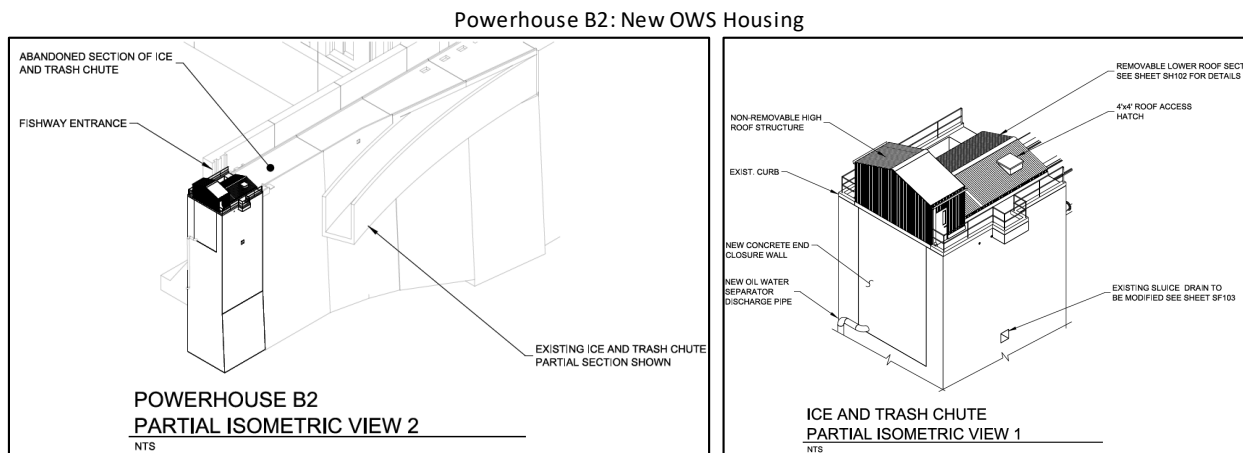
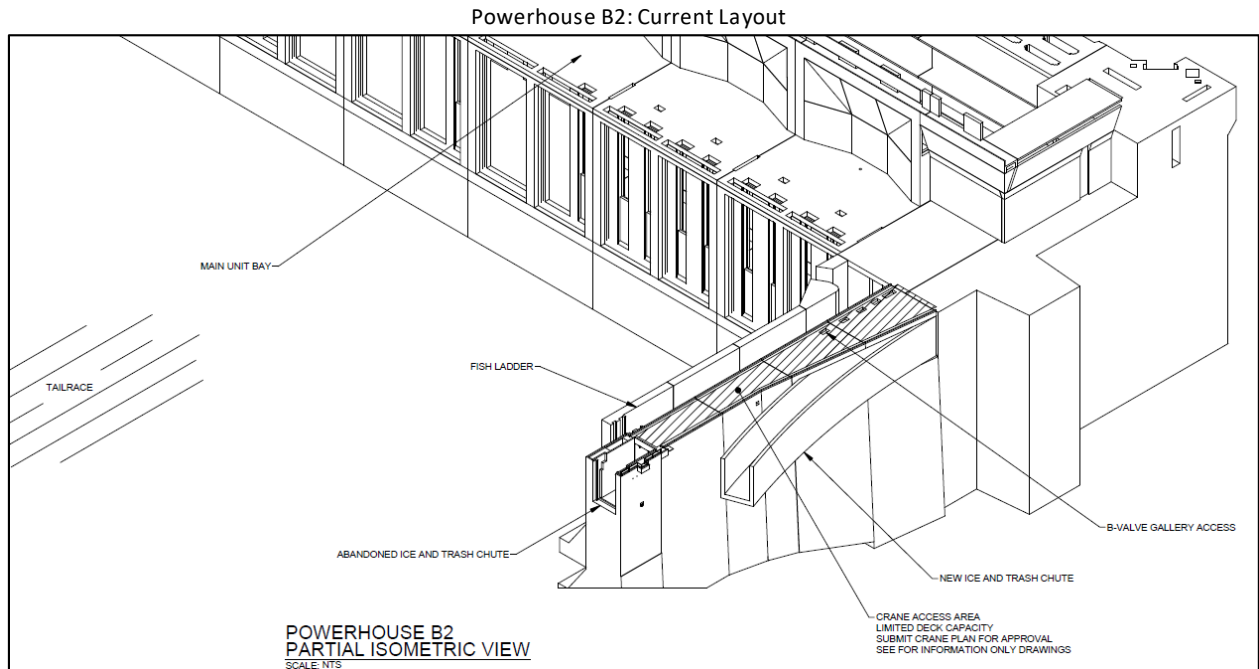


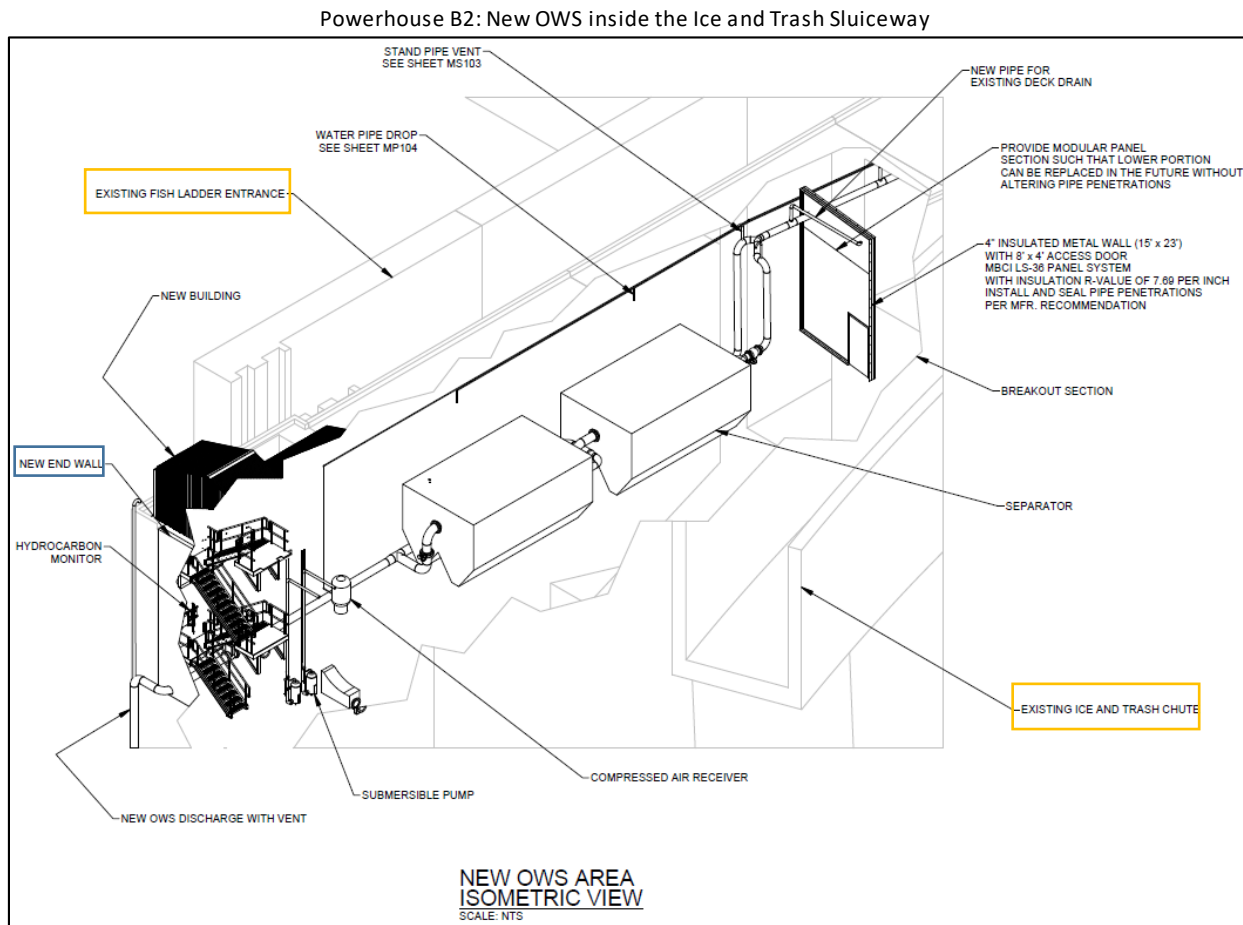
BN2 Turbine Pit Oil Water Separator

1. Description of Contract Scope and Location:

The work is to be located at Bonneville Dam, Powerhouse 2.

The work includes the installation of two new oil water separators in the existing ice and trash chute at Bonneville Dam Powerhouse 2, installation of piping to the new oil water separators from the head cover pumps for all generating turbines including the fish units on the north end of Bonneville Powerhouse 2, modifications to the existing oil water separator, and incidental related work. This effort is to include all associated works required and described within this Contract package.





2. Definable Features of Work for the Contract:

- a. Mobilize
- b. Erect Access Platform and Access Stair Tower
- c. Concrete Demolition
- d. Concrete Wall (Reinforcing, Form, Pour & Strip)
- e. Electrical Conduit and Equipment Installation
- f. Monorail Installation
- g. OWS Piping Install, including Insulation
- h. OWS Installation
- i. Install Permanent Stair Tower
- j. Building and Separation Wall Installation
- k. Unit Outages/ Tie-In/ Hot Taps to Headers— Units 11 through 18
- l. River Discharge Piping (Diving)

3. Requested In Water Work Period (IWWP)

- a. Night Operations beginning 07 October 2019 through 30 November 2019 from the hours of 1700 to 0600.
- b. Day/Night Operations beginning 01 December 2019 to 29 February 2020. Unrestricted work hours.
- c. Night Operations from 01 March 2020 to 28 March 2020 from the hours of 1730 to 0600.

During the above identified work windows, the Contractor has no restrictions to noise and vibration impacts to fish or fish structures caused by heavy construction or diving. Outside the IWWP in the months of October and November, the Contractor may use heavy equipment but only at night from 5pm to 6am; in the month of March the Contractor may use heavy equipment and dive but only at night from 7:30pm to 6am.

Work activities outside the IWWP identified and the night time durations stated above, within 50' proximity to the ladder structures shall be limited to light construction (hand tools), material movements, electrical conduit installation, lighting installation, mechanical pipe installation, welding, painting, and other activities that will not produce loud noises or vibration loading to the ladder structure.

4. Work Outside the 50' and 100' limits of the fish ladder

- a. OWS Piping in Powerhouse

5. Zero to Low Impact Features of Work to Fish Migration (within 50' to 100' of ladder)

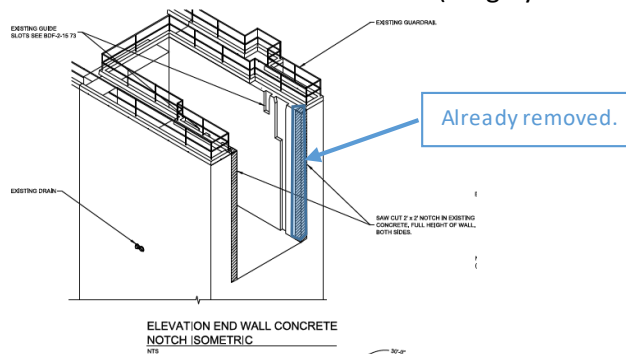
This work occurs within ice and trash sluiceway adjacent to the fish ladder.

- a. Remove and Reinstall Sluice Gate - Cut out metal pipes with handheld cutoff wheel, drill/dowel install rebar, install waterstop. This work takes place on the opposite side of the sluice, away from the fish ladder.
- b. Install Monorail Hoist System – Drill and install anchors. Roughly 32 anchors will be installed in the ceiling of the chute.
- c. Electrical Equipment – install conduit and lighting with screw in fasteners. Panels will be bolted.
- d. Piping installation inside the sluiceway – Piping will be suspended from brackets installed with either threaded inserts or anchors.
- e. Install Stairs and Platform – Pre-fabricated systems that will be anchored to the concrete.
- f. Testing and Commissioning – No loud or percussive actions. These activities occur at the end of construction.

Proposed Work Window: The above work can be performed during nights in October/November 2019, through the IWWP of 01 December 2019 to 29 February 2020 and nights of March 2020. Testing and commissioning to occur nights in March.

6. High Impact Features of Work to Fish Migration (within 50' to 100' of ladder)

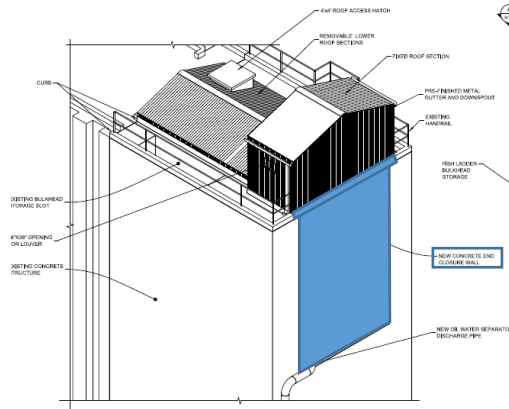
- a. Concrete Demo - Concrete demolition on the monolith and curb (roughly 1 week remaining).



The south side is complete. Approximately 32'x2'x2' remains. Concrete being removed via non-percussive coring and hole saw/wall saw. No impact hammers/jack hammers are used.

b. Install new Concrete Wall

- i. Install rebar for new concrete wall and core wall penetrations (2 weeks)
 - Drill and placing 1"-1 ¼" holes for rebar tie in at end of monolith
- ii. Install Formwork for new concrete wall (1 week) – New wall is approx. 19'x 26'x2'
- iii. Pour concrete end closure wall (5 days) note: 28 day curing time
 - Concrete from truck at end of monolith. Will complete sluice gate concrete and curb at the same time.



ICE & TRASH CHUTE END CLOSURE WALL ISOMETRIC
SCALE: 1/4"=1'-0"

Proposed Work Window: Due to risk of concrete quality in the winter, in addition to the newly constructed wall creating a more isolated work area within the abandoned ice and trash sluiceway, it is recommend the concrete demo and placement activities occur as soon as possible. The new wall will also mitigate risk of elevated water levels from the tailrace. Recommend concrete demo and installation work occur **during nights in October/November.**

- c. Building Installation (6 weeks) - made of preassembled panels, some anchoring into curb above. Use of 60T crane in vicinity of the fish ladder.

Proposed Work Window: IWWP of 01 December 2019 to 29 February 2020.

- d. OWS and Sump Pump Install - Place OWS with crane and install with anchors. Sump pumps will have a similar operation.

Proposed Work Window: IWWP of 01 December 2019 to 29 February 2020.

- e. Install River Discharge Piping - Dive work. Underwater Anchor installation. Fish Ladder outage most likely required. Anticipate roughly 1 week of anchor install on exterior of new wall.

Proposed Work Window: Coordinate a one week outage during the timeframe of 01 December 2019 to 29 February 2020.