Northwest Fish Culture Conference
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Real-World Applications of Renewable Energy Technologies at Hatcheries

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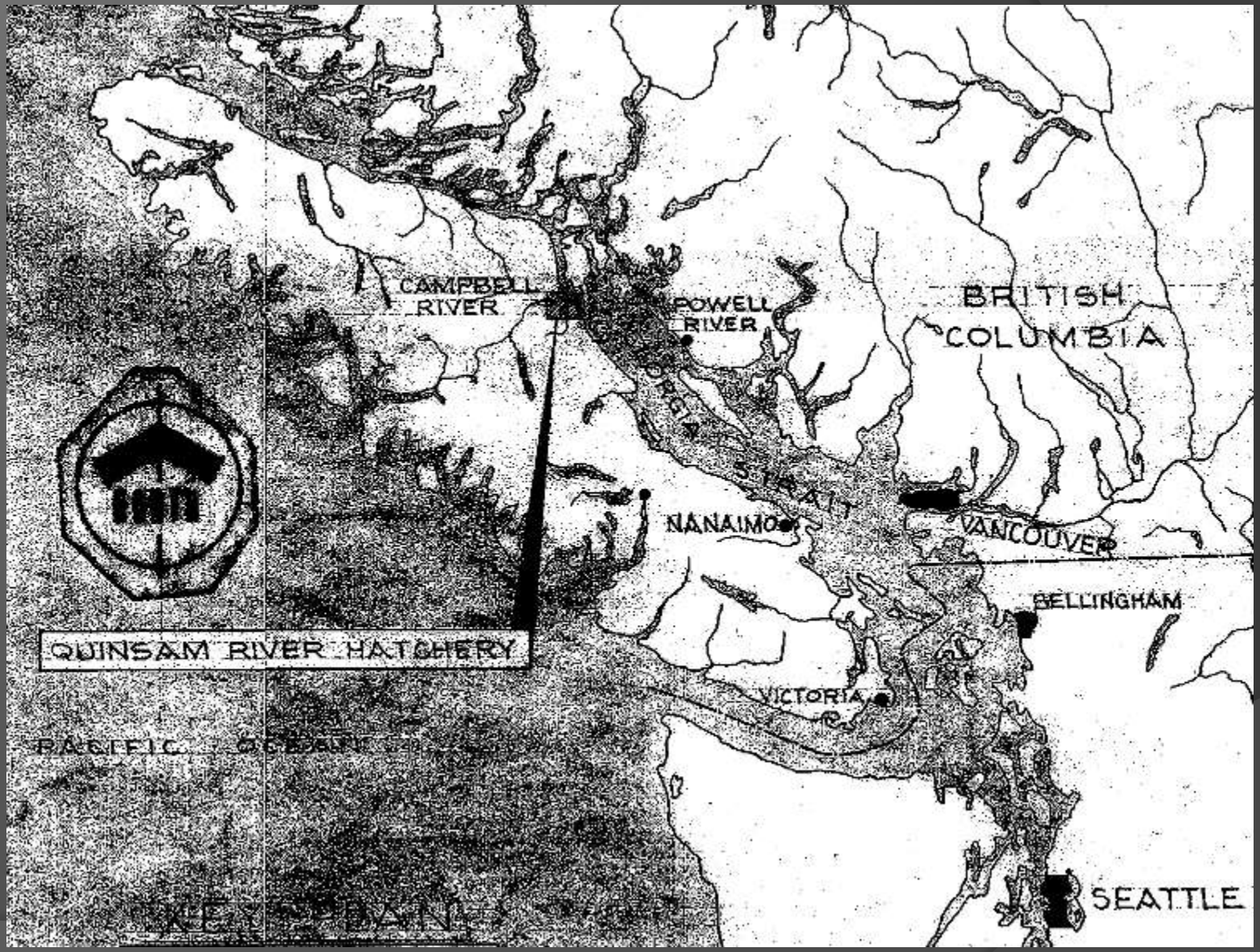
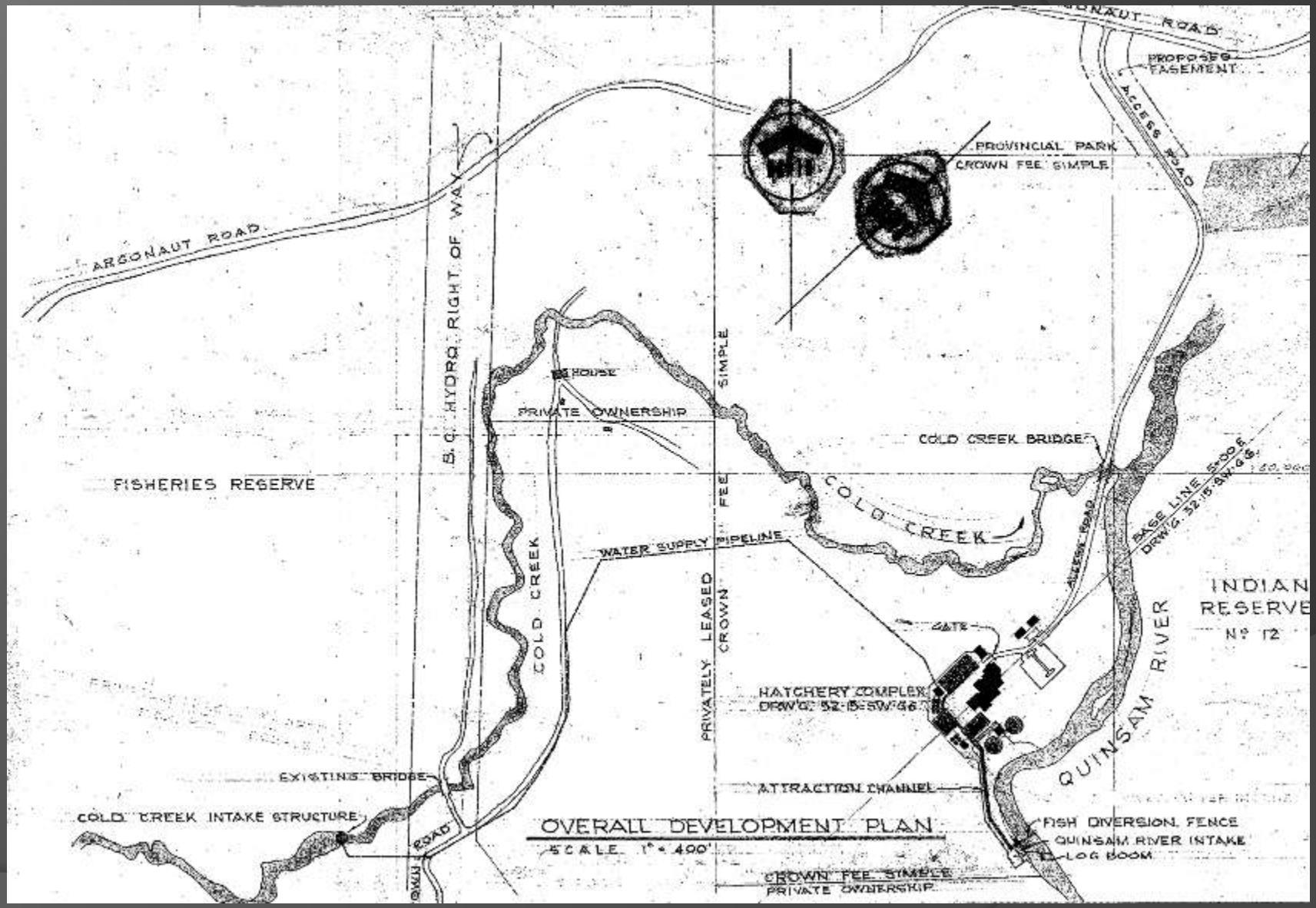
Quinsam River Hatchery

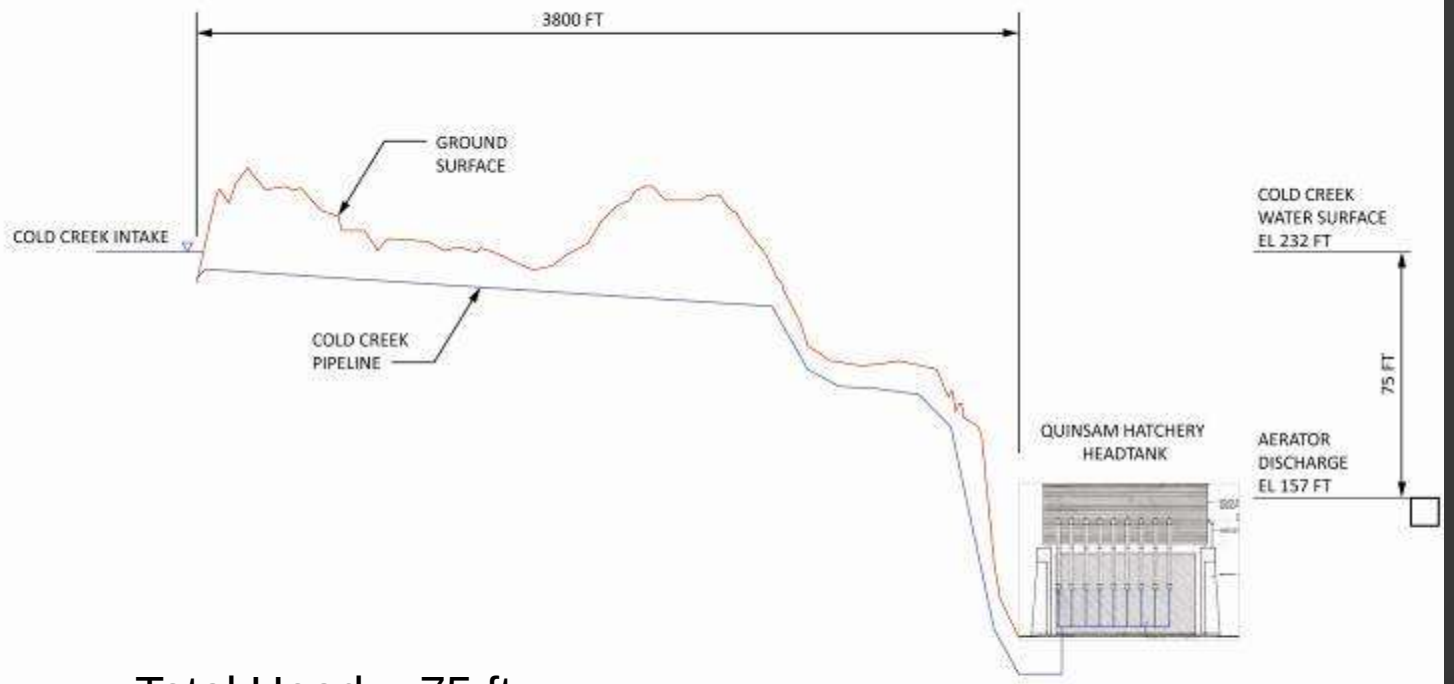


Quinsam River Hatchery

Hatchery Water Supply



Cold Creek Pipeline

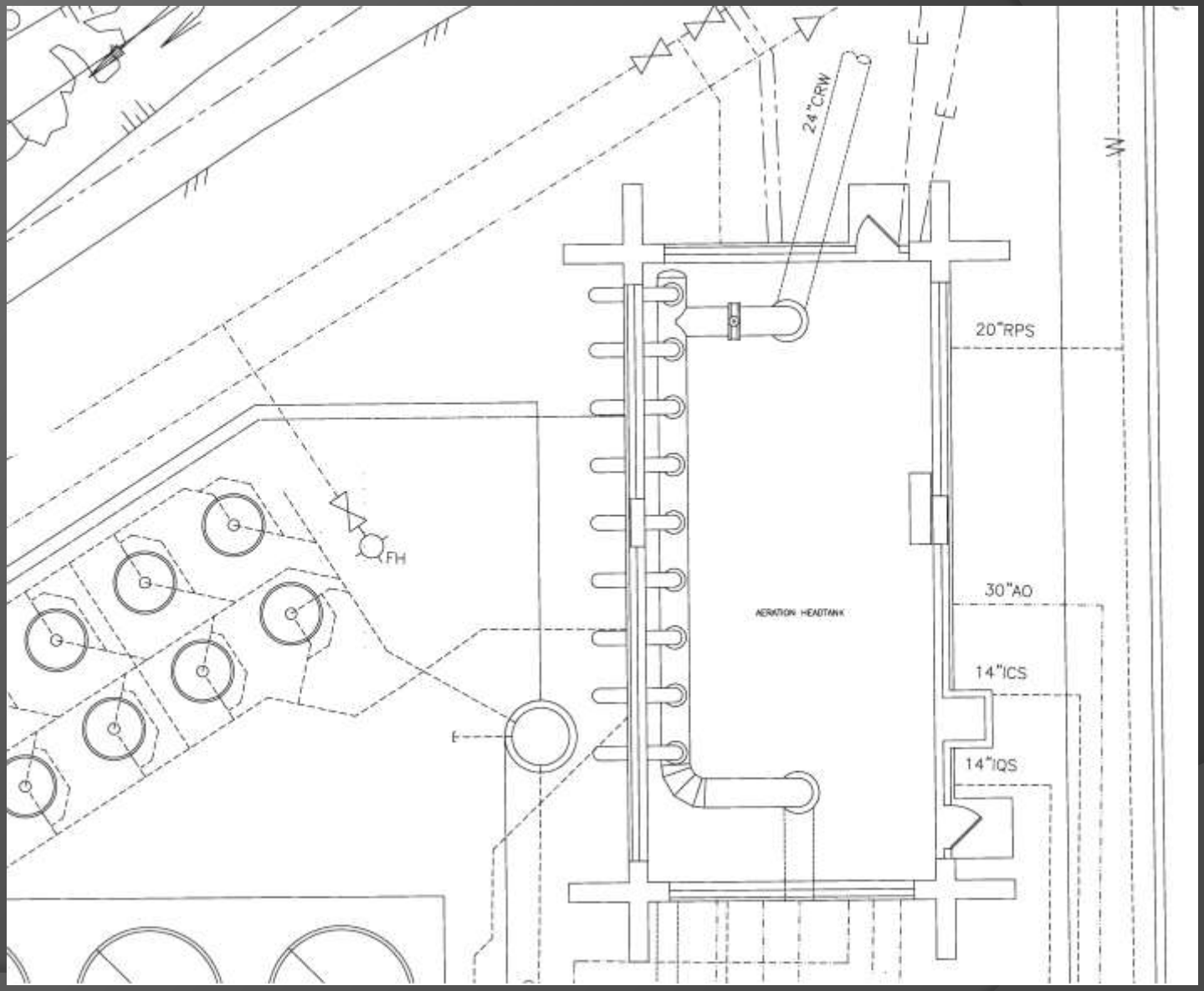


Total Head = 75 ft
Net Head:
- 59 ft @ 24 cfs
- 66 ft @ 15 cfs

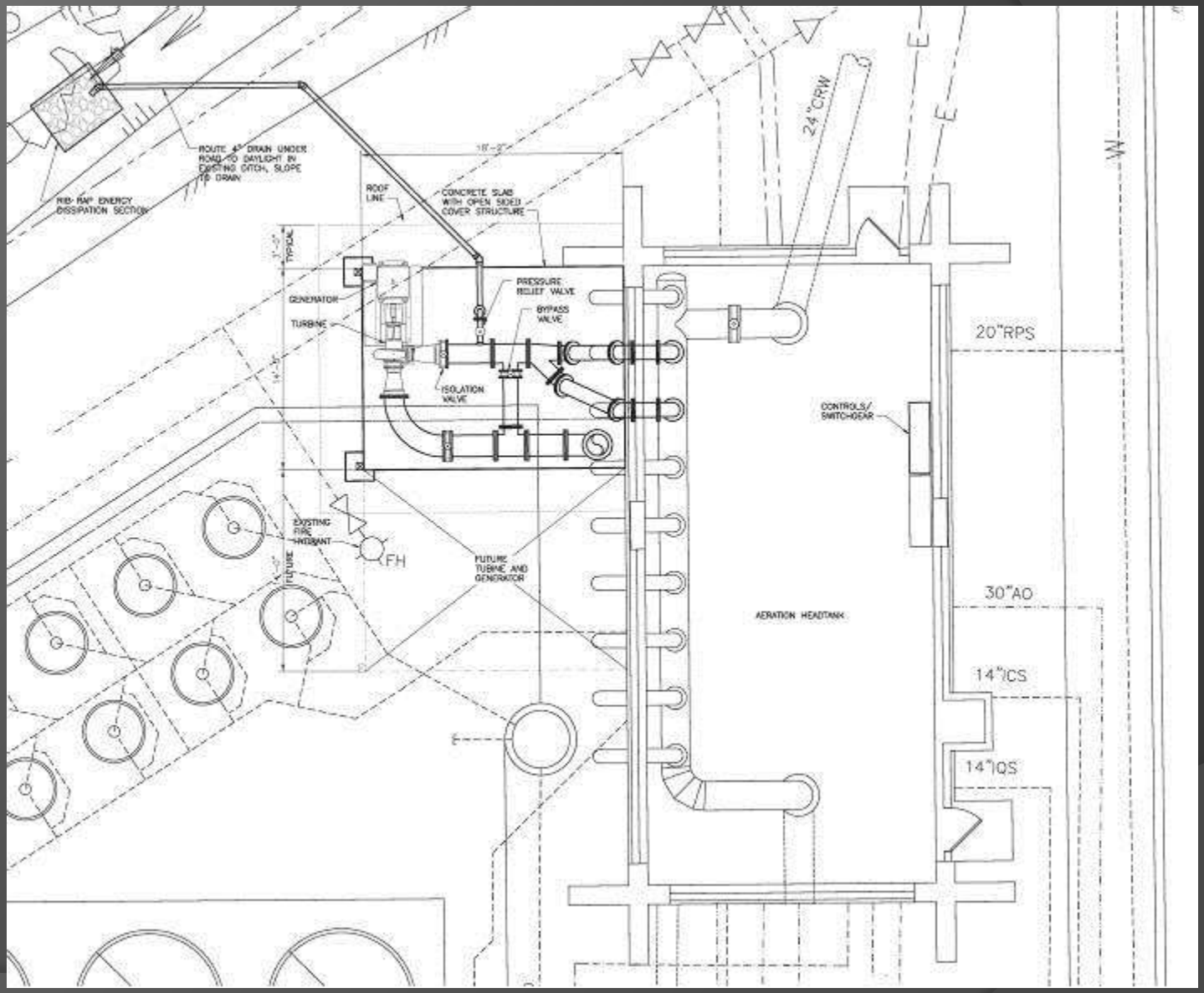
Headtank

Headtank

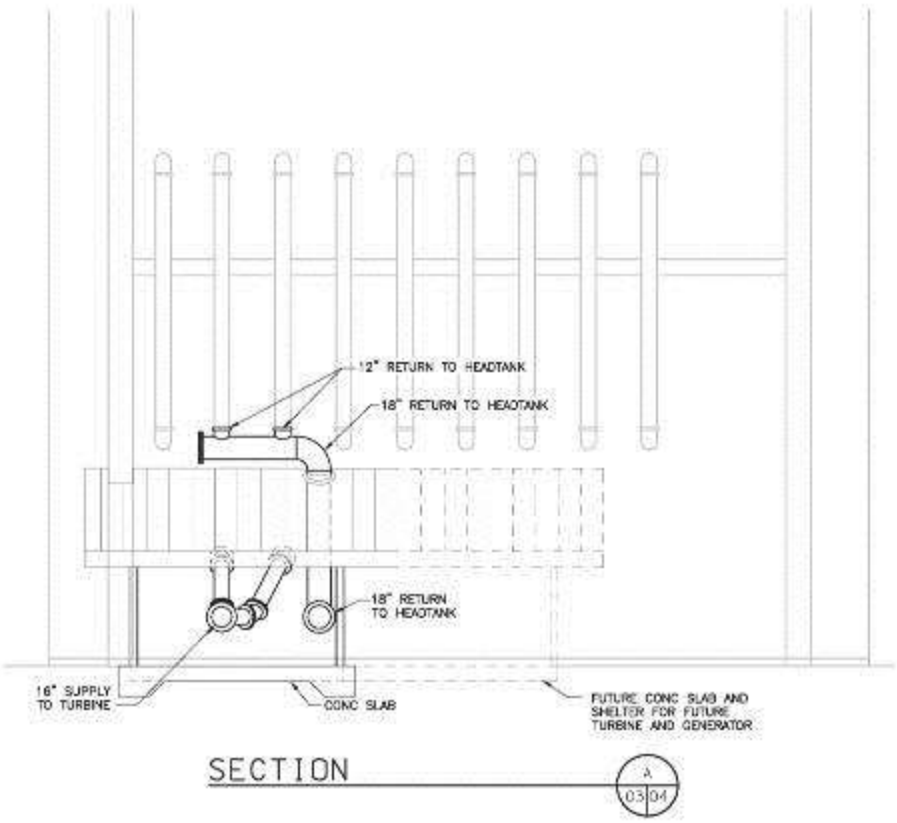
Existing Headtank Piping

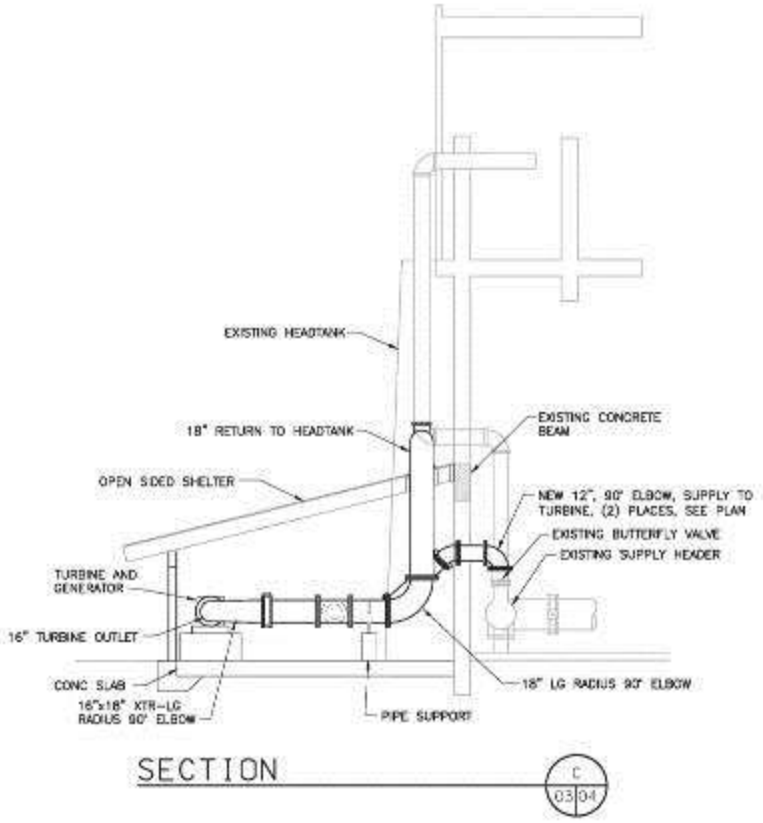


Proposed Microhydro System



Proposed Microhydro System



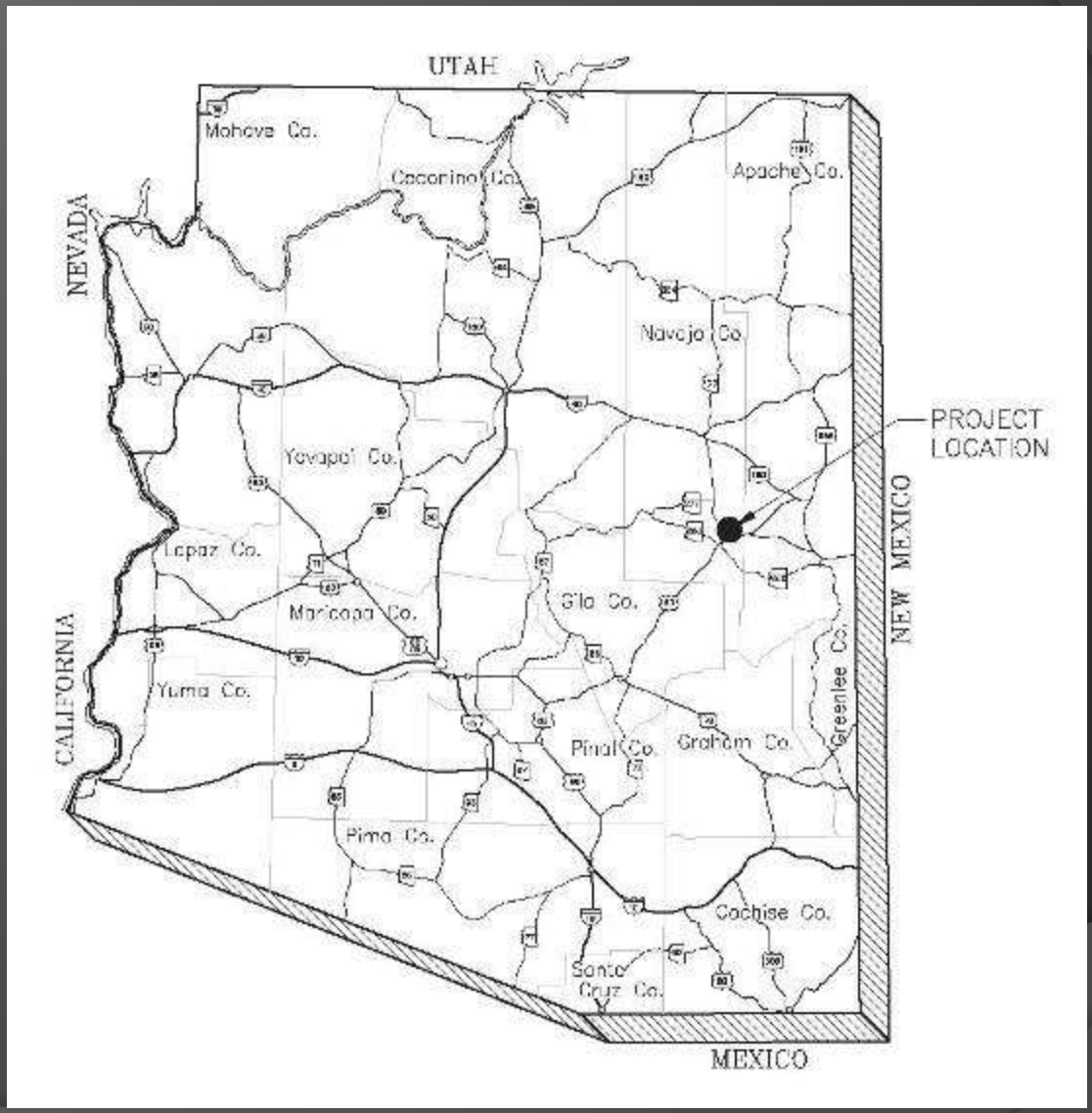


Turbine and Induction Generator

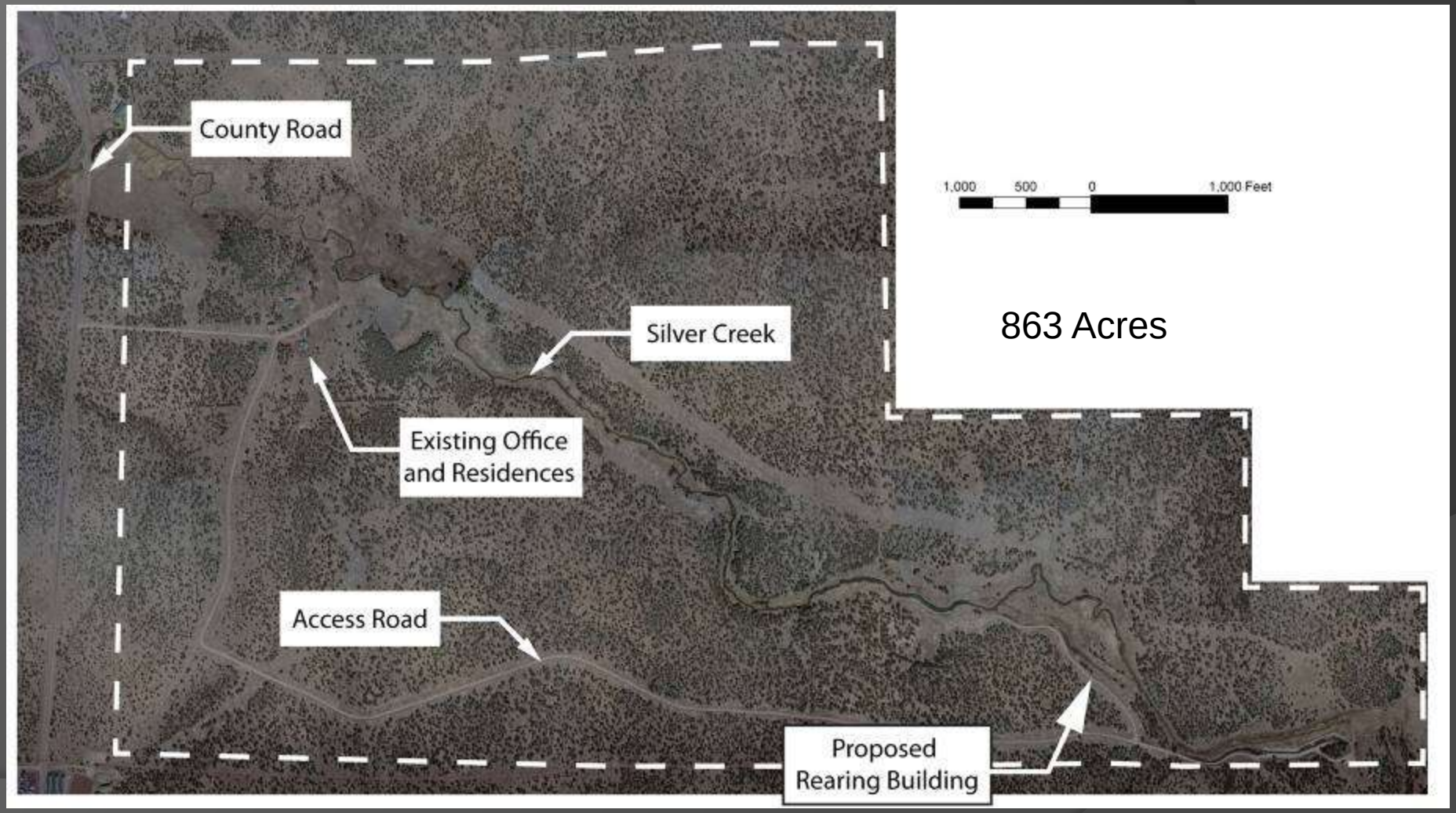
Estimated Benefit

- Facility currently uses around 480,000 kWh per year
- Proposed system will produce about 268,000 kWh per year
- At $0.05/kWh, system reduces power bill by $13,400 per year
- Payback approximately equal to expected life of the equipment

Silver Creek Hatchery

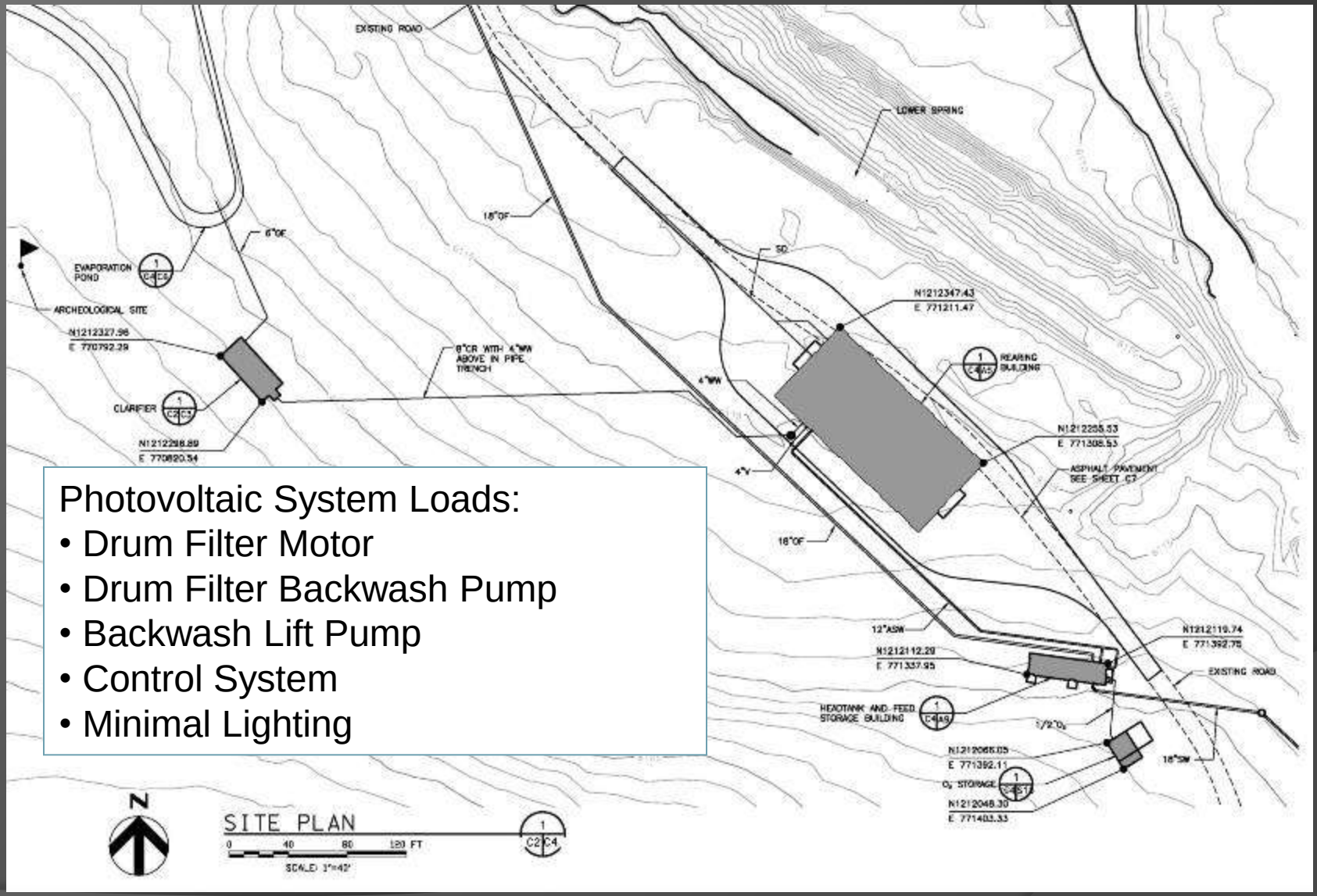


Silver Creek Hatchery



Silver Creek Hatchery

Rearing Building Site Layout



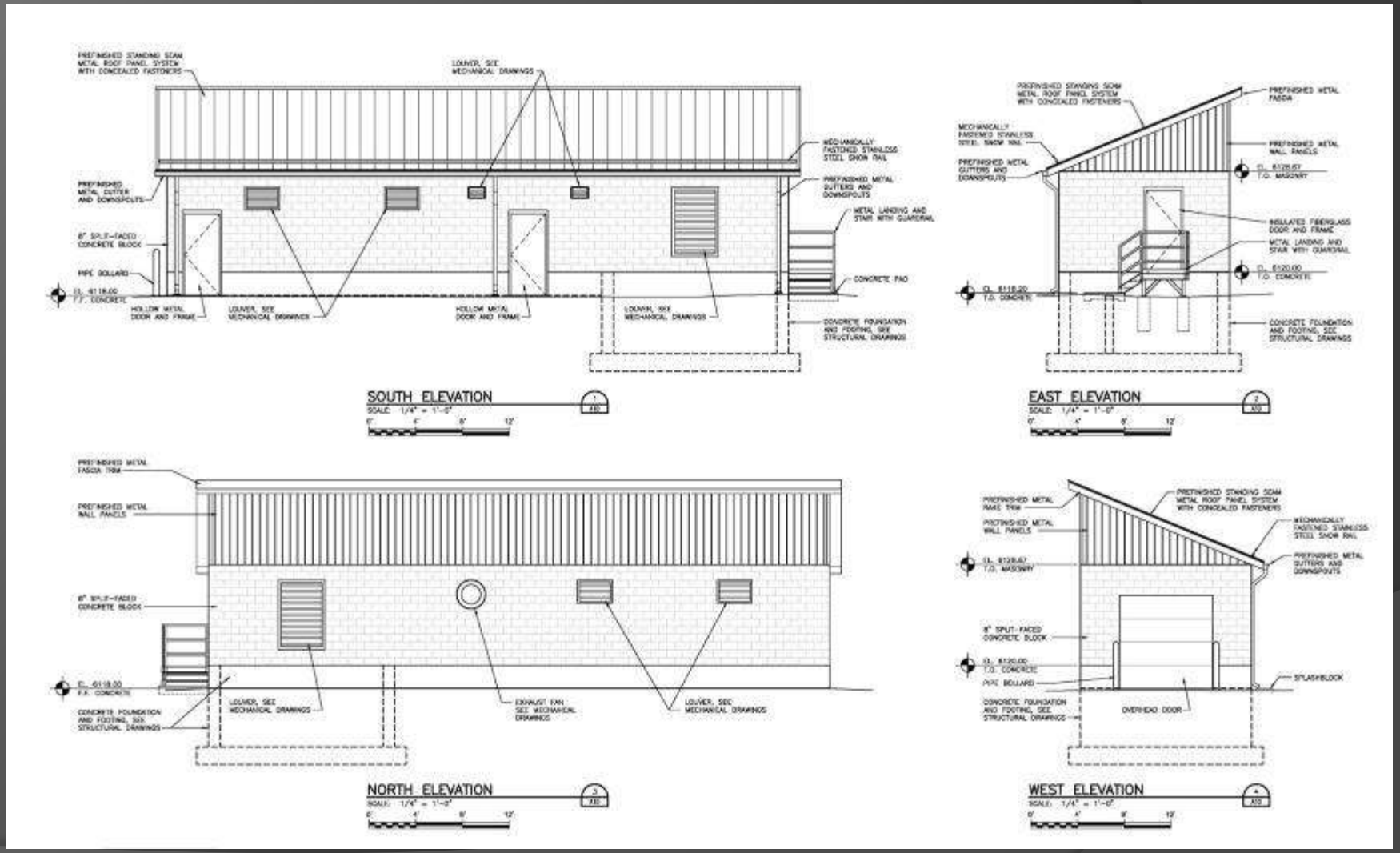
Photovoltaic System Loads:

- Drum Filter Motor
- Drum Filter Backwash Pump
- Backwash Lift Pump
- Control System
- Minimal Lighting

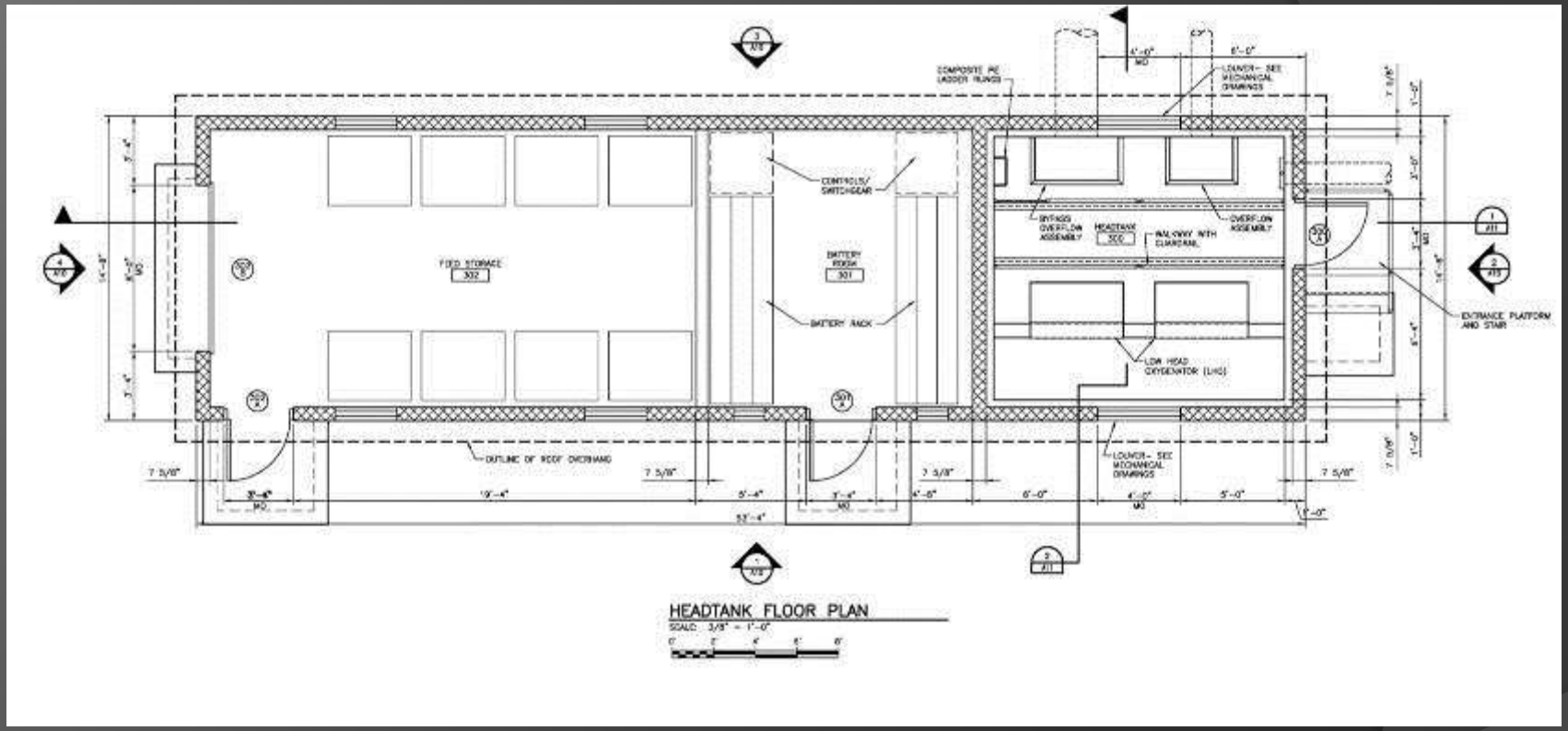
Design Considerations

- Client preference for mounting PV panels on roof to discourage tampering/theft
- Optimizing PV panel performance requires southern orientation
- Electrical load will be seasonally variable due to the nature of the rearing program
- Client willing to use portable generator as backup for poor weather during peak load period

Headtank Building with PV Array



Headtank Building Battery Room



Questions?