



Small Bumping Reservoir Enlargement

High Water Elevation 3490 Ft
Based on 1985 Feasibility Design

Enlarged Bumping Reservoir

Summary:

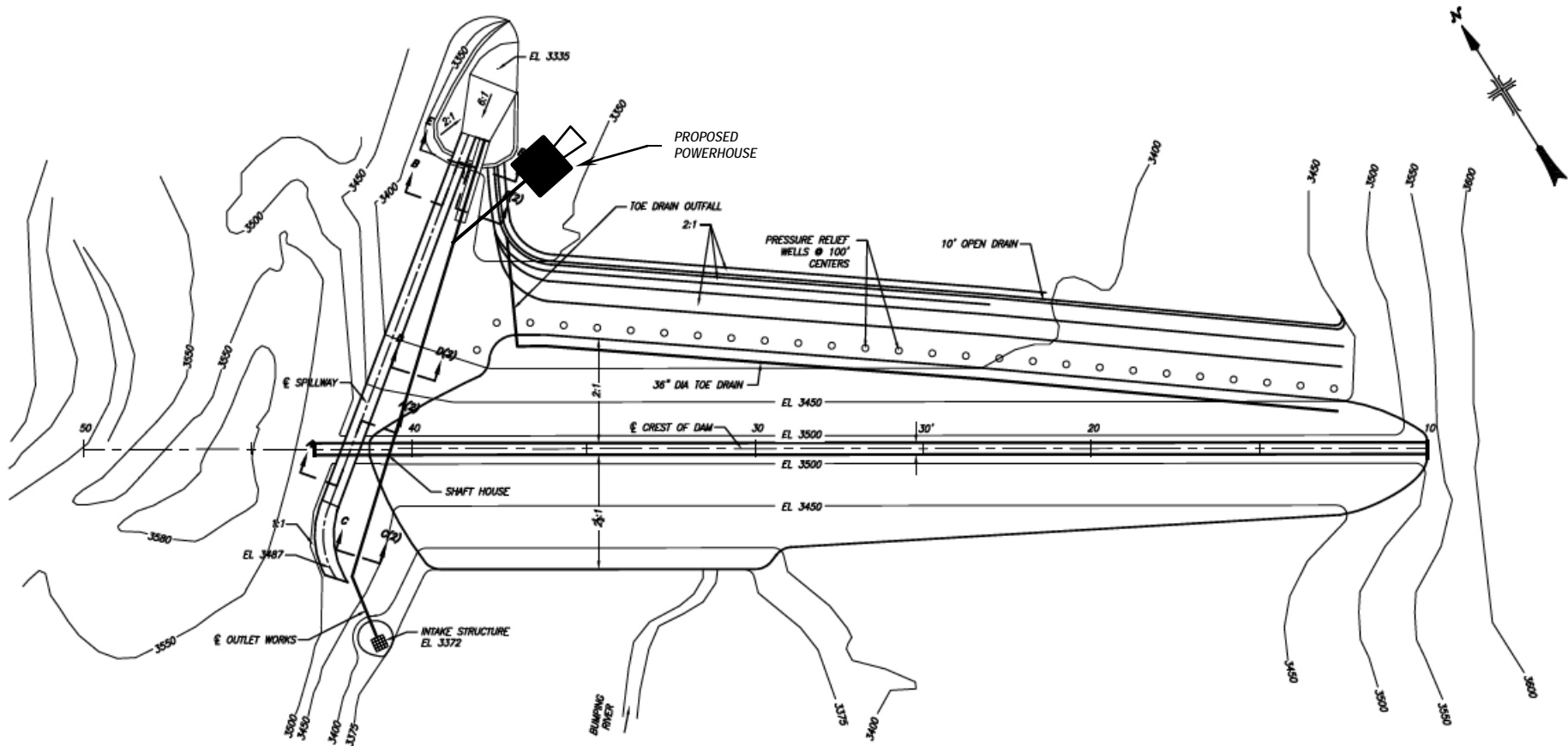
- Located at the large Bumping Reservoir site (458 kaf per 1985 Planning Design Summary)
- Maximum Normal Pool Elevation 3490 feet (per preliminary discussions with fish agencies)
- Embankment Height = 125 ft.
- Total Storage Capacity = 190 kaf (at WSE = 3490 ft)
- Footprint = 3,250 acres (at WSE = 3490)
- Preliminary Power Capacity Estimate = 5 MW

Enlarged Bumping Reservoir Footprint at Elev. 3490 ft.

- Dam location same as large Bumping (458 kaf) configuration
- Foot print shown for water surface elevation set at 3490 feet (190 kaf)
- The existing dam (green line) would be breached or removed
- Fish passage characterized at August meeting

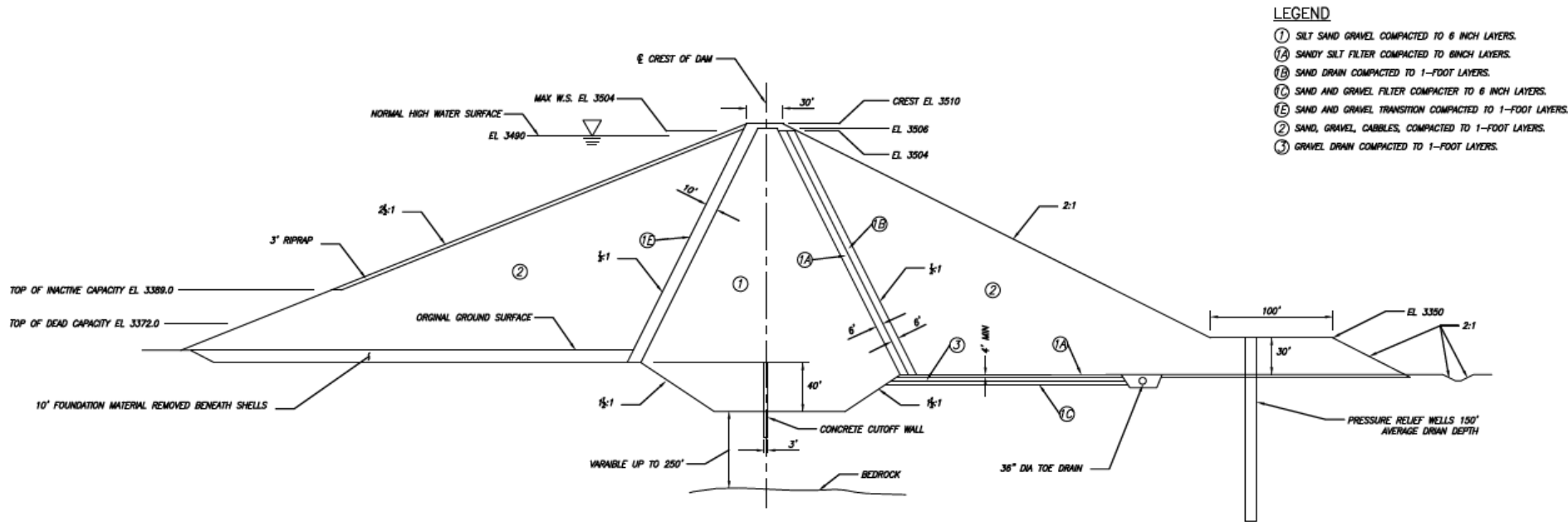


Enlarged Bumping Reservoir Embankment Configuration



- Configuration identical to 1985 design for large Bumping Reservoir with crest elevation 70 feet lower.
- Embankment height: 125 ft.
- Crest Length: 3200 ft.

Enlarged Bumping Reservoir Cross Section



- Total Storage Capacity = 190 kaf (at WSE = 3490 ft)
- Max. Outletworks Capacity = 4,700 cfs (at WSE=3504 ft)
- Max. Spillway Capacity = 7,800 cfs (at WSE=3504 ft)

Engineering Challenges

- Construction in Environmentally Sensitive Area
- Minimize Impacts of Breach/Removal of Existing Dam
- Appropriate Cutoff Wall Design
- Available Borrow Materials (additional geotechnical investigations to evaluate borrow materials and seismic considerations)
- Sufficient Monitoring of Long Term Deformations in the Embankment and Cutoff Wall.
- Complete Assessment of Using a Concrete-Faced Rockfill Design.

Next Steps

- Finalize configurations
 - Confirm quantities and develop cost estimates
 - Define Flow Regime for Releases from Bumping Reservoir and Refine Power Production Estimates
- Additional results presented at the 9/22 Workgroup mtg.

Disclaimer

- Results discussed today are working drafts
- Data and calculations are still being checked and results may be updated