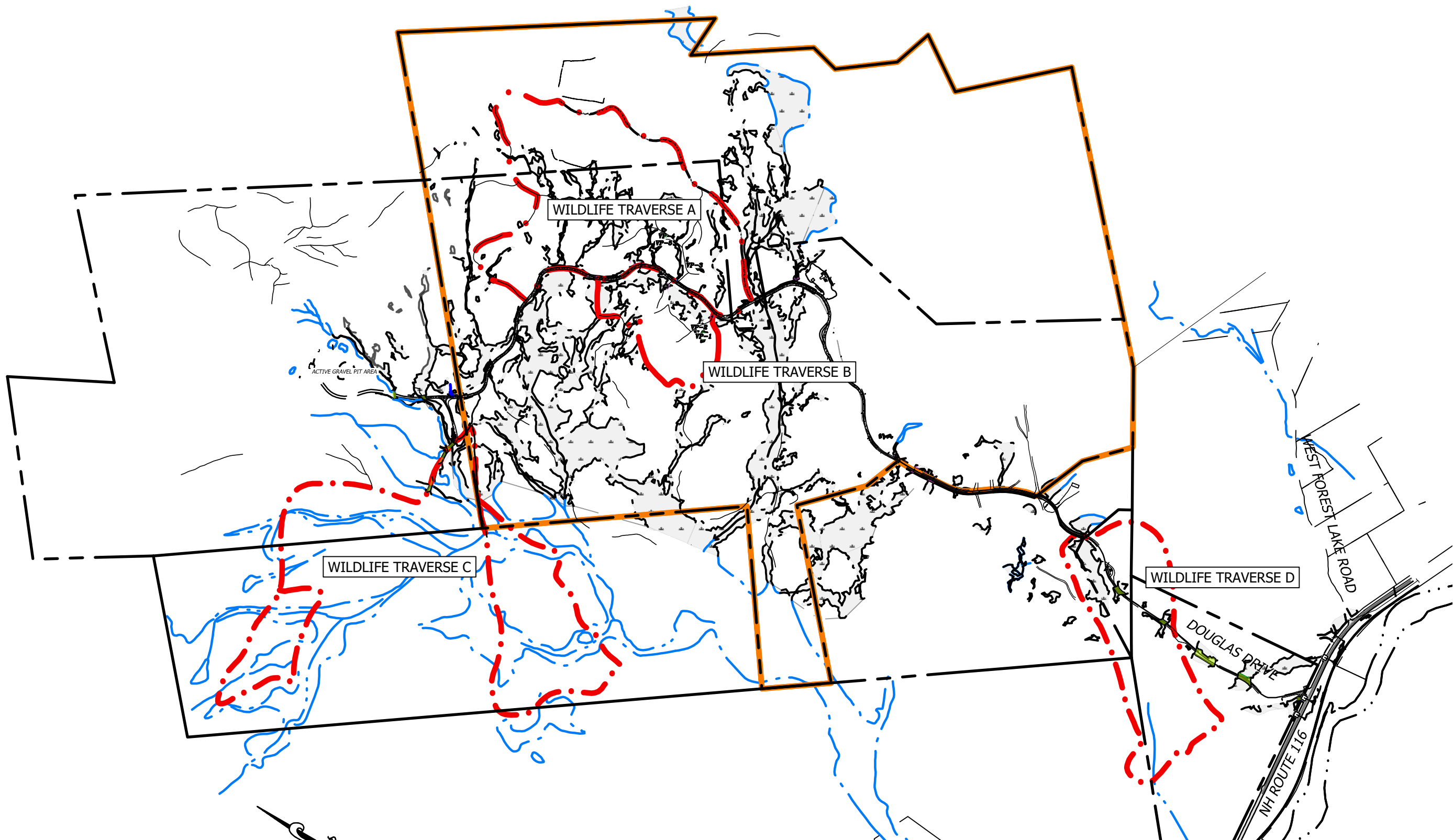
6.0 SUMMARY

No Canada lynx tracks, scat, sign, or observations were observed. The winter tracking survey found that snowshoe hare were the most prevalent species in all habitats, particularly within the spruce-fir, transitional forest and forested/scrub-shrub wetland habitats. Moose and coyotes comprise the other more prevalent species found within all habitat types within the subject area.

Although snowshoe hare comprise the principal diet for lynx, remote landscape level spruce-fir forests are a key component for critical lynx habitat. While spruce-fir forest is found within the study area, the extent of other transitional hardwood and northern hardwood communities in combination with the existing land use (Section 5.1) do not provide for critical Canada lynx habitat.

The USFWS (Appendix B) was consulted (Consultation Code: 05E1NE00-2020-SLI-2571) 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
WILDLIFE TRACKING SURVEY
OVERVIEW

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

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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

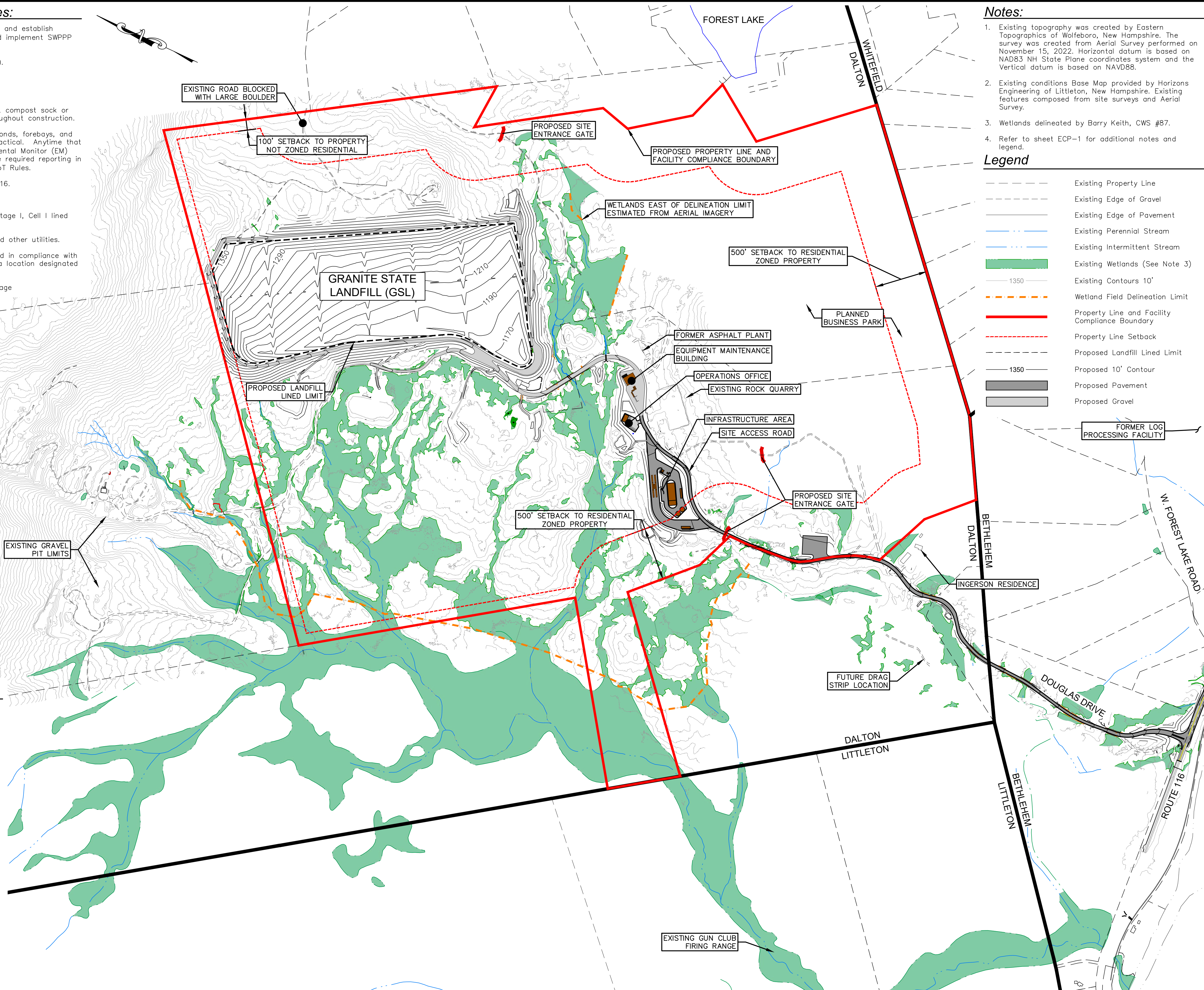
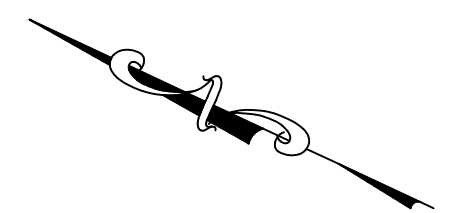
PROPOSED SITE ENTRANCE GATE

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:

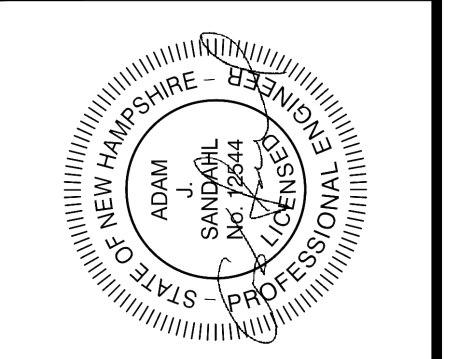
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2. Existing conditions Base Map provided by Horizons Engineering of Littleton, New Hampshire. Existing features composed from site surveys and Aerial Survey.
3. Wetlands delineated by Barry Keith, CWS #87.
4. Refer to sheet ECP-1 for additional notes 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)
- 1350 Existing Contours 10'
- Wetland Field Delineation Limit
- Property Line and Facility Compliance Boundary
- Property Line Setback
- Proposed Landfill Lined Limit
- 1350 Proposed 10' Contour
- Proposed Pavement
- Proposed Gravel

no.	revision	date	by

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

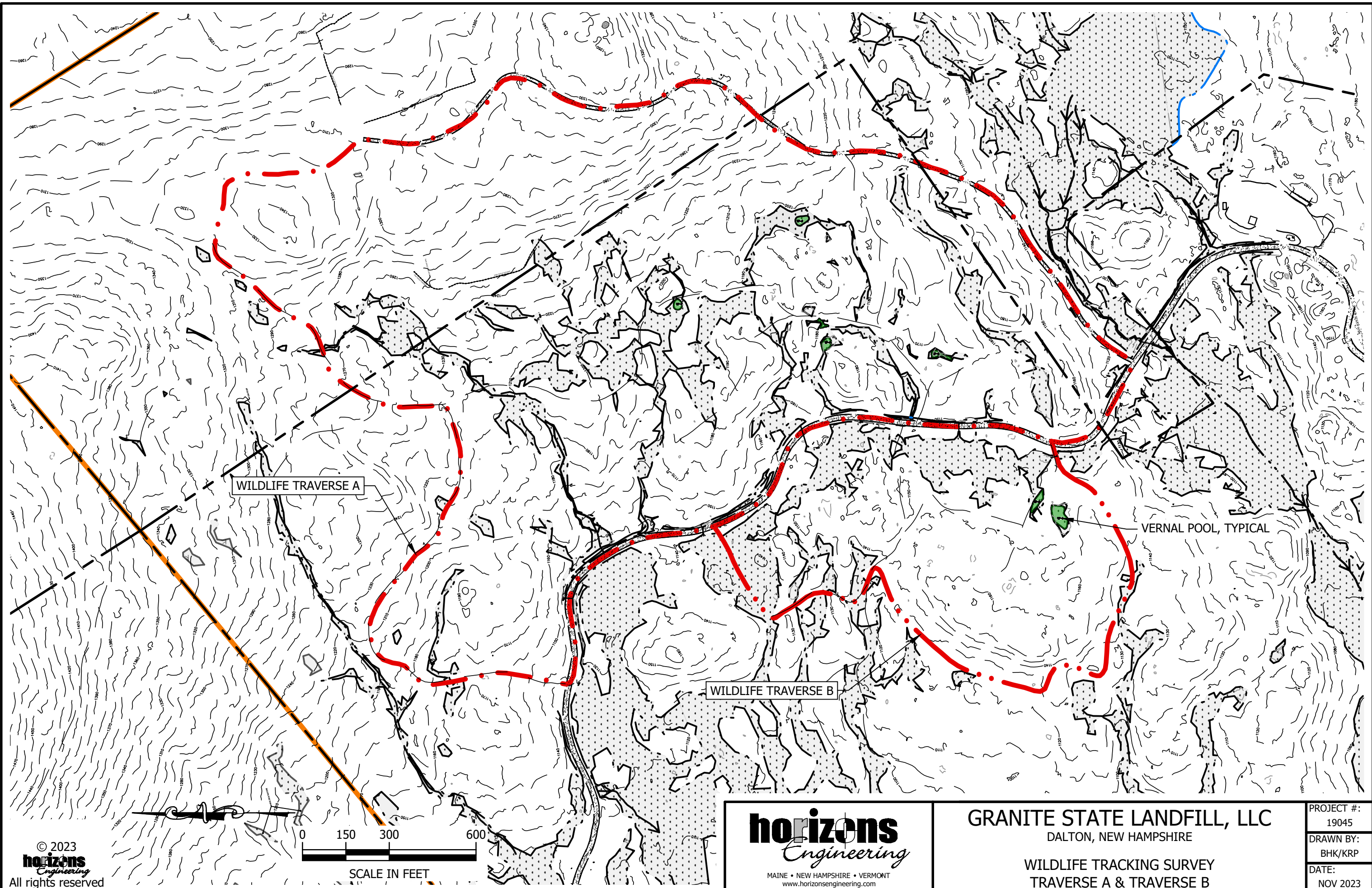
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 0 450' 900'

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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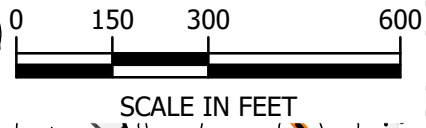


WILDLIFE TRAVERSE A

WILDLIFE TRAVERSE B

VERNAL POOL, TYPICAL

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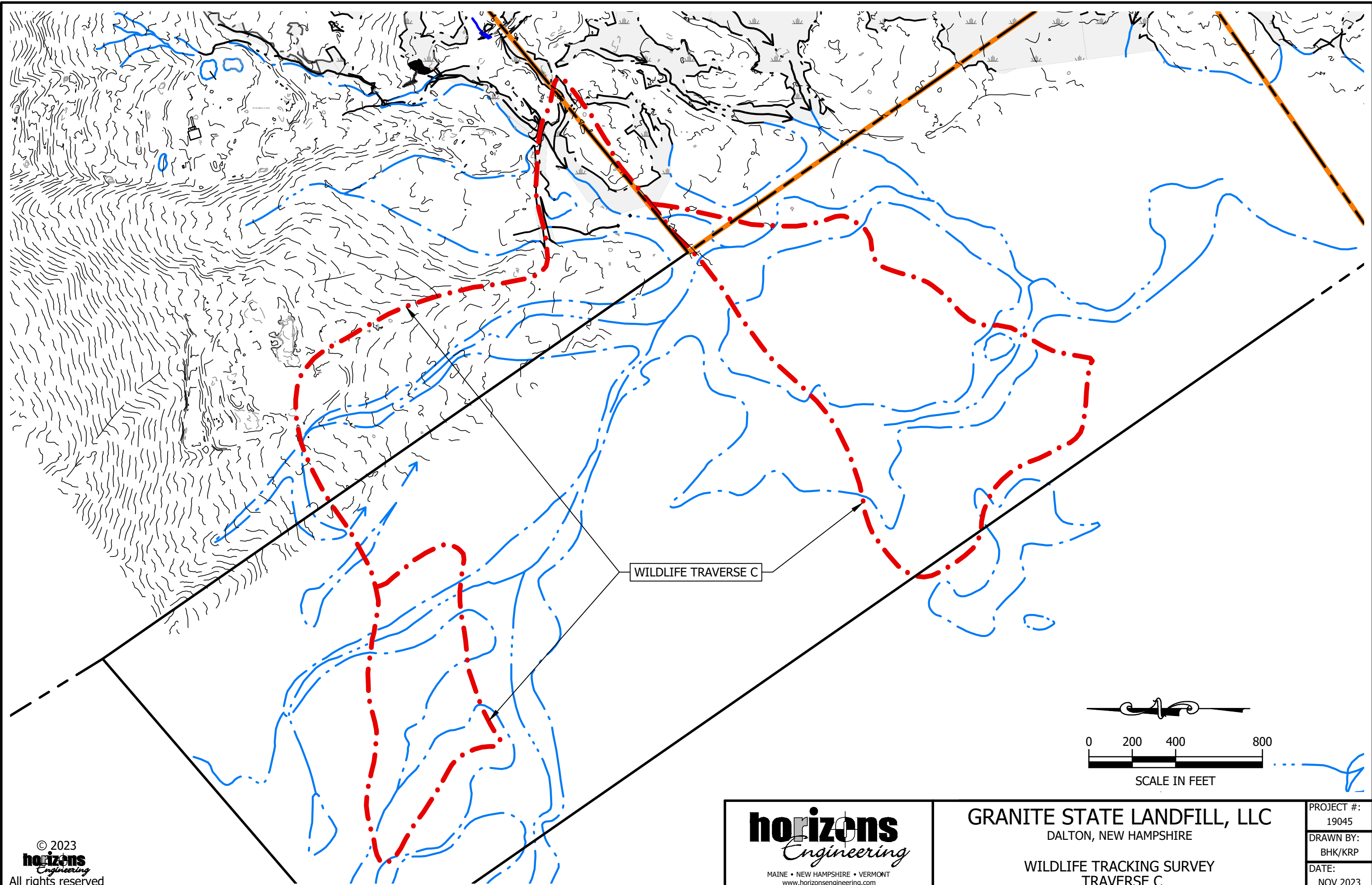


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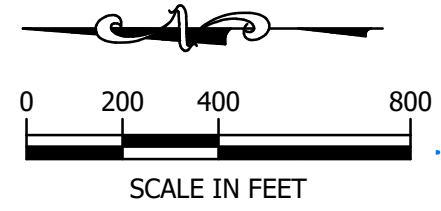
GRANITE STATE LANDFILL, LLC
 DALTON, NEW HAMPSHIRE
 WILDLIFE TRACKING SURVEY
 TRAVERSE A & TRAVERSE B

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DATE:	NOV 2023

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WILDLIFE TRAVERSE C



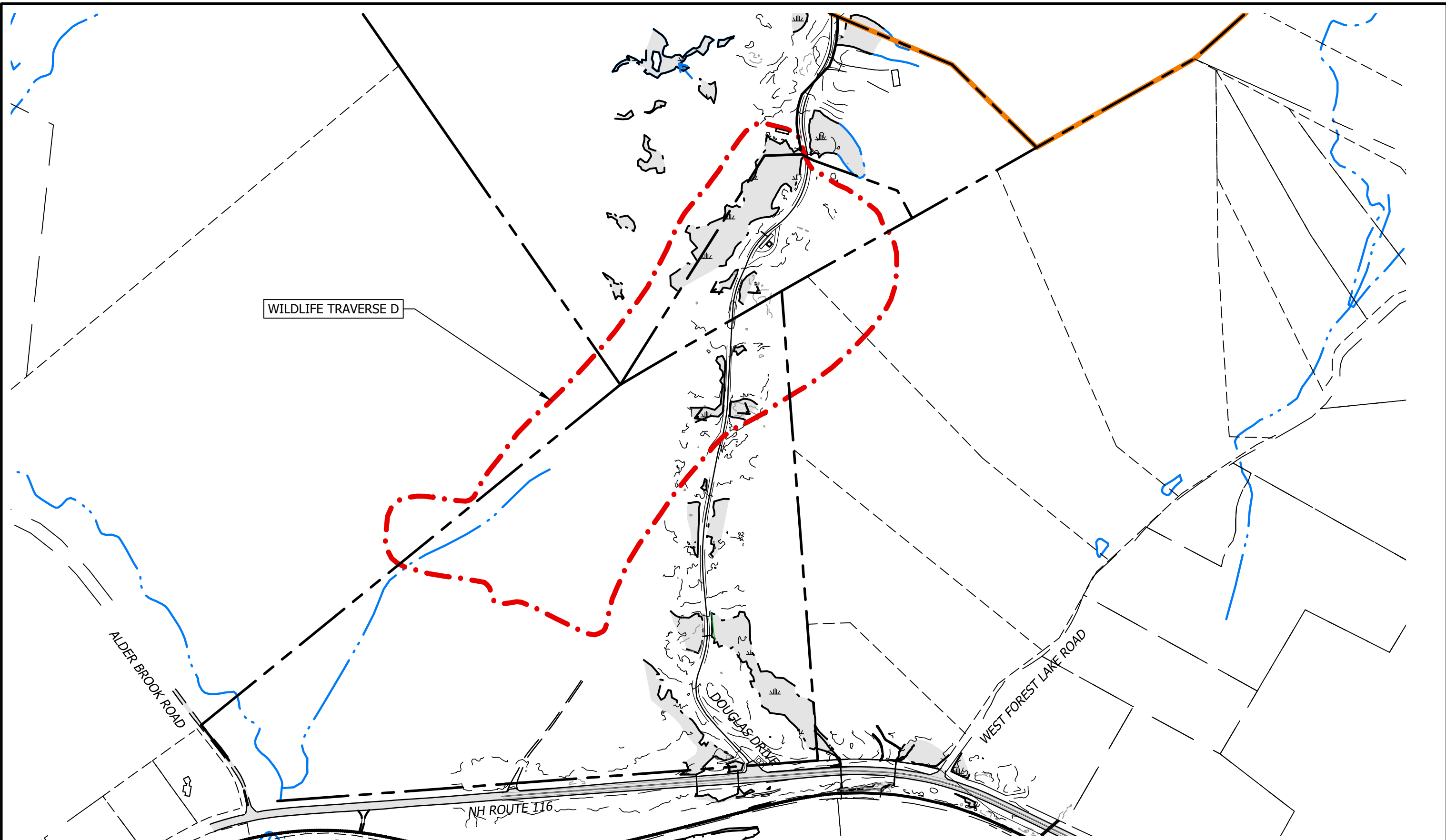
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WILDLIFE TRACKING SURVEY
TRAVERSE C

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WILDLIFE TRAVERSE D

ALDER BROOK ROAD

NH ROUTE 116

DOUGLAS DRIVE

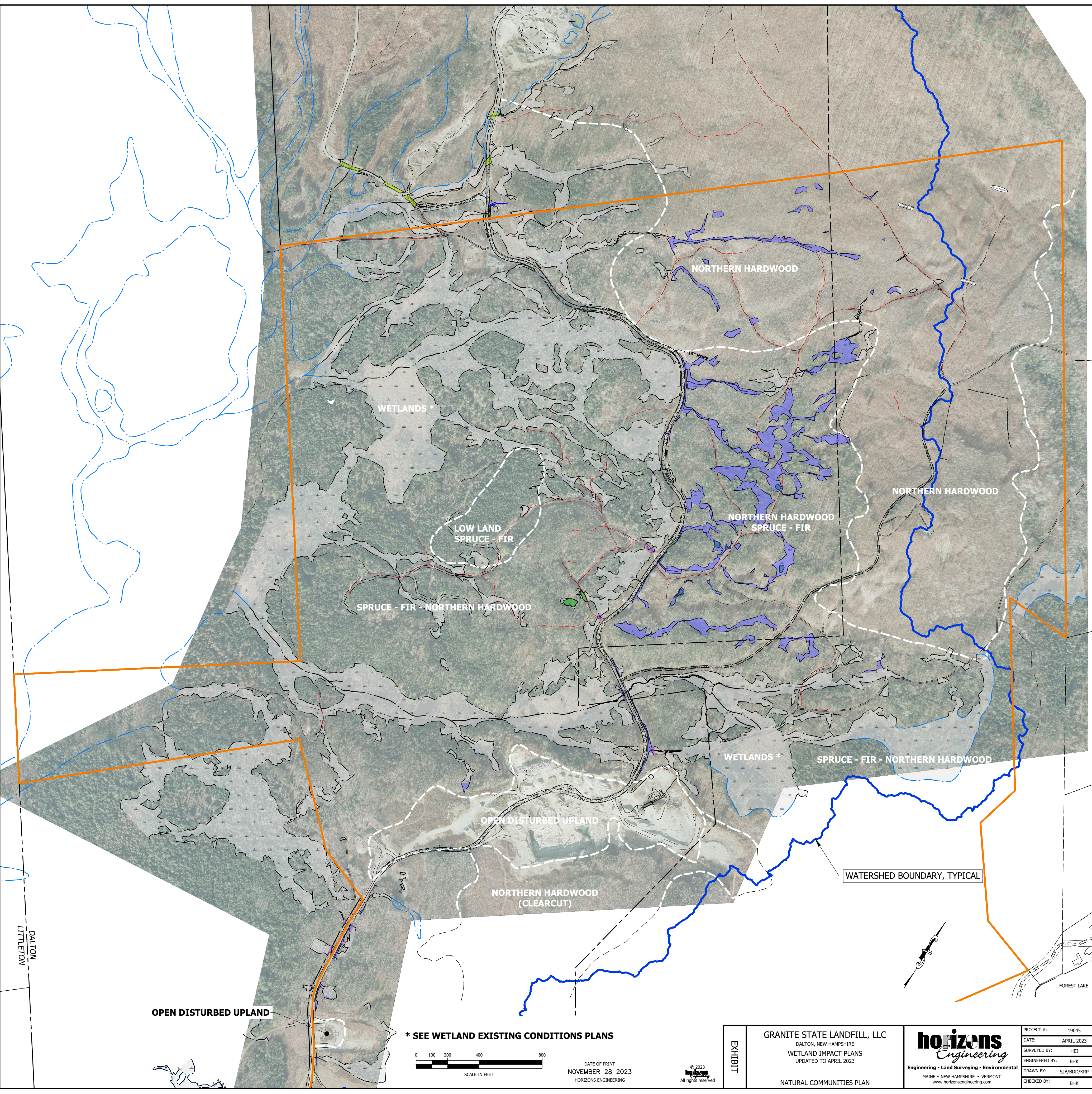
WEST FOREST LAKE ROAD

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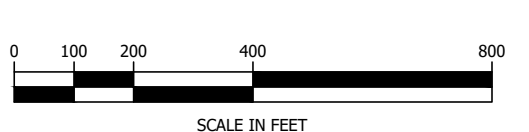
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 DALTON, NEW HAMPSHIRE
 WILDLIFE TRACKING SURVEY
 TRAVERSE D

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OPEN DISTURBED UPLAND

* SEE WETLAND EXISTING CONDITIONS PLANS



DATE OF PRINT
NOVEMBER 28 2023
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EXHIBIT

GRANITE STATE LANDFILL, LLC
DALTON, NEW HAMPSHIRE
WETLAND IMPACT PLANS
UPDATED TO APRIL 2023
NATURAL COMMUNITIES PLAN

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SURVEYED BY:	HET
ENGINEERED BY:	BHK
DRAWN BY:	SJB/BDD/KRP
CHECKED BY:	BHK

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: A

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
3-1-19	9-12PM	sunny 15-25 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known) see airphoto
Beaver			
Black Bear			
Bobcat	1		off old truck road
Cotton Tail			
Coyote	8		
Deer			
Fisher			
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	5	cow & calves	
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	1		
Snowshoe Hare	20		
Striped Skunk			
Turkey			
Weasel	1		
Other	Red Squirrel	1	

Additional comments: Survey conducted within 24 hours of a 1-2" snowstorm.

Total snow depth= 12-20".

Habitat: Hdwd/Softwood upland forest, clearcuts, & forested wetland.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: B

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
3-1-19	12-2PM	sunny 18 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)see air photo
Beaver			
Black Bear			
Bobcat			
Cotton Tail			
Coyote			
Deer			
Fisher			
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	4	4 sets of track-	co-mingled
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	1		aspen-white birch habitat
Snowshoe Hare	22		spruce-fir habitat
Striped Skunk			
Turkey			
Weasel	1		
Other			

Additional comments: Traverse from Douglas Drive to MW-J and back to Douglas Drive.

Habitat: Mixed spruce-fir and pole-sized hardwood intermixed with PSS/F04/1E wetland.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: C

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
3-14-19	1-4 PM	sunny 35 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known) NW of gravel pit.
Beaver *			
Black Bear			
Bobcat			
Cotton Tail			
Coyote	8		co-mingled tracks
Deer			
Fisher	1		along edge of wetland
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	6		
Muskrat			
Porcupine	2		tracks and chewings
Raccoon			
Ruffed Grouse			
Snowshoe Hare	20		mostly in spruce-fir
Striped Skunk			
Turkey	3		older tracks
Weasel			
Other			

Additional comments: * No active beaver. Active lodges do exist in the watershed.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: D

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
3-15-19	8AM-12	light rain to clear 40°	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)
Beaver			near Route 116/drag strip
Black Bear			
Bobcat			
Cotton Tail			
Coyote	18		
Deer			
Fisher			
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	12		congregated tracks
Muskrat			
Porcupine	1		
Raccoon			
Ruffed Grouse	1		
Snowshoe Hare	24		old and new tracks
Striped Skunk			
Turkey	4		near existing openings
Weasel			
Other chickadee		1	

Additional comments:

12-24" snow cover.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: A

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
2-5-20	8AM-12	sunny 25 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)
Beaver			
Black Bear			
Bobcat			
Cotton Tail			
Coyote	2	1	edge of old woods road
Deer	3		
Fisher			
Fox	4		
Gray Squirrel	4		
Lynx			
Mink			
Moose	4	new tracks with many old tracks evident	
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	2		
Snowshoe Hare	20		
Striped Skunk			
Turkey			
Weasel			
Other	red squirrel 2	3	
	Raven	1	

Additional comments: Site visit within 12 hours after 1" powder snowfall.

PROJECT: Granite State Landfill, Dalton, N.H.

Date: 2-5-20	Time: 8AM-12	Weather Conditions/Temp: sunny 25 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)
Beaver			
Black Bear			
Bobcat			
Cotton Tail			
Coyote	1		
Deer	6		
Fisher			
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	2		older tracks
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	2		
Snowshoe Hare	46		old& new tracks
Striped Skunk			
Turkey			
Weasel	4		
Other			

Additional comments: Site visit within 12 hours after 1" snowfall.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: C

PROJECT: Granite State Landfill, Dalton, N.H.

Date: 2-12-20 Time: 10AM-12 Weather Conditions/Temp: partly sunny 25 degrees

Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)
Beaver			
Black Bear			
Bobcat			
Cotton Tail			
Coyote	2		traveling snowmobile path
Deer			
Fisher			
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	5		
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	6	1	observed in aspen tree
Snowshoe Hare	18		
Striped Skunk			
Turkey			
Weasel			
Other	red squirrel 9 slate-colored junco	1	

Additional comments: Survey within 24 hours after 1" powder snowstorm.

APPENDIX A -- WILDLIFE TRACKING SURVEY FORM

TRAVERSE: D

PROJECT: Granite State Landfill, Dalton, N.H.

Date:	Time:	Weather Conditions/Temp:	
2-20-20	10AM-12	sunny 40 degrees	
Wildlife Species	Number of Tracks seen	Number of Wildlife sightings	Approximate location/trail/GPS or vicinity (if known)
Beaver			
Black Bear			
Bobcat			
Cotton Tail			
Coyote			
Deer			
Fisher	1		
Fox			
Gray Squirrel			
Lynx			
Mink			
Moose	2		old tracks
Muskrat			
Porcupine			
Raccoon			
Ruffed Grouse	1		
Snowshoe Hare	1		barking/many trails
Striped Skunk			
Turkey			
Weasel			
Other red squirrel	3		

Additional comments: Approximately 18-24" snow pack- last snowstorm +/- 4 days ago.

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: A

DATE: 2/22/22

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
------------------	------------------------------	-----------------------	---------

Beaver

Black Bear

Bobcat

Canada Lynx

Coyote

White-tailed Deer

7

2

Fisher

Red Fox

Mink

White-footed Mouse

2

Muskrat

Moose

2

Porcupine

Raccoon

Ruffed Grouse

Red Squirrel

Gray Squirrel

Wild Turkey

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: B

DATE: 2/22/22

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
------------------	------------------------------	-----------------------	---------

Beaver

Black Bear

Bobcat

Canada Lynx

Coyote

4

White-tailed Deer

6

2

Fisher

Red Fox

Mink

White-footed Mouse

2

Snowshoe Hare

2

Moose

1

Porcupine

Raccoon

Ruffed Grouse

Red Squirrel

Gray Squirrel

Wild Turkey

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: A

DATE: 3/21/22

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
Beaver			
Black Bear			
Bobcat			
Canada Lynx			
Coyote	11		
White-tailed Deer	27	4	snow 20% coverage
Fisher			
Red Fox			
Mink			
White-footed Mouse	3		
Snowshoe Hare	1		
Moose	3		heavy moose browse
Porcupine			
Raccoon			
Ruffed Grouse			
Red Squirrel			
Gray Squirrel			
Wild Turkey	4		

APPENDIX A
 WINTER WILDLIFE TRACKING FORM
 GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: B

DATE: 3/21/22

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
Beaver			
Black Bear			
Bobcat	1		
Canada Lynx			
Coyote	1	1	scat in woods road
White-tailed Deer	4		
Fisher			
Red Fox			
Mink			
White-footed Mouse	10		
Snowshoe Hare	8		
Moose	3		numerous droppings
Porcupine			
Raccoon			
Ruffed Grouse	2		
Red Squirrel	1		
Gray Squirrel			
Wild Turkey			

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: A

DATE: 2/08/23

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
Beaver			
Black Bear			
Bobcat			
Canada Lynx			
Coyote	1		old track
White-tailed Deer	3		winter kill near MW23
Fisher	1		
Red Fox			
Mink			
White-footed Mouse	10		
Snowshoe Hare	1		
Moose	2		numerous barked trees
Porcupine			
Raccoon			
Ruffed Grouse	1		
Red Squirrel	1		
Domestic Dog	1		

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: B

DATE: 2/08/23

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
------------------	------------------------------	-----------------------	---------

Beaver

Black Bear

Bobcat

Canada Lynx

Coyote 1

White-tailed Deer 7

Fisher

Red Fox

Mink

White-footed Mouse 10

Snowshoe Hare 1

Moose 2 old tracks

Porcupine

Raccoon

Ruffed Grouse 1

Red Squirrel 1

Gray Squirrel

Wild Turkey

APPENDIX A
WINTER WILDLIFE TRACKING FORM
GRANITE STATE LANDFILL, DALTON, N.H.

TRAVERSE: A

DATE: 2/22/23

WILDLIFE SPECIES	NUMBER OF TRACKS OBSERVED	NUMBER OF SITIINGS	COMMENT
Beaver			
Black Bear			
Bobcat			
Canada Lynx			
Coyote	1		
White-tailed Deer			
Fisher	1		
Red Fox			
Mink			
White-footed Mouse			
Snowshoe Hare	1		
Moose	2		numerous barked trees
Porcupine			
Weasel	2		
Ruffed Grouse	1		
Red Squirrel	1		
Gray Squirrel	4		



United States Department of the Interior



FISH AND WILDLIFE SERVICE
New England Ecological Services Field Office
70 Commercial Street, Suite 300
Concord, NH 03301-5094
Phone: (603) 223-2541 Fax: (603) 223-0104

In Reply Refer To:
Project Code: 2023-0019103
Project Name: Granite State Landfill

November 21, 2023

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

Updated 4/12/2023 - Please review this letter each time you request an Official Species List, we will continue to update it with additional information and links to websites may change.

About Official Species Lists

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Federal and non-Federal project proponents have responsibilities under the Act to consider effects on listed species.

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested by returning to an existing project's page in IPaC.

Endangered Species Act Project Review

Please visit the “**New England Field Office Endangered Species Project Review and Consultation**” website for step-by-step instructions on how to consider effects on listed

species and prepare and submit a project review package if necessary:

<https://www.fws.gov/office/new-england-ecological-services/endangered-species-project-review>

NOTE Please do not use the **Consultation Package Builder** tool in IPaC except in specific situations following coordination with our office. Please follow the project review guidance on our website instead and reference your **Project Code** in all correspondence.

Northern Long-eared Bat - (Updated 4/12/2023) The Service published a final rule to reclassify the northern long-eared bat (NLEB) as endangered on November 30, 2022. The final rule went into effect on March 31, 2023. You may utilize the **Northern Long-eared Bat Rangewide Determination Key** available in IPaC. More information about this Determination Key and the Interim Consultation Framework are available on the northern long-eared bat species page:

<https://www.fws.gov/species/northern-long-eared-bat-myotis-septentrionalis>

For projects that previously utilized the 4(d) Determination Key, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective. If your project was not completed by March 31, 2023, and may result in incidental take of NLEB, please reach out to our office at newengland@fws.gov to see if reinitiation is necessary.

Additional Info About Section 7 of the Act

Under section 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to determine whether projects may affect threatened and endangered species and/or designated critical habitat. If a Federal agency, or its non-Federal representative, determines that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Federal agency also may need to consider proposed species and proposed critical habitat in the consultation. 50 CFR 402.14(c)(1) specifies the information required for consultation under the Act regardless of the format of the evaluation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<https://www.fws.gov/service/section-7-consultations>

In addition to consultation requirements under Section 7(a)(2) of the ESA, please note that under sections 7(a)(1) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species. Please contact NEFO if you would like more information.

Candidate species that appear on the enclosed species list have no current protections under the ESA. The species' occurrence on an official species list does not convey a requirement to

consider impacts to this species as you would a proposed, threatened, or endangered species. The ESA does not provide for interagency consultations on candidate species under section 7, however, the Service recommends that all project proponents incorporate measures into projects to benefit candidate species and their habitats wherever possible.

Migratory Birds

In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see:

<https://www.fws.gov/program/migratory-bird-permit>

<https://www.fws.gov/library/collections/bald-and-golden-eagle-management>

Please feel free to contact us at **newengland@fws.gov** with your **Project Code** in the subject line if you need more information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat.

Attachment(s): Official Species List

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

New England Ecological Services Field Office

70 Commercial Street, Suite 300

Concord, NH 03301-5094

(603) 223-2541

PROJECT SUMMARY

Project Code: 2023-0019103

Project Name: Granite State Landfill

Project Type: Landfill - Solid Waste

Project Description: Granite State Landfill, LLC proposes development of the Granite State Landfill project, which will consist of tree clearing, wetland filling (permitted separately) construction of a 70 acre lined landfill and associated berms, site infrastructure area, roadway improvements, and stormwater ponds. The project proposes a total area of disturbance of 148 acres, primarily on two parcels in Dalton. Portions of the project are also in Bethlehem, including improvements to Douglas Drive and NH Route 116.

Project Location:

The approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@44.3416354,-71.69431663676536,14z>



Counties: Coos and Grafton counties, New Hampshire

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is final critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3652	Threatened
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Nicholas Messina
Address: 10 Free Street
City: Portland
State: ME
Zip: 04101
Email: nmessina@cmaengineers.com
Phone: 6034258635

LEAD AGENCY CONTACT INFORMATION

Lead Agency: U.S. Fish and Wildlife Service

**WINTER WILDLIFE TRACKING SURVEY
GRANITE STATE LANDFILL
DALTON, NH**



Photo 1: Moose barking (2/10/2023).



Photo 2: Grey Squirrel tracks (2/22/23).



Photo 3: Ruffed Grouse tracks (2/23/23).



Photo 4: Fresh moose tracks along Douglas Drive (2/10/23).



Photo 5: Recently browsed vegetation (2/23/23).



Photo 6: Recent patch cut (2/10/23).



Photo 7: Deer kill remains (2/10/23).

Section 10.6

USFWS RTE Review



United States Department of the Interior



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(603) 223-2541

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Project Type: Landfill - Solid Waste
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Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered

INSECTS

NAME	STATUS
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CRITICAL HABITATS

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YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Private Entity
Name: Nicholas Messina
Address: 10 Free Street
City: Portland
State: ME
Zip: 04101
Email: nmessina@cmaengineers.com
Phone: 6034258635

LEAD AGENCY CONTACT INFORMATION

Lead Agency: U.S. Fish and Wildlife Service

Section 10.7

NHF&G Species Review and Communications

Subject: Fw: Re: "Informal Review Request" - Granite State Landfill, Dalton, NH

----- Forwarded Message -----

From: "Dionne, Michael" <Michael.A.Dionne@wildlife.nh.gov>
To: "bhkeith1@netzero.net" <bhkeith1@netzero.net>
Cc: "FGC: NHFG review" <NHFGreview@wildlife.nh.gov>, "Winters, Melissa" <Melissa.J.Winters@wildlife.nh.gov>
Subject: Re: "Informal Review Request" - Granite State Landfill, Dalton, NH
Date: Thu, 16 Nov 2023 16:55:46 +0000

Hi Barry,

This email is in response to the review request of NHB22-3682 for Casella Waste Systems, Inc. The report indicated Common Loon (*Gavia immer*) is in close proximity (Forest Lake) to the proposed Granite State Landfill site in Dalton. At this time, and as the project is currently proposed and designed, NHFGD does not anticipate negative impacts to Common Loon on Forest Lake.

If you have any questions or concerns feel free to reach out to me.

Mike Dionne
Environmental Review Coordinator

NH Fish & Game Department
11 Hazen Drive
Concord, NH 03301
(603) 271-1136, michael.dionne@wildlife.nh.gov

NH Fish and Game...*connecting you to life outdoors*
www.wildnh.com, www.facebook.com/nhfishandgame

Did you know? New Hampshire Fish and Game has been conserving New Hampshire's wildlife and their habitats since 1865.

From: bhkeith1@netzero.net <bhkeith1@netzero.net>
Sent: Wednesday, November 8, 2023 3:11 PM
To: FGC: NHFG review <NHFGreview@wildlife.nh.gov>
Cc: Dionne, Michael <Michael.A.Dionne@wildlife.nh.gov>
Subject: "Informal Review Request" - Granite State Landfill, Dalton, NH

EXTERNAL: Do not open attachments or click on links unless you recognize and trust the sender.

Dear NHFG, This e-mail serves as our follow up request for NHFG review under Fis 1000 rules. Granite State Landfill (GSL) has met under Fis 1004 (Consultation) with the F&G Environmental Coordinator and F&G staff on several occasions and

conducted a site visit with F&G staff on September 29, 2023. GSL will be responding to NHFG under Consultation rules. NHB ID: NHB22-3682 Casella Waste Systems, Inc. The NHB report identified Common Loon (*Gavia immer*), a state Threatened species present at Forest Lake. The proposed project is located within an approximate 712 acre property accessible via Douglas Drive off of Route 116. The property is known as Chick's Sand and Gravel, an active gravel mining operation. A watershed divide separates the Alder Brook and Forest Lake watersheds respectively. The proposed landfill is located solely within the Alder Brook watershed approximately 0.5 miles from the nearest point on Forest Lake. Should you require further review, please feel free to contact me. Thank you in advance for your response. Barry H. Keith, CWB

SITE VISIT SUMMARY NH FISH AND GAME DEPARTMENT

RE: GRANITE STATE LANDFILL, LLC
DALTON, N.H.

DATE: 9-29-23

ATTENDEES: Michael Dionne, NHFG Environmental Coordinator; John Magee, Inland Fisheries Program Supervisor; Sean Stimmel, Principal Fisheries Scientist, Normandeau Associates, Inc. (NAI); and Barry Keith, Principal Scientist, B.H. Keith Associates (BHK).

The above listed attendees met at the project entrance (Scale House) at approximately 9:30 AM. The focus of the site visit was to familiarize Fish and Game Department staff with the overall proposed project and to visit specific stream monitoring stations, wildlife corridors, the proposed landfill footprint and view the general landscape.

Upon viewing and discussing project plans, the site visit centered on providing an overview of the proposed infrastructure and landfill facilities area. The Alder Brook Tributary (ABT2) was observed. This tributary is positioned adjacent to the southern extent of proposed landfill development. The monitoring station and proposed stream crossing location at Douglas Drive were viewed. Discussions centered on the habitat characteristics of the stream and associated fishery. Proposed stormwater management measures and stream crossing improvements which include installation of a concrete box culvert with a wildlife crossing were discussed.

Reconnaissance level observations of the Alder Brook/Forest Lake watershed divide were conducted with a focus on the project location in relation to Forest Lake and the surrounding landscape.

NAI monitoring station Alder Brook (ABT3B) was visited. This station is located at the confluence of two Alder Brook tributaries positioned to the west of Douglas Drive. An active beaver dam was observed. The fishery and habitat characteristics at this location were discussed. The location where the intermittent stream associated with Alder Brook Tributary (ABT3A) emerges south of Douglas Drive was visited as well. The stream segment was dry at this date.

Given time constraints, no other areas were visited at this time. The general Fish and Game consensus focused on the extent and qualitative characteristics of native Eastern Brook Trout habitat and habitat of other fish species present such as Northern Redbelly Dace, Creek Chub, and Blacknose Dace. Influences on surface water temperatures which could affect aquatic resources were discussed. NHFG indicated mean July temperatures below 20 degrees C were considered a reasonable value for assessing the capacity of a stream to maintain Brook Trout populations. NHFG did also discuss that Brook Trout can and do use streams that exceed this value as either a seasonal habitat or dispersal/movement corridor. Other limiting factors on habitat availability and quality in upper headwater streams were discussed as well (ie. Low flows, limited overwintering or other seasonal habitat, etc.).

N.H. FISH AND GAME DEPARTMENT
PRE-CONSULTATION MEETING
GRANITE STATE LANDFILL
DALTON, N.H.

MARCH 7, 2023

ATTENDEES: Michael Dionne, F&G Environmental Review Coordinator; Dianne Timmins, Inland Fisheries Chief; Andrew Timmins, Wildlife Division; John Magee, Inland Fisheries Habitat Biologist; Joe Gay; Sean Stimmel; and Barry Keith.

The primary focus of the meeting was to introduce the new Environmental Coordinator (Michael Dionne) and other NHFG staff members to the new project layout and to inform them of our current plans and activities for environmental sampling on-site during the 2023 field season.

Joe provided an overall introduction to the project, highlighted design considerations as depicted in the power point presentation.

Barry and Sean discussed the status of our on-going studies and the need to coordinate with F&G and DES moving forward with planned data collection activities in the upcoming field season.

Dianne Timmins and John Magee expressed interest in the 2022 temperature data and the distribution of Brook Trout and Northern Redbelly Dace. It was discussed that, in accordance with the DES Sampling Analysis Plan, that additional temperature data would be collected this field season. F&G recognizes that potential impacts from temperature and D.O. will need to be evaluated.

Andrew Timmins discussed wildlife corridors and general wildlife habitat utilization within the overall watershed. Concerns associated with black bear and gull activity at the facility were discussed. Barry discussed on-going measures at NCES to discourage un-wanted wildlife activity.

A site visit to view landfill operations at NCES and a tour of the GSL site for later this spring was discussed. GSL will follow up with F&G accordingly.

Various compensatory mitigation options were discussed. There appeared to be some interest in the NCES site, riverine restoration, and potential for future ARM fund projects.

F&G Standards and Consultation requirements in accordance with rules (PART Fis 1003-1005) were discussed. Upon providing the required information for Consultation, the Department has 30 days to perform an initial review and provide a request for additional information. Upon receipt of the information, the Department will evaluate the materials within 60 calendar days. Further consultation may be requested, based upon written recommendations. Upon issuance of final recommendations, any aggrieved party may request an adjudicative proceeding within 30 days of receipt of written notice of the recommendations.

Michael Dionne expressed that the Department will require a complete Consultation submission which will need to include the 2023 data and an impact analysis, in order to initiate the formal Consultation Process. He did, however, note that he and the environmental review staff would be welcome the opportunity to work with the GSL team as we move forward with the project.

**NEW HAMPSHIRE FISH AND GAME DEPARTMENT
FISHERY SAMPLING MEETING
GRANITE STATE LANDFILL
DALTON, N.H.**

JULY 11, 2022

ATTENDEES: John Magee, Fish Habitat Biologist (NHF&G); Sean Stimmel, Fishery Biologist (Normandeau Associates, Inc.); and Barry Keith (BH Keith Associates).

GSL biologists held a meeting with F&G Fish Habitat Biologist, John Magee, at F&G Headquarters in Concord to discuss fish habitat assessment and sampling protocol for native Eastern Brook Trout in the Hatch/Alder Brook watershed.

Key sampling periods for temperature and dissolved oxygen (mid-summer) and potential sampling locations were discussed. In addition to water quality measurements, data collection of the reaches of the given stream associated with the respective sampling station would be assessed for habitat quality, fishery and macroinvertebrates.

John Magee suggested that we also coordinate any sampling locations and sampling methodology with Andy Chapman at DES. We stated that we have met with the Section 401 program personnel at DES and will continue to coordinate our activities with both F&G and DES.