

Type 2 Environmental Review

Smith & Bybee Lakes Wildlife Area Water Control Structure

Prepared for the City of Portland

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I. Introduction and Project Description

Metro manages the 1,928-acre Smith and Bybee Lakes Wildlife Area located in north Portland. The wildlife area is managed primarily for wildlife habitat protection and enhancement while providing passive recreational opportunities for the Portland metropolitan area.

The Smith and Bybee Lakes Wildlife Area is composed of two lakes and a number of smaller ponds and sloughs. The wildlife area contains open water, emergent, shrub/scrub and forested wetlands as well as upland forest. Myriad wildlife species use the site, including more than 100 bird species and a variety of mammals, reptiles and amphibians.

In November of 1990, the Natural Resources Management Plan for Smith and Bybee Lakes (the "Plan") was adopted by the City of Portland. This Plan, prepared in cooperation by the Port of Portland, Metro, the Portland Bureau of Parks and Recreation and Planning and interested neighbors and stakeholders, guides future development at the lakes. It established a set of policies and actions for the lakes that established the area as a major regional environmental and recreational resource for the Portland metropolitan area. Its overall goal is protection and enhancement of the natural resources at the Lakes and compatible recreational uses.

Metro proposes to implement one of the objectives of the Plan – specifically Objective No. 1 which reads "***Control water level in order to manage the lakes' environmental system.***" This objective will be met by the installation of a new water control feature to replace the existing floodgate. This project was envisioned by the Plan as ENV2 (potential environmental project 2). See page 27 of the Plan.

Ducks Unlimited, an international not-for-profit organization dedicated to improving habitat for waterfowl and other wetland-dependent species, designed the proposed water control structure. The structure is made up of three 8 ft. by 10 ft. precast concrete box culverts that will be installed in place of the existing floodgate. In addition to these three culverts, a single 8 ft. by 5 ft. precast concrete box culvert will be installed immediately to the east and operate as a fish ladder. Ducks Unlimited will manage the construction of the project which is expected to occur from August 1, 2002 to October 15, 2002. They have developed a construction plan that will ensure minimal negative impacts to the site. Specifically, appropriate erosion control, construction fencing, excavation procedures and staging areas have been developed.

The existing structure, which will be removed, is buried within a 75-foot earthen berm placed across the end of the North Slough where it meets Bybee Lake. This berm or dam was built in 1982 and was intended to retain water in the lakes. It separates the lakes from the North Slough and thus the Willamette River. The structure has the ability to drain small amounts of water from the lakes, but a flap gate on the downstream end prevents water from entering the lakes. Except for rare flood events, the lakes are no longer influenced by the hydrological dynamics of the daily tidal forces and seasonal floods.

The permanent impoundment of the lakes has altered the historical palustrine nature of the wetlands and converted them to a lacustrine system. As a result, more than 350 acres of forested wetland were permanently flooded, killing the trees. Hundreds more acres of emergent wetland were lost when the lakes ceased drawing down in the spring and summer. The new structure will provide the ability to draw down the water levels in late spring through summer, mimicking the historical hydrology. Emergent and forested wetlands will be restored.

At one time, the Port of Portland was scheduled to complete this project (NRMP, page 58). The project was part of its obligations under a cooperative agreement signed by several federal agencies and the Division of State Lands. However, the cooperative agreement is no longer in place due to a citizen's lawsuit and the Port of Portland is no longer under any obligation to perform this project.

The project has received considerable attention and review from the Smith and Bybee Lakes Management Committee, which has recommended it twice. Also, a Wetlands Technical Advisory Committee reviewed the project and several other options, and it recommended this project to the Management Committee.

The proposal is a development in conformance with the Plan and as such shall be reviewed by the City of Portland using a Type II Environmental Review process.¹ The approval criteria shall be:

- The proposed development meets the goals and objectives of the Plan
- There will be no significant negative impacts on the resources covered in the Management Plan

See page 67 of the Plan.

¹ The determination of conforming development was made based on consultation with City of Portland Environmental Planners – February 27, 2002.

II. Impact Evaluation

The applicable study for this evaluation is the Natural Resources Management Plan for Smith and Bybee lakes (the "Plan").

Resources and Values

Smith and Bybee lakes and their associated sloughs and wetlands are remnants of formerly extensive river bottomlands located near the confluence of the Willamette and Columbia rivers. Part of the Columbia Slough watershed, these large shallow lakes and wetlands are part of the 1,928-acre Smith and Bybee Lakes Wildlife Area. The wildlife area is managed primarily for wildlife habitat protection and enhancement while providing passive recreational opportunities for the Portland metropolitan area.

The Smith and Bybee Lakes Wildlife Area is composed of two lakes and a number of smaller ponds and sloughs. The wildlife area contains open water, emergent, shrub/scrub and forested wetlands as well as upland forest. Myriad wildlife species use the site, including more than 100 bird species and a variety of mammals, reptiles and amphibians. The wildlife area is home to one of the two largest remaining populations of western painted turtles in the state. The turtles are on the Oregon Department of Fish and Wildlife's sensitive species list.

Considerable changes have occurred in the lakes' watershed that have had significant impact on the lakes' system: construction of dam and dikes, filling with dredge spoils and introduction of exotic species of plants and animals. The most recent significant alteration of this system occurred with the construction of the first dam in 1982 that separated the lakes from the North Slough of the Columbia Slough, and thus the Willamette River.

The dam has been modified or replaced twice, but has always been used to retain water in the lakes. Since 1982, the lakes have essentially functioned as reservoirs, held at a static water level. Except during brief or rare flood events, the lakes are no longer influenced by the hydrological dynamics of the daily tidal forces and seasonal floods. A flap gate on the slough side of the earth dam allows water to slowly drain out of the lakes but prevents water from entering the lakes.

The dam itself is a 75-foot-long earth berm placed across the end of the North Slough where it meets Bybee Lake. This berm is essentially a developed area, dominated by bare ground with scattered exotic plants such as Canadian thistle and reed canarygrass. It has little wildlife habitat value at this time, although it

is possible that a small group of western painted turtles inhabiting the North Slough may use it for nesting. The bulk of the turtle population inhabits other parts of the wildlife area.

Impacts

This project will remove part of the existing dam and replace it with a water control structure that provides fish passage and the ability to manage water levels in the lakes. The most important impact will be restoration of the lakes' connection to the Columbia Slough and Willamette River via North Slough. This project will restore hundreds of acres of wetlands that were lost because of the permanent impoundment. The return to seasonal and daily water level fluctuations will restore the emergent and forested wetlands that had been converted to open water.

Because the dam itself has little wildlife or other resource value, there is little negative impact from removing the structure. Wildlife will continue to have unrestricted access across the structure. Impacts to fish are positive – the ability to enter and leave the lakes through the fishway. There may be a small loss of nesting habitat for western painted turtles, although the rest of the berm will remain and there are other suitable sites nearby.

As noted in the Plan, the impoundment of water in the lakes changed them from a palustrine to lacustrine system (page 19). They will be restored to palustrine after the new water control structure is installed. The Plan also refers to extensive shrub-willow habitat (page 19), none of which occurs on the berm that will be altered to accommodate the new structure. However, this habitat has largely been lost due to impoundment and will be restored as seasonal and tidal flooding return with the new structure. As mentioned above, the berm or dam itself is an upland developed fill area (page 19). The Plan states that the dam has probably improved water quality with respect to fecal coliform bacteria by isolating the wetlands from Columbia Slough (page 21). The elimination of combined sewer overflows from the Columbia Slough has negated this point.

Mitigation Plan

There is little, if any, negative resource impact from removing part of the dam and replacing it with a water control structure. However, several habitat improvements will be done as part of this project and could serve as mitigation if required:

- The remaining part of the dam will be seeded with native grasses and forbs that are adapted to local site conditions. Seeding will occur in the fall to optimize germination and survival. The use of a locally adapted seed source will ensure successful establishment. This ground cover will be ideal for any western painted turtles that use the site for nesting once construction is complete, and will be an improvement over the existing bare ground.
- Nesting substrate will be improved on the north side of the wildlife area, where the largest component of the western painted turtle population is located. The sand fill along the large pond between North Marine Drive and Smith and Bybee lakes will be removed to a depth of 18 – 24 inches and replaced with soil that is closer to the Sauvie and Rafton silt loams that are native to the site. Sandy soils do not hold the chamber shape of painted turtle nests, and the presence of sand fill on the most important nesting area probably inhibits nesting success. This project will improve 0.47 acre of nesting habitat, more than offsetting the loss of potential nesting habitat at the dam site.

All seedings and plantings will be monitored for survival and establishment. More than 75 acres have been planted at Smith and Bybee Lakes Wildlife Area, and regular monitoring is in place. This mitigation work will be added to the monitoring workload.

III. Mitigation Site Plan Narrative

As discussed in the impact evaluation section, the only potential negative effect of the construction is loss of nesting habitat for western painted turtles. This species is listed sensitive-critical by the Oregon Department of Fish and Wildlife. This potential effect will be offset in several ways:

- Placing a barrier to prevent nesting in areas that will be excavated
- Improving the plant composition in areas adjacent to the construction site
- Improving nesting habitat at a key site elsewhere in the wildlife area.

A small group (fewer than 6) of western painted turtles has been observed using the east end of the North Slough near the construction site. It is possible that some of these individuals may be females that might nest on the earth berm that will be partially removed to accommodate the new water control structure. Western painted turtles excavate flask-shaped chambers in upland soils near water that have good sun exposure.

At Smith and Bybee Lakes Wildlife Area, nesting typically begins in late May or early June and continues through early or mid-August. Hatchlings emerge from the eggs approximately 90 days after nesting but may overwinter in the nest. Thus, they may be in the nest at any time from late May until late April of the following year. The only way to ensure there will be no painted turtle hatchlings in the ground that will be excavated is to prevent nesting there or perform the excavation work in May. Since it will not be possible to excavate in May, a barrier will be placed over the areas to be excavated to prevent nesting. Cyclone fencing, or a similar material that turtles cannot dig through, will be laid on the ground and stapled in place. It will be removed when excavation begins.

The plant community on surrounding areas is dominated by invasive reed canarygrass and thistles. These areas will be seeded with a mix of native grasses and forbs to improve their habitat value for painted turtles and other wildlife. The mix may include:

Alopecurus sp.
Agrostis exarata
Aster subspicatus
Bromus carinatus
Bromus sitchensis
Carex stipata
Carex vulpinoidea
Deschampsia elongata
Deschampsia cespitosa
Elymus glaucus
Festuca occidentalis
Hordeum brachyantherum
Juncus acuminatus
Koeleria macrantha
Prunella vulgaris

Other local varieties of native herbaceous plants may be substituted, depending on availability and cost.

Another potential nesting area for western painted turtles is located along the ponds and sloughs between the wildlife area and North Marine Drive. However, the nesting substrate is sand fill from Columbia River dredging projects. The native Sauvie and Rafton silt loams provide a better nesting substrate, because they hold the flask shape that female turtles excavate for their nests. Sand will be removed and replaced with soil that more closely resembles the native silt loams of the area. Approximately 0.47 acres will be improved (see diagram).

Sand will be removed to a depth of approximately 18 – 24 inches and will be replaced with an equivalent amount of topsoil.

A silt fence will be placed around the project area in May, to prevent turtles from nesting in the area before excavation can begin. It is anticipated that the Land Use Review and permit approval will occur in July, and work will begin as soon as possible after approvals are obtained. The silt fence will also serve as an erosion control measure for the project.

After the new soil is in place (in the fall), the area will be overseeded with a mix of native grasses and forbs (see list above). Widely scattered shrubs will also be planted at random (in late winter), less than 50 total from the following list:

Cornus sericea
Crataegus douglasii
Malus fusca
Mahonia sp.
Oemleria cerasiformis
Physocarpus capitatus
Ribes sanguineum
Rosa pisocarpa
Salix sp.
Sambucus racemosa
Symphoricarpos albus

Use of native plants and seeds, locally adapted, will ensure survival. Overseeding will occur in the fall for better germination and survival. Protective barriers may be placed around woody plants to prevent browsing or other damage from wildlife. Both sites will be monitored and reseeded and/or replanted as needed to ensure development of a healthy plant community.

IV. Construction Management Plan

Disturbance Area:

1. Equipment staging will be off the project site, on the adjoining landfill perimeter road.
2. Grading limits will be delineated by erosion control fencing. These limits will be flagged during construction staking, prior to mobilization by the Contractor.
3. Limits of disturbance coincide with the grading area, plus the spoils area.

Excavation Procedures:

1. Nearly all excavation will be performed with a track hoe; a small dozer may be utilized for clean-up and finish grading.
2. Topsoil is sparse and will not be segregated for re-use, and therefore will not be separately stockpiled.
3. Excavated materials not used for structural backfill will be used to restore the access road; any leftover material will be disposed of off-site.
4. Areas outside the cofferdam, erosion fencing, and access road will not be disturbed. These limits will be construction staked prior to mobilization. Due to terrain and adjoining water, construction activities cannot reasonably escape these limits.

Erosion Control:

1. Erosion control will be comprised of staked-in-place embedded sediment fencing, placed where shown on the site plan.
2. Water control will consist of coffer damming against the North Slough and Bybee Lake. Excavation dewatering pumps, if needed, will discharge to Bybee Lake.

Tree Protection Measures:

No trees will be within the delineated work area.

Site Management:

1. All debris will be legally disposed of off-site.
2. No hazardous material will be used for this project.
3. The Contractor shall provide portable facilities for human waste and litter.

Construction Management Plan Summary:

The project consists of removing an existing 60" cmp structure from an existing levee, and replacing it with three 8' x 10' concrete box culverts to enhance fish access and improve hydraulic connectivity to adjoining watercourses.

Construction is anticipated to take approximately 10 weeks in August through mid-October, 2002. While equipment used will not be specified, it is anticipated a typical contractor will do the bulk of the excavation with a track hoe, placing removed material nearby and using a small dozer to support the hoe. Following

structure backfilling, remaining materials will be used to restore the access road, or be hauled off-site for disposal.

Sheet-piles will likely be driven as the coffer dam against the North Slough and Bybee Lake, and wholly removed following construction. Dewatering pumps, if needed, will discharge into Bybee Lake.

The project has been designed, and construction will be specified and managed, to minimize disturbance to neighboring habitat, plant life, and water bodies.

V. Approval Criteria

The Plan indicates that the applicable approval criteria are as follows:

1. The proposed development meets the goals and objectives of the Plan.

The proposed water control structure is a project undertaken by Metro for the very purposes of meeting the goals and objectives of the Plan. The project was anticipated by the Plan and is described as ENV2. See page 27 of the Plan. ENV2 is described as a Flood Gate in the existing Water Control Structure. The Plan indicates that once needed information is in place and a design complete, the project should be constructed. The priority was rated as high. Water level management in the lakes is needed for vegetation management and fish habitat enhancement.

In addition to the direct reference of ENV 2, the goals and objectives of the Plan also support the proposed project. On page 9 of the Plan the Goal Statement is provided:

"The goal of the Management Plan is to protect and manage the Smith and Bybee Lakes area as an environmental and recreational resource for the Portland region. The lakes will be preserved as historical remnants of the Columbia River riparian and wetlands system. They will be maintained and enhanced, to the extent possible, in a manner that is faithful to their original natural condition. Only those recreational uses that are compatible with the environmental objectives of the Management Plan will be encouraged. Smith Lake and adjacent uplands will be the principal location for recreational activities. Bybee Lake will be less accessible. Its primary use will be as an environmental preserve."

On the same page, the following Plan Objectives are supported by the proposed development.

No. 1 - "*Control water level in order to manage the lakes' environmental system.*"

No. 2 - "*Provide for and maintain habitat diversity representative of the lower Columbia River floodplain wetlands.*"

No. 3 - "*Maintain and enhance water quality in the lakes.*"

The proposed project clearly supports the Goal Statement and key Plan Objectives Nos. 1, 2 and 3. The new water control structure will greatly enhance the ability to adjust the water level within the lakes. Currently, the existing floodgate allows small amounts of water to drain from the lakes but does not allow water from the Slough to enter. This impoundment has caused the lakes to change from their natural palustrine system (marsh or swamp environment) and converted them to a lacustrine system (lake environment). As a result, more than 350 acres of forested wetlands have been flooded year-round, killing the trees. Hundreds more acres of emergent wetland were lost when the lakes ceased drawing down in the spring and summer. The new structure will provide the ability to draw down the water levels in late spring through summer, mimicking the historical hydrology. Emergent and forested wetlands will be restored.

The Goal Statement clearly hopes to restore the lakes to their historical and natural state as a "*Columbia River riparian and wetlands system*". It states that the lakes should be "*maintained and enhanced, to the extent possible, in a manner that is faithful to their original natural condition.*" This project will directly restore the lakes to their natural palustrine system.

Objective No. 1 is also directly addressed by the proposed project. It will allow improved management of the lake's environmental system by controlling the lake's water level. The current system does not allow the wildlife manager to adjust the water levels in the lakes to the extent necessary to properly protect and enhance the resources of the area.

The proposed project also supports Objective No. 2 by restoring the historical palustrine system, generally thought of as a marsh or swamp. Reverting to this system will result in the objective's desire to maintain "*habitat diversity representative of the lower Columbia River floodplain wetland.*" More than 1,500 acres of emergent and forested wetlands will be restored.

Objective No 3 addresses water quality of the lakes – the major concern of the Plan. In 1982, the impoundment project was undertaken to separate the lakes from the poor quality waters of the Slough that was experiencing high levels of fecal coliform bacteria. The impoundment of water resulted in increased plant growth which in turn lead to more accumulation of nutrient-rich sediments, thus contributing to a eutrophication problem identified in the Plan at page 21. This problem can negatively impact fish present in the lakes.

With the recent combined sewer overflow project underway, the concern of bacteria-laden water from the Slough has been eliminated. The proposed project will improve the water quality of the lakes by reverting to the natural palustrine system – a system which allows for the natural influence of the hydrological dynamics of the daily tidal forces and seasonal flooding and will minimize the problem of eutrophication.

This criterion is met.

2. There will be no significant negative impacts on the resources covered in the Management Plan.

The 1,928 acre Smith and Bybee Lakes Wildlife Area is managed primarily for wildlife habitat protection and enhancement. Two shallow lakes dominate the area. The Plan identified the primary habitat as forested wetlands, dominated by willow, with some areas of Oregon ash and black cottonwood. The area features sedge meadow wetlands, seasonal ponds, upland grasslands with riparian woods and woodlands. Myriad wildlife species use the site, including more than 100 bird species and a variety of mammals, reptiles and amphibians. The wildlife area is home to one of the two largest remaining populations of western painted turtles in the state. The turtles are on the Oregon Department of Fish and Wildlife's sensitive species list.

Notwithstanding the abundance of wildlife and high quality resource habitat found within the Wildlife Area, the immediate site of the proposed project has little resource value. The berm or dam was constructed in 1982 and consists of low quality fill material. The immediate site is a developed area within the Wildlife Area, dominated by bare ground and scattered exotic plants such as Canadian thistle and reed canarygrass.

The proposed project will not result in any significant negative impacts to the resources of the Wildlife Area. Actually, the project is a significant enhancement

to the Wildlife Area and will act to improve its resources by allowing the historical palustrine system to be re-introduced

The Plan indicates that the impoundment of water behind the existing water control structure resulted in major impacts to most wetland functions – vegetation, flood storage, sediment trapping, nutrient retention/removal and fish and wildlife habitat. The Plan suggests that these impacts are negative in nature and should be addressed. See ENV 2.

This proposed project would restore more than 1,500 acres to emergent and forested wetlands. This new area will provide high quality habitat for wildlife that have been displaced by the impoundment of the lakes such as shorebirds. Waterfowl will benefit from seed production in the emergent zone. Water quality will be improved when the natural hydrological influences are restored. Fish habitat will be improved due to a lessening of the eutrophication in the water. The addition of the fish ladder will also be a direct benefit, providing access to the wetlands for juvenile salmon (Coho and Chinook) that will use them as refugia during flood events and for feeding and rearing. Smith and Bybee lakes have been identified by the City of Portland's Endangered Species Program as an important habitat to be restored and made accessible to salmonids.

Ducks Unlimited will manage the construction of the project which is expected to occur from August 1, 2002 to October 15, 2002. They have developed a construction plan that will ensure minimal negative impacts to the site. Specifically, appropriate erosion control, construction fencing, excavation procedures and staging areas have been developed. In addition, the disrupted area of the construction site will be replanted with native grasses and forbs to enhance the habitat of this currently degraded area. See Construction Management Plan dated March 15, 2002.

During the course of construction that is expected to occur over a ten-week period, beginning August 1st and running through mid October, there may be some disruption of nesting activities of the western painted turtle. This will be mitigated in several ways. First, the construction site will be "sealed" starting May 1st, when nesting activities typically commence so that no turtles can nest in the area. There are numerous other nearby areas for nesting activity that should support the turtle population. Secondly, as part of this project, a current likely nesting area will be upgraded to improve nesting habitat. A 0.47 acre area located on the other side of the wildlife area will be excavated to a depth of 18 – 24 inches and a more suitable nesting material will be provided.

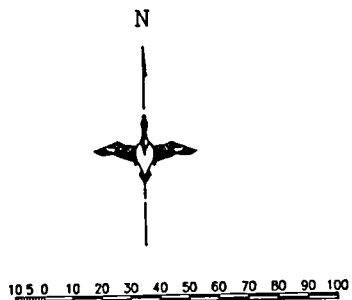
Overall, this project represents a significant improvement to the resources of the Wildlife Area and any minor disruption during the brief construction period have been addressed with appropriate mitigation.

This criterion is met.

SMITH AND BYBEE LAKES WILDLIFE AREA
EXISTING CONDITIONS SITE PLAN, MARCH 15, 2002

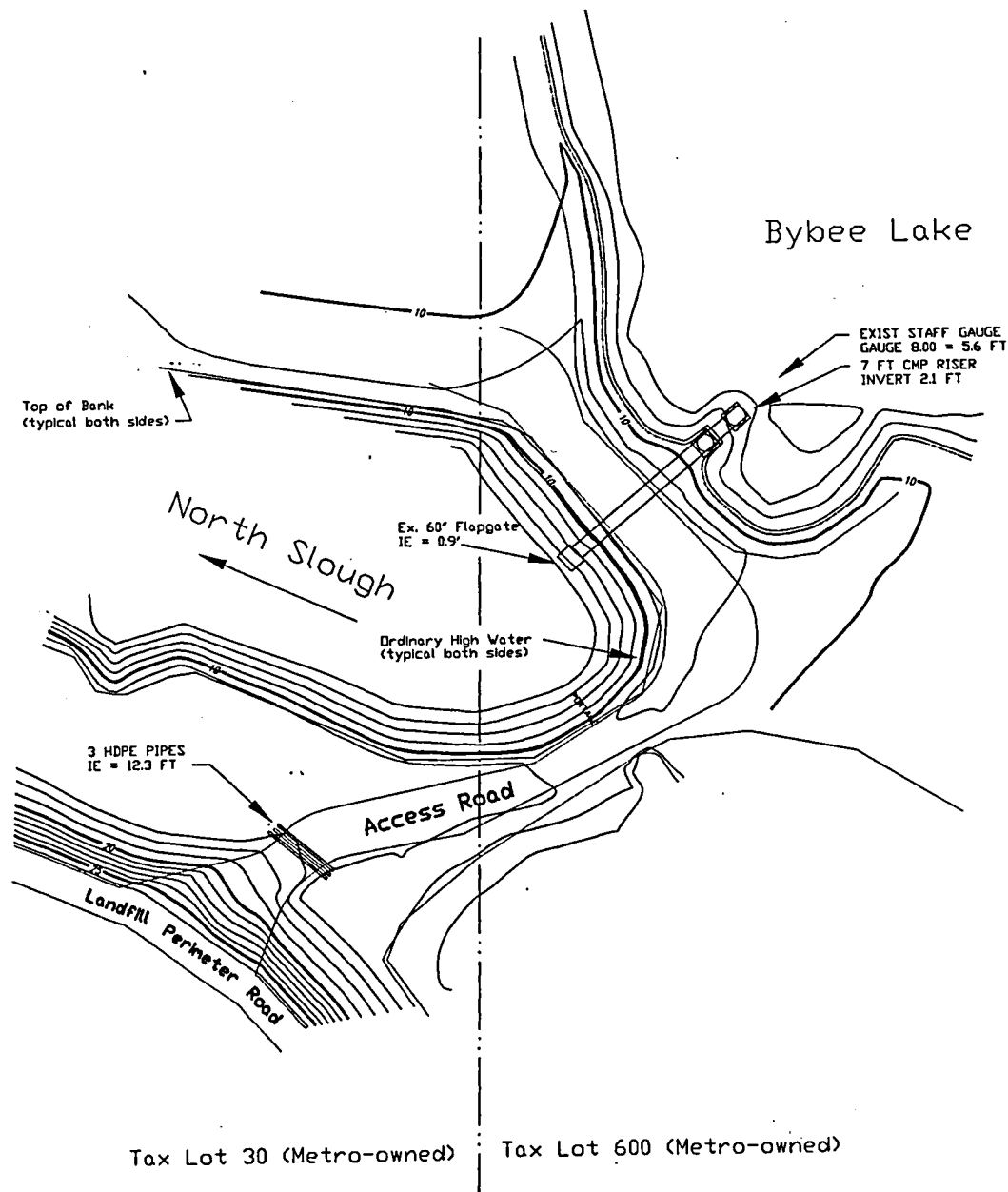
NOTES:

1. Project site is entirely within the EP zone.
2. Project site is entirely within the 100-year floodplain.
3. Contour interval is 2'
4. Distance to nearest non-Metro property line is > 1000'.
5. No trees will be disturbed by this project.
6. There are no known easements or on-site utilities.



SCALE: 1" = 50'

HORIZ SPC OR N NAD83
VERT NGVD29



SMITH AND BYBEE LAKES WILDLIFE AREA

PROPOSED DEVELOPMENT PLAN, MARCH 15, 2002

NOTES:

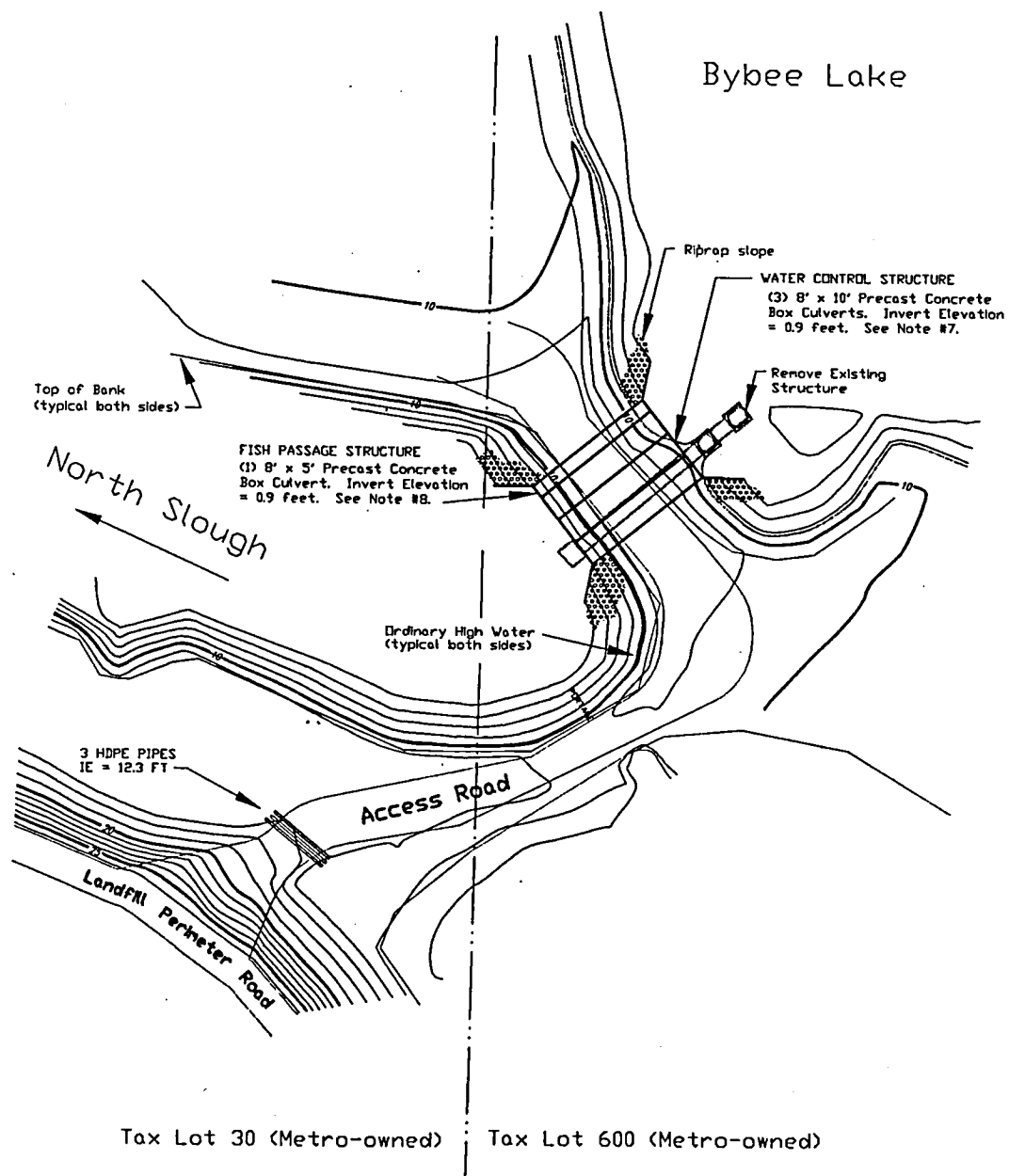
1. Project site is entirely within the EP zone.
2. Project site is entirely within the 100-year floodplain.
3. Contour interval is 2'.
4. Distance to nearest non-Metro property line is > 1000'.
5. No trees will be disturbed by this project.
6. There are no known easements or on-site utilities.
7. The Water Control Structure box culverts shall each be fitted with an assembly for placing wooden stop logs for water level control. The maximum board elevation will be 11.0'.
8. The Fish Passage Structure box culvert shall each be for placing notched wooden stop logs to form a series of descending pools. The maximum board elevation will be 11.0'.



10 5 0 10 20 30 40 50 60 70 80 90 100

SCALE: 1" = 50'

HORIZ SPC OR N NAD83
VERT NGVD29



SMITH AND BYBEE LAKES WILDLIFE AREA CONSTRUCTION MANAGEMENT PLAN, MARCH 15, 2002

NOTES:

Disturbance Area:

1. Staging area (load/off-load equipment) will be off-site, on the adjoining landfill perimeter road.
2. Grading limits are delineated by erosion control fencing, as shown.
3. Limits of disturbance coincide with erosion control fencing, and will be staked and flagged during construction staking.

Excavation Procedures:

4. Excavation area is limited to the structural footprint, plus 'sideslopes for construction safety and access.
5. The limited quantity of topsoil will not be segregated from other spoils and not separately stockpiled.
6. Excavated materials not used to backfill the new structure will be used to restore the access road, or disposed of off-site.
7. Areas outside the access road, erosion fencing, and cofferdams will not be disturbed.

Erosion Control:

8. Erosion control will be comprised of staked sediment fencing, embedded 6," where shown in the site plan.
9. Water control will consist of cofferdamming against inflow from either North Slough or Bybee Lake. Dewatering pumps will discharge to Bybee Lake.

Tree Protection Measures:

10. No trees will be within the delineated work area.

Site Management:

11. All debris will be legally disposed of off-site.
12. No hazardous materials will be used for this project.
13. The Contractor shall provide portable facilities for human waste and litter.

