General/Erosion & Sediment Control Notes

1. This plan set is provided to show jurisdictional impacts and required environmental controls only. Engineering documents should be consulted to determine the scope and location of all other construction activities. Proposed construction limits of disturbance are approximate. Contractor is responsible for minimizing earth disturbance, as practicable.

2. Erosion and sedimentation control measures shall be installed prior to start of work, shall be maintained, and shall remain in place during construction until all disturbed surfaces are stabilized. Following stabilization, erosion and sedimentation control measures shall be removed off-site and properly disposed.

3. All construction shall comply with project specification manual, Eversource standards and specifications, and these plans. If specifications are in conflict, the more stringent specification shall apply. All construction shall be performed in accordance with all applicable OSHA, federal, state and local regulations. Including but not limited to the following:
A. New Hampshire stormwater manual, volumes 1, 2 & 3, December 2008.
B. New Hampshire department of transportation manual on drainage design for highways, revision date April 1998.
C. New Hampshire department of transportation standard plans and specifications (2010).
D. Eversource best management practices manual (to be further developed).
E. Eversource standard specifications (10-24-2014).
F. Best management practices manual for utility maintenance in and adjacent to wetlands and waterbodies in New Hampshire (2010).

4. Erosion and sedimentation controls shall be appropriate to the size and nature of the project and to the physical characteristics of the site, including slope, soil type, vegetative cover, and proximity to wetlands or surface waters.

5. The environmental controls shown on these plans may need to be supplemented due to season of work, work methods proposed, and additional requirements of outstanding permits. Refer to BMP manuals and additional guidance documents, as needed.

6. Temporary stone construction entrances will be used at all points of construction ingress/egress from public and private roadways in accordance with Eversource BMPs and/or the BMP manual.

7. The selected contractor is responsible for street sweeping, as required, at points of ingress/egress from public and private roadways in accordance with the NPDES construction general permit.

8. Selected contractor will be responsible for certifying that all equipment on the project is clean of invasive species prior to arriving onsite. The contractor will also be responsible for cleaning equipment as it is moved within the project to reduce the risk of spreading invasive plant seeds and fragments.

9. Swamp matting shown on the plans represents the square footage and alignment of matting which is required and has been approved by the regulators. Additional layers of mats may be required at certain locations. Any increase in the number, change in alignment, or decision not to use swamp mats must be approved by an authorized representative of the permittee(s) and, as appropriate, regulators.

10. Span streams or drainage swales with temporary bridge or swamp mats that are free of soil and debris. Protect all existing culverts encountered along access roads within the row.

11. Proposed construction limits of disturbance as shown are approximate. The selected contractor is responsible for minimizing earth disturbance as practicable.

12. The selected contractor is responsible for installing waterbars and other similar measures to prevent concentrated run-off.

13. Any excavated material shall be placed outside of jurisdictional areas or removed from the site.

14. If dewatering is required, dewatering basins shall be placed in uplands areas and discharge water into upland areas.

15. Areas of soil disturbance shall be stabilized following construction in accordance with the applicable BMP manuals (see above).

16. Plan earth disturbance and grading activities to minimize the area of soil exposed at one time, as well as the length of time between initial soil exposure and final grading.

17. Protect existing vegetation and natural forest cover where possible.

18. Preserve and maintain buffer strips of undisturbed vegetation between construction areas and environmentally vulnerable areas such as watercourses, ponds, and wetlands.

19. Divert clean water away from the immediate construction area to reduce the threat of erosion.

20. Disperse clean stormwater to undisturbed, vegetated, flat or moderate-sloped, surfaces wherever possible, rather than concentrate it into channels.

21. Fall and winter erosion control measures must be upgraded and refined to protect the site from spring runoff and snowmelt.

22. Any sign of rill or gully erosion should be immediately investigated and repaired as needed.

23. Periodically inspect seeded slopes for rills or other signs of erosion. Fill these areas slightly above the original grade, reseed, and mulch as soon as possible, but no more than three days following inspection.

24. Temporary stabilization measures should be inspected at least once per week during the construction period, or as stipulated by the applicable permits, until all exposed soils have been permanently stabilized.

25. In addition to regular inspections, the project site should be inspected during or within 24 hours of any rain event in which ½ inch of precipitation or more falls within a 24-hour period.

26. All areas of exposed or disturbed soil should be temporarily stabilized as soon as practicable but no later than 45 days from the time of initial disturbance, unless a shorter time is specified by local authorities, the construction sequence approved as part of the issued permit, or an independent monitor.

27. All areas of exposed or disturbed soil should be permanently stabilized as soon as practicable but no later than three days following final grading.

28. Only disturb, clear, or grade areas necessary for construction. Flag or otherwise delineate areas not to be disturbed. Exclude vehicles and construction equipment from these areas to preserve natural vegetation.

29. Topsoil required for the establishment of vegetation should be stockpiled in the amount necessary to complete finished grading and protected from erosion.

30. Use slope breaks, such as diversions, benches, or contour furrows as appropriate, to reduce the length of cut-and-fill slopes to limit sheet and rill erosion and prevent gully erosion. All benches should be kept free of sediment during all phases of development.

31. Stabilize all graded areas with vegetation, crushed stone, compost blanket, or other ground cover as soon as grading is completed or if work is interrupted for 21 working days or more. Use mulch or other approved methods to stabilize areas temporarily where final grading must be delayed.

32. All graded areas should be permanently stabilized immediately following finished grading.

33. Moisten exposed soil surfaces periodically with adequate water to control dust.

34. Avoid excessive application of water that would result in mobilizing sediment and subsequent deposition in natural waterbodies.

35. Within 100' of streams, wetlands and in lake watersheds, temporary mulch should be applied within 7 days of exposing soil or prior to any storm event.

36. Application rate should be 2 bales (70-90 pounds) per 1,000 square feet or 1.5 to 2 tons (90-100 bales) per acre to cover 75 to 90 % of the ground surface.

37. When mulch is applied to provide protection over winter (past the growing season), it should be applied to a depth of four inches (150-200 pounds of straw per 1000 square feet, or double standard application rate).

38. When using erosion control mix, the barrier must be a minimum of 12" high, as measured on the uphill side of the barrier, and a minimum of two feet wide.

39. Temporary and permanent seeding shall be in accordance with the planting plan, NH DES stormwater manual and the agreed upon native seed mix specified by the NH NHB.

40. Vegetated growth covering at least 85% of the disturbed area should be achieved prior to October 15th. If this condition is not achieved, implement temporary stabilization measures for overwinter protection, and complete permanent seed stabilization during the next growing season if necessary.

Construction Monitoring Notes

- Construction monitoring and site inspections shall be overseen by a designated environmental monitor ("EM" or "Monitor"). The EM shall be an appropriately credentialed individual such as a Certified Professional in Erosion and Sediment Control, Certified Erosion, Sediment and Stormwater Inspector, New Hampshire Certified Wetland Scientist, Professional Wetland Scientist, or otherwise qualified professional. The Designated EM will be responsible for any other similarly-credentialed EM(s) employed to assist with monitoring responsibilities.
- The EM shall be employed to oversee all environmental protection and monitoring requirements set forth in the project plan notes and permit conditions, from the issuance of permits through final restoration monitoring.
- The EM will inspect the site from the start of alteration of terrain activities until the alteration of terrain activities are completed and the site is considered stable in accordance with NHDES rules and permit conditions.
- The EM shall provide technical assistance and recommendations to the Construction Project Manager (lead contractor) on the appropriate BMPs for erosion and sediment control necessary to meet the requirements of applicable NHDES rules and permit conditions.
- The EM will be responsible for documenting Contractor compliance with all plans associated with protection of water quality, including the turbidity sampling and sediment deposition inspection plan, concrete wash water plan, SPCC plan, water quality monitoring plan, SWPPP, stream temperature minimization plan, and any other plans and BMPs required by the regulatory agencies.
- During the period of alteration of terrain activities, the EM shall inspect any active site at least once per week, and if possible during any ½ inch or greater rain event (i.e. ½ inch of precipitation or more within a 24 hour period). If unable to be present during such a storm event, the EM shall inspect the site within 24 hours of this event.
- The reports shall describe, at a minimum, whether the project is being constructed in accordance with the approved plans, identify any deviation from the conditions of the applicable NHDES permits and approved plans, and identify any other noted deficiencies and actions necessary to correct the noted deficiencies.
- The weekly, written inspection reports shall be submitted to NHDES via email to Ridgely Mauck at ridgely.mauck@des.nh.gov.
- The EM will be responsible for implementing all natural resource pre-construction and construction surveys and commitments as described in the plan sheet notes and Project permit conditions, including, but not limited to:
  - Ensuring Contractor compliance with all commitments for wildlife and threatened/endangered plant protection;
  - Implementing required wetland, plant, and wildlife nest/den surveys, re-flagging, and protective fencing or matting requirements;
  - Assessing snow and frozen ground conditions for work in wetland and near deer and moose wintering areas;
  - Coordinating with the NHNHB, NHF&G and NHDES regarding resource protection during construction as appropriate;
  - Training the Contractors on reptile identification and protective measures;
  - Providing regular reports to NHDES regarding these activities.
- The EM will be responsible for documenting actual wetland impact quantities in all work locations during construction, for comparison with permitted impacts, and notifying the Project team and NHDES regarding any necessary permit modifications needed by the Contractors.
- Post construction surveys of restored wetlands and uplands will be the responsibility of the EM. The inspections will take place at least monthly after seeding until the first frost, and in the middle of the first and second full growing season after restoration. Inspection reports will be submitted annually to NHDES.
- The EM will be responsible for annual monitoring of wild lupine impact areas for two full growing seasons after construction is complete to document plant recovery. The EM will submit annual monitoring reports to NHNHB.

THE NORTHERN PASS

STATE OF NEW HAMPSHIRE
ADELE E. FIORILLO
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3/19/16

NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans

THE NORTHERN PASS PROPOSED ROUTE

General/Erosion & Sediment Control Notes/Construction Monitoring Notes

Date: 1/24/2017

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 were 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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NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans

THE NORTHERN PASS PROPOSED ROUTE

Plant Protection, Restoration and Operational BMPs

Date: 1/24/2017

Restoration Notes

A. Typical Stream Crossing Restoration without Existing Trail/Road

1. Following the removal of equipment bridges, timber mats, and construction debris, waterbody banks will be restored to preconstruction contours.

2. In all areas of ground disturbance a permanent cover crop of native annual and perennial seed mixes will be used to establish immediate soil stabilization. All seed mixes must be approved by the NH Natural Heritage Bureau.

3. Following seeding, a layer of weed-free straw mulch will be applied to all seeded areas. Mulch will be anchored to prevent displacement by surface water flow or wind erosion. No hay will be permitted.

4. Temporary erosion control blankets and silt fence will be used on and at the base of slopes greater than 8 percent. Permanent slope breakers and water diversions will also be installed and maintained.

5. Live stakes will be installed in late fall or early spring during the dormant season (following September 15 or before June 1) at a rate of 500 shrubs per acre along restored stream banks as shown on the detail sheets (to be developed).

6. Riverbank and stream bank stabilization areas shall have at least 75% successful establishment of wetlands vegetation after two (2) growing seasons, or shall be replanted and re-established in a manner satisfactory to DES.

7. Temporary erosion control materials will be removed following vegetation establishment.

B. Typical Stream Crossing Restoration with Existing Trail/Road

1. For stream crossings in areas with existing improved and unimproved roads that the landowner intends to retain, all road surfaces will be re-contoured to pre-construction grades, with all ruts and potholes filled and smoothed. Where necessary, road fill will be compacted in 6-inch lifts to established pre-construction contours. If requested by the landowner, existing access roads may be removed, and original stream bed and bank contours restored.

2. In all areas where ground disturbance has occurred, final grading, seeding, mulching, and planting will occur as outlined in Section A. above.

C. Typical Depressional Wetland Crossing Restoration

1. Following the removal of timber mats and construction debris, wetland contours, including microtopographic relief, will be restored to preconstruction conditions.

2. Establishment of preconstruction contours may require soil de-compaction through tilling in areas where the use of timber mats and machinery result in soil compaction during the construction phase. In areas of severe soil compaction, or in areas where topsoil and subsoil separation was not achieved, the use of a wetland soil mix may be required to establish pre-construction contours and soil organic content.

3. Additionally, coarse wood debris will be preserved in the wetland or replaced during the restoration process as long as it will not interfere with ROW maintenance.

4. In all areas of ground disturbance, a permanent cover crop of native annual and perennial seed mixes will be used to establish immediate soil stabilization. All seed mixes must be approved by the NH Natural Heritage Bureau.

5. Following seeding a layer of straw mulch will be applied to all seeded areas. Use of hay will not be permitted. Mulch will be anchored to prevent displacement by surface water flow or wind erosion. Temporary erosion control blankets and silt fence will be used on and at the base of slopes greater than 8 percent, and where determined to be necessary. Permanent slope breakers and water diversions will also be installed and maintained. Live stakes of native shrubs will be installed in late fall or early spring during the dormant season (following September 15 or prior to June 1) at a rate of 100 shrubs per acre along restored wetland edges and within wetlands, when feasible.

6. Wetland restoration areas shall have at least 75% successful establishment of wetlands vegetation after two (2) growing seasons, or shall be replanted and re-established in a manner satisfactory to DES.

D. Seepage Slope Wetland Crossing Restoration

1. Where seepage slope wetlands are crossed, the path will be restored by adding (or replacing stockpiled) wetland soil mix to the disturbed area so it matches the surrounding topography and pre-construction contours.

2. Newly placed wetland soil will be seeded with a wetland seed mix approved by the NH Natural Heritage Bureau.

3. Erosion control blankets will be placed over the disturbed and seeded area to hold soil in place until vegetation has become established.

4. Restoration 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.

E. Wetland Swale Crossing Restoration

1. Following the removal of equipment bridges, timber mats, and construction debris, wetland swale bed and banks will be restored to preconstruction contours.

2. In all areas of ground disturbance a permanent cover crop of native annual and perennial seed mixes will be used to establish immediate soil stabilization. All seed mixes must be approved by the NH Natural Heritage Bureau.

3. Following seeding a layer of straw mulch will be applied to all seeded areas. Use of hay will not be permitted. Mulch will be anchored to prevent displacement by surface water flow or wind erosion. Temporary erosion control blankets and silt fence will be used on and at the base of slopes greater than 8 percent.

4. Restoration of temporary 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.

5. Temporary erosion control materials will be removed following vegetation establishment.

F. Wetland Crossing Restoration with Existing Trail/Road

1. For wetland crossings in areas with existing improved and unimproved roads all road surfaces will be re-contoured to pre-construction grades, with all ruts and potholes filled and smoothed.

2. If requested by the landowner, existing access roads may be removed, and wetland contours restored to grades and microtopograpy similar to portions of the wetland not previously impacted by anthropogenic disturbances.

3. In all areas where ground disturbance has occurred, final grading, seeding, mulching, and planting will occur as outlined in Section C. above.

Restoration Table

Common Name	Genus	Species	Status	Spacing	Installation Method	Alignement
Speckled alder	*Alnus*	*incana*	FACW	3-6 feet	Live stake or cutting	N/S
Black chokeberry	*Aronia*	*melanocarpa*	FAC	3-6 feet	Cutting	N/S
Common buttonbush	*Cephalanthus*	*occidentalis*	OBL	3-6 feet	Live state or Live Pole	N/S
Heart-leaved willow	*Salix*	*eriocephala*	FACW	3-6 feet	Live stake or Live Pole	N/S
Long-beaked willow	*Salix*	*bebbiana*	FACW	3-6 feet	Live stake or Live Pole	N/S
Black willow	*Salix*	*nigra*	OBL	3-6 feet	Live stake or Live Pole	N/S
Silky willow	*Salix*	*sericea*	OBL	3-6 feet	Live stake or Live Pole	N/S
Black elderberry	*Sambucus*	*nigra*	FACW	2-8 feet	Live stake or cutting	N/S
White meadowsweet	*Spiraea*	*alba*	FACW	2-8 feet	Live stake or cutting	N/S
Steeplebush	*Spiraea*	*tomentosa*	FACW	2-8 feet	Live stake or cutting	N/S
Red-osier dogwood	*Swida*	*sericea*	FACW	3-6 feet	Live stake or Live Pole	N
Silky dogwood	*Swida*	*amomum*	FACW	3-6 feet	Live stake or Live Pole	S
Gray dogwood	*Swida*	*racemosa*	FAC	3-6 feet	Live stake or Live Pole	S
Smooth arrowwood	*Viburnum*	*dentatum*	FAC	2-8 feet	Live stake or cutting	N/S
Nannyberry	*Viburnum*	*lentago*	FAC	2-8 feet	Live stake or cutting	N/S
Highbush-cranberry	*Viburnum*	*opulus*	FACW	2-8 feet	Live stake or cutting	N/S
Riparian Seed Mix (per approval by NHNHB; seed at supplier spec. rate)					hydro-seed, mech. spreader, broadcast	N/S
Wetland Seed Mix (per approval by NHNHB; seed at supplier spec. rate)					hydro-seed, mech. spreader, broadcast	N/S
Permanent Upland Seed Mix (per approval by NHNHB; seed at supplier spec. rate)					hydro-seed, mech. spreader, broadcast	N/S
Temporary Upland Seed Mix					hydro-seed, mech. spreader, broadcast	N/S

Note 1: N refers to WMNF and points north; S refers to south of the WMNF

Standing Water Construction Notes

- The contractor will evaluate opportunities to access pond construction locations from public roads on opposite sides of the waterbody to reduce impacts, where safety, weather, seasonal conditions, schedule and structure type allow.
- Work in ponds will take place in winter under frozen conditions to the extent that the construction schedule allows. As necessary, the contractor will enhance frozen conditions by:
  - Removal (plowing) of insulating snowpack from underlying ice;
  - Application of water to plowed icy areas to strengthen ice; and
  - Use of timber matting over ice or deep snow.
- Access in or through ponded locations will follow existing access road and/or ORV trail crossing sites that have been previously disturbed and may have hardened bottoms where possible.
- Access and construction pads in ponded locations may include bridging, stacking timber matting in shallow water to achieve the stability needed, and shallow water work barges where needed.
- If stacking timber mats in ponds, they will be stacked in a manner that includes gaps for movement of aquatic animals through the mats.

THE NORTHERN PASS

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NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans

THE NORTHERN PASS PROPOSED ROUTE

Wetland Restoration Notes/Standing Water Construction Notes

Date: 1/24/2017

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, Banding'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.

THE NORTHERN PASS

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NHDES Wetlands & US Army Corps of Engineers Section 404/10 Permit Application Plans

THE NORTHERN PASS PROPOSED ROUTE

Wildlife Resources BMPs

Date: 1/24/2017