

PLATE 3: MATRIX OF ENVIRONMENTAL IMPACTS OF PROPOSED PLANS

PLAN	ENVIRONMENTAL RESOURCES			WILDLIFE HABITAT
	WATER QUALITY	AQUATIC LIFE		
<p>Plan A</p> <p>Dredge 24,000 to 240,000 cy of sediment from reservoir and institute long-term maintenance dredging program. Dispose of dredged material at on-site upland borrow areas, spillway, diked confinement area (A2, A4, A5) and off-site (as needed).</p> <p>Maintain permanent ca. 55-ft. pool except during smolt migration and fall white water releases.</p> <p>Install backup instrumentation and enhanced communications equipment.</p>	<p>(+) Reduced risk of highly damaging sediment release due to failure of automated gate or human error. Risk decreases as volume of sediment dredged initially and frequency of maintenance dredging increases.</p> <p>(-) Increased suspended solids levels downstream during dredging. Use of silt curtains should assure compliance with VT water quality criteria.</p>	<p>(+) Reduced risk of damage downstream of dam caused by inadvertent sediment release. Risk decreases as volume of sediment dredged initially and frequency of maintenance dredging increases.</p> <p>(-) Rock protection of diked containment area and constructed wetland would provide cover and foraging habitat for fish (A2, A4, A5).</p> <p>(-) Possible exposure to increased suspended solids levels downstream during dredging. Compliance with VT water quality criteria would adequately protect aquatic life.</p>	<p>(+) Maintaining 55-ft. pool would promote development of about 10 acres of riparian vegetation along shoreline and on mudflats near head of pool.</p> <p>(+) Wetland created at diked confinement area would provide habitat for waterfowl and wading birds. Functional value of area would be low due to low water level in spring and fall (A2, A4, A5).</p> <p>(-) Temporary loss of wildlife habitat at borrow areas K and R.</p>	
<p>Plan B</p> <p>Dredge sufficient material to allow operation of project as a dry bed reservoir (240,000 cy).</p> <p>Dispose of dredged material at on-site upland borrow areas, spillway, and off-site (as needed).</p>	<p>(+) Eliminate risk of highly damaging sediment release due to failure of automated gate or human error.</p> <p>(-) Increased suspended solid levels in West River during dredging. Use of silt curtains should assure compliance with VT water quality criteria.</p> <p>(-) Elimination of reservoir pool would increase downstream transport of sediment during storm events. Reservoir would no longer act as a settling basin. Stabilization of sediments with vegetation may difficult at lower elevations due to frequent inundation.</p> <p>(-) Increased sedimentation at Townshend Lake.</p> <p>(-) Elimination of cold water releases from reservoir could result in increased water temperature in West River downstream of dam during summer.</p>	<p>(+) Risk of damage downstream of dam due to inadvertent sediment release eliminated.</p> <p>(+) Restoration of ca. 1.5 miles of West River stream habitat upstream of dam. Value of habitat would be somewhat limited by frequent inundation and high stream temperature during summer.</p> <p>(+) Enhanced passage of smolts through Ball Mountain Dam. Any delay or mortality associated with passage through submerged gates would be eliminated.</p> <p>(-) Possible exposure to increased suspended solids levels downstream of dam during dredging. Compliance with VT water quality criteria would adequately protect aquatic life.</p> <p>(-) Possible damage to aquatic life caused by increased siltation downstream of dam during storm events.</p> <p>(-) Lack of cold water outflow from dam during summer could adversely impact downstream salmon and trout habitat.</p>	<p>(+) Elimination of summer pool would promote development of about 70 acres of riparian habitat. Herbaceous vegetation low shrubs would likely predominate.</p> <p>(-) Temporary loss of wildlife habitat at borrow areas K and R.</p>	
<p>Plan C</p> <p>Construct inlet weir to maintain 25-ft pool during smolt migration period.</p> <p>Dredge 24,000 to 50 72,000 cy of material and dispose at on-site upland borrow areas, spillway, confined diked disposal site (C1, C2, C3), and off-site (as needed).</p> <p>Maintain permanent 55-ft pool for C1, C2, and C3; and 25-ft or 55 ft. pool for C4 and C5</p>	<p>(+) Eliminate risk of highly damaging sediment release due to failure of automated gate or human error.</p> <p>(-) Increased suspended solids levels downstream during dredging required to construct weir and periodic maintenance dredging. Use of silt curtains should assure compliance with VT water quality criteria.</p>	<p>(+) Risk of damage downstream of dam due to inadvertent sediment release eliminated.</p> <p>(+) Enhanced passage of smolts through Ball Mountain Dam. Any existing delays and mortality associated with passage through submerged gates would be eliminated. A splash pool would be needed at base of weir.</p> <p>(-) Maintaining 25 ft. pool would restore ca. 1.2 miles of West River stream habitat upstream of dam. Value of habitat would be somewhat limited by frequent inundation and high stream temperature during summer (C4, C5).</p> <p>(+) Rock protection of diked containment area and constructed wetland would provide cover and foraging habitat for fish (C1, C2, C3, and C4 and C5 with 55-ft. pool).</p> <p>(-) Possible exposure to increased suspended solids levels downstream during construction of weir and dredging. Compliance with VT water quality criteria would adequately protect aquatic life.</p>	<p>(+) Maintaining 55-ft. pool would promote development of about 10 acres of riparian vegetation along shoreline and on mudflats near head of pool.</p> <p>(+) Maintaining 25-ft. pool would allow development of 50 acres of riparian habitat. Herbaceous vegetation low shrubs would likely predominate. Habitat value at low elevations would be limited by occasional inundation during growing season.</p> <p>(+) Wetland created at diked confinement area would provide habitat for waterfowl and wading birds. Functional value of area would be low due to low water level in spring and fall (C1, C2, C3, and C4 and C5 with 55-ft. pool).</p> <p>(-) Temporary loss of wildlife habitat at borrow areas K and R.</p>	
<p>Plan D</p> <p>Lower reservoir to 0 foot pool stage and excavate 24,000 to 120,000 cy of sediment from reservoir and institute long-term maintenance dredging program. Dispose of dredged material at on-site upland borrow areas, spillway (D1, D2) and off-site (as needed).</p> <p>Maintain permanent ca. 55-ft. pool except during smolt migration and fall white water releases.</p> <p>Install backup instrumentation and enhanced communications equipment.</p>	<p>(+) Reduced risk of highly damaging sediment release due to failure of automated gate or human error. Risk decreases as volume of sediment dredged initially and frequency of maintenance dredging increases.</p> <p>(-) Increased suspended solid levels downstream during drawdown and excavation. Likely violation of VT water quality criteria.</p>	<p>(+) Reduced risk of damage downstream of dam caused by inadvertent sediment release. Risk decreases as volume of sediment dredged initially and frequency of maintenance dredging increases.</p> <p>(-) Sedimentation and increased suspended solid levels during drawdown and excavation would severely impact downstream invertebrate and fish communities. Loss of Atlantic salmon fry/par year class likely.</p>	<p>(+) Maintaining 55-ft. pool would promote development of about 10 acres of riparian vegetation along shoreline and on mudflats near head of pool.</p> <p>(-) Temporary loss of wildlife habitat at borrow areas K and R.</p>	
<p>Plan E1</p> <p>Install backup instrumentation and new communications equipment.</p>	<p>(+) Risk of highly damaging sediment release somewhat reduced. Risk would increase over time as sedimentation decreased volume of 25-foot pool and margin for operational error decreased.</p>	<p>(+) Risk of highly damaging sediment release somewhat reduced. Risk would increase over time as sedimentation decreased volume of 25-foot pool and margin for operational error decreased.</p>	<p>No impact.</p>	

Plate 3 Environmental Impact Matrix of Proposed Plans / Sheet 1

PLATE 3: MATRIX OF ENVIRONMENTAL IMPACTS OF PROPOSED PLANS

PLAN	ENVIRONMENTAL RESOURCES			RECREATION AND AESTHETICS
	PROTECTED SPECIES	CULTURAL RESOURCES		
<p>Plan A</p> <p>Dredge 24,000 to 240,000 cy of sediment from reservoir and institute long-term maintenance dredging program. Dispose of dredged material at on-site upland borrow areas, spillway, diked confinement area (A2, A4, A5) and off-site (as needed).</p> <p>Maintain permanent ca. 55-ft. pool except during smolt migration and fall white water releases.</p> <p>Install backup instrumentation and enhanced communications equipment.</p>	<p>(+) Reduced risk of highly damaging sediment release from Ball Mountain Dam. Risk increases as sedimentation decreases volume of 25-foot pool.</p>	<p>(+) Maintaining permanent 55 ft. pool would reduce potential erosion at prehistoric site located on reservoir shoreline near head of existing 65-ft. summer pool.</p>	<p>(+) Reduced risk to trout fishery downstream of Ball Mountain Dam from inadvertent sediment release.</p> <p>No impact on white water releases.</p>	
<p>Plan B</p> <p>Dredge sufficient material to allow operation of project as a dry bed reservoir (240,000 cy).</p> <p>Dispose of dredged material at on-site upland borrow areas, spillway, and off-site (as needed).</p>	<p>(+) Risk to brook floater caused by inadvertent sediment releases from Ball Mountain Dam eliminated.</p>	<p>(+) Elimination of permanent pool would reduce potential erosion at prehistoric site located on reservoir shoreline near head of 65-ft. pool.</p>	<p>(+) Risk to trout fishery downstream of Ball Mountain Dam from inadvertent sediment releases eliminated.</p> <p>(+) Restored stream habitat would provide warmwater fishery.</p> <p>(-) Loss of existing 75 acre summer pool would be viewed as adverse aesthetic impact by some people.</p> <p>(-) Loss of fall and possibly spring white water recreation releases.</p>	
<p>Plan C</p> <p>Construct inlet weir to maintain 25-ft pool during smolt migration period.</p> <p>Dredge 24,000 to 72,000 cy of material and dispose at on-site upland borrow areas, spillway, confined diked disposal site (C1, C2, C3), and off-site (as needed).</p> <p>Maintain permanent 55-ft pool for C1, C2, and C3; and 25-ft or 55 ft. pool for C4 and C5.</p>	<p>(+) Risk to brook floater caused by inadvertent sediment release from Ball Mountain Dam eliminated.</p>	<p>(-) Lowering permanent pool to 25 or 55-ft. would reduce potential erosion at prehistoric site located on reservoir shoreline near head of 65-ft. pool.</p>	<p>(+) Risk to trout fishery downstream of Ball Mountain Dam from inadvertent sediment releases eliminated.</p> <p>(+) If 25-ft. pool were maintained, restored stream habitat would provide warmwater fishery (C4, C5).</p> <p>(-) Loss of fall and possibly spring white water recreation releases if permanent 25-ft pool were maintained (C4, C5).</p> <p>(-) Loss of existing 75 acre summer pool would be viewed as adverse aesthetic impact by some people (C4, C5).</p>	
<p>Plan D</p> <p>Lower reservoir to 0 foot pool stage and excavate 24,000 to 120,000 cy of sediment from reservoir and institute long-term maintenance dredging program. Dispose of dredged material at on-site upland borrow areas, spillway (D1, D2) and off-site (as needed).</p> <p>Maintain permanent ca. 55-ft. pool except during smolt migration and fall white water releases.</p> <p>Install backup instrumentation and enhanced communications equipment.</p>	<p>(+) Reduced long-term risk of damaging sediment release from Ball Mountain Dam. Risk increases as sedimentation decreases volume of 25-foot pool.</p> <p>(-) Sedimentation during drawdown and excavation could severely impact and possibly extirpate downstream brook floater population.</p>	<p>(+) Maintaining permanent 55 ft. pool would reduce potential erosion at prehistoric site located on reservoir shoreline near head of existing 65-ft. summer pool.</p>	<p>(+) Reduced risk to trout fishery downstream of Ball Mountain Dam from inadvertent sediment release.</p> <p>(-) Sedimentation and increased suspended solid levels during drawdown/ excavation would severely impact downstream trout fishery and stream aesthetics.</p> <p>No impact on white water releases.</p>	
<p>Plan E1</p> <p>Install backup instrumentation and new communications equipment.</p>	<p>(+) Risk of highly damaging sediment release somewhat reduced. Risk would increase over time as sedimentation decreased volume of 25-foot pool and margin for operational error decreased.</p>	<p>Risk of erosion at prehistoric site near head of 65-ft pool would remain.</p>	<p>(+) Reduced risk to trout fishery downstream of Ball Mountain Dam due to inadvertent sediment releases.</p> <p>No impact on white water recreation or aesthetics.</p>	