HYDROLOGIC CONTROL IN A WILLAMETTE RIVER FLOODPLAIN WETLAND

Most effective man-made designs borrow from natural models
Metro Open Spaces and Project Location

Conditions at time of acquisition
5 Years of recovery

Restricted spring flooding prior to project
1996 flooding

Site’s response to the 1996/1997 floods
2000 Vegetation mapping

CLOSED FOREST RIPARIAN

SHRUBLAND

PRAIRIE SEASONALLY WET TO DRY

1851 Government Land Surveys

CLOSED FOREST UPLAND

CLOSED FOREST RIPARIAN

SHRUBLAND

PRAIRIE SEASONALLY WET TO DRY
2000 Reed canarygrass coverage

2000 Topography
2000 REED CANARYGRASS COVERAGE

Acres of land that can be flooded by the structures:
~ 160

Acre feet of water that can be stored by the structures:
~ 450
Both structures ~ 50ft long and 10 ft high and wide
Year 2 Modifications

Culverts and Risers

North Structure: 6 ft. diam.
South Structure: 8 ft diam.
Hilfiker Retaining Wall

South structure - fully charged

Note Davit crane and crank for the reverse tidegate.
Project-associated monitoring

PLANTS - FISH - BIRDS - TURTLES - AMPHIBIANS

Plant Monitoring
- Stratified random sampling of herbaceous cover
Permanent Plant Transects

Preliminary plant monitoring data
Permits

- **US ARMY CORPS OF ENGINEERS and DIVISION OF STATE LANDS** ($500.00)
  Joint wetland fill permit

- **US FISH AND WILDLIFE SERVICE and NATIONAL MARINE FISHERIES SERVICE** ($50,000.00)
  Incidental take permit (bald eagle, Chinook salmon, coastal cutthroat trout)

- **MULTNOMAH COUNTY** ($500.00)
  Floodplain development, and grading & erosion control permits

- **OREGON WATER RESOURCES DEPARTMENT** ($2,500.00)
  Stored water permit

- **PRIVATE LANDOWNER** ($82,500.00)
  Conservation Easement Neighboring property receiving stored floodwater

**TOTAL PERMIT COSTS** $135,000.00 ($3,500.00)

Conservation Easement

- Approximately 30 acres of seasonal flood storage rights purchased
R&P Measures tied to the Biological Opinion for salmon

"Monitor the extent of delay or stranding that is occurring…to determine amount and extent of incidental take…"

T&C needed to implement the R&P:

- Monitor the structures to determine if juveniles are passing through structure
- Monitor the extent of juvenile stranding
- Analyze migration delays
- Send annual reports for 3 years post-construction
- If needed, pull boards, modify, and monitor for 3 more years

How did (and how much did) Metro pay for the project?

- N.A. Wetland Conservation Act Grant (U.S. Fish and Wildlife Service) [$160,000.00]
- Wetland Reserve Program Agreement (NRCS) [$120,000.00]
- Grant (Bonneville Power Administration) [$95,000.00]
- Metro Open Spaces, Parks and Streams Bond Measure [$90,000.00] [$150,000.00 if revegetation included]
- Metro Regional Parks & Greenspaces Annual Operating Budget [$75,000.00]
- Small Governments Wetland Conservation Grant (U.S. EPA) [$38,000.00]

TOTAL PROJECT COSTS $575,000.00
Amphibian egg mass surveys

Northern red-legged frog egg mass data (*Rana aurora aurora*)

- 2001: 2 areas, 23 masses
- 2002: 4 areas, 167 masses