

## SECTION 7. WILDLIFE AND FISHERIES

### 7.A Project Area Context

The Project area is the forested north flank of Sugarloaf Mountain south of West Mountain Road, west of Bucksaw Drive, east of and to the summit of the West Mountain Lift (approximate coordinates 45.056241, -70.323507). Slopes range from approximately 1,340-feet above-sea-level (“asl”) at West Mountain Road to approximately 2,900-feet asl at the top of the chairlift. The area is sloping to the north, more steeply at the upper elevations than lower on the slope. Waters from on-site streams drain into the South Branch of the Carrabassett River (HUC 12: 010300030401) which, at its closest approach is approximately 0.2-mile from the northwest corner of the Project area. The USGS National Hydrography Dataset (“NHD”) does not show any mapped streams within this Project area. Likewise, the National Wetlands Inventory (“NWI”) has not mapped any wetlands within the Project area.

Land-use history within the area is characterized by logging activities with an extensive network of logging roads and skid trails present. Much of the forestland appears to have been cut multiple times, including within the last 10 years. The Project area is surrounded by and includes ski infrastructure (trails, lifts, snowmaking equipment) particularly to the southeast, where the main mountain operations are concentrated. Condominium and residential developments are present east and west of the Project area and a golf course sits to the north between the Project area and the South Branch of the Carrabassett River. An existing water main corridor crosses the site and connects the upper reservoir of the Riverside development to the west with the condo units along Bucksaw Drive. Southwest of the West Mountain Lift summit is the least developed portion of the Project area with some recent logging at lower, hardwood dominated slopes and mature softwood forest at the highest elevations.

The upper slopes of the Project area are characterized by sub-alpine fir forest with balsam fir (*Abies balsamea*), mountain ash (*Sorbus americana*), black spruce (*Picea mariana*), and heart-leaved paper birch (*Betula cordifolia*). Mid-elevation slopes are logging-disturbed mixed hardwood and

softwood forest, with abundant yellow birch (*Betula alleghaniensis*), balsam fir, red spruce (*Picea rubens*) and striped maple (*Acer pennsylvanica*), understories of hobblebush (*Viburnum lantanoides*), mountain maple (*Acer spicatum*), witch-hazel (*Hamamelis virginiana*), with scattered white pine (*Pinus strobus*) and northern white cedar and hemlock (*Tsuga canadensis*). Lower elevation forests consist of northern hardwood forest with sugar maple (*Acer saccharum*), American beech (*Fagus americana*), paper birch (*Betula papyrifera*) and yellow birch (*Betula alleghaniensis*) dominating. Common plants observed in wetlands include red maple (*Acer rubrum*), balsam fir, yellow birch, spotted touch-me-not (*Impatiens capensis*), nodding sedge (*Carex gynandra*), sensitive ferns (*Onoclea sensibilis*), northeastern mannagrass (*Glyceria melicaria*), steeplebush (*Spiraea tomentosa*), broad-leaved cattail (*Typha latifolia*), bulrushes (*Scirpus* spp.) and willows (*Salix* spp.). Legacy logging roads are prominent within the Project area, often influencing hydrology and vegetation via soil compaction and erosional rills.

Representative photographs of the land uses, natural resources and communities/habitats in the Project area are included in Appendix 7-1.

## **7.B Agency Consultation**

### **7.B.1 U.S. Fish and Wildlife Service**

Consultation with the U.S. Fish and Wildlife Service (USFWS) conducted through the IPaC system on July 25, 2021 identified three threatened, endangered or candidate species that may potentially occur in the Project Area (see Appendix 7-2). These species were the Canada Lynx (*Lynx canadensis*, Threatened), the Northern Long-eared Bat (*Myotis septentrionalis*, Threatened) and the Atlantic Salmon (*Salmo salar*, Endangered). The Project area does not contain any Critical Habitats under the jurisdiction of USFWS. Coordination with USFWS and Section 7 consultation under the ESA regarding Northern Long-eared Bat and Canada lynx and associated habitat will occur as part of the U.S. Corps of Engineers (USACE) permitting process, which is required for proposed impacts to waters of the United States associated with the Project.

### ***7.B.2 Maine Department of Inland Fisheries and Wildlife***

On November 3, 2020, the Maine Department of Inland Fisheries and Wildlife (MDIFW) provided information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the Project (see Appendix 7-2). The information provided is summarized below.

#### *7.B.2.1 Endangered, Threatened and Special Concern Species*

##### Bat Species

Based on consultation with MDIFW, of the eight species of bats that occur in Maine, the three *Myotis* species are protected under MESA and are afforded special protection under 12 M.R.S §12801 - §12810. The three *Myotis* species include little brown bat (State Endangered), northern long-eared bat (State Endangered), and eastern small-footed bat (State Threatened). The five remaining bat species are listed as Special Concern: big brown bat, red bat, hoary bat, silver-haired bat, and tri-colored bat. While a comprehensive statewide inventory for bats has not been completed, based on historical evidence it is likely that several of these species could occur within the Project area during migration and/or the breeding season. However, MDIFW does not anticipate significant impacts to any of the bat species as a result of the Project.

##### Bicknell's Thrush

Based on information received from MDIFW, Bicknell's thrush, a bird that is a state species of special concern, may occur in the Project area. Bicknell's thrush can be found in sub-alpine forests usually dominated by balsam fir and red spruce at elevations >2,700 feet asl, that typically have a history of disturbance resulting in a stunted dense understory. MDIFW recommends that suitable Bicknell's thrush habitat be avoided. Furthermore, to minimize potential impacts to breeding Bicknell's thrush MDIFW recommends that no clearing or construction activity adjacent to these types of habitats occur from May 1 through July 31.

##### Roaring Brook Mayfly

Based on information received from MDIFW, the Roaring Brook mayfly, a state threatened invertebrate species, may occur in the Project vicinity. This species can occur in high elevation, headwater streams draining off forested (hardwood or mixed) slopes at or above 1,000 feet (including unmapped streams) within or adjacent to the currently documented range (northern Appalachian Mountain Range, stretching from Mt. Katahdin to western border with New Hampshire and Quebec). Any instream work in perennial or intermittent streams, or clearing in the vicinity of these streams, has the potential to impact this species. MDIFW recommends that no development or permanent land use conversion occur within the 250-foot riparian buffer of any streams containing this species.

#### Northern Spring Salamander

Based on information received from MDIFW, northern spring salamanders, a state Species of Special Concern, may also occur in the Project area. The MDIFW stated: “Any instream work or work adjacent to high elevation headwater streams in this area, including both unmapped perennial and intermittent streams, has the potential to impact this species”. They are also found in larger third order streams and rivers with suitable substrate (large cobble and/or gravel bars) within the documented range of primarily the western Maine mountains north and east into mountains of central Penobscot County. MDIFW recommends that no development or permanent land use conversion occur within the 250-foot riparian buffer of any streams containing this species.

#### *7.B.2.2 Significant Wildlife Habitat*

MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the Project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. In addition, MDIFW stated that there are no mapped Essential Habitats that would be directly affected by the Project.

However, as a comprehensive statewide inventory for Significant Vernal Pools has not been completed, MDIFW recommended that surveys for vernal pools be conducted within the project

boundary by qualified wetland scientists prior to final project design to determine whether there are Significant Vernal Pools present in the area. They stated that these surveys should extend up to 250 feet beyond the anticipated project footprint because of potential performance standard requirements for off-site Significant Vernal Pools, assuming such pools are located on land owned or controlled by the applicant.

### *7.B.2.3 Fisheries Habitat*

MDIFW recommended that 100-foot undisturbed vegetated buffers be maintained along streams. Buffers should be measured from the edge of stream or associated fringe and floodplain wetlands. Maintaining and enhancing buffers along streams that support coldwater fisheries is critical to the protection of water temperatures, water quality, natural inputs of coarse woody debris, and various forms of aquatic life necessary to support conditions required by many fish species. Stream crossings should be avoided, but if a stream crossing is necessary, or an existing crossing needs to be modified, it should be designed to provide full fish passage. Generally, MDIFW recommends that all new, modified, and replacement stream crossings be sized to span at least 1.2 times the bankfull width of the stream. In addition, MDIFW generally recommends that stream crossings be open bottomed (i.e. natural bottom), although embedded structures which are backfilled with representative streambed material have been shown to be effective in not only providing habitat connectivity for fish but also for other aquatic organisms. Construction Best Management Practices should be closely followed to avoid erosion, sedimentation, alteration of stream flow, and other impacts as eroding soils from construction activities can travel significant distances as well as transport other pollutants resulting in direct impacts to fish and fisheries habitat. In addition, MDIFW recommends that any necessary instream work occur between July 15 and October 1.

### *7.B.3 Additional Consultation*

The Applicant held multiple additional consultation meetings in order to better understand potential siting concerns, including environmental constraints. An introductory meeting was held with the Maine Department of Environmental Protection (MDEP), MDIFW, and USACE on

November 12, 2020. Two months later, a working meeting was held with the MDEP to discuss strategies for the avoidance and minimization of key habitat and wetlands. The Site Location of Development Act (Site Law) pre-application meeting was held on March 26, 2021. A consultation call with MDIFW was held on April 5, 2021 to obtain input on addressing impacts related to Bicknell's thrush, Roaring Brook mayfly and Northern spring salamander. The Natural Resources Protection Act (NRPA) pre-application meeting was held on April 7, 2021. The Public Information Meeting was held on July 29, 2021. In addition, a site visit was completed with the Maine Natural Areas Program (MNAP) and Trevor Persons, a consultant recommended by MDIFW, to review sub-alpine fir habitat as well as habitat for Bicknell's thrush, Roaring Brook mayfly and Northern spring salamander. Additionally, informal email and phone communications were completed with state and federal resource agencies.

## **7.C Data Collection**

### ***7.C.1 Wetlands Delineations***

VHB ecologists conducted initial wetland delineation field work within the survey area during the spring of 2020 and then revisited the site in July and October of this same year. VHB delineated the boundary of wetlands in accordance with the Army Corps of Engineers 1987 Wetland Delineation Manual (1987 Manual) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Northcentral and Northeast Region (Version 2.0) (Regional Supplement). All wetland delineations were conducted using Routine Determination Methods, which require that a wetland must contain a dominance of hydrophytic vegetation, hydric soils, and evidence of hydrology to be considered a wetland. Wetland boundaries were located and demarcated with flagging and flag locations were recorded in the field using a Trimble® GPS unit capable of sub meter accuracy, post processed, and transferred and incorporated onto project mapping.

VHB completed one wetland and one upland Regional Supplement data form along the boundary of each identified wetland system to document the boundary. Additional field notes were also

taken to record the classification of each wetland in accordance with the Classification of Wetlands and Deepwater Habitats of the United States (Cowardin Classification), general site characteristics, unique qualities observed during the site assessment, and other considerations relevant to support the investigation findings. Wetlands functions and values were assessed with reference to the U.S. Army Corps of Engineers New England District's Highway Methodology Workbook Supplement: Wetland Functions and Values - A Descriptive Approach. VHB took representative photographs of each wetland, drew labeled field sketches of the wetland boundary on an aerial photograph-based map, and recorded notes on the flagging sequence for each wetland.

#### Wetlands of Special Significance (WOSS)

Following delineations, VHB evaluated if wetlands met the Wetlands of Special Significance (WOSS) criteria. Wetlands of Special Significance are defined in NRPA Chapter 310: Wetlands and Waterbodies Protection Section 4. According to Chapter 310, WOSS include all coastal wetlands and great ponds, and freshwater wetlands that exhibit one or more of the following characteristics:

“(1) Critically imperiled or imperiled community. The freshwater wetland contains a natural community that is critically imperiled (S1) or imperiled (S2) as defined by the Natural Areas Program.

(2) Significant wildlife habitat. The freshwater wetland contains significant wildlife habitat as defined by 38 M.R.S.A. § 480-B (10).

(3) Location near coastal wetland. The freshwater wetland area is located within 250 feet of a coastal wetland.

(4) Location near GPA great pond. The freshwater wetland area is located within 250 feet of the normal high water line, and within the same watershed, of any lake or pond classified as GPA under 38 M.R.S.A. § 465-A.

(5) Aquatic vegetation, emergent marsh vegetation or open water. The freshwater wetland contains under normal circumstances at least 20,000 square feet of aquatic vegetation, emergent marsh vegetation or open water, unless the 20,000 or more square foot area is the result of an artificial ponds or impoundment.

(6) Wetlands subject to flooding. The freshwater wetland area is inundated with floodwater during a 100-year flood event based on flood insurance maps produced by the Federal Emergency Management Agency or other site-specific information.

(7) Peatlands. The freshwater wetland is or contains peatlands, except that the department may determine that a previously mined peatland, or portion thereof, is not a wetland of special significance.

(8) River, stream or brook. The freshwater wetland area is located within 25 feet of a river, stream or brook.”

### **7.C.2 Waterbodies**

VHB also evaluated the presence or absence of waterbodies within the project area. Streams were evaluated in accordance with the State of Maine Natural Resources Protection Act criteria and definitions. A river, stream or brook is defined by the NRPA in Title 38 M.R.S.A. §§ 480-A, as a channel between defined banks. The channel is created by surface water and has two or more of the following five characteristics:

- The channel is depicted as a solid or broken line on the most recent edition of the U.S. Geological Survey 7.5-minute series topographic map, or 15-minute series topographic map if the 7.5 minutes series is unavailable;
- The channel contains or is known to contain flowing water continuously for a period of at least 6 months of the year in most years;
- The channel bed is primarily composed of mineral material such as sand and gravel, parent material or bedrock that has been deposited or scoured by water;
- The channel contains aquatic animals such as fish, aquatic insects or mollusks in the water or, if no surface water is present within the stream bed;
- The channel contains aquatic vegetation and is essentially devoid of upland vegetation.

The Army Corps Maine General Permit does not include a definition of river, stream or brook. However, the ordinary highwater mark (OHWM or OHW) of watercourses was identified



following USACE's Regulatory Guidance Letter No. 05-05 Ordinary High Water Mark Identification (2005).

### **7.C.3 Vernal Pools**

A full vernal pool survey was conducted by VHB scientists during the spring of 2020 to confirm and identify vernal pool features within the survey area, including those regulated by the USACE and the MDEP. The MDEP defines “vernal pools, also referred to as seasonal forested pools, as natural temporary to semi-permanent bodies of water that occur in shallow depressions that typically fill with water during the spring or fall and may dry during the summer. Vernal pools have no permanent inlet or outlet and have no viable populations of predatory fish. A vernal pool may provide the primary breeding habitat for wood frogs (*Rana sylvatica*), spotted salamanders (*Ambystoma maculatum*), blue-spotted salamanders (*Ambystoma laterale*), and fairy shrimp (*Eubranchipus sp.*), as well as valuable habitat for other plants and wildlife, including several rare, threatened, and endangered species. A vernal pool intentionally created for the purposes of compensatory mitigation is included in this definition.”

The MDEP further differentiates vernal pools as ‘significant’ (regulated under NRPA) and ‘non-significant’ (not regulated under NRPA). Significant vernal pool habitat consists of a vernal pool depression and that portion of the critical terrestrial habitat within 250 feet of the spring or fall high water mark of the depression. Whether a vernal pool is a significant vernal pool is determined by the number and type of pool-breeding amphibian egg masses in a pool, the presence of fairy shrimp, or use by certain rare, threatened, or endangered species that commonly requires a vernal pool to complete a critical portion of its life-history as specified in NRPA Chapter 335 Significant Wildlife Habitat Rules Section 9(B).

### **7.C.4 Wildlife Surveys**

A habitat study was conducted was conducted by Trevor Persons in coordination with MDIFW to determine the extent of potential habitat within the Project area for Roaring Brook Mayfly,

Bicknell's Thrush, and Northern Spring Salamander. This study was completed on November 20, 2020 and Kristen Puryear from the Maine Natural Areas Program was also present.

## **7.D Survey Results**

Mapping of identified habitat is provided in Appendix 7-3. The following is a discussion of the specific resources identified.

### **7.D.1 Wetlands**

In total, VHB delineated 103 wetlands, with the average size being 0.16-acres. Palustrine Emergent (PEM) and Palustrine Forested (PFO) were present within the Project area. In general, wetlands within the Project area are groundwater-driven, often occurring at the topography breaks where water flowing through underfoot boulders is forced to the surface and creates open canopy seeps with organic soils. Whether due to the hydrologic impacts of the logging roads, or the coincidental placement of the roads where topography is least steep, many of the legacy logging roads display wetland parameters. For additional technical details pertaining to each delineated wetland, refer to the Natural Resources Protection Act (NRPA) permit application accompanying this submittal.

#### *PFO Wetlands*

Forested wetlands are characterized by woody vegetation that is at least six meters tall (Cowardin et al. 1979). VHB delineated 37 PFO wetlands within the Project area which include a mix of needle-leaved evergreen and broad-leaved deciduous vegetation. Forested wetlands make approximately 11.3 acres (2%) of the Project area. Common tree species included balsam fir, green ash (*Fraxinus pennsylvanica*), yellow birch and red maple. Herbaceous species common to forested wetlands include sensitive fern, spotted touch-me-not, nodding sedge and eastern rough sedge (*Carex scabrata*). Often forested wetlands have an open canopy towards the middle, with tree species dominating wetland edges and overhanging the wetland. PFO wetland hydrology is groundwater-driven and permanently saturated soils are common.

### *PEM Wetlands*

Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens (Cowardin et al. 1979). VHB delineated 66 emergent wetlands covering approximately 5.8 acres (1%) within the Project area. Common species include sensitive fern, eastern rough sedge, nodding sedge, woolgrass (*Scirpus cyperinus*), green bulrush (*Scirpus atrovirens*), dwarf red blackberry (*Rubus pubescens*), interrupted fern (*Osmunda claytoniana*), broad-leaved cattail, bluejoint grass (*Calamagrostis canadensis*) and northeastern manna grass. Often PEMs occur in recently logged areas that were likely PFOs prior to harvesting. As such, delineated PEMs often have woody vegetation that was not tall or dominant enough to qualify as PFO or Palustrine Scrub-shrub. These species included willows, steeplebush, balsam fir, yellow birch and green ash, among others. Delineated PEM wetlands commonly have organic-matter rich soil, often enough to qualify as a Histosol. Groundwater discharge in the form of open-canopy seeps plays a large role in creating wetland areas on the sloped terrain.

### *Wetlands of Statewide Significance*

Of the 103 wetland areas delineated, portions of 38 wetlands meet the NRPA WOSS criteria based on being located within 25 feet of a delineated stream (see Criteria 8 above). No other WOSS criteria were met by any wetland within the Project area. Those portions of these wetlands located within 25 feet of a stream are considered WOSS areas. WOSS areas are displayed on the Natural Resources Map (Appendix 7-3) with the associated 75-foot area adjacent to the Protected Natural Resource.

### **7.D.2 Waterbodies**

VHB ecologists conducted stream delineation fieldwork within the Study Area between June and July 2020. During this effort, 34 streams were delineated within the Study Area, primarily based on those meeting NRPA definition criteria (b) and (c) as listed above. Of the 34 delineated streams, there are 7 perennial reaches and 27 intermittent reaches. These 34 streams are displayed on the Natural Resources Map with associated 75-foot buffer for Protected Natural Resources. The Study Area also contains several ephemeral channels, often associated with legacy logging roads, which,

due to ephemeral flow regime and/or lack of a defined mineral channel, are not believed to be federal or state jurisdictional. These features were therefore not included on the Natural Resources Map. For additional technical details pertaining to each delineated waterbody, refer to the NRPA permit application accompanying this submittal.

### ***7.D.3 Vernal Pools***

During the 2020 vernal pool (VP) assessment, VHB ecologists documented 6 VPs within the Study Area but based on field observations. Observed VPs are small and associated with human-created depressions such as ditches and skidder ruts except for VP 2, which is in a potentially natural depression within a softwood swamp.

Based on the MDEP criteria, none of the VPs were found to be significant. The Maine State VP Assessment Forms, site photographs and associated GIS shapefiles for all VPs were submitted to MDIFW on February 5, 2021. MDIFW provided a response letter on February 25, 2021 (Appendix 7-4) confirming the non-significant status of the six VPs because either: 1) the features do not meet the definition of a VP under the Significant wildlife habitat rules, 06-096 CMR 335(9) or 2) the VPs do not meet the biological standards for exceptional wildlife use of the significant wildlife habitat rules, 06-096 CMR 335(9)(B). Therefore, activities within 250 feet of the pools are not regulated under NRPA unless there are other protected natural resources nearby such as streams or freshwater wetlands. The complete correspondence with MDIFW regarding VPs is provided in the NRPA application accompanying this submission.

### ***7.D.4 Bicknell's Thrush***

The habitat survey for the Bicknell's thrush determined that this species is likely occur within the area previously mapped as Subalpine Fir Forest that is over 2700' asl. The results of the study are described in more detail in Appendix 7-5. Potential Bicknell's Thrush habitat identified by this study is displayed on the resource maps in Appendix 7-3

#### ***7.D.5 Roaring Brook Mayfly***

The habitat study for the Roaring Brook Mayfly determined that several small perennial streams at middle and low elevations within the Project area could harbor Roaring Brook Mayfly. The results of the study are described in more detail in Appendix 7-5. The resource maps in Appendix 7-3 depict these areas as well as the 250-foot buffer recommended by MDIFW.

#### ***7.D.6 Northern Spring Salamander***

The habitat study for the Northern Spring Salamander determined that several small perennial streams at middle and low elevations could harbor spring salamander (the results of the study are described in more detail in Attachment 9). The results of the study are described in more detail in Appendix 7-5. The resource maps in Appendix 7-3 depict these areas as well as the 250-foot buffer recommended by MDIFW.

### **7.E Impacts and Effects on Habitats and Associated Wildlife**

#### ***7.E.1 General Habitat and Wildlife***

The Applicant has reduced direct and indirect impacts on wildlife and wildlife habitats to the maximum extent practicable through avoidance, minimization and a thorough review of potential alternatives. The construction and maintenance of the proposed Project will have both permanent and temporary effects on the existing habitats and associated ecological communities. Permanent effects result from construction of roads and other permanent structures, as well as the associated clearing of forested areas for installation of the trail network. Temporary effects may include minor changes in existing habitats due to temporary ground disturbance during construction and the short-term effect of ongoing construction activity on wildlife species that may cause them to leave the immediate area until construction activities cease.

### 7.E.1.1 Permanent Vegetation and Habitat Impacts

The construction of ski trails, structures and roads will result in limit of disturbance of approximately 290 acres, of which approximately 40 acres is associated with the proposed residential developments. Direct permanent impacts from construction of trails, structures and roads have been minimized to the extent practicable. The existing network of active and inactive logging roads in the area have been used as much as possible for access to the project area ridgelines. Existing roads used for the project will be upgraded to pass the large trucks needed for construction but upgrading activities pose much less of an impact than construction of new roads. In general, most existing roads will simply need re-grading. Some culvert and bridge replacements will be made as well. In all areas where wetlands occur on one side of an existing road but not on the other and where road widening or vegetation is needed, those activities will be undertaken on the non-wetland side of the road.

To construct and maintain the proposed Project will require clearing approximately 238 acres of forested upland. Much of this disturbance is associated with the proposed new ski trails. Ski trail areas are typically mowed once annually and so these areas will be maintained as a meadow cover type. It is expected that several grass species (*Gramineae*) will dominate with some herbaceous and small woody plants such as meadowsweet, alder, viburnum species, asters (*Aster* spp.), raspberries and blackberries (*Rubus* spp.) also being present. This long-term conversion of forested cover types to shrub or herbaceous types can offer certain benefits to some wildlife species, including the increase of succulent grasses and flowering plants for grazing animals, the production of more fruit for wildlife consumption from berry producing species, and the direct benefits of food, cover and nesting sites for species dependent on early successional habitats.

Periodically mowed and maintained fields can provide habitat for early successional species such as the chestnut-sided warbler (*Dendroica pensylvanica*), yellow warbler, common yellowthroat, alder flycatcher (*Empidonax alnorum*), eastern kingbird (*Tyrannus tyrannus*), song sparrow, and indigo bunting (*Passerina cyanea*). Wide-ranging habitat-generalist species such as coyote and

red fox (*Vulpes vulpes*) may use these areas as travel corridors. They may also be used for foraging by game species such as white-tailed deer, moose, and wild turkey (*Meleagris gallopavo*).

Habitat fragmentation is the division of habitat into smaller and smaller patches that become more and more isolated from each other and from larger forested areas. These smaller patches are believed to be of lower quality, consequently providing less suitable habitat for native wildlife populations. The Project is located in an area which is dominated by ski-related activities and regular forest management activities. It is fully anticipated that local wildlife populations will adapt and respond to this conversion of habitat types much as they already do to the natural occurrence of blowdowns and forest management activities in the area.

#### 7.E.1.1.1 Mammalian Impacts

It is anticipated that mammals in the general area will not be adversely affected by the proposed Project. With initial clearing of the Project area and subsequent construction, larger mammals will likely be displaced to the adjacent remaining forest habitats.

The following benefits will likely occur as a result of constructing the proposed Project:

- Populations of most small mammals will increase, likely benefiting predators and the upper food chain;
- Long-term changes in vegetation within forested upland and wetland habitat converted to upland fields and emergent wetlands, which will increase graminoid food resources, may benefit deer, turkeys, woodchucks, and hares; and

#### 7.E.1.1.2 Avian Impacts

The greatest impacts to bird populations from the Project will result from the limited permanent conversion of areas of forested land to impervious surfaces and open land. The effective loss of forest diminishes the available habitat for tree-dependent species. Cavity-nesters such as hairy

woodpecker, downy woodpecker, pileated woodpecker, black-capped chickadee, red-breasted nuthatch, and brown creeper will likely be impacted on a local scale; although the cover type/habitat is suitable to support these species, it's not known that all these species are currently inhabiting the site. Populations of these species may be displaced to forests adjacent to the Project area where suitable nest sites and areas for foraging occur. As stated earlier, the area surrounding the Project contains significant areas of forest habitat, therefore the impact of this displacement should be minimal. In addition, these species are among the most common native residents, with large healthy populations.

Other species dependent on suitable cover, although not cavity-nesters, will also be displaced. Red-eyed vireo, ovenbird, rose-breasted grosbeak (*Pheucticus ludovicianus*), scarlet tanager (*Piranga olivacea*), redstart, chestnut-sided warbler, and other migrant species which are forest nesters will move to adjacent habitat.

Many bird species will benefit from the increased open area and from the creation of edge habitats, especially in upland areas. Among these areas may be white-throated sparrow, chestnut-sided warbler, redstart, chipping sparrow (*Spizella passerine*), gray catbird (*Dumetella carolinensis*), and purple finch (*Carpodacus purpureus*). These species nest in brushy areas that will occur along the edges of the facility. Wetland dependent songbirds, including common yellowthroat, red-winged blackbird, song sparrow, and yellow-rumped warbler (*Dendroica coronata*) will also benefit from cover created in emergent wetland areas. Their populations may increase due to the creation of the ecotone (i.e., edge) habitat.

Recent studies of northeastern raptors have shown that habitat diversity is well tolerated by most species. Brooks (1989) concludes that “a landscape of interspersed forest and open-habitat types would best support the majority of raptor species.” In this study of the amount of ecotone habitat in the northeast, he also concludes that Maine “has the least diverse landscape of the eight states for which data are available.” Forest openings are used for hunting and foraging and may provide greater prey base than contiguous forests.



Among raptors most likely to benefit from increased opening of the forest is the broad-winged hawk (Titus and Mosher 1981), already the most abundant raptor in the Project area. Kestrels, also abundant throughout, will likely benefit from increased hunting opportunities, and may nest on the edge of the solar facility. Other forest-dwelling raptors including red-tailed hawks, great horned owl, and long-eared owl should also benefit from increased diversity. One species, the northern harrier, is a ground nester limited to open wetland areas and may benefit from increased habitat.

Only northern goshawks, red-shouldered hawks and barred owls have been identified as raptors that require large, remote forest tracts (Falk and Stauffer 1988; Speiser and Bosakowski 1989). It is anticipated that the Project will not have any significant negative effects on these particular species, because a significant portion of the surrounding lands are forested and would provide suitable habitat for these particular species. The removal of trees within the Project site may decrease nesting opportunities for raptors, although no nest sites were observed during preliminary fieldwork.

#### *7.E.1.2 Temporary Vegetation and Habitat Effects*

Construction activities will be conducted in accordance with an Erosion and Sedimentation Control Plan (as described in Section 14 Basic Standards). The proper implementation of erosion and sedimentation control measures will minimize the potential for erosion and sedimentation of wetlands and waterbodies and minimize potential temporary impacts to vegetation and wildlife habitat from construction of the Project.

#### *7.E.2 Wetlands*

The construction and operation of the facility will impact 71 wetlands. Approximately 164,408 square feet (3.77 acres) of fill will be required. Of these impacts, twelve of the impacted wetlands are WOSS and within these there will be approximately 4,143 square feet (0.09 acres) of fill. Some

of this fill is related to cutting and grubbing forested wetland to allow for the burial of utilities and conversion of a forested wetland to a meadow for a ski trail.

Impacts to forested wetlands may be somewhat greater than to other wetlands, as the loss of tree canopy may locally alter the plant communities and affect wildlife. For example, many year-round native bird species are most abundant in coniferous swamps during winter. However, because the proposed Project is in a surrounding area that contains significant forested habitat, much of which is undeveloped, it is anticipated that areas cleared for the Project will have relatively minimal impact to forest interior species.

Impacts to emergent wetlands will be less than forested wetlands, because the vegetation is already low and need not be cut during maintenance. In areas where vegetation is cut during clearing, for example tall alders, the light and water regimes are such that regeneration will typically consist of species identical with those already growing. Because the hydrology of the majority of wetlands within the Project will be minimally altered, no permanent impact to the principal functions such as groundwater discharge or sediment stabilization are expected.

### ***7.E.3 Waterbodies***

There are 32 stream crossing associated with this Project. Construction activities will be conducted in accordance with an Erosion and Sedimentation Control Plan (as described in Section 14 Basic Standards). The proper implementation of erosion and sedimentation control measures will minimize the potential for erosion and sedimentation of wetlands and waterbodies and minimize potential temporary impacts to vegetation and wildlife habitat from construction of the Project. Of the 32 streams within the Project site, only 10 are perennial streams. The majority of Project stream crossings will involve intermittent streams, which will afford the Project the opportunity to construct many crossings during periods of little to no flow. Note that the Project proposes to remove 13 existing pipe culverts, many of them perched culverts in perennial streams, and restore the existing stream channel in the area of each (refer to Section 7.E.4.3 below).

#### ***7.E.4 Endangered, Threatened and Special Concern Species***

##### *7.E.4.1 Bat Species*

Based on consultation with MDIFW, of the eight species of bats that occur in Maine, the three *Myotis* species are protected under MESA and are afforded special protection under 12 M.R.S §12801 - §12810. However, MDIFW does not anticipate significant impacts to any of the bat species as a result of the Project.

The Project is generally located within a region of Maine with widespread forested cover that will remain following the Project's construction. The clearing and vegetation removal required for the Project represents a very small fraction of the tree cover in the region. The removal of trees required for the Project will not represent a significant change in the overall forested habitat available to bats in the Project Area or region. Based on agency consultation, there is no known bat hibernacula within one quarter mile of the Project area and no known roost trees within (at least) 150 feet of any proposed Project area. There are also no exposed rocky features that could serve as overwinter habitat for the bat species of concern. Additionally, as the proposed clearing will not happen in June or July, the Project is not anticipated to have impacts on bat species.

##### *7.E.4.2 Bicknell's Thrush*

Based on information received from MDIFW, Bicknell's thrush, a bird that is a state species of special concern, may occur in the Project area. The Bicknell's thrush is an extreme habitat specialist, requiring sub-alpine forests dominated by balsam fir and red spruce at elevations around 2,700-feet that typically have a history of natural disturbance resulting in stunted dense understory (MDIFW consultation). The Biological Species Report completed by the USFWS (2017) noted that Bicknell's thrush has been found in high densities in newly regenerating clear-cuts and in constantly disturbed locations, including edges of human-created openings such as ski trails.

MDIFW provided one known habitat occurrence which intersects with the Project but extends for a much greater extent. The total area of this breeding habitat is approximately 20,824 acres based

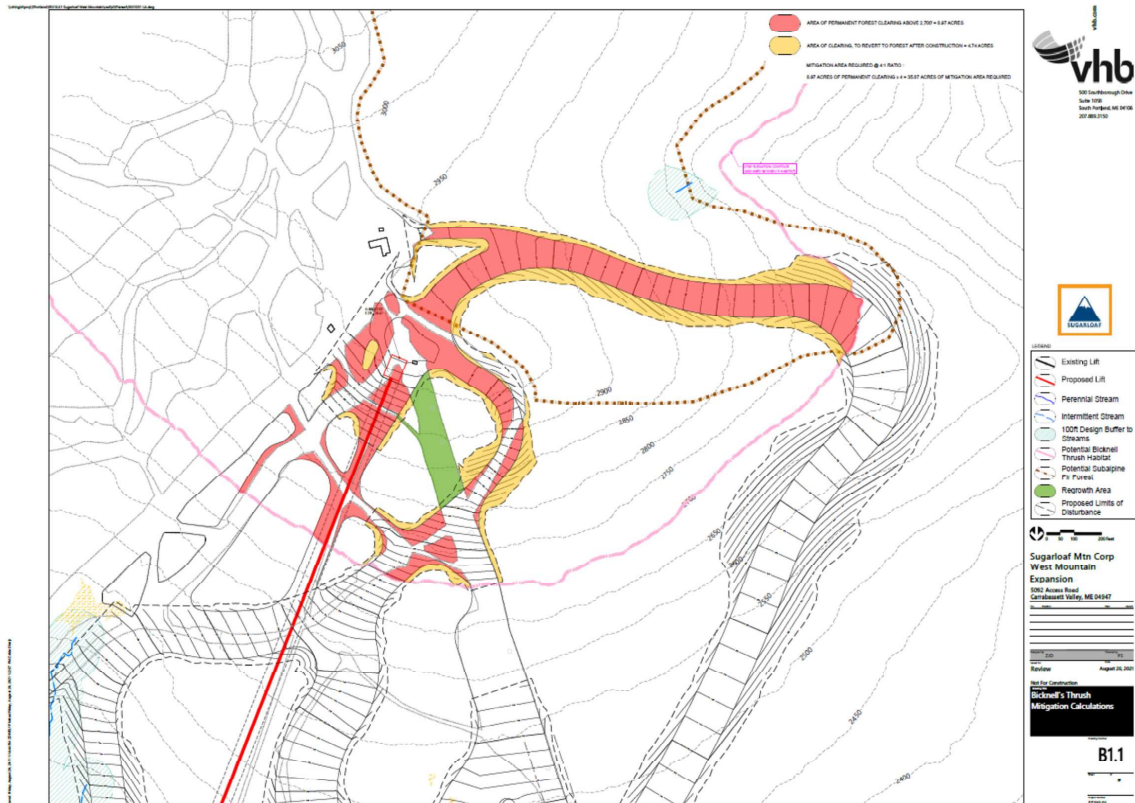
on the MDIFW-mapped habitat located at greater than 2,700 feet elevations and is associated with the high elevation sub-alpine forest on Sugarloaf Mountain. While the total area disturbed during construction would be 13.4 acres, some of this area would be allowed to grow back. The area to be permanently disturbed by the Project (approximately 8.97 acres) would be small relative to the amount of habitat that would remain available at the site. This disturbance would occur within a corner of the mapped polygon, so there would be no forest fragmentation. Additionally, Bicknell's thrush is known to breed in disturbed sites.

As shown in Figure 7-1, the disturbance in these upper elevations would be limited to the construction of ski trails. While the area of clearing will initially extend beyond the location of the proposed new ski trails, a certain portion of this disturbance will be allowed to revegetate. There is also an existing trail shown in green that will, for the foreseeable future, be allowed to revegetate but the Applicant is not including this segment in their mitigation proposal.

While the minimum desired ski trail width is typically 125 feet, within the Bicknell's Thrush zone the Project sought to minimize impacts by reducing typical trail width to 100 feet, except at intersections and turns where wider distances are needed for safety purposes. The USFWS Biological Species Report concluded that, while the development of ski areas and other disturbances may have resulted in the loss and fragmentation of habitat, the "species does show some ability to adapt and persist in the vicinity of ski slopes". It cited a study by the Vermont Institute of Science (Rimmer *et al.*, 2004) that analyzed species use at two ski areas, Stowe Mountain Resort and Stratton Mountain, and determined that "few significant differences existed for various population and reproductive parameters between areas developed for ski areas and natural forests on each mountain." While this study found that adult thrushes avoided trail crossings wider than 50 meters (164 feet), a similar study by Glennon and Karasin (2004) found no such avoidance pattern. The USFWS concluded that, while there may be an immediate loss of habitat from the construction of a ski trail, the species "may be able to adapt and use most of the remaining habitat without long-term consequences, provided consideration is taken to avoid fragmenting habitat to a degree that may inhibit the movement of adult Bicknell's thrushes." Based

on the best available information, the proposed ski trails will not represent fragmentation of the species' habitat.

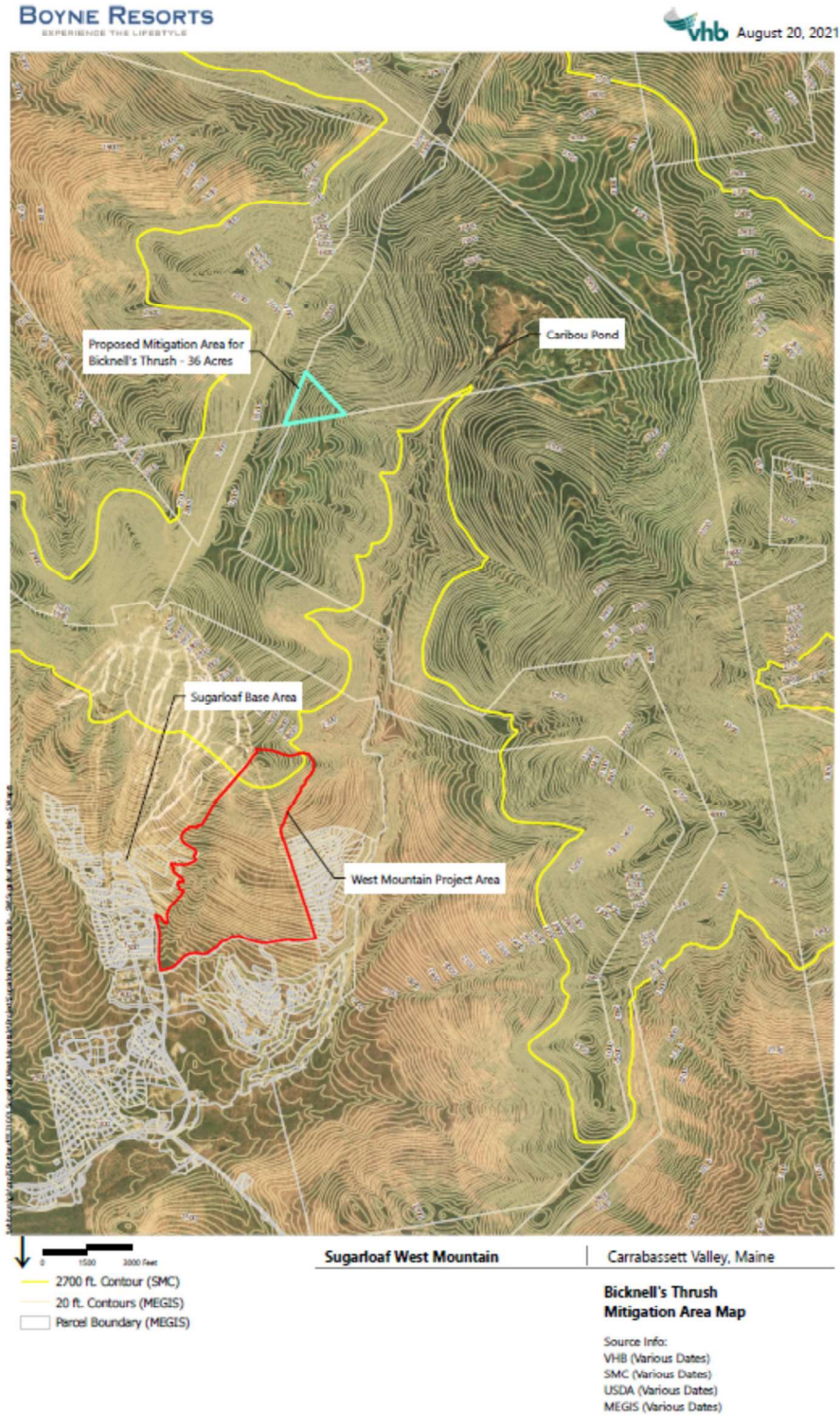
Figure 7-1: Area of Disturbance within Bicknell's Thrush Habitat



The Applicant has designed the Project so as to avoid and minimize impacts to the extent practical, given the Project's goals and existing conditions. This activity included the removal of a trail within the species' habitat that had been proposed during initial consultation meetings. To avoid impacts during the breeding season, the Applicant will adhere to MDIFW recommendations that no clearing or construction activity adjacent to these types of habitats occur from May 1 through July 31.

Based on consultation with MDIFW, the Applicant is also proposing to place a portion of their existing land, which is located at greater than 2,700 feet in elevation, into a permanent easement. The Applicant has proposed a section of land located to the south of the Project (see Figure 7-2) which occupies an area of approximately 36 acres which has experienced timber management activities in the past. The Applicant is currently consulting with state wildlife and botanical agencies to determine the attributes of a suitable mitigation area.

Figure 7-2: Originally Proposed Conservation Easement for Bicknell's Thrush Mitigation





#### *7.E.4.3 Roaring Brook Mayfly*

Based on information received from MDIFW, the Roaring Brook mayfly, a state threatened invertebrate species, may occur in the Project vicinity. This species can occur in high elevation, headwater streams draining off forested (hardwood or mixed) slopes at or above 1,000 feet (including unmapped streams) within or adjacent to the currently documented range (northern Appalachian Mountain Range, stretching from Mt. Katahdin to western border with New Hampshire and Quebec). A habitat study for the Roaring Mayfly determined that several small perennial streams at middle and low elevations within the Project area could harbor Roaring Brook mayfly but no presence surveys were completed.

The Applicant has avoided and minimized impacts within 250 feet of the streams which may represent Roaring Brook mayfly habitat, including the number of stream crossings. The Project would result in clearing of only approximately 17% of the buffer width within 50 feet of these streams. The Project will also result in clearing of 42% of the zone that lies within 50 to 250 feet of these streams. This level of disturbance is consistent with MDIFW guidance for timber harvesting, which calls for maintaining a 60-70% canopy cover in this region. It should be noted that a significant portion of the disturbance within the 250' buffer involves new ski trails, which are mowed only once annually and feature dense meadow vegetation and similar runoff characteristics as forested land cover.

The Applicant is proposing to install 14 open bottom arches and 2 open bottom box culvert crossings, of which six are located at stream channels deemed to be suitable habitat for Roaring Brook mayfly and Northern Spring salamander. For each crossing within these channels, Table 7-1 below provides the span divided by the bankfull width value, which the MDIFW recommends be at least 1.2, and the openness ratio, which the MDIFW recommends be at least 0.60 meters. All of the structures will be open bottom, thereby allowing for connectivity. For crossing locations listed below, refer to the sheet series CG-2.0 – CG-2.13 of the plan set.

Table 7-1: Bankfull and Openness Ratio for Crossings within Habitat

| <b>Stream Crossing Identifier</b> | <b>Span / Bankfull Width</b> | <b>Openness Ratio (m)</b> |
|-----------------------------------|------------------------------|---------------------------|
| STRM-01                           | 1.33                         | 0.86                      |
| STRM-02                           | 1.22                         | 0.40                      |
| STRM-03                           | 1.27                         | 0.05                      |
| STRM-04                           | 1.29                         | 0.08                      |
| STRM-09*                          | 1.33                         | 0.23                      |
| STRM-10                           | 1.33                         | 0.09                      |

\*Crossing #9 involves the removal of an existing perched pipe culvert and replacement with open bottom arch crossing

Achieving the recommended openness ratio of 0.6 meters is challenging for 5 of the 6 crossings listed above. This is due to the required width of the ski trails at the crossing location, thus resulting in longer culvert length. Crossings 2 through 4 are located where trails collect and concentrate skier traffic toward the bottom terminal of the new lift. These areas of significant traffic from uphill trails, new parking lots, and skier services buildings require a minimum trail width of 125 feet to safely accommodate skier volumes. Crossing 10 has been designed to cross the stream in as perpendicular a manner as possible while still providing safe skier movements. In order to minimize the crossing width, the trail width at this location has been reduced by 30 feet when compared with the original design.

For mitigation, the Applicant is proposing to voluntarily remove four existing perched culverts within the mayfly/salamander zone and replace one perched culvert with an open-bottom arch. These modifications are expected to restore habitat available for approximately 13,973 linear feet of streams within the Project area. Please refer to accompanying Mitigation Exhibit for Roaring Brook Mayfly/ Northern Spring Salamander included as Appendix 7-6. This approach to expanding suitable habitat accessibility as a means of mitigation was supported by MDIFW and DEP during prior agency outreach. Given the proposed width of stream crossings with potential habitat is estimated at 990 feet, the Applicant is providing a 14:1 mitigation ratio.

In addition to the improvements to aquatic organism habitat accessibility described above, the Project proposes to provide new treatment of existing untreated stormwater runoff from approximately 3.1 acres of existing gravel parking (Lot E) located directly within the habitat of a perennial mayfly/salamander stream. This runoff currently discharges directly to the stream via open drainage channels. Using the Simple Method (Scheuler, 1987) to compute sediment loading from the existing gravel parking lot and assuming 80% Total Suspended Solids removal achieved with the proposed wet pond treatment practice, this approach is expected to result in an estimate 30,000 lbs/year reduction in sediment loading originating from Lot E. This significant sediment reduction will improve stream bottom habitat for aquatic organism such as Roaring Brook Mayfly/Northern Spring Salamander. Refer to Section 12-Stormwater Management for supporting sediment calculations.

No construction activities, use of machinery, or other disturbances will occur within the stream channel except as necessary to place stream crossing structures. The Applicant will implement its erosion and sedimentation control measures to prevent sedimentation into waterbodies and maintain the existing water quality. Only hand cutting will occur within 25 feet of the stream channel. The use of herbicides or pesticides will be avoided within the 250-foot riparian management zone and only after consultation with the MDIFW.

#### *7.E.4.4 Northern Spring Salamander*

Based on information received from MDIFW, northern spring salamanders, a state Species of Special Concern, may also occur in the Project area. A habitat study for the Northern Spring salamander determined that several small perennial streams at middle and low elevations could harbor this species.

The Project is not expected to affect the Northern Spring Salamanders. Consistent with the protections for the Roaring Brook mayfly habitat, the Applicant has sited structures to avoid rivers and streams, as well as their associated buffer areas. Crossings have been avoided to the extent practical but when necessary will largely adhere to available guidelines. The removal and

replacement of existing perched culverts is expected to restore habitat availability for approximately 13,973 linear feet of streams within the Project area. This approach to expanding suitable habitat was supported by MDIFW and DEP during prior agency outreach

The Applicant will implement its erosion and sedimentation control measures to prevent sedimentation into waterbodies and maintain the existing water quality. The protection measures proposed for the Roaring Brook mayfly habitat are expected to also apply to the Northern Spring salamander.

### ***7.E.5 Significant Wildlife Habitat***

MDIFW Significant Wildlife Habitat (SWH) maps indicate no known presence of SWHs subject to protection under the Natural Resources Protection Act (NRPA) within the Project area, which include Waterfowl and Wading Bird Habitats, Seabird Nesting Islands, Shorebird Areas, and Significant Vernal Pools. In addition, MDIFW stated that there are no mapped Essential Habitats that would be directly affected by the Project.

#### ***7.E.5.1 Vernal Pools***

Based on the MDEP criteria, none of the vernal pools (VPs) found during the surveys completed within the Project area were found to be significant. Therefore, activities within 250 feet of the pools are not regulated under Natural Resources Protection Act unless there are other protected natural resources nearby such as streams or freshwater wetlands.

### ***7.E.6 Fisheries Habitat***

Based on outreach to MDIFW, the only fishery concern for the Project area is potential impacts within stream buffers. The protection measures discussed related to the Roaring Brook mayfly in

terms of vegetative buffers, crossing design, and enhanced habitat connectivity should be applicable for fisheries resources as well. In addition, the Applicant will limit any necessary instream work so that it only occurs between July 15 and October 1.

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