

Small Scale Dam Removal and Pond Decommissioning: Three Case Studies from Vermont

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Partners/Clients:



Clean water. Healthy habitat. Thriving communities.

**Connecticut River
Conservancy**



**Vermont
Land
Trust**



The University of Vermont

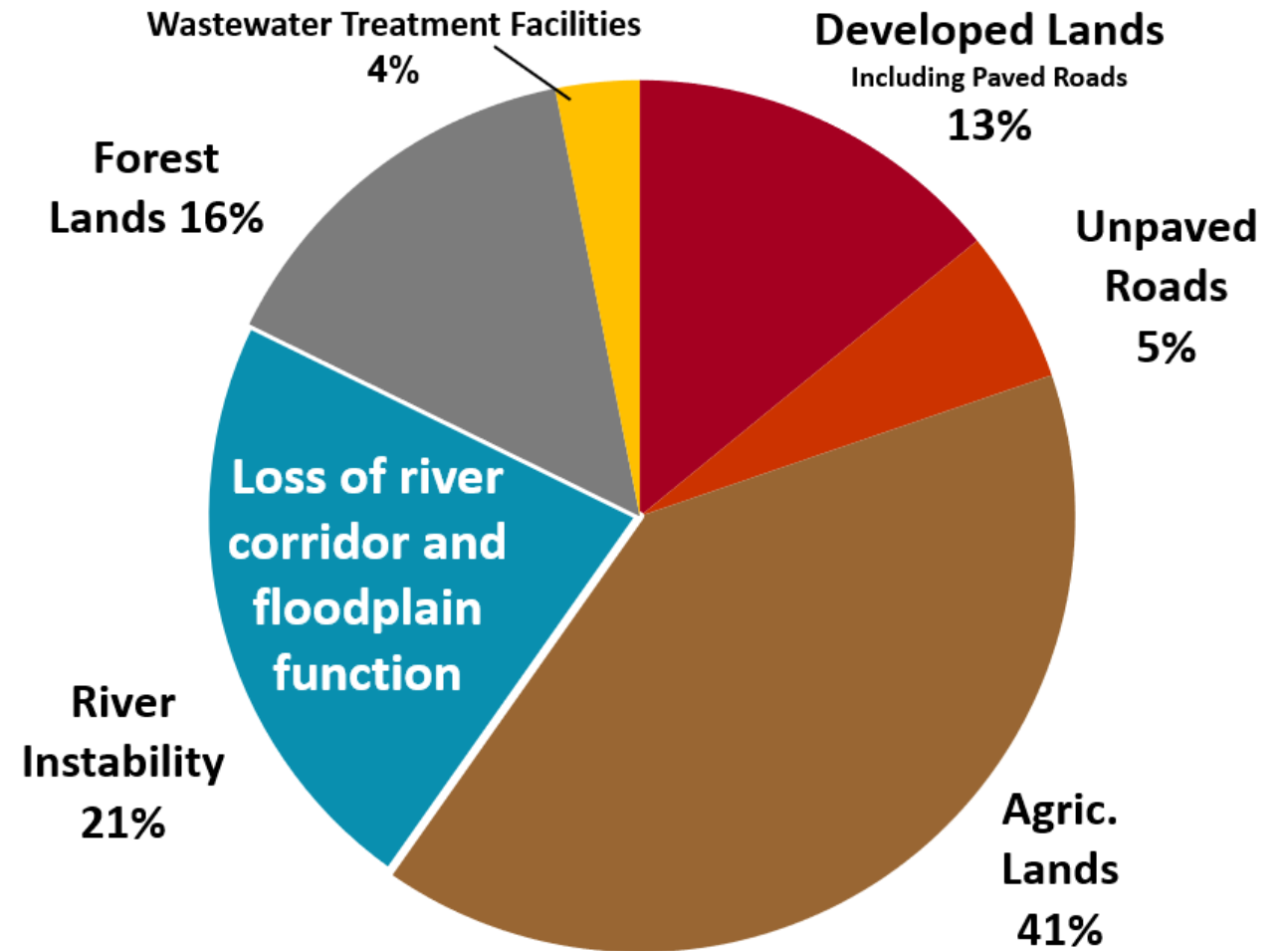
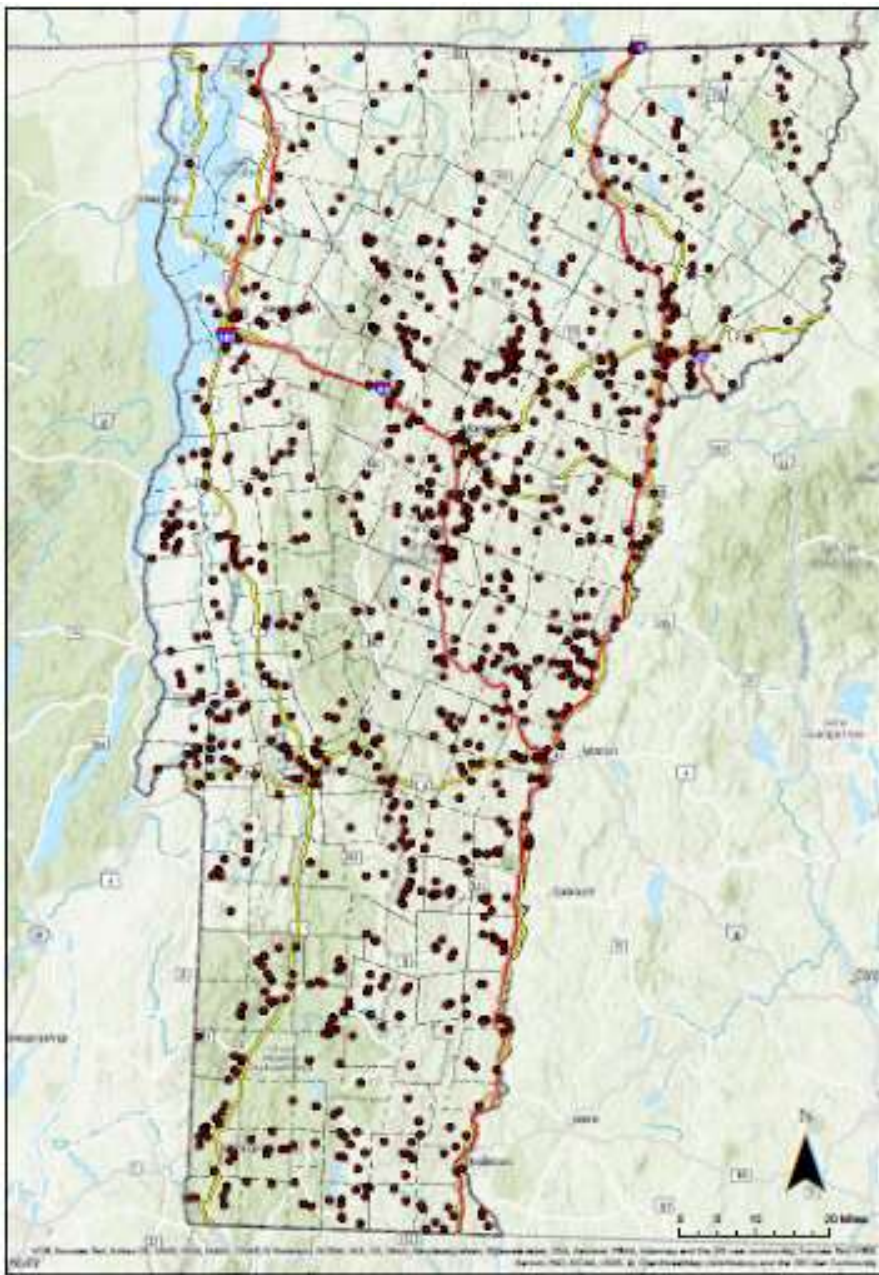


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2023 National
Stream Restoration
Conference



Lake Champlain Phosphorus TMDL





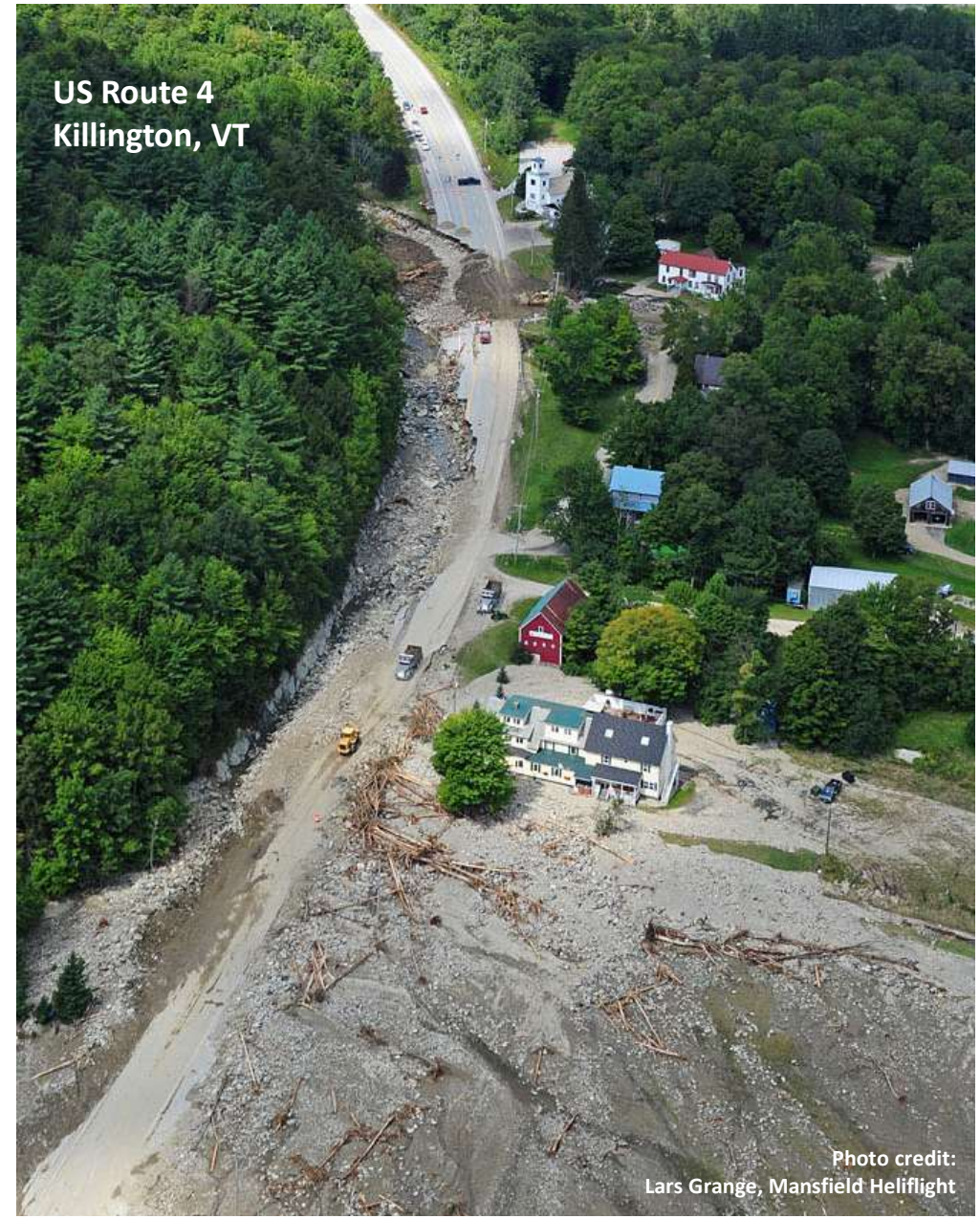
**Clark Sawmill
Dam Failure
Cabot, VT**

Photo credit:
James Buck



**VT Route 100
Londonderry, VT**

Photo credit:
Rick McDonough



**US Route 4
Killington, VT**

Photo credit:
Lars Grange, Mansfield Heliflight



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Montagna Dam Removal Windham, VT

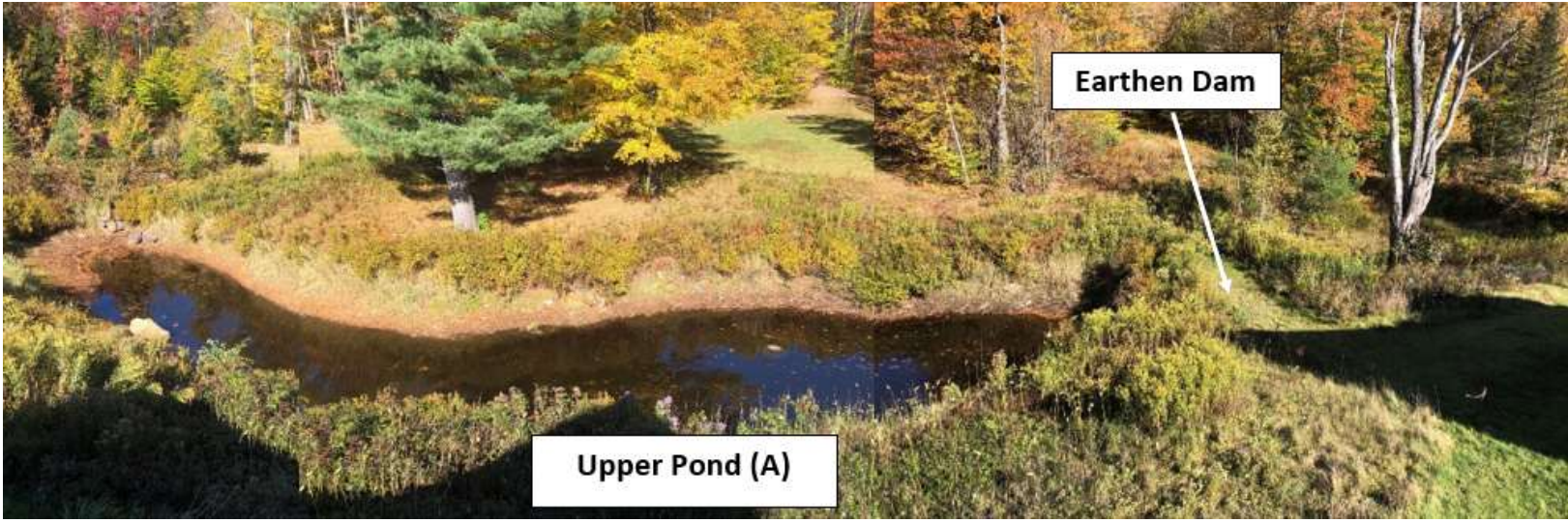
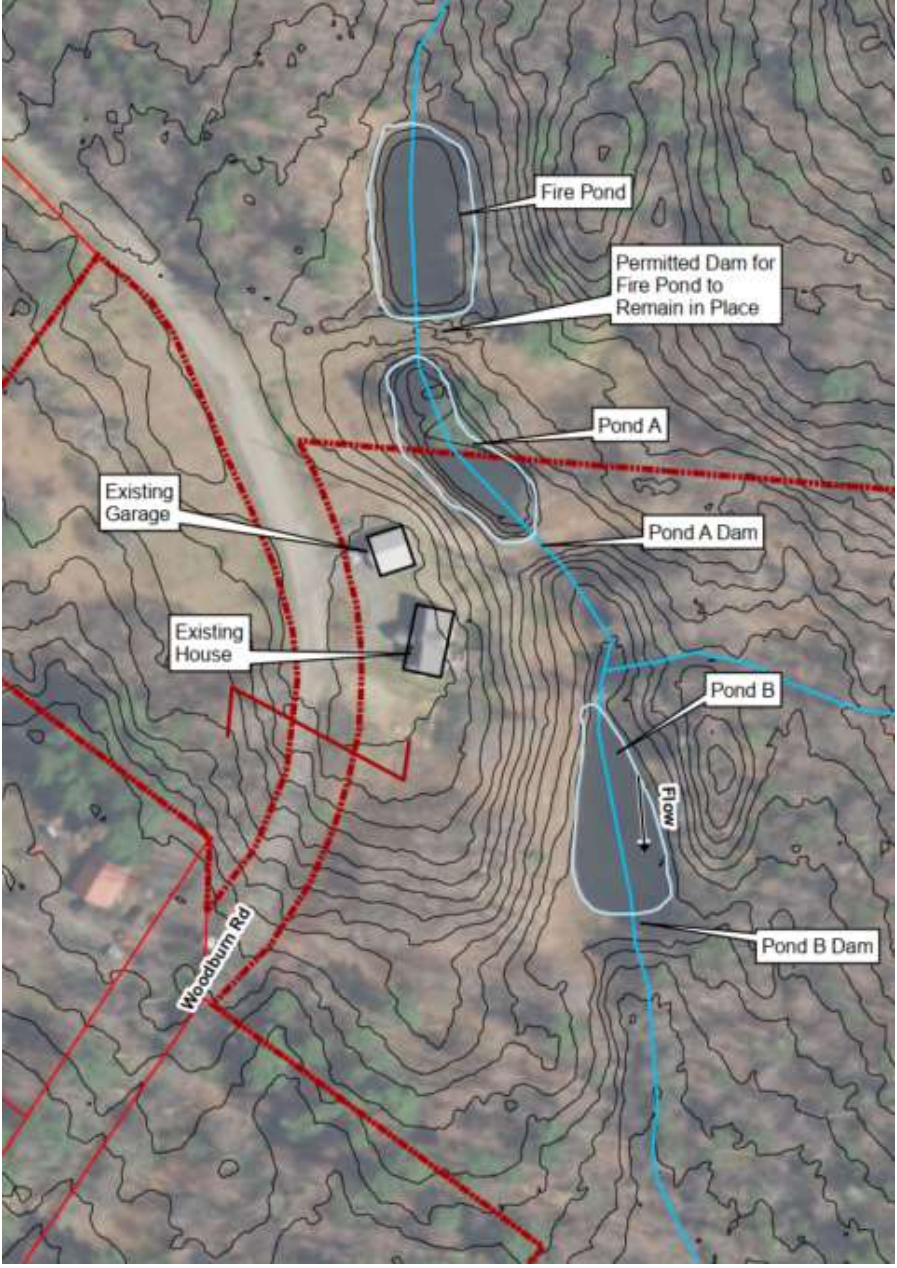


Clean water. Healthy habitat. Thriving communities.
**Connecticut River
Conservancy**

- Watershed Area: 0.2 sqmi
- Channel Width: 4 - 6 ft
- Headwaters wetland/stream system supporting cold water fishery
- Private lands, private-public partners
- NRCS EQIP Funding
- Constructed Fall 2021



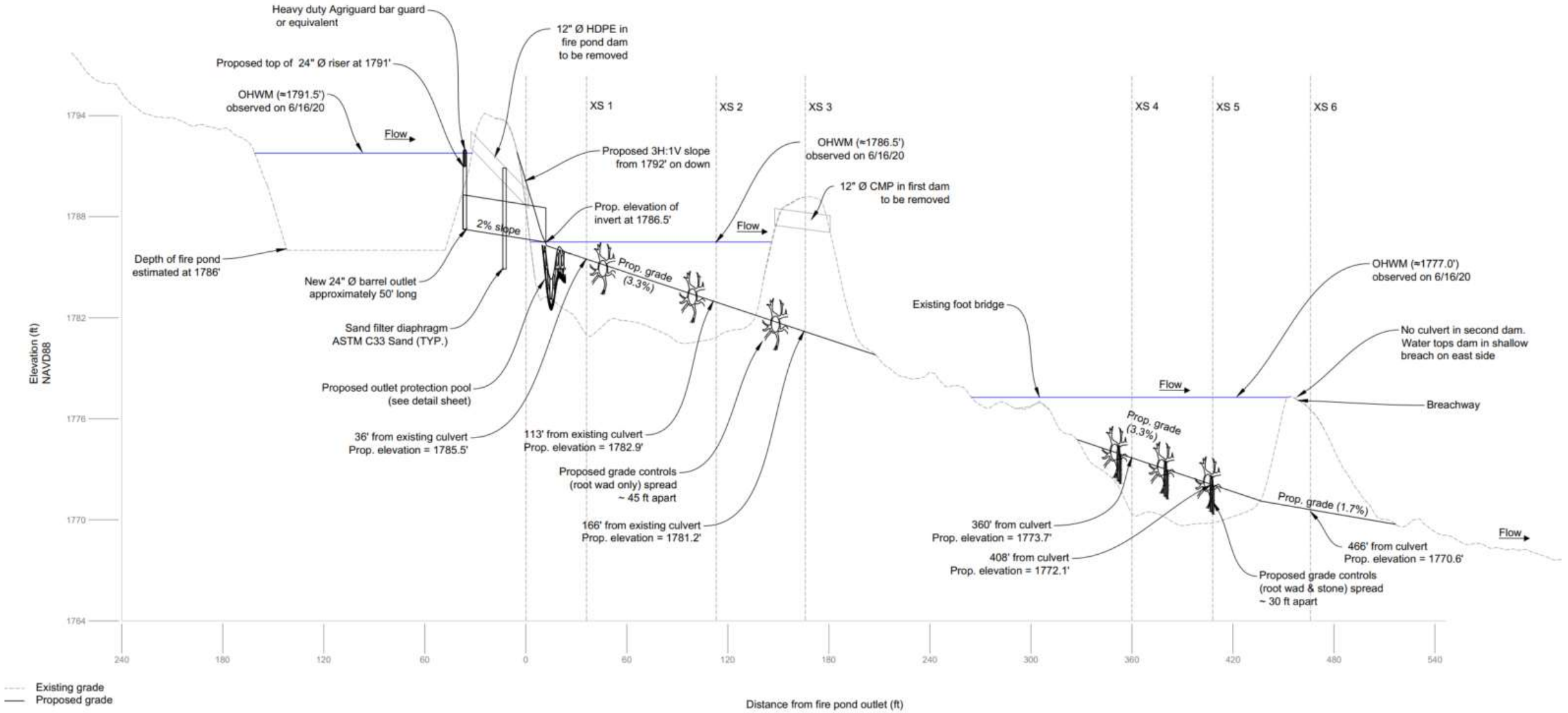
**Downstream
channel**



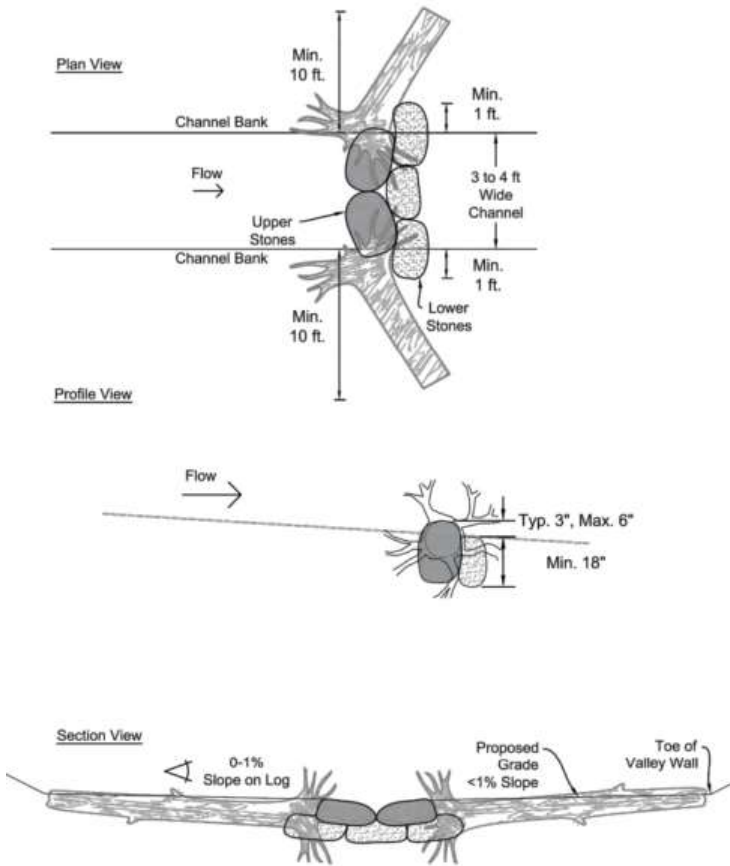
Earthen Dam

Upper Pond (A)

LONGITUDINAL PROFILE



ROOT WAD & STONE



Log Grade Control Specifications

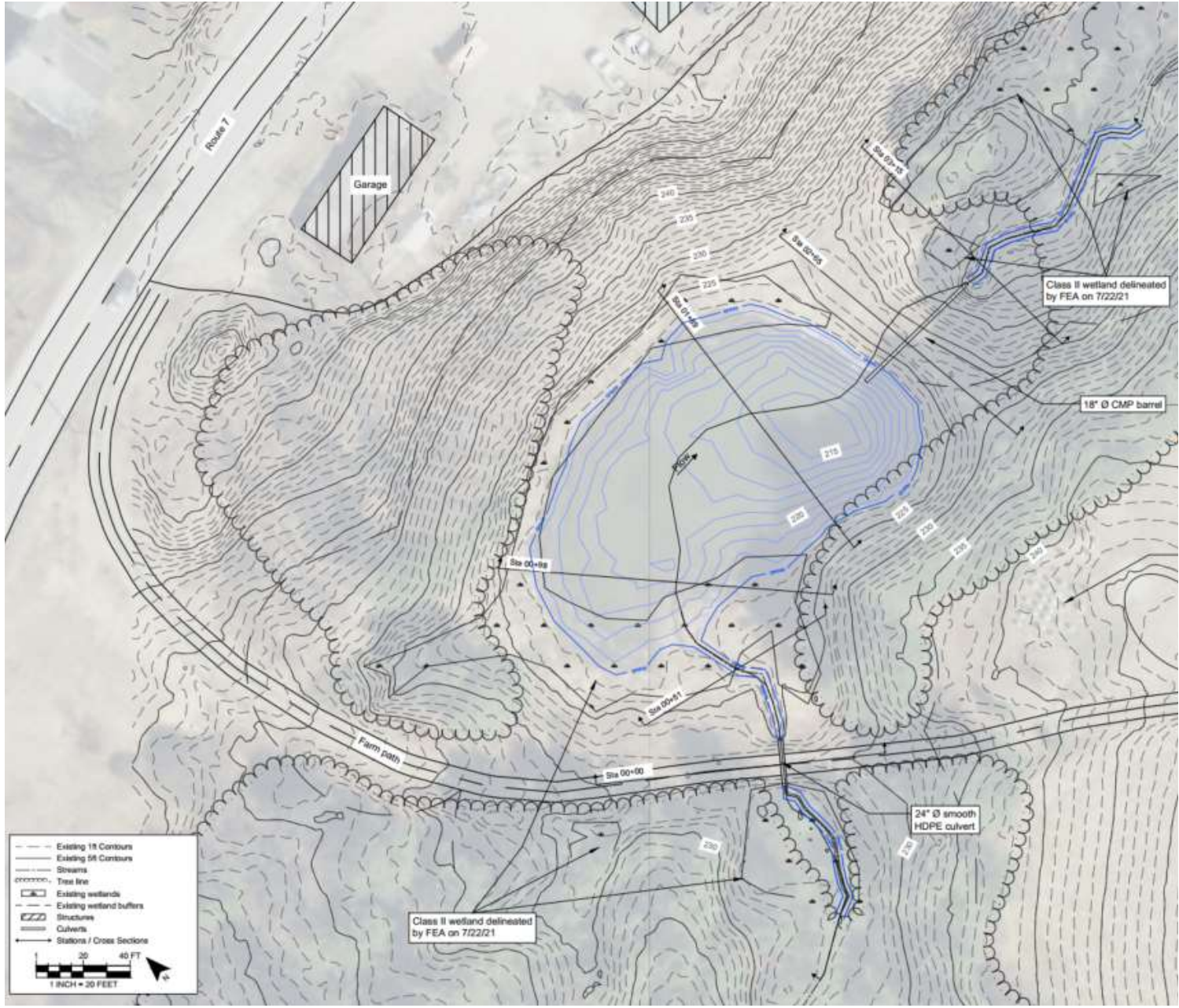
1. Location of grade controls to be determined by the Environmental Consultant during field layout with the contractor.
2. Logs shall be 2 ft. diameter or larger.
3. Maximum drop shall be no more than 9" above the channel bottom.
4. Logs shall be embedded into channel banks at least 3 feet on both banks.



Button Dam Removal Colchester, VT



- Watershed Area: 0.2 sqmi
- Channel Width: 4 - 6 ft
- Headwaters wetland/stream system
warm water fishery
- Private lands, private-public partners
- State and NGO Funding
- Constructed Summer/Fall 2022

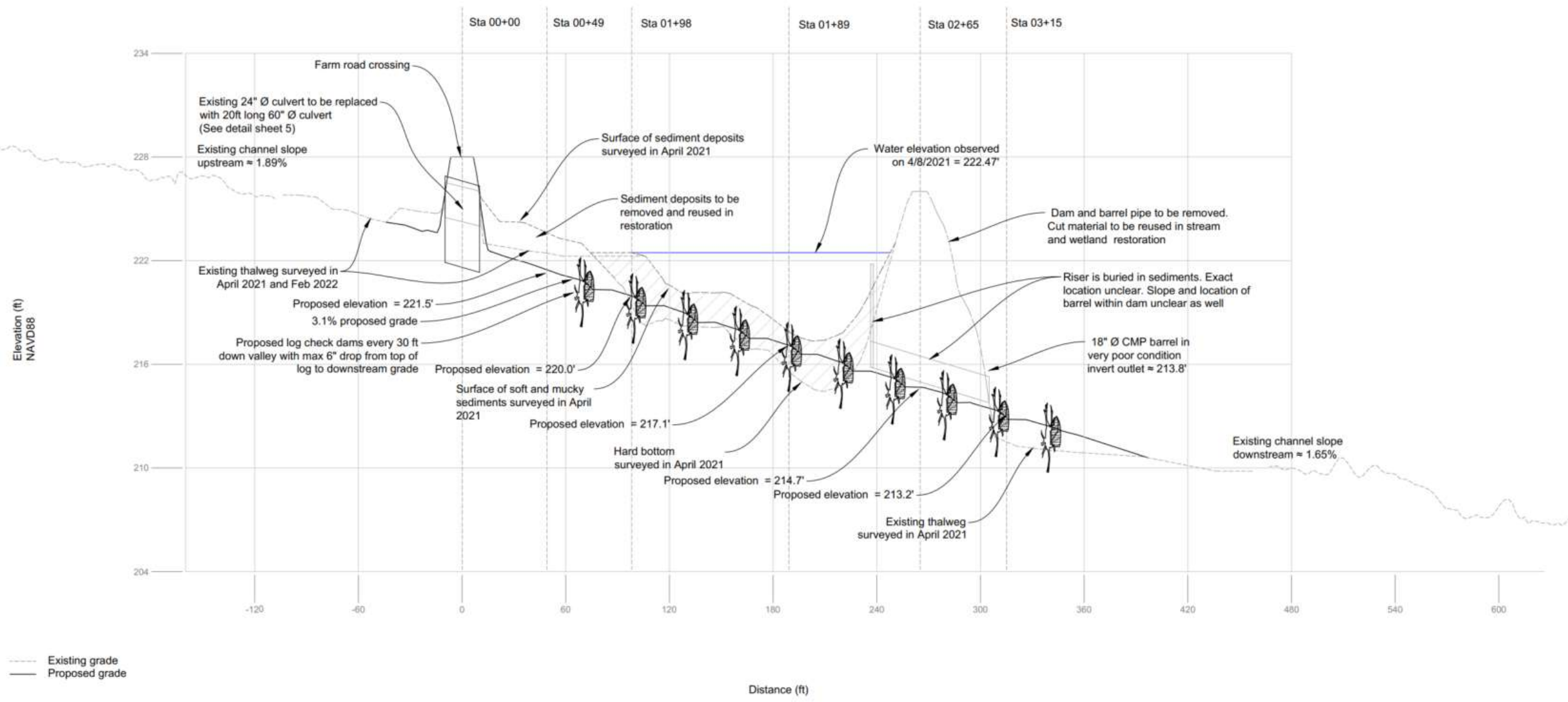


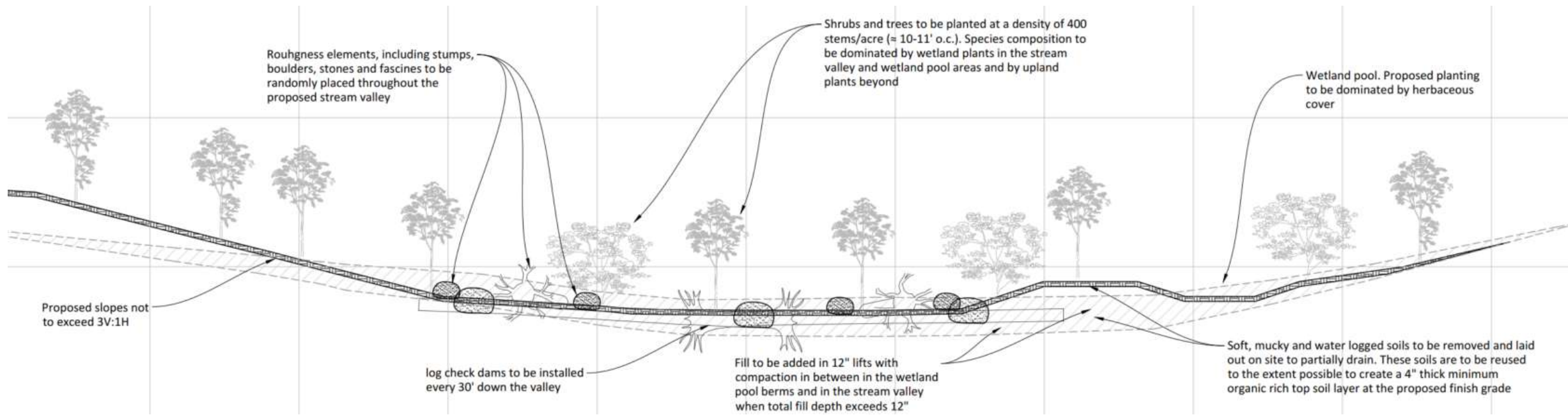
Analog Channel

- 3% Valley slope upstream
- Multi-thread channel
- Wood provides vertical stability
- Ledge outcroppings common



LONGITUDINAL PROFILE

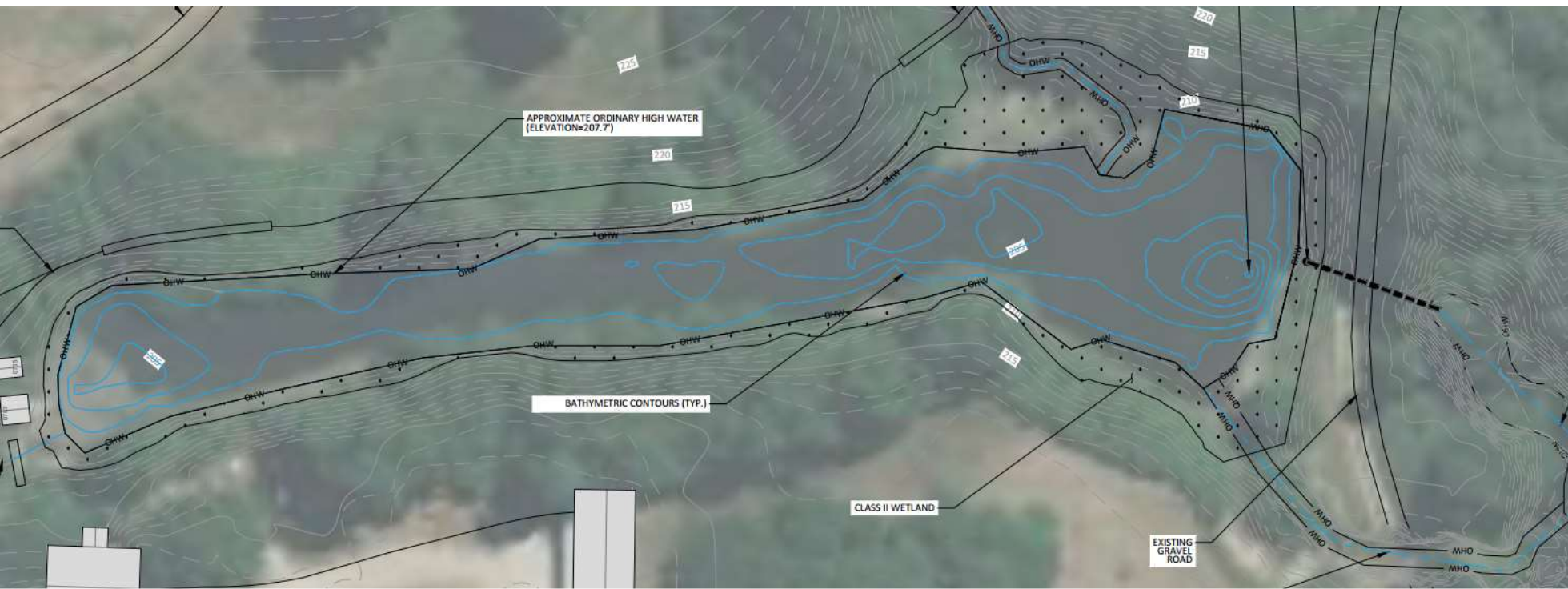




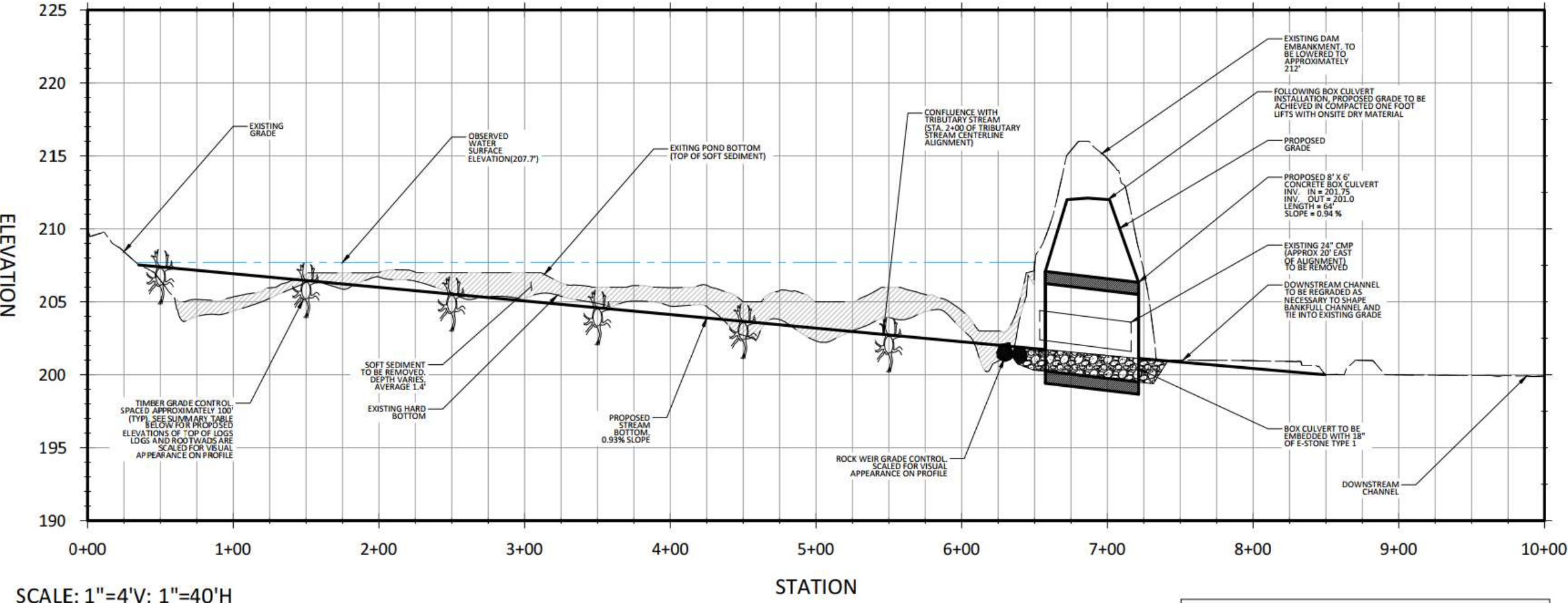
UVM Horticultural Farm Dam Removal South Burlington, VT



- Watershed Area: 0.44 sqmi
- Channel Width: 8 - 10 ft
- Headwaters stream system warm water fishery
- Institutional lands
- Institutional and State Funding
- Constructed scheduled for 2024

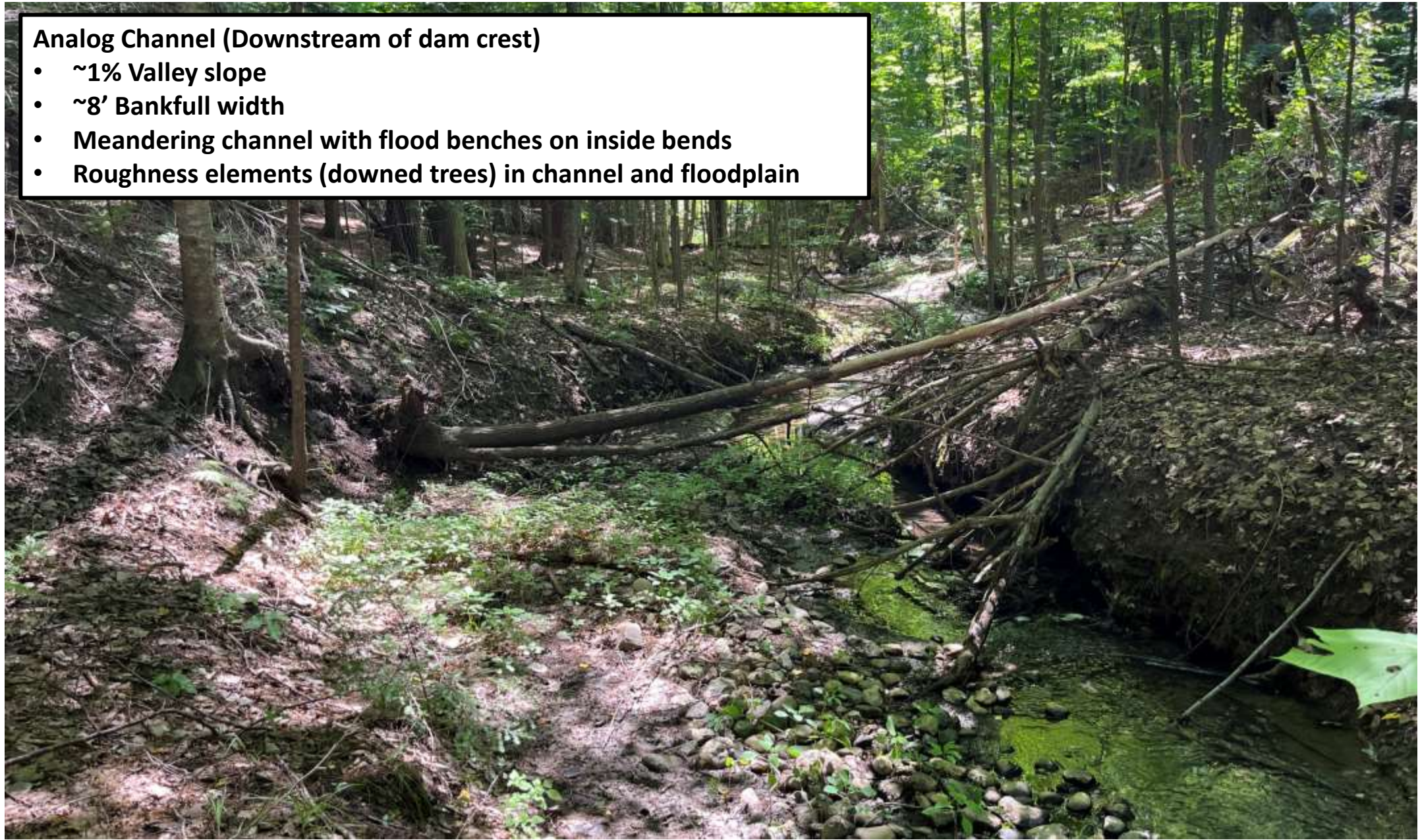


STREAM CENTERLINE PROFILE



Analog Channel (Downstream of dam crest)

- ~1% Valley slope
- ~8' Bankfull width
- Meandering channel with flood benches on inside bends
- Roughness elements (downed trees) in channel and floodplain



Key Takeaways:

- **Headwaters reference channel conditions vary, don't be afraid to think outside box with channel geometry and pattern (stage 0 or multi-thread vs. single-thread)**
- **Risk setting and partners drive what is acceptable for channel stability**
- **Profile and hard/soft sediment data collection is key for cut/fill balance and stability of restoration**
- **Constructability/supervision of grade control structures and planform geometry**