Proposed Gravity Supply Pipeline for Bonneville Washington Shore Lamprey Bypass System

Natalie Richards
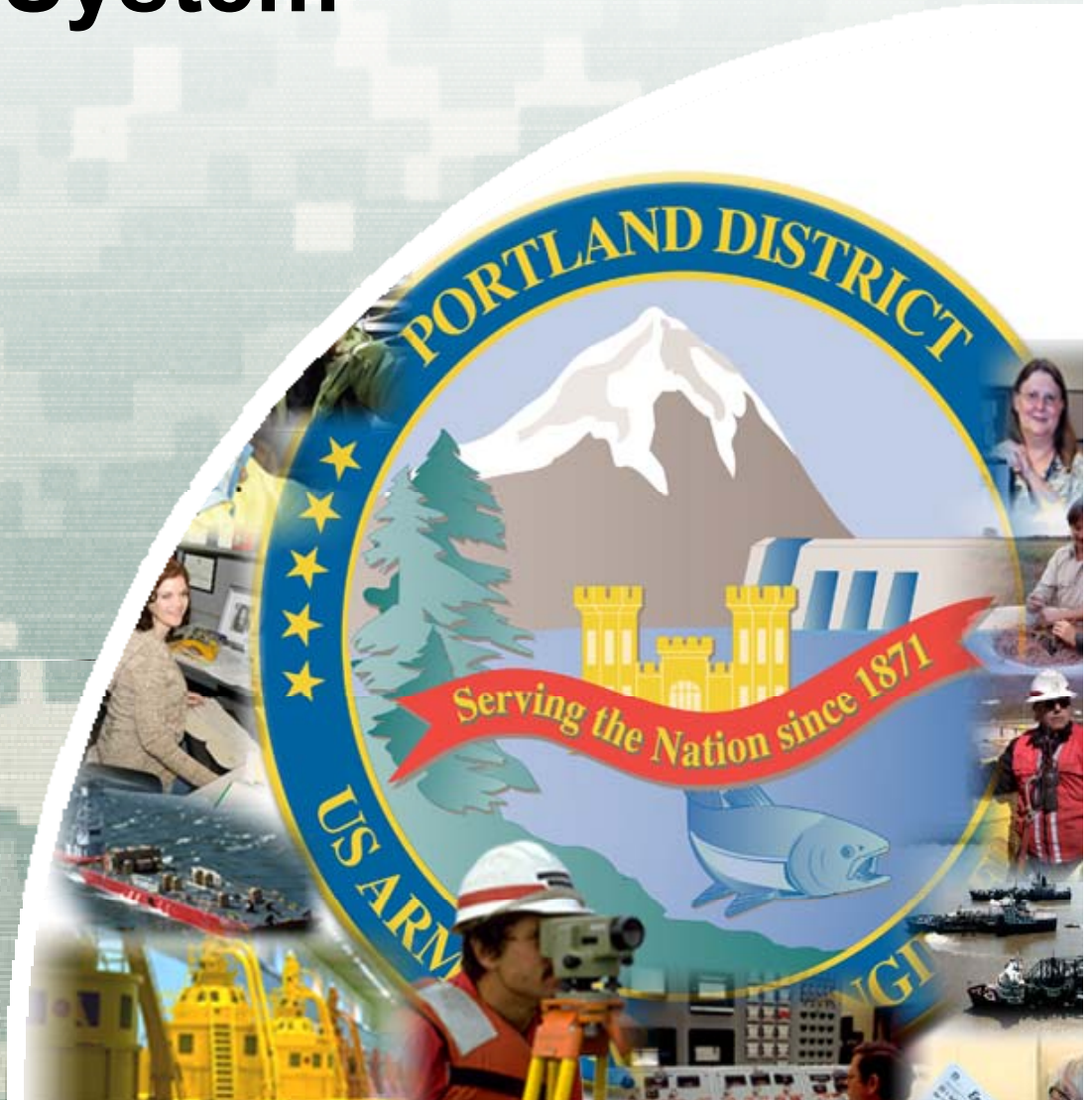
Project Manager
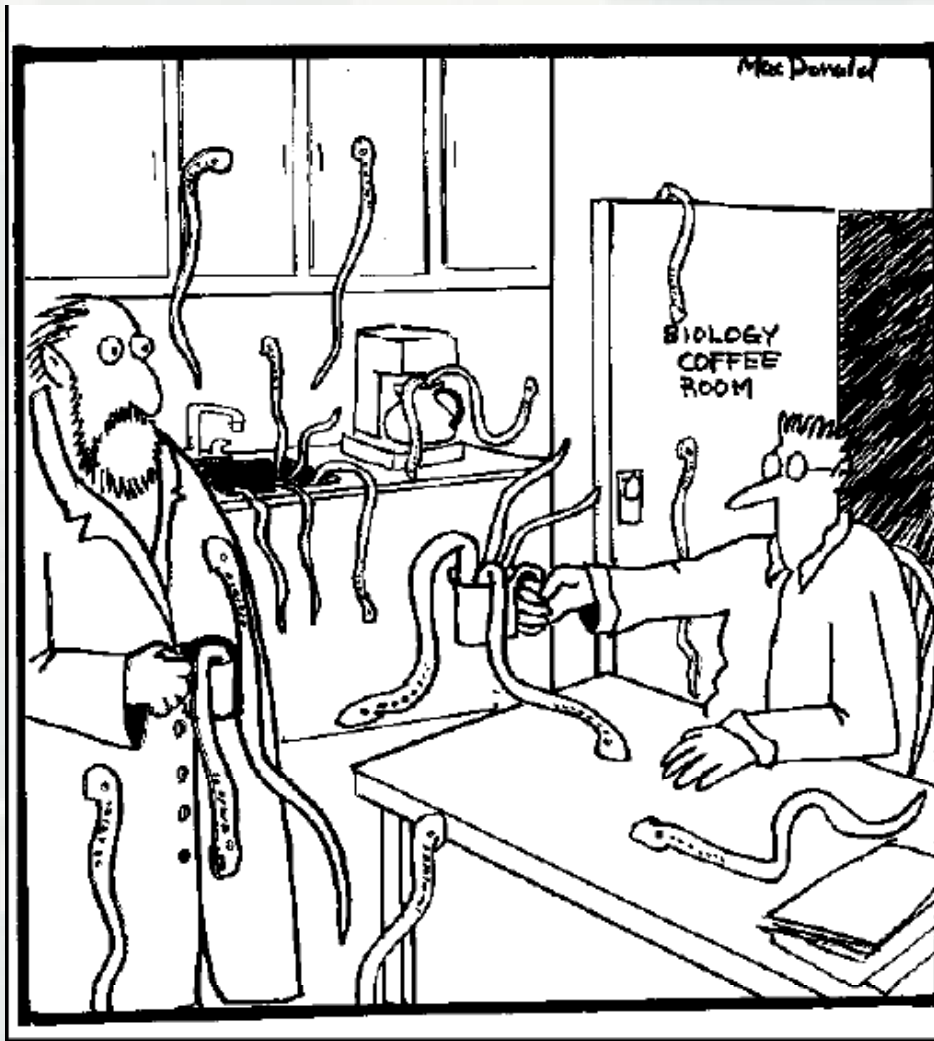
Portland District

March 24th, 2011

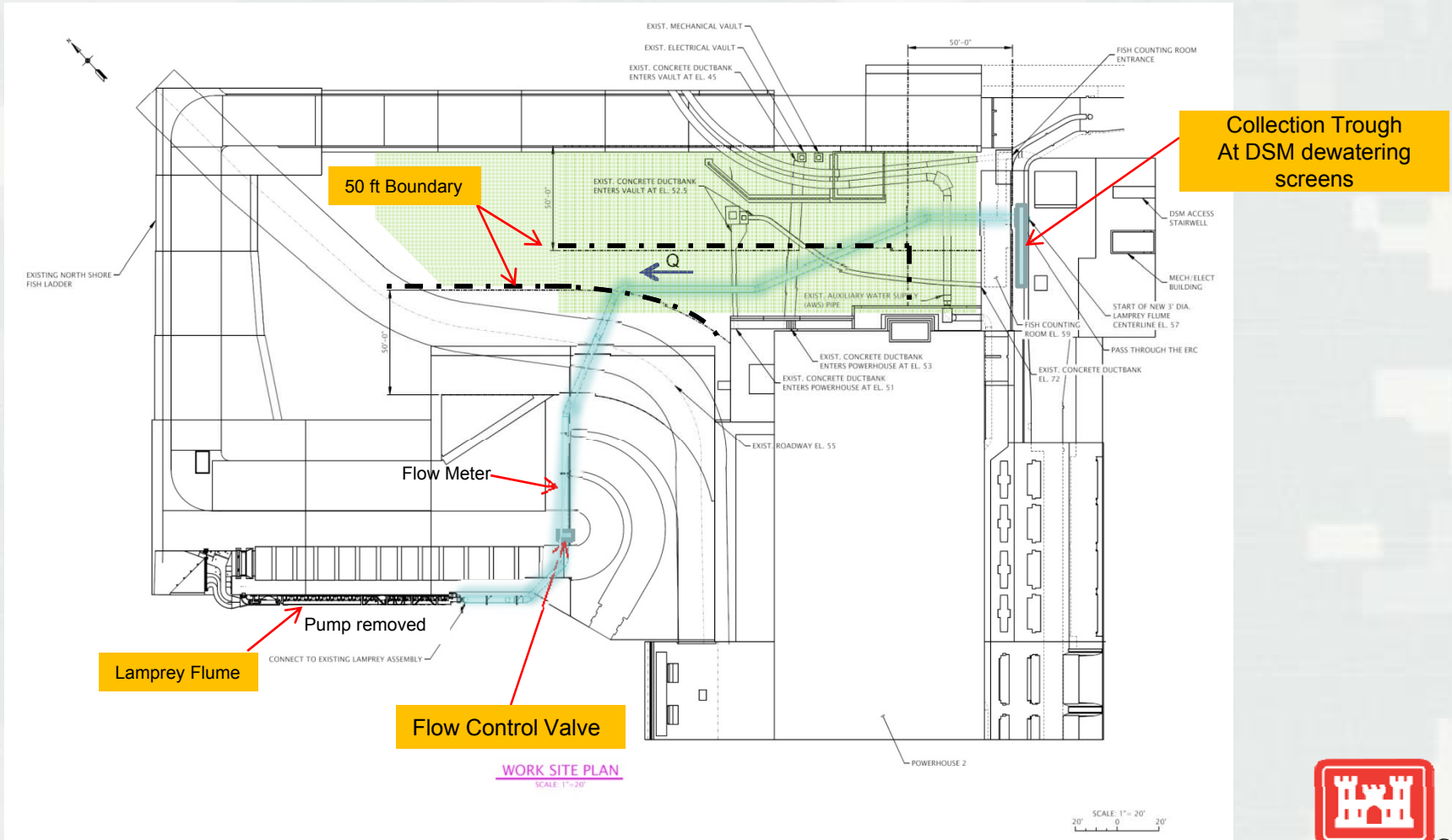# Bonneville North Shore Lamprey Improvements
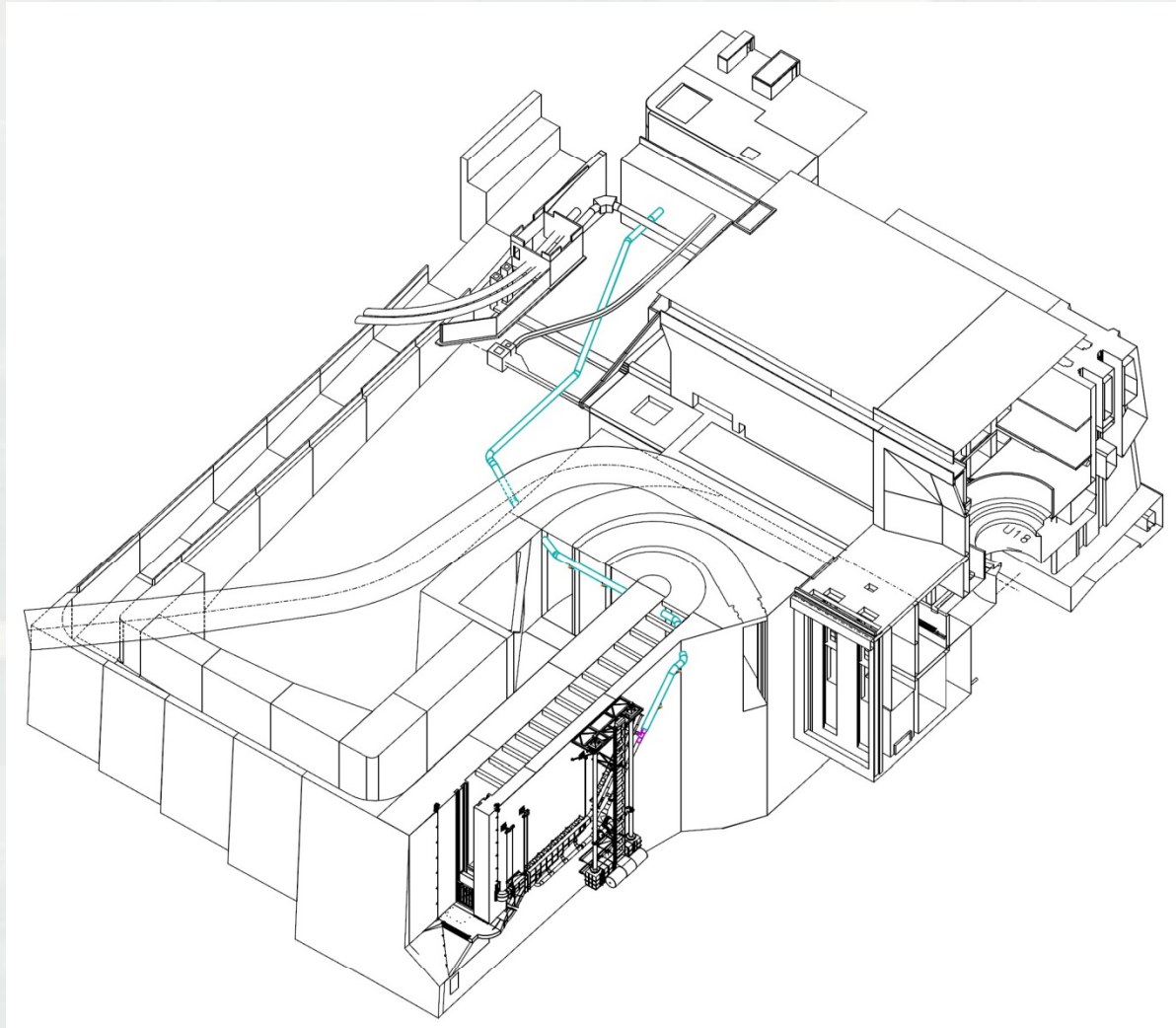
Overview of New Water Supply

- Gravity Pipeline
  - ▶ Length - ~ 380 feet
  - ▶ Diameter – 36 inch Dia. steel pipe
  - ▶ Flow Rate – up to 60 cfs
- Features
  - ▶ Collection Trough <u>behind</u> the DSM dewatering screens
  - ▶ Slide Gate closure at Collection Trough
  - ▶ Flow Control Valve and Flow Meter
  - ▶ PLC control of valve to desired flow rates

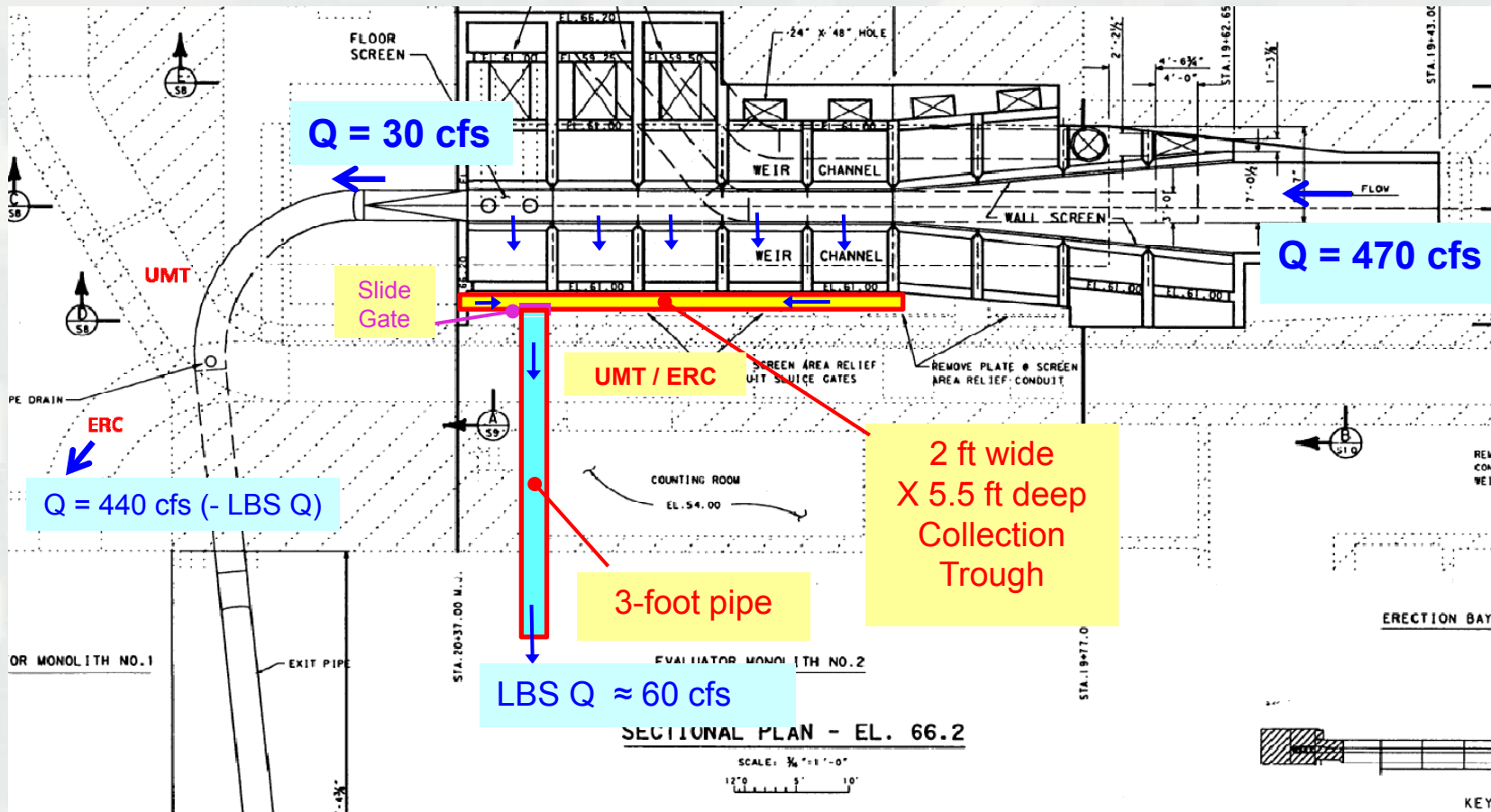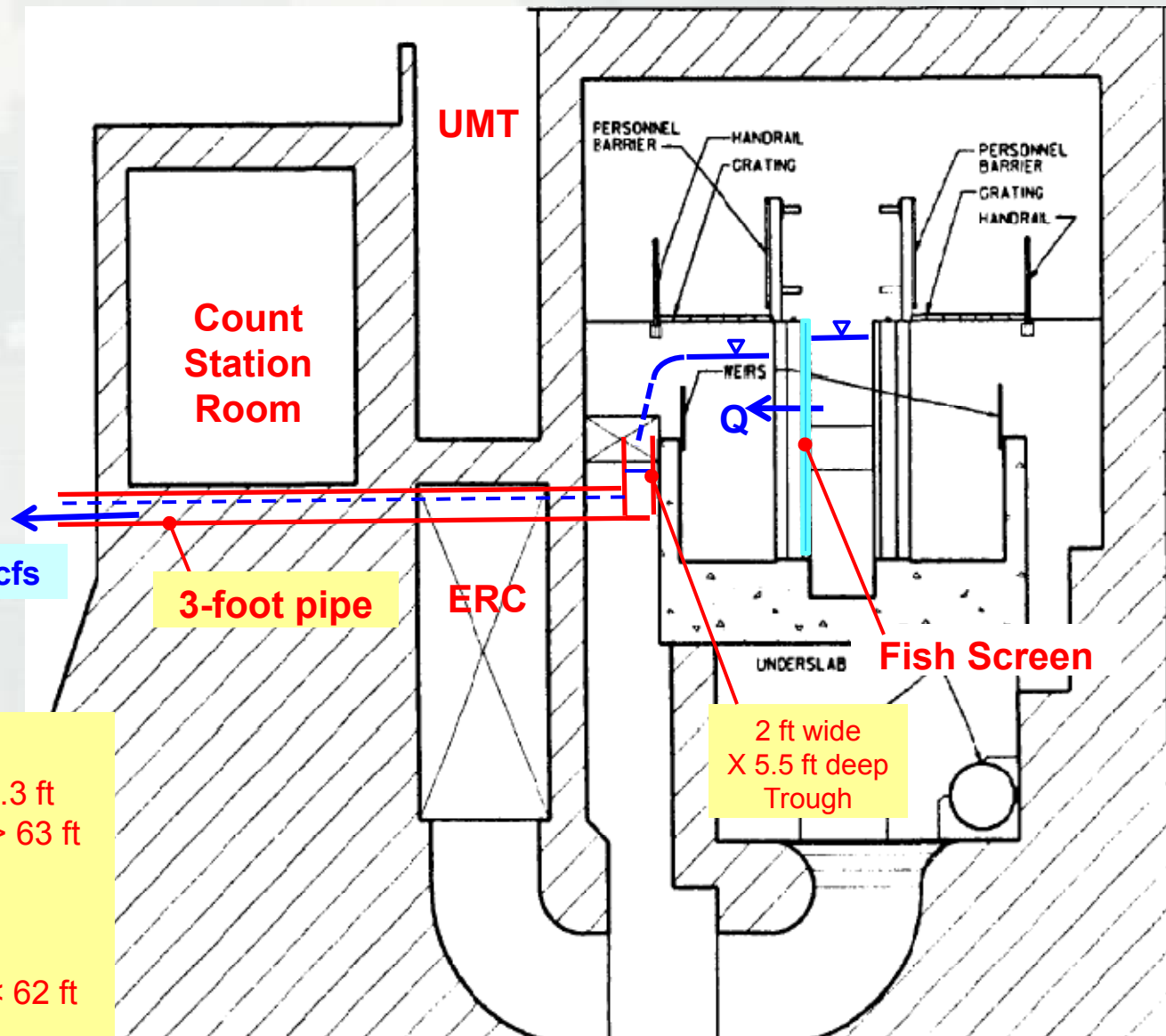# Proposed path for gravity supply Plan View

ISO View

Plan view at the Collection Trough

Q = 30 cfs

Q = 470 cfs

UMT

Slide Gate

UMT / ERC

ERC

Q = 440 cfs (- LBS Q)

2 ft wide X 5.5 ft deep Collection Trough

3-foot pipe

LBS Q ≈ 60 cfs

Water Supply

UMT

Count Station Room

PERSONNEL BARRIER — HANDRAIL — GRATING

PERSONNEL BARRIER — GRATING — HANDRAIL

WEIRS

Q

LBS Q ≈ 60 cfs

3-foot pipe

ERC

UNDERSLAB
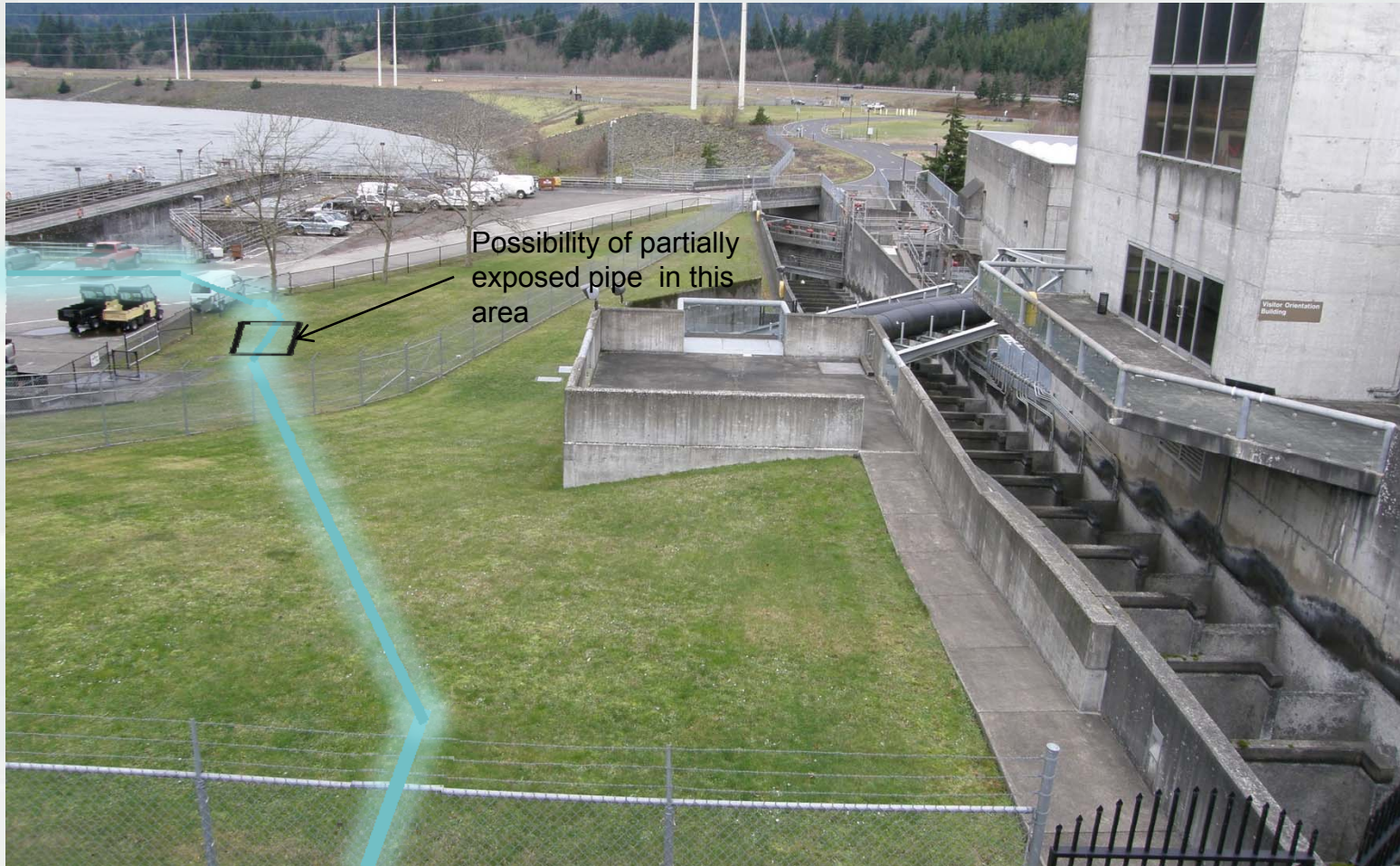
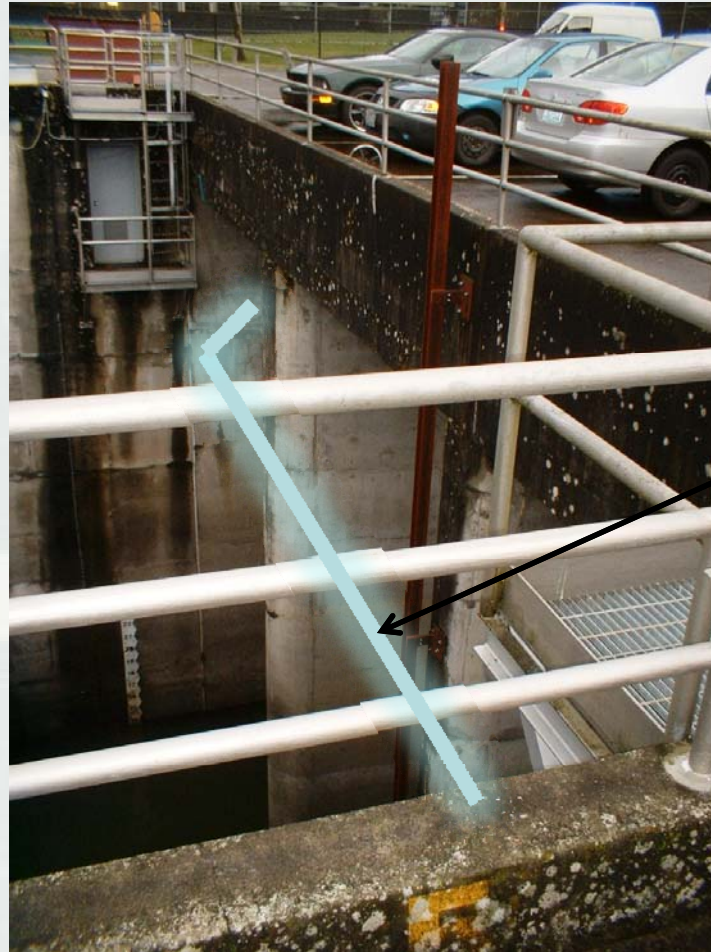**Fish Screen**

2 ft wide X 5.5 ft deep Trough

Elevations:
DSM water surface = 64.3 ft
Dewatering weir crests > 63 ft
Trough weir crest = 61 ft
Trough invert = 55.5 ft
Top of ERC = 59 ft
Overflow discharge EL < 62 ft
Slope of 3' pipe = 3%
Slide gate at pipe intake

Approximate Path

Possibility of partially exposed pipe in this area
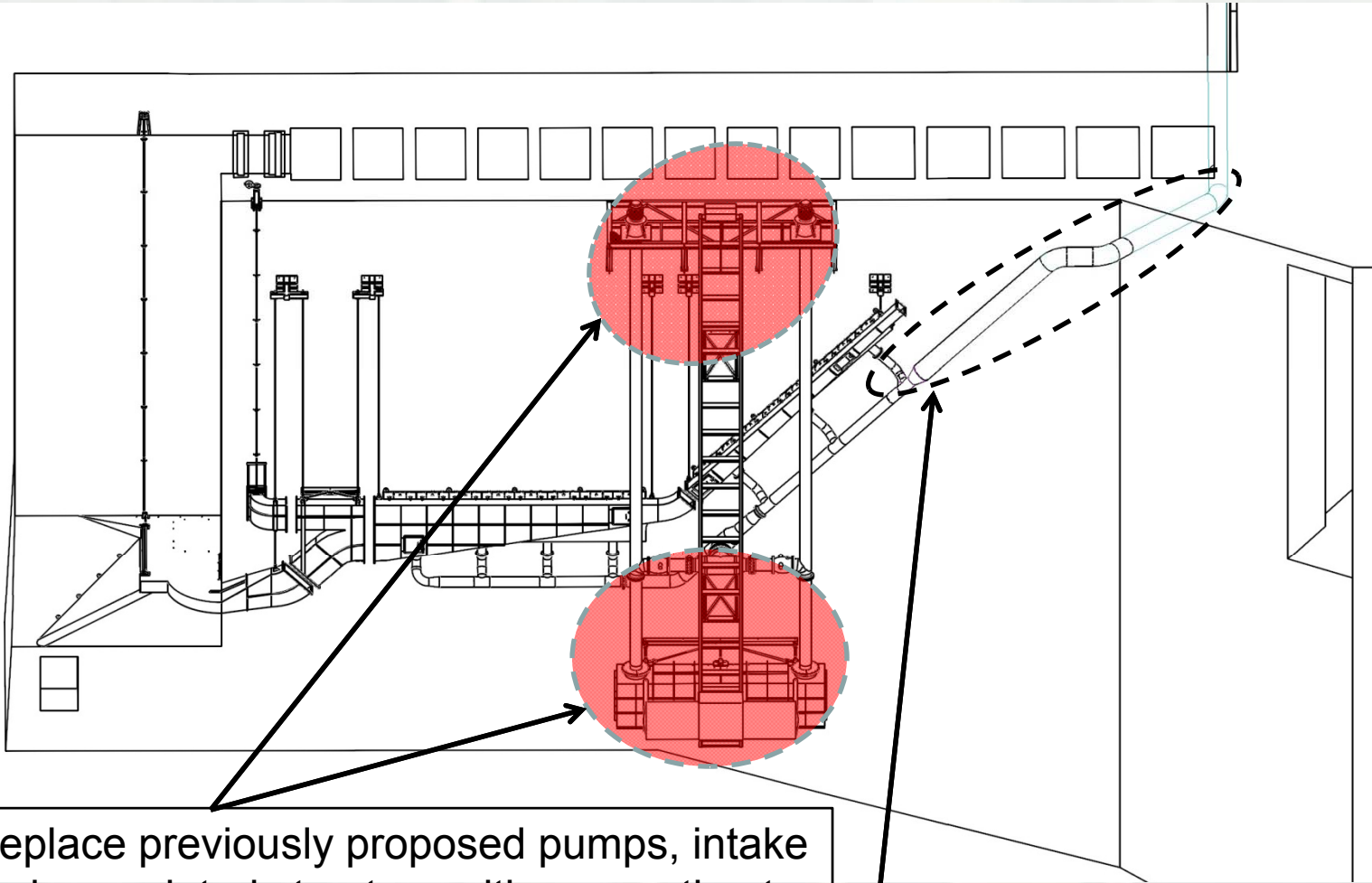
Crossing the lower ladder

Pipe invert at EL 45 throughout the ladder.

Control Valve is located in abandoned actuator room.

Connect to the Flume Supply Header

Replace previously proposed pumps, intake and associated structure with connection to the new gravity supply pipe.

FFDRWG/FPOM coordination needs:

- 1. Construction within 50 feet of a fishway

  - The bulk of the earth to be removed (300 cubic yards) is at the top of the grassy wave, where the supply pipe is roughly 33' from the fish ladder.

  - In general an excavator is between 80 -100 decibels.
    (Louder than a busy street but quieter than a train.)

- 2. Why we need to start the excavation work during the fish passage season.

  - Nov 15th -Construction schedule better with 15 days extension. It gives us some room for setbacks and weather delays. (IWW (start Dec 1))

    - ▷ Total weather days: 18-21 (6 weather days in November, 7 in December, 7 in January, and 4 in February.)

FFDRWG/FPOM coordination needs:
(continued)

- 3. Rough construction timeline for the whole system (water supply, flumes, etc).
  - ► Award Contract June 2012
    - Install Gravity Feed System (assumes early access is granted)
      Nov. 15th, 2012 thru Jan. 30th, 2013
    - Install Flume System
      Nov. 29th, 2012 thru Feb. 6th, 2013
    - Mechanical and Electrical Inspections
      Feb. 7, 2013 thru Feb. 27th, 2013