USACE Portland District (NWP) FFDRWG Update Form
October 5, 2017

PROJECT INFORMATION

Project Title	Lamprey Passage Structure (LPS) Development and Improvements
SCT Reference Number	
Project Manager (PM)	Mike Turaski (NWP, 503-808-4704)
Technical Lead (TL)	James Schroeder (NWP 503-808-4930)
Biologist/Coordination	Ricardo Walker (NWP, 503-808-4709)

PROJECT DESCRIPTION

This project consists of the design, construction, and modification of LPSs at BON and JDA.

Specific tasks (pending funding availability and prioritization) include the following:

1. Design, build, and or modify LPSs that address known problem areas:
   Phase 1: Complete

   a. *WA shore LPS Installation*

   Phase 2: Awarded August 2017

   a. BON Bradford Island Fish Ladder – Upgrade to LPS exit chute (construction IWW 17/18)
   b. BON Cascades Island Fish Ladder – Only minor modifications to the LPS (Construction IWW 17/18)
      i. Add FDX antenna to exit

   Phase 3: Planning / Design Phase

   a. JDA North Fish Ladder – Only minor modifications to the LPS as proposed below. (Design late FY17 and early FY18; Construction IWW 18/19).
   b. BON WA shore LPS retrofits to include modifications to the counting system and exit chute.

PROGRESS AND KEY ISSUES (List)

Phase 3: JDA LPS water supply and WA shore LPS retrofits

- JDA water supply concept level ideas have been developed for discussion.
- WA shore LPS retrofits to address counter flaws.
    - Miscommunication with data logger
    - Paddle not returning to neutral position
    - Paddle not triggering counter when actuated
- WA shore LPS retrofit to address potential for lamprey to collide with concrete walls when exiting the LPS chute.

CURRENT SCHEDULE

Phase 2: BON Bradford Island and Cascades Island

- Awarded August 2017.
- Schedule for installation is 17/18 winter maintenance period.

Phase 3: JDA North Fish Ladder LPS and WA Shore LPS Retrofits

- Plans are in the early phase of development.
- Schedule for installation is 18/19 winter maintenance period.

FFDRWG REVIEW NEEDED AT MEETING? (If YES, list discussion topics below)

- Yes, discuss concepts for providing gravity water supply to LPS.

LPS DEVELOPMENT & IMPROVEMENTS PROJECT
JOHN DAY NORTH FISH LADDER ENTRANCE LPS

ISSUE: GRAVITY WATER SUPPLY ALTERNATIVES

Ricardo Walker
Portland District FFDRWG Meeting
05 October 2017

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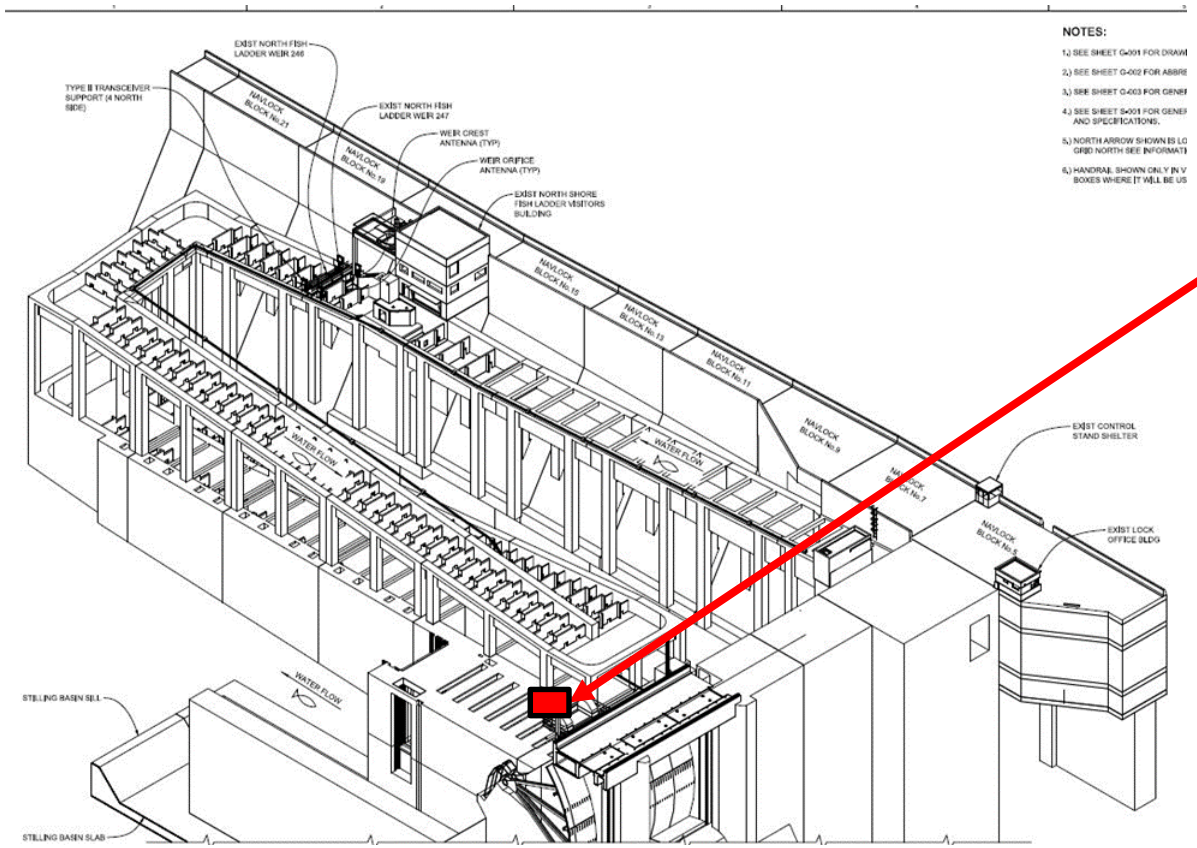
JOHN DAY DAM NORTH FISH LADDER ENTRANCE LPS



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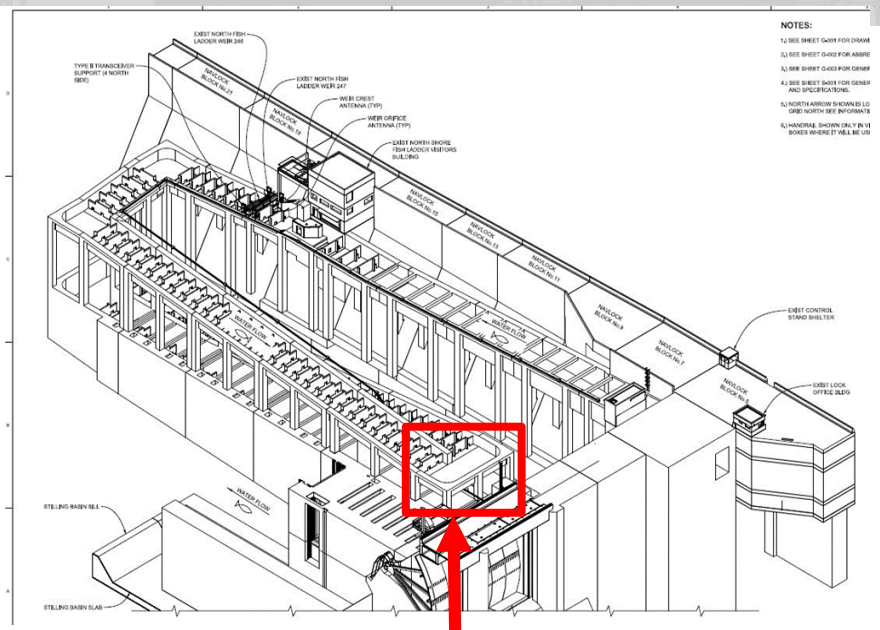
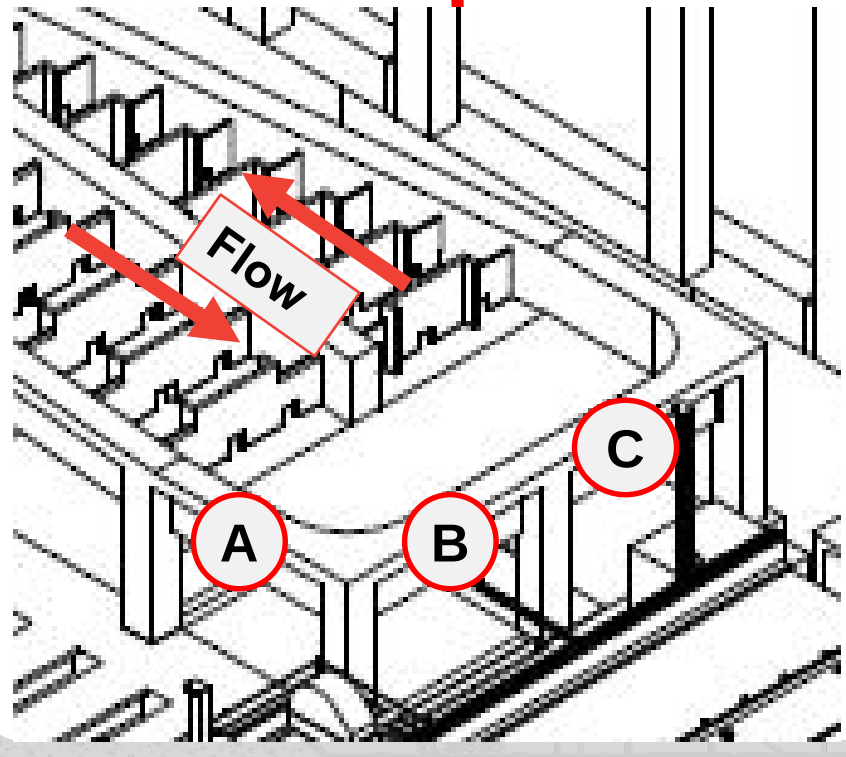
CONCEPT

Minimize long-term O&M requirements and increase system reliability by installing a gravity water supply system for the LPS.

DESIGN FACTORS

- Gravity water supply (from North Fish Ladder) must meet LPS flow requirements:
  - 150 gpm design flow; 124 gpm down flume; 15 gpm for the outfall; ~11 gpm to provide adjustability
- Screening for water supply must meet NOAA fry criteria:
  - ‘Active debris cleaning’ velocity maximum 0.4 ft/s
  - ‘Passive debris cleaning’ velocity maximum 0.2 ft/s
  - Note: An active system within the fishway is likely not acceptable
- Location and shape of water supply intake and screen must minimize potential salmonid and lamprey interaction/entrainment risks and risks associated with debris.





ALTERNATIVE 1 (Preferred)

- Install intake in fish ladder at locations A, B, or C
- Screen would be flush to the fishway wall
- Intake size needed based on ladder flow and NOAA fry screen criteria
  - 12x12 inches or 14-in round for 0.4 ft/s *active* screen criteria
  - 16x16 inches or 18-in round for 0.2 ft/s *passive* screen criteria
- **Assumptions**
  - Average ladder flow, normal ops, at location 85 cfs
    - 0.6 ft/s (6’ depth, 24’ width)
  - Average ladder, shad ops, 123 cfs
    - 0.8 ft/s (6.3’ depth, 24’ width)
  - Assume pipe size of 2 to 4-in (up to 2 pipes)
- **Concerns**
  - Structural – Don’t want to impact rebar
  - Debris/clogging of passive screen
  - New structure in fishway

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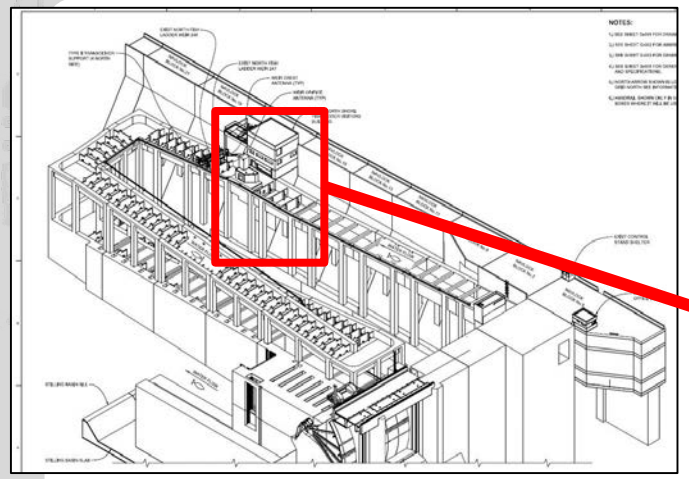

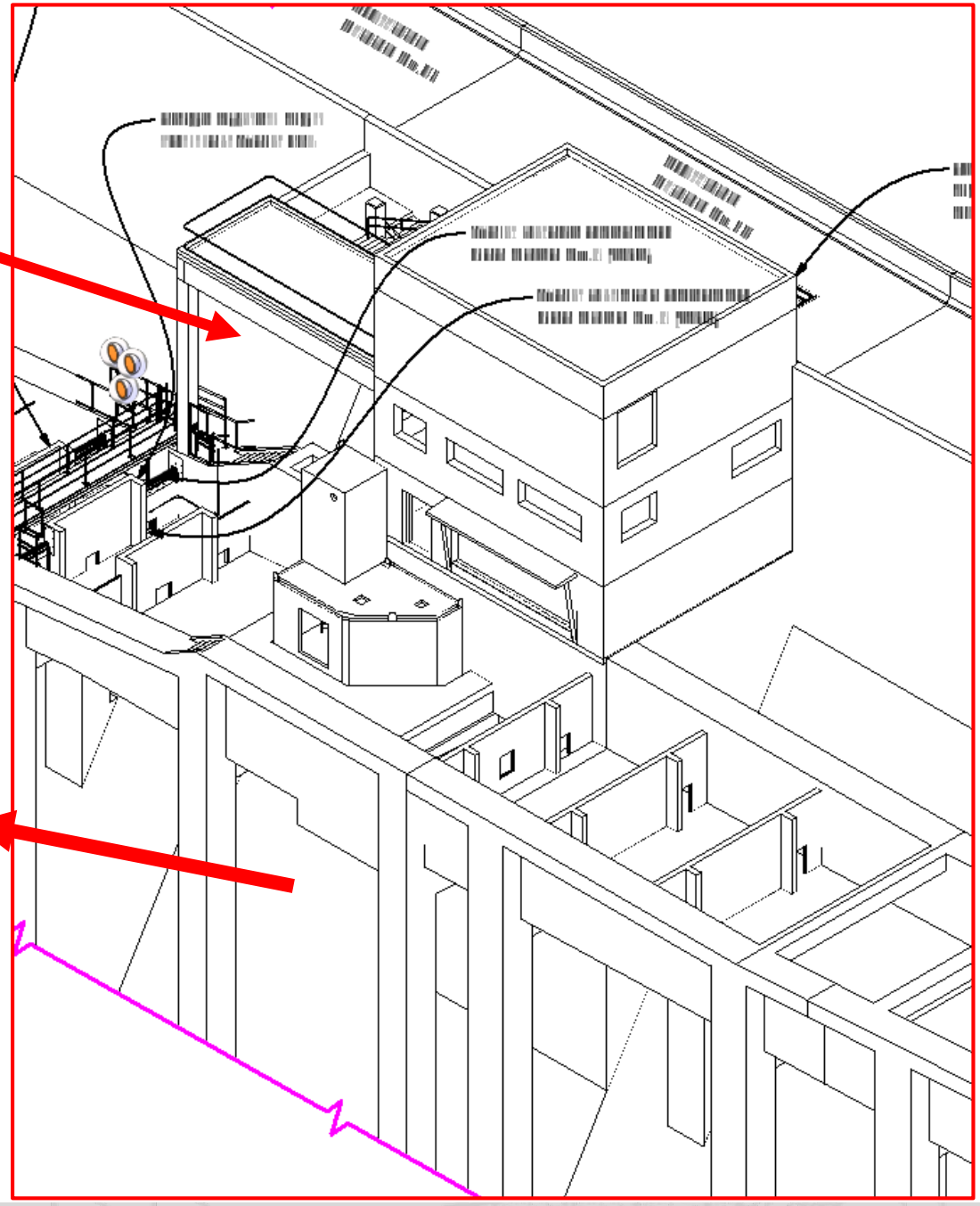

ALTERANTIVE 2

- Add a second valve to existing 12-in fishway drain pipe (near count station)
- Run PVC pipe with UV protective coating to LPS
- **Concerns**
  - Inlet to drain is only screened by ¾ inch diffuser grating
  - Potential for small fish to enter drain

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SCHEDULE

- Design – when will PDT have a design for review?
  - 30%, 60%, 90%, Final
- 2018-19 IWW period construction

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