

Plant Protection BMPs

- Limit removal of vegetation to that necessary for construction of the project.
- Extreme precautions shall be taken within riparian areas to prevent unnecessary removal of vegetation during construction. Areas cleared of vegetation must be stabilized with appropriate seed mix within three days of the completion of the disturbance.
- Planting with woody shrub species must take place at the next available and appropriate season following construction.
- Limit tree clearing to the minimum required width to meet safety clearances, leave root systems in place, except over underground installations or where other earthwork must be conducted. Leave herbaceous and shrub vegetation intact wherever practicable.
- Where practicable, fell trees parallel to and within the ROW to minimize the potential for off-ROW vegetation damage.
- Control the spread of invasive plants:
 - Precautions shall be taken to prevent import or transport of soil or seed stock containing nuisance or invasive species such as Purple Loosestrife, Knotweed, or Phragmites. The contractor responsible for work shall appropriately address invasive species in accordance with the NHDOT Best Management Practices for Roadside Invasive Plants (2008).
 - Control invasive plant species such as Purple loosestrife (*Lythrum salicaria*) and Common reed (*Phragmites*) by measures agreed upon by the DES Wetlands Program if any such species is found in the stabilization areas during construction or during the early stages of vegetative establishment.
 - Environmental monitors (EMs) will identify existing invasive species in the work area.
 - Train construction contractors responsible for vegetation removal to identify common invasive plant species.
 - Perform regular inspection and cleaning of construction equipment and vehicles on the right-of-way as appropriate where invasive species are present.
 - If invasive species are removed due to construction activity, cut when dormant or prior to seed set to the extent practicable, and dispose of in a manner and location that precludes spread.
 - Use soil from local sources. To the extent possible, match soil texture with soil texture found in impacted habitat. Only weed-free soil fill or topsoil, as determined by the supplier, will be brought on site.
 - Use weed-free/invasive-free straw bales, wattles, and mulch for erosion and sediment control.
 - Re-vegetate disturbed areas quickly using specified native seed mixes that are devoid of invasive species in accordance with New Hampshire Department of Agriculture regulations.
- Follow specified erosion control BMPs during construction. Depending on the site, BMPs may include installation of silt fence, straw wattles, mulch/stump grinding berms, straw bales, or check dams, and covering bare soils with mulch, blown straw, bonded fiber matrix or fiber rolls to protect drainage ways and streams from sediment runoff.
- Use BMPs for minimizing soil rutting and compaction.

Threatened and Endangered Plants

- Locations of known rare plants will be resurveyed and flagged with coded flagging by a qualified botanist prior to clearing and site preparation.
- Fence sensitive areas adjacent to impact areas as needed to prevent impacts beyond the work zone, and install signs along construction access roads to mark areas of resource sensitivity.
- The EM will discuss threatened and endangered plant issues at the morning tailboard meetings with Contractors for all clearing, site preparation and construction work taking place in sensitive areas.
- A contractor training program will be developed prior to clearing, site preparation or construction activities to familiarize the crews with the locations and species that will require special consideration. This will be the responsibility of the EM or a qualified botanist.
- In addition to the general avoidance measures listed above for all resource areas, the following practices will be instituted to avoid impacts to rare species and communities wherever practicable.
 - Clear and conduct site preparation activities in sensitive plant locations when the ground is frozen and snow cover is present, to the extent practicable.
 - If clearing and site preparation takes place when the ground is not frozen, use construction matting to cover the ground in the areas of perennial RTE plants to minimize impacts.
 - If project constraints require clearing and site preparation to be performed during the growing season, perform work after the plant in question has set seed, especially if the plant is an annual, to the extent practicable. If the RTE plant to be impacted is a perennial, perform construction as late in the growing season as possible.
 - Use BMPs to avoid and minimize compaction of surficial soil. At the conclusion of construction, restore the native topsoil that was

Vegetated Pathways

- Avoid and minimize all clearing and site preparation activities in nine locations identified as "Vegetated Pathways" to the minimum necessary for project construction. These locations will be managed to allow the growth of taller, woody vegetation to provide cover for wildlife species to move across the ROW.

Town	Location by Structure*	Begin	End
Pittsburg	DC 14 - 15	71+00	74+50
Clarksville	DC 29 - 30	161+00	163+50
Stewartstown	DC 135 - 136	404+00	406+00
Dixville	DC 172 - 173	630+00	637+00
Millsfield	DC 256 - 257	1103+00	1104+25
Hill	DC 1213-1214	6762+00	6767+00
Franklin	DC 1237 - 1238	6895+00	6897+50
Canterbury	3132 26 - 27	147+00	151+50
Canterbury	3132 29 - 32	166+50	188+00

*Locations are towards the middle of the span created by the two structures noted.

Restoration BMPs

- Seed and stabilize disturbed areas in or adjacent to wetlands or surface waters within 3 days once construction is complete in specific areas. All other areas will be stabilized within 7 days of construction completion, or earlier, if precipitation is in the forecast.
- Consult with NH NHB regarding restoration activities in RTE plant locations. Allow RTE plant locations to reseed naturally without seed mix, unless directed by NH NHB to collect seed from adjacent (unimpacted plants) for use during restoration.
- When restoring impact areas without RTE plant species, use seed mix containing only native plants. Seed mix should be selected based on conditions (e.g., upland vs wetland) and should contain common native species associated with the impacted habitat. Provide NH NHB with a description of the proposed seed mix prior to use in the project area.
- Carry out any necessary revegetation within the White Mountain National Forest in a manner that is consistent with the 2005 or superseding White Mountain National Forest Land and Resource Management Plan.
- Restoration of temporary wetland impact areas shall have at least 75% successful establishment of wetlands vegetation after two (2) growing seasons, or they shall be replanted and re-established until a functional wetland is replicated in a manner satisfactory to the DES Wetlands Program.
- Perform post-construction inspection or monitoring in restored sensitive plant locations for a period of two years following completion of construction activities in that location.

Operational BMPs

Operational best management practices for plant and wildlife protection address regular and emergency vegetation management activities, line maintenance and repair, inspection activities, and ground line treatment programs.

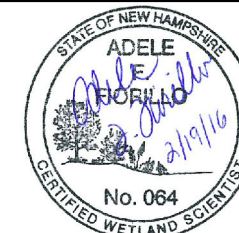
These operations and maintenance activities will be conducted within the Northern Pass ROW in compliance with Best Management Practices Manual for Utility Maintenance In and Adjacent to Wetlands and Waterbodies in New Hampshire (Interim January 2010).

The New Hampshire Wetlands Bureau Utility Maintenance Notification (UMN) form and fee will be submitted as necessary and appropriate.

In compliance with the Utility Maintenance Notification, the utility will coordinate with the Department of Resources and Economic Development's Natural Heritage Bureau (NHB) and NH Fish and Game Department, as appropriate, regarding the potential effects of the maintenance activities on rare, threatened and endangered species. Specific agreements regarding vegetation maintenance practices in locations where the Karner blue butterfly is known to be present will be followed.

To minimize the impact of vegetation maintenance activities on sensitive reptile species, the following mowing practices will be followed.

- Mow after September 15 to the extent practicable.
- Minimum mowing height should be 7-12 inches above the ground.
- Mow with brontosaurus-type equipment and minimize the amount of area which is driven on.
- Mow from the center of the ROW towards the edge, so animals responding to the noise/vibration of mowing can escape towards area that will not be mowed.
- If a stream is present choose a mowing pattern that will let animals escape towards the stream and its buffer.
- If a road is present, choose a mowing pattern that will not push animals escaping the mowing into the road.



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Wildlife Resources BMP

High Elevation Areas

- Avoid, where practicable, clearing from May 1 through August 31 in areas above 2,700 feet in elevation.

Deer Wintering Areas

- Avoid work in identified DWAs where practicable when deep (16 inches or greater) or crusted snow exists, or:
- The Environmental Monitor will check known DWAs prior to initiating work and determine if deer are present and work should be avoided.
- Leave twiggy debris/slash as browse for deer.
Conduct additional checks as snow conditions change.

Moose Concentration Areas

- Avoid work in identified MCAs, where practicable, when deep (30 inches or greater) or crusted snow exists, or:
- The Environmental Monitor will check known MCAs prior to initiating work and determine if moose are present and work should be avoided.
- Leave twiggy debris/slash as browse for moose.
- Conduct additional checks as snow conditions change.

Canada Lynx Maternity Denning Areas

- Avoid clearing suitable denning habitat from May 1 – July 15 if denning Canada lynx are determined to be present.
- During the maternity denning season, the Environmental Monitor will survey suitable denning habitat prior to clearing, to determine if it is occupied.

Active Bald Eagle Nests

- No work shall be done within 1/4 mile of an active bald eagle nest from March 1st to July 31st.
- Changes to the buffer size and/or restriction dates must be negotiated with regulating agencies.
- Disturbance considerations are not required for inactive nests; however, inactive nests may not be removed without agency approval.
- Prior to initiating work during the nesting season, a survey for active nests must be conducted. If there is a break in work during the nesting season, a repeat survey may be required before initiating the next stage of work.

Active Raptor Nests

- Nesting season dates for raptor species that nest in New Hampshire are given in Table 1.
- No work shall be done within the buffer of an active raptor nest, for the duration of the active period.
- Buffer size and/or restriction dates must be negotiated with New Hampshire Fish and Game.
- Buffers are not required for inactive nests; however, inactive nests may not be removed without agency approval.
- Prior to initiating work during the nesting season, a survey for active nests must be conducted. If there is a break in work during the nesting season, a repeat survey may be required before initiating the next stage of work.

Table 1. Raptor species nesting dates

Species	Nesting Season Dates
Osprey	April 15 – August 15
Northern harrier	April 15 – August 15
Sharp-shinned hawk	April 15 – July 25
Cooper’s hawk	April 1 – June 30
Northern goshawk	April 15 - July 25
Red-shouldered hawk	April 1 - June 25
Broad-winged hawk	May 1 – July 30
Red-tail hawk	March 15 – July 15
American kestrel	April 1 – July 25
Peregrine falcon	March 15 – June 30

Active Great Blue Heron Nests

- No work shall be done within 1/4 mile of a heron nest while herons are actively using it.
- Changes to the buffer size and/or restriction dates must be negotiated with regulating agencies.
- Buffers are not required for inactive nests; however, inactive nests may not be removed without agency approval.
- Prior to initiating work during the nesting season, a survey for active nests must be conducted. If there is a break in work during the nesting season, a repeat survey may be required before initiating the next stage of work.

Common Nighthawk

- No work shall be done within a pre-determined buffer area around a common nighthawk nest while it is actively being used.
- The appropriate buffer size will be determined by agreement with NHFG.
- Prior to initiating work during the nesting season, a survey for active nests must be conducted. If there is a break in work during the nesting season, a repeat survey may be required before initiating the next stage of work.

Northern Long-eared Bat

- In known northern long-eared bat locations, no tree cutting shall occur during the active season, from April 15th to September 30th.

Small-footed Bat

- Suitable roosting habitat (rocky outcrops with cracks and crevices) must be avoided June 1- July 30, when flightless young may be present.
- If these features cannot be avoided June 1- July 30, a survey to determine bat presence/absence must be conducted by the Environmental Monitor. If no bats are present, work can proceed.
- Fence potential roosting habitat outside of the construction footprint as needed to keep site preparation and construction activities from encroaching on them.
- Potential hibernacula (rocky outcrops and other cliff or cliff-like features with deep cracks and crevices) must not be subject to blasting from October 15 through April 15, when hibernating bats could be present.

Karner Blue Butterfly

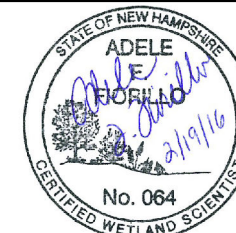
- Install temporary fencing to ensure that all disturbance is confined to the construction footprint. Remove fencing when construction is complete.
- All clearing and site preparation should take place in winter, over snow and frozen ground to extent practicable, to minimize impacts within the construction footprint.
- If construction cannot be conducted during winter, place timber mats on access roads and the construction pad to minimize disturbance to soils and plant root systems.

Snakes: Northern Black Racer and Eastern Hognose Snake

- From October 15 through April 30 when racers or hognose snakes may be entering, using, or exiting their hibernacula, no ground disturbing activities can take place in any location known by NHFG to host a hibernaculum.
- From April 15 through October 30, the Environmental Monitor will search areas about to be impacted by clearing or site preparation for snakes.
- All snakes found will be removed to a safe, suitable location close to their point of capture.
- Construction areas that are cleared of snakes must be fenced to prevent (re)entry by snakes or searched daily to find and remove snakes as needed during construction.
- Silt fencing can be used to exclude snakes, or fencing products specifically designed to exclude reptiles from construction zones are also commercially available and are designed for ease of installation and reuse.
- If fencing is used, it must be removed as soon as construction is complete and snakes can safely enter the area.
- Contractor training on recognizing protected snakes and taking the appropriate actions to protect them is required. All personnel must understand and implement the appropriate protective actions and notifications.

Turtles-Wood, Blanding's and Spotted

- Avoid and minimize impacts to open water and mucky substrates in all seasons to the greatest extent practicable.
- Avoid and minimize impacts to streams in all seasons to the greatest extent practicable.
- April 15 – October 15, the Environmental Monitor will search riparian zones and uplands within 1,640 feet (0.3 miles) of suitable streams for wood turtles prior to clearing and site preparation.
- April 15 – October 15 the Environmental Monitor will search woody and grassy wetland vegetation within the construction zone for Blanding’s and spotted turtles prior to clearing and site preparation.
- All turtles found will be removed to a safe, suitable location close to their point of capture.
- Construction areas that are searched and cleared of turtles must be fenced to prevent (re)entry by turtles or searched daily during construction to find and remove turtles as needed.
- May 25 - Oct 15, potential turtle nesting habitat in the work area will be identified by the environmental monitor prior to any work occurring.
- Symbolic fencing will be placed around potential nesting habitat to keep work activities from encroaching. Symbolic fencing will be designed to let turtles access nesting areas freely.
- If potential nesting habitat is part of an access road or construction pad, it will be searched for turtles prior to initiating work activities then fenced to keep turtles out during subsequent work.
- All fencing will be removed as soon as construction is complete and turtles can safely enter the area.
- Silt fencing or fencing products specifically designed to exclude reptiles from construction zones can be used as exclusion fencing.
- Contractor training on recognizing protected turtles and taking the appropriate actions to protect them is required. All personnel must understand and implement the appropriate protective actions and notifications.



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