IN THE CITY COUNCIL OF THE
CITY OF
PORTLAND OREGON

IN THE MATTER OF AN APPLICATION
BY PORTLAND WATER BUREAU FOR A
CONDITIONAL USE
MASTER PLAN AMENDMENT,
ENVIRONMENTAL REVIEW
AND ADJUSTMENTS AT
15800 SE POWELL BLVD

LU 10-169463 CUMS EN AD

FINDINGS AND CONCLUSIONS

ADOPTED BY THE CITY COUNCIL ON
FEBRUARY 16, 2011

APPROVAL WITH CONDITIONS OF A
CONDITIONAL USE MASTER PLAN AMENDMENT,
ENVIRONMENTAL REVIEW AND ADJUSTMENTS

DECISION OF THE CITY COUNCIL ON APPEAL OF PORTLAND WATER BUREAU APPLICATION TO AMEND CONDITIONAL USE MASTER PLAN FOR POWELL BUTTE

FINDINGS AND CONCLUSIONS

Adopted by the City Council on February 16, 2011

I. GENERAL INFORMATION

File No.: LU 10-169463 CUMS EN AD (HO 4100019)

Appellant: East Portland Transportation and Land Use Committee
Linda Bauer, Chair

Applicant: Teresa Elliott, Project Manager
Portland Water Bureau
1120 SW 5th Avenue, Room 600
Portland, OR 97204

Applicant's Representative: Tim Brooks, Main Contact
Winterbrook Planning
310 SW 4th Avenue, #1100
Portland, OR 97204

Hearings Officer: Gregory J. Frank

Bureau of Development Services (BDS) Staff Representatives: Sylvia Cate and Stacey Castleberry

Site Address: 15800 SE Powell Boulevard

Legal Description: BLOCK 5 LOT 1 TL 2300, ANDEREGG MEADOWS; LOT 5&6 TL 3400 SPLIT LEVY R562710 (R42850-0510 & R562741 (R42850-0520), JENNELYND AC; LOT 13 TL 2500, JENNELYND AC; LOT A, JOHNSON CREEK PK; LOT 5-10, SYCAMORE AC; LOT 11&12, SYCAMORE AC; LOT 13-18, SYCAMORE AC; LOT 19, SYCAMORE AC; TL 1100 0.63 ACRES, SECTION 12 1S 2E; TL 700 115.48 ACRES, SECTION 12 1S 2E; TL 100 160.00 ACRES, SECTION 13 1S 2E; TL 400 7.88 ACRES, SECTION 13 1S 2E; TL 300 108.60 ACRES, SECTION 13 1S 2E; TL 200 121.00 ACRES, SECTION 13 1S 2E; TL 400 6.73 ACRES, SECTION 07 1S 3E; TL 500 6.36 ACRES, SECTION 07 1S 3E; TL 6900 11.40 ACRES, SECTION 18 1S 3E; TL 3700 12.41 ACRES SPLIT MAP R340557 (R993180870), SECTION 18 1S 3E; TL 6700 2.67 ACRES SPLIT LEVY R495375 (R428501910), SECTION 18 1S 3E; TL 900 2.85 ACRES, SECTION 18 1S 3E; TL 1700 22.00 ACRES

SPLIT MAP R340528 (R993180520), SECTION 18 1S 3E; TL 1800 0.56 ACRES SPLIT MAP R340558 (R993180880), SECTION 18 1S 3E

Tax Account No.: R025703610, R428500500, R428501850, R431100010, R816600170, R816600400, R816600480, R816600720, R992124320, R992124390, R992130010, R992130040, R992130050, R992130060, R993071210, R993075180, R993180510, R993180520, R993180740, R993180750, R993180870, R993180890

State ID No.: 1S3E18B 02300, 1S3E18B 03400, 1S3E18B 02500, 1S2E13C 00600, 1S2E13D 00500, 1S2E13D 00600, 1S2E13D 00700, 1S2E13D 00800, 1S2E12DA 01100, 1S2E12 00700, 1S2E13 00100, 1S2E13D 00400, 1S2E13 00300, 1S2E13 00200, 1S3E07C 00400, 1S3E07C 00500, 1S3E18BB 06900, 1S3E18C 03700, 1S3E18BB 06700, 1S3E18B 00900, 1S3E18B 01700, 1S3E18B 01800

Quarter Section: 3445, 3446, 3447, 3545, 3546, 3547, 3645, 3646, 3647

Neighborhood: Pleasant Valley

Business District: Midway

District Coalition: East Portland

Plan District: Johnson Creek Basin Plan District – South Subdistrict

Zoning: OS, R10, R2, a, c, p: Open Space, Single Dwelling Residential 10,000, Multi-Dwelling Residential 2,000 with Environmental Conservation, Protection and Alternative Design Density overlay zones

Land Use Review: Type III, Conditional Use Master Plan Amendment and Environmental Review with Adjustments (CUMS EN AD)

Proposal: In 2003, the City approved the Powell Butte Conditional Use Master Plan, which implemented the first 10 years (through 2013) of planned water system improvements and park improvements set forth in the 1996 Powell Butte Master Plan ("1996 Plan").

The Applicant, the Portland Water Bureau ("PWB"), seeks approval of a Conditional Use Master Plan Amendment and Environmental Review, with Adjustments to development standards. This request, if approved, will effectively amend and update the 2003 Powell Butte Conditional Use Master Plan - LUR 00-00414 MS CU EN AD (the "2003 Plan"), and approve construction of water system, park facility, and trail improvements in the area addressed by the Master Plan.

The 2003 Plan approved development, including construction of a new underground water reservoir (Reservoir #2), water system components and park improvements. The current application seeks to amend the 2003 Plan, as specific footprints of various features have been refined via analysis of wetlands, etc., and with input from a sustained public input process.

The main features of the **water system development** currently proposed include: final construction of Reservoir #2, the new underground 50 million gallon water reservoir (site preparation for the 50 million gallon reservoir was approved as 'Stage 1' in LU 09-125820 EN AD);

an emergency overflow pipe that connects to an existing overflow structure located at Johnson Creek; and Conduit 5, a new water pipeline that will connect to Conduits 2, 3 and 4 to supply water to the reservoirs from the Bull Run Watershed.

Stormwater facilities for the reservoir area will be mostly replaced with shallow, meandering swales, one north and northeast of Reservoir #2, and one south of Reservoir #1. Swales will be planted with native vegetation and shaded by deciduous trees. Stormwater flows moving through the vegetated swales will be filtered at the soil/root interface, reducing velocities and allowing sediments to be removed from the runoff before leaving the project site. Revisions to the Stormwater Plan trigger amendments to the 2003 Plan.

Park center improvements will include a new caretaker's residence, a maintenance facility building and storage yard, an interpretive center (with ADA-accessible restrooms), an outdoor teaching amphitheater, reconfigured and paved parking area, revised Trail Master Plan ("Trail Plan"), and the SE 162nd Avenue entry road will be repaved after construction and configured with bike and pedestrian lanes.
Stormwater from the maintenance facility and park center area will flow to a new stormwater detention pond north of the bus parking area to provide quantity and quality control. The 12-inch sewer will be extended and will direct stormwater from the pond to the expanded infiltration area at the base of the Butte. Stormwater runoff from the interpretive center and caretaker's residence will be routed to either soakage trenches or flow-through facilities, depending on conditions found during construction.

This proposal also includes an update to the Trail Plan. The new Trail Plan has been modified to minimize impacts to wildlife, vegetation and potential wetlands, and provide an outdoor recreational experience that is more compatible with the natural qualities of the site. The proposed design resulted from months of collaboration among community groups, park users, City agencies, and project landscape architects and ecologists. These changes also trigger amendments to the 2003 Plan.

The Applicant requests three **Adjustments** to Master Plan Development Standards as follows:

- An Adjustment to allow a wider disturbance area (greater than 40 feet in width) for construction of Conduit 5 pipeline;
- An Adjustment to allow a more effective shrub replanting standard for the Conduit 5 corridor and the open meadow area, which will result in a higher density planting of shrubs than required; and
- An Adjustment to allow a wider tree removal exemption area (greater than 5 feet) in order to construct the new maintenance facility, stormwater detention pond, stormwater line, Conduit 5 and parking areas, all which require an excavation beyond the 5-foot limit on moderate slopes.

The proposal triggers Environmental Review for the new water system components (as approved in the 2003 Plan), as well as the park center facilities and the new trail system, as amended by this Master Plan Amendment. The proposed projects are located in the Environmental zones and must comply with the approval criteria established by the 2003 Plan.

Review Summary

In order to amend the 2003 Plan, to gain approval of the proposed project elements in the Environmental zones, and to Adjust the 2003 Plan development standards, the Applicant requests the following approvals:

1. Type III Conditional Use Master Plan Amendment (CUMS) to reflect revised plans for park center components, stormwater facilities, and the updated Trail Plan;
2. Type II Environmental Review (EN) using existing 2003 Plan criteria to construct the amended Master Plan components (from 1, above) and construct other 2003 Plan components (such as Reservoir #2 and Conduit 5); and
3. Type II Adjustment Review (AD) using Adjustment criteria in Portland City Code ("PCC") Zoning Code section 33.805, as directed by the 2003 Plan) to address needed Adjustments to 2003 Plan development standards.

Approval Criteria:
In order to be approved, this proposal must comply with the approval criteria specified in the PCC Title 33, Zoning Code. The applicable approval criteria are:

- Conditional Use Master Plan 33.820.050 and 33.820.070
- Conditional Use 33.815.100
- Powell Butte Master Plan approval criteria for Environmental Review.
- Adjustments 33.805.040 A-F

PCC Zoning Code section 33.700.080 states that Land Use Review applications are reviewed under the regulations in effect at the time the application was filed, provided that the application is complete at the time of filing, or complete within 180 days. This application was filed on August 24, 2010 and determined to be complete on September 29, 2010.

PROCEDURAL HISTORY

Application Deemed Complete: September 29, 2010

BDS Staff Recommendation to Hearings Officer: Report to Hearings Officer: November 5, 2010. Approval with conditions.

Public Hearing: The hearing was opened at 9:00 a.m. on November 15, 2010, in the 3rd floor hearing room, 1900 SW 4th Avenue, Portland, Oregon, and was closed at 10:47 a.m. The record was held open until 4:30 p.m. on November 23, 2010 for new evidence, and until 4:30 p.m. on December 3, 2010 for Applicant's final rebuttal. The record was closed at that time.

Testified at the Hearing:
Stacey Castleberry, BDS Staff Representative
Sylvia Cate, BDS Staff Representative
Teresa Elliott, City of Portland Water Bureau, 1120 SW 5th Avenue, Room 600, Portland, OR 97204
Tim Brooks, Winterbrook Planning, 310 SW 4th Avenue, #1100, Portland, OR 97204
Ariana Longanecker, personally and on behalf of the Audubon Society of Portland and the Powell Butte Advisory Committee, 2535 SE Salmon Street, Portland, OR 97214
Linda Bauer, personally and on behalf of the East Portland Land Use Transportation Committee, 6232 SE 158th, Portland, OR 97236
Carol Pernar, personally and on behalf of Friends of Powell Butte, 2105 SE 142nd, Portland, OR 97233

The Hearings Officer decision was mailed on December 20, 2010 with a 14-day appeal period ending at 4:30 PM on January 3, 2011.

The East Portland Neighborhood Organization Land Use and Transportation Committee, chaired by Linda Bauer, submitted an appeal of the Hearings Officer's decision at 7:55 AM on January 3, 2011, noting that the committee had voted 4-0 to appeal the decision. The written statement submitted with the appeal indicates that the appellant disagreed with the Hearings Officer's decision on four points:
1] Approval Criterion 33.815.100 C is not met as it pertains to safety;
2] Powell Butte Master Plan Approval Criterion #7 is not met. Appellant asserts that grading, excavating and filling requires environmental review, which was not addressed in the current application;
3] Appellant asserts that the development standard of the Powell Butte Master Plan regarding erosion control is not met, and that the site has 35 violations of Title 10 requirements;
4] Appellant asserts that the development standard of the Powell Butte Master Plan regarding the applicant obtaining all required permits for outfalls discharging to Johnson Creek is not met and that permits from applicable state and federal agencies have not been obtained.

City Council Hearing and Decision: A notice for the public hearing before the Portland City Council was mailed on January 10, 2011 for the February 3, 2011 hearing. The Council opened its hearing on the appeal of this application on February 3, 2011 at 2:00 PM. At that time, Council heard a presentation from the assigned planners to the review, explaining the proposal, the Hearings Officer's decision, and identifying the four issues noted above as the areas of concern for the appellant. The hearing was held 'on-the-record' with testimony confined to the issues already raised in the previous hearing. Council agreed with the arguments of the appellant on two points: that a condition of approval was warranted to ensure the proposal fully meets criterion 33.815.100 C, for safety; and determined that a second condition of approval, offered by the Applicant, to demonstrate that all applicable state and federal permits have been obtained at time of building permit review for the proposed development was appropriate. City Council directed staff to return with revised findings and the two conditions of approval to be adopted on February 16, 2011.

The Council disagreed with the other two points raised by the appellant: the record demonstrates that no Title 10 violation was issued and that the site is in compliance, and that a prior land use review, Case File LU 09-125820 EN AD, reviewed and approved the excavation and grading necessary for Reservoir #2. The record also contains findings for the current Environmental Review which address construction management plans, plus specific grading plans, all of which were approved by the Hearings Officer. The findings and decision below, as modified by City Council, explain the Council's decision to uphold the Hearings Officer's decision with modified findings and conditions of approval.

II. ANALYSIS

Preliminary Matter ("New Development or Modification?")
Ms. Linda Bauer, an opponent of this application, testified at the public hearing and submitted written evidence (Exhibit H.10) asserting that a number of the elements of this application constituted "new" development rather than a modification of the 2003 Plan. Ms. Bauer asserts that since "new development" is proposed, the 2003 Plan review process is not applicable; rather the "new development" aspects of this application must undergo an independent environmental

review. Ms. Bauer asserts that the "new development" aspects of this application were not subjected to the appropriate level of review.

BDS staff responded to Ms. Bauer's "new development" argument (Exhibit H.25). In part, BDS staff, in Exhibit H.25, stated:

> "It appears that a large portion of the written testimony [Exhibit H-10] submitted by Ms Bauer argues that the proposed amendments to the 2003 CU MS constitutes 'new development,' which has not been previously reviewed or approved. Staff disagrees with this assessment. The 2003 Conditional Use Master Plan identified a comprehensive list of projects that were planned for upgrading both the water facilities and the park center on Powell Butte. The 2003 CU MS identified specific projects that were approved under 'Phase 1' and a list of future development that would take place under 'Phase 2'. The current application [LU-169463 CU MS EN AD] amends the existing approval of the 2003 CU MS by providing specific and detailed modifications of previously approved projects. An excellent example of this is the relocation of the proposed caretaker's residence which is amended in this application in order to avoid a natural drainageway that was identified through additional site analysis and study since 2003. This *is not new development*, but simply a refinement to development already approved under the 2003 CU MS.
>
> Table 4 in Exhibit A-1 identifies each project that is being amended through the current application, with narrative describing the reasons for change as compared to the original approval and includes a summary analysis of the comparative impacts of the request amendments versus the original approval.
> Ms. Bauer contends that the Park Center components, the Trail System and the Stormwater Management system proposed are all 'new development' and therefore have not received appropriate and adequate review, because they have not been previously approved, and they have not been reviewed under specific approval criteria in Title 33.
>
> However, staff maintains that the proposed amendments are to prior approved projects. These amendments consist of refinements with more specific and detailed configurations of what has been approved previously.
>
> In addition, the Portland zoning code, at 33.820.070 K allows Master Plan specific amendments and procedures as follows:
>
> > ***Review procedures.*** *The master plan must state the procedures for review of possible future uses if the plan does not contain adequate details for those uses to be allowed without a conditional use review.*
>
> The approved 2003 CU MS includes an extensive framework of procedures, development standards and approval criteria for future reviews of projects 'allowed' by the approved Master Plan. A separate memo from Stacey Castleberry, Senior Planner, describes how the amendments to the CU MS have been reviewed under the applicable Environmental review framework as allowed by the 2003 CU MS.
>
> **Conduit 5**
> Ms. Bauer asserts that Conduit 5 is 'new development' and that it is also subject to 33.815.230, *Rail Lines and Utility Corridors.* Please note that the Conduit 5 project and the corridor within which it will be developed were previously reviewed as part of the 2003 CU MS, on pages 26-27. This does not need to be revisited in the amended CU MS as it was prior approved and the only aspect of this project that is being amended is the width of the disturbance area for developing Conduit 5, which has been reviewed under the current

application. Conduit 5 does extend across the OS zone to the new reservoirs, so a portion of it does in fact lie within the OS zone. However, Conduit 5 has been previously reviewed, and the only amendment applicable to Conduit 5 is the request to allow a wider disturbance area than originally approved under the 2003 CU MS. The width of the disturbance area for Conduit 5 was a CU MS specific development standard, which can be, and was, adjusted as part of the concurrent Environmental and Adjustment review in the current application."

Ms. Castleberry, BDS Senior Planner, submitted additional comments regarding Ms. Bauer's "new development" argument (Exhibit H.21). The Hearings Officer adopts Ms. Castleberry's comments in Exhibit H.21 as additional findings related to Ms. Bauer's "new development" argument. Ms. Castleberry stated, in part, the following:

"To summarize the direction provided in the 2003 Master Plan, numerous water facility, park center, stormwater, utility and trails projects were identified as 'allowed' by the Master Plan. Nonetheless, the Master Plan requires that, as development are requested for these projects, they must first undergo Type II (environmental) review –using the approval criteria specified in the Master Plan (Table 3-D1); not those provided in Zoning Code Chapter 33.430.

The Master Plan also listed development standards (2003 Powell Butte Master Plan Table 3E-1) for the projects 'allowed' by the plan. In the preamble to the list of development standards, the Master Plan specifies that if 'allowed' development is proposed that does not meet the standards, it can be approved if it is reviewed and approved through an Adjustment Review per Zoning Code Chapter 33.805. A Master Plan Amendment is not required to Adjust these development standards."

Finally, Mr. Robert Haley, Portland Bureau of Transportation ("PBOT") staff, submitted additional comments, during the open record period, related to Ms. Bauer's 'new development' argument (Exhibit H.20). Mr. Haley, in Exhibit H.20 stated, in part, the following:

"The size and uses associated with each structure (referencing Info/Restroom, Kiosk, Caretaker residence, and Maintenance Barn) were approved and analyzed in the original Lancaster Engineer traffic impact statement in 2003. While the buildings may be considered new construction in that they do not currently exist, they are not new development subject to an additional traffic analyses for this CUMP amendment. Their impacts were fully studied and the 2003 CUMP found that the transportation system was capable of safely serving the proposed uses in addition to the existing uses in the area. The only transportation related changes in the amendment is the reconfiguration of the parking lot to provide additional passenger vehicle spaces and reduced bus/horse trailer spaces based on actual needs of park visitors. It is the park that generates vehicle trips, not accessory on-site parking spaces. The only type of parking spaces that generate additional vehicle trips are those generally associated with commercial parking lots where the on-site parking is the primary use....As stated earlier, there is no 'new development' in the proposed amendment that would trigger this street connectivity requirement." *Hearing Officer note: the parenthetical reference in lines 1 and 2 of this quote were added by the Hearings Officer and not part of the quoted material from Exhibit H.20.*

The Hearings Officer, having reviewed Ms. Bauer's 'new development' argument and the responses from Ms. Cate, Ms. Castleberry and Mr. Haley, as referenced above, finds that BDS processed this application (as a modification) appropriately and Ms. Bauer's 'new development' argument is not persuasive.

Site and Vicinity: Powell Butte Nature Park is a 640-acre park in southeast Portland. It is generally located between SE Powell Boulevard and SE Foster Road, and between roughly SE 143rd and 163rd Avenues (Exhibit C.1; Applicant's Figure 1). Powell Butte is primarily owned by the PWB, which currently maintains one underground reservoir, two small partially buried tanks and one above-ground tank, as well as associated pipelines for potable water supply, discharge and surface drainage infrastructure on Powell Butte. City of Portland Parks and Recreation ("PPR") manages the Powell Butte Nature Park for PWB, which includes an extensive system of trails, viewpoints and open space. In addition, the park is developed with a dwelling unit for the grounds caretaker, informational kiosks, a combined restroom and storage building, a 39-car gravel parking lot, and a parking lot for buses and trailers. Forested side slopes rising about 400 feet above the surrounding terrain make the Powell Butte a dominant visual element in the region.

Most of Powell Butte is undeveloped and relatively undisturbed. The steep side slopes are forested with a mix of deciduous and evergreen forest. A large portion of Powell Butte consists of open grassy meadow and an abandoned orchard. The existing underground Reservoir #1 is located in the meadow north of the summit. Existing park facilities are located east of this reservoir (Exhibit C.2, Applicant's Figure 2).

The summit of Powell Butte consists of open grassy meadow and an abandoned orchard. The meadow in the northwest corner of the Butte summit has been substantially overrun by invasive non-native Hawthorn trees and Himalayan blackberries. Powell Butte is surrounded largely by residential development on a variety of lot sizes. Most surrounding lots are developed to the extent permitted by zoning or are constrained by natural features, access limits or other conditions. The Springwater Corridor and Johnson Creek are located south of Powell Butte.

The Applicant submitted an extensive description and analysis of the site, and the following information, providing background information for this Land Use Review:

> "Geology: Powell Butte is one of three extinct Plio-Pleistocene cinder cone volcanoes that form the Boring/East Buttes Lava Domes. The Boring Lava field includes at least 32 and up to 50 cinder cone and small shield volcanoes. The Butte is composed almost entirely of gravels of the Troutdale Formation, except in the northwest. In the northwest part of the Butte, a younger volcanic vent produced lava and related ash, contemporary with the Boring Lava. The surrounding valley floor is composed of gravels and mudflows of the Gresham Formation and of younger lacustrine deposits.
>
> The alluvial fan surface was probably the prevailing elevation in the area at the time. When the Boring volcanic eruptions occurred, the hydrothermal activity would have cemented the fine silts within the gravels to produce a very low hydraulic connectivity. This capping and cementation probably helped protect Powell Butte from subsequent erosion. It also created areas of little or slow permeability, known as aquitards, which were conducive to wetland formation where water percolation was sufficiently restricted to alter vegetation communities and soil chemistry.
>
> Powell Butte consists mostly of gravels with Cascade Range volcanic origins, similar to other Boring lava-capped buttes in the Portland area. An andesitic basalt flow (of the Boring series), over 780,000 years old, covers the northwest corner of the Butte. However, most of the Butte's upper elevations likely reflect a depositional environment of even older origins. These rounded gravels were washed down from the ancestral Cascade Range to the east, forming alluvial fans with the prevailing, mostly westerly stream flows forming low topographic ridges and depressions.

Topography/Slopes: The upper (central) area of Powell Butte has rolling terrain, with steep slopes on all sides. Ground elevations within the study area range between approximately 200 feet (NGVD) at the base of the Butte to the northwest, and 630 feet near the historic orchard in the center of the Butte. The total elevation gain is roughly 430 feet. Approximately 40 percent of the site has slopes of 15 percent or greater. The steepest slopes are concentrated on the north, west and southern boundaries of the Butte.

Hydrology and Soils: Based on historic well logs along the lower slopes of Powell Butte, as well as visible patterns of seepage at different elevations, relatively little precipitation infiltrates the cemented gravels that underlie most of the Butte. Water appears to be temporarily stored within the layers of loess above the cemented gravel, moving laterally over the gravel aquitard to seep out onto the upper side slopes of the Butte. This groundwater flow is further affected by fragipan layers occasionally found at shallow depths in the soil profile. Fragipans are weakly cemented silt layers that also slow the movement of rainwater downward through the topsoil, contributing to the lateral movement of shallow groundwater and surface water during wetter periods of the rainy season.

Surface Water Features: Powell Butte lies within the Johnson Creek Watershed, a significant tributary to the lower reach of the Willamette River. Drainageways and wet areas are concentrated mainly in the southern-half of the Butte. There are 22 wetland areas, some of which are associated with drainageways. The combined area of wetlands is 14.33 acres; they vary in size from 0.03 to 5.83 acres. They are hydrated primarily by surface run-off and lateral subsurface flows that combine to create a high water table following fall and winter rains. The shallow fragipan soils hold water near the surface during wetter periods. The lower edges of these areas are often defined by deeper soils allowing improved infiltration, steeper slopes allowing for faster run-off, or both. Many of the potential wetlands exist in swales that convey subsurface or occasional stormwater flows beyond the lower wetland boundary.

Vegetation: The vegetation at Powell Butte falls into two primary categories. Approximately half of the site is a conifer-dominated forest, located mostly around the perimeter. The other half is open meadow (pasture) with a history of disturbance, and is currently dominated by non-native grasses, including tall fescue (*Festuca arundinacea*), bentgrass (*Agrostis* spp.), orchardgrass (*Dactylis glomerata*), and sweet vernal grass (*Anthoxanthum odoratum*). Common weedy forbs include ox-eye daisy (*Chrysanthemum leucanthemum*), Canada thistle (*Cirsium arvense*), and Saint John's wort (*Hypericum perforatum*).

The forest is dominated by Douglas-fir (*Pseudotsuga menziesii*), but often contains significant quantities of big leaf maple (*Acer macrophyllum*) as well. Some stands appear to be from 100 to 120 years old or even older, although much younger stands (50 to 60 years) are also present. Shrub cover is usually moderately dense with a variety of species, and sword fern (*Polystichum munitum*) is typically dense in the herb layer. Drainageways, moist aspects, and wetter areas typically have western red cedar (*Thuja plicata*), which is often mixed with red alder (*Alnus rubra*) on the upper end. The edges of the forest typically have an assortment of deciduous trees and shrubs that include red alder, big leaf maple, cascara (*Rhamnus purshiana*), California hazel (*Corylus cornuta* var. *californica*), and sweet cherry (*Prunus avium*).

A small orchard is located in the meadow area near the peak of Powell Butte and the existing mountain-view finder. The orchard consists of walnut, pear and apple trees, and was used for grazing for many years.

In recent years, PPR has conducted extensive exotic species control efforts on the Butte. A significant portion of the upper meadow was invaded in recent decades by English hawthorn

(*Crataegus monogyna*) and Himalayan blackberry (*Rubus armenicus*), as cattle grazing was gradually curtailed. Most of the area previously dominated by these plants has been treated within the last five years. Treatment has included cutting, herbicide application, and burning. Seedlings and re-sprouting saplings of both species are frequently scattered within the meadows and along the edge of the forested areas.

In 2007-2008, the PPR led a FEMA-funded study to explore options for managing Powell Butte vegetation to keep fire risk low while enhancing ecological values. Through this study, they developed a Desired Future Condition, or DFC, to describe how natural and human influenced change to ecological communities should play out over time. The DFC establishes a layered vegetation pattern - grassland bordered by open oak woodland/savanna, in turn bordered by deciduous woodland, leading to a mature mixed conifer forest – that is intended to improve habitat and reduce fire hazards.

Wildlife: The combination of a large upland meadow, forest and riparian/wetland habitat is rare in the Portland metropolitan area. Because there are few large elevated open meadows still intact in the Portland area, the meadow range on Powell Butte provides important habitat for small mammals and important nesting ground for birds, such as meadowlarks and sparrows. Birds of prey such as hawks, falcons and owls can also be found in the open meadow and use the forested areas for nesting. Pileated woodpeckers (*Dryocopus pileatus*) make use of the mature forest areas as well.

The Nature Park also provides important wildlife habitat for a diversity of mammal and amphibian species. For example, the park is home to rabbits, ring-necked pheasants, ground squirrels, raccoons, gray foxes, skunks, bats, owls, chipmunks, coyotes, and black-tailed deer. The park also hosts a pond that over the years, has become home to several species of amphibian including long-toed salamander (*Ambystoma macrodactylum*), northwestern salamander (*Ambystoma gracile*), and northern red-legged frog (*Rana aurora* var. *aurora*), a state listed sensitive species. Red-legged frogs require ponds with emergent vegetation and nearby forest habitats for survival, and have come to depend on this small pond located in the south central area of the Butte, in proximity to the Pioneer Orchard Trail.

The Powell Butte Nature Park includes relatively few structures and is designed to provide passive recreational users with basic needs such as parking, restrooms and trails.

The majority of park users access the park via the main entry road located off of 162nd Avenue and Powell Boulevard. The main vehicle entry road is two-way and paved to a 24-foot width. Near the parking lots, the paving ends and the road transitions to a gravel surface widening into a parking area, which acts as the gateway to the park center. Other non-vehicle access points include the Conduit 5 right-of-way, Springwater Corridor, Ellis and Raymond Streets, Holgate Boulevard, 148th Avenue, and 158th Avenue."

Zoning: The Subject Site is zoned OS (open space), R10 (low density residential), and R2 (multi dwelling residential) base zones with c (environmental conservation), p (environmental protection) and a (alternative design density) overlay zones.

The Open Space base zone is intended to preserve public and private open and natural areas to provide opportunities for outdoor recreation and a contrast to the built environment, preserve scenic qualities and the capacity and water quality of the stormwater drainage system, and to protect sensitive or fragile environmental areas. Basic Utilities and parks parking areas are Conditional Uses in the Open Space base zone. The purpose of this Land Use Review is to ensure that the Zoning Code requirements for Conditional Uses are met by this proposal.

The R10 designation is one of the City's single-dwelling zones which is intended to preserve land for housing and to promote housing opportunities for individual households. The zone implements the Comprehensive Plan policies and designations for single-dwelling housing. Basic Utilities and parks parking areas are Conditional Uses in the Residential 10,000 base zone. The purpose of this Land Use Review is to ensure that the Zoning Code requirements for Conditional Uses are met by this proposal.

The R2 designation is one of the City's multi-dwelling zones that are intended to create and maintain higher density residential neighborhoods. The zone implements the Comprehensive Plan policies and designations for multi-dwelling housing. Basic Utilities and parks parking areas are Conditional Uses in the multi-dwelling residential base zones. The purpose of this Land Use Review is to ensure that the Zoning Code requirements for conditional uses are met by this proposal.

Environmental overlay zones protect environmental resources and functional values that have been identified by the City as providing benefits to the public. The environmental regulations encourage flexibility and innovation in site planning and provide for development that is carefully designed to be sensitive to the site's protected resources. They protect the most important environmental features and resources while allowing environmentally sensitive urban development where resources are less sensitive. The purpose of this Land Use Review is to ensure compliance with the regulations of the Environmental zones as presented in the approval criteria specified in the 2003 Plan.

The City's Scenic Resources Protection Plan maps 6 specific Scenic Viewpoints on the site, identified as Viewpoint 34-08. The 2003 Plan limits development on the site in order to protect views from these points. The purpose of this Land Use Review is to demonstrate compliance with the Powell Butte approval criteria that protect views from scenic viewpoints on Powell Butte.

The "a" overlay is intended to allow increased density that meets design compatibility requirements. It focuses development on vacant sites, preserves existing housing stock, and encourages new development that is compatible with the surrounding residential neighborhood. This proposal is not using any of the provisions of the "a" overlay.

Environmental Resources: The application of the Environmental overlay zones is based on detailed studies that have been carried out in separate areas throughout the City. Environmental resources and functional values present in Environmental zones are described in environmental inventory reports for these study areas.

The Subject Site is mapped within the *Johnson Creek Basin Protection Plan* as Resource Site # 29. Resources and functional values of concern on the project site, as identified by the Plan, include water, storm drainage, aesthetics, scenic, pollution and nutrient retention and removal, sediment trapping, recreation, education, and heritage. The Subject Site description includes the following recommendations for managing natural resources at Powell Butte:

> "The *Johnson Creed Basin Protection Plan* offers management recommendations for Site #29, including, "Retain the variety of habitat, including the meadow and wetlands. Protect the forested perimeter. Develop Powell park area to take advantage of its natural attributes. As a condition of any future water reservoir expansion, require an alternative or modified practice of water release that is compatible with the goals and objectives of the *Johnson Creek Basin Protection Plan.*"

Land Use History: There have been a number of quasi-judicial land use reviews on the site:

- **CU 95-73:** Conditional Use Request for water storage area on Powell Butte.
- **CU 29-77:** CU request to construct one 50 million or two 25 million gallon storage reservoirs with a future expansion to a capacity of 200 million gallons.
- **CU 15-89:** Approval of a Conditional Use in order to establish a Powell Butte Nature Park generally in accordance with the proposed Powell Butte Master Plan.
- **LUR 93-00471 PU SU EN AD:** Approved 66-lot Subdivision.
- **LUR 94-00204 PUD EN:** Approved 81-lot PUD.
- **LUR 94-00269 PU EN:** Approved minor amendment to LUR 93-00471.
- **LUR 94-00696 PU SU EN:** Approved 2-lot partition.
- **LUR 94-00705 EN:** Controlled burn of open meadow portions of Powell Butte Nature Park.
- **LUR 99-00907 ZC:** Approved map error correction.
- **LUR 00-00275:** Construction of water pumping station, disinfectant tank and emergency overflow detention facility (on land adjacent to Center Street).
- **LUR 00-00414 CU MS EN EV AD:** City Council approval with conditions of a Conditional Use Master Plan for Powell Butte Park and surrounding area; Environmental Review for development and activities included in the Powell Butte Master Plan; Environmental Review for vegetation removal and ground disturbance violations within an Environmental Zone; and Adjustment to PCC 33.535.205.A to allow removal of trees greater than six inches in diameter, limited to species listed as Nuisance Plants or Prohibited Plants on the Portland Plant List, hawthorn trees, and trees shown in the Master Plan as being removed for construction of water supply facilities as approved through this Master Plan. This document, in this decision, is referred to as the "2003 Plan."
- **LU 05-136340 EN:** Portland Bureau of Water Works proposes to construct two existing storm water outfalls that are under access roads within the Powell Butte Nature Park to remedy existing erosive conditions and mitigate future erosion during normal rain events. Case was withdrawn by the applicant on April 6, 2006.
- **LU 06-166575 EN:** Approval of an Environmental Review for a small equipment shed with eco-roof.
- **LU 07-112412 CUMS EN AD:** Approval of a Master Plan Boundary expansion for either: 3.02 acres (Option 1); or 0.58 acres (Option 2). Approval of an Environmental Review to upgrade the existing trail at the main access to the park (6-foot wide crushed rock surface; 2,200-foot long trail; one section of a low rock wall); To reconstruct the entryway to an existing Portland Water Bureau service road (140-foot long section of the 15-foot wide gravel road will be replaced with pervious block pavers); and to improve the roadside drainage system along an existing service road (remove culverts, install a new stormwater pipe, and install a new stormwater swale); Approval of an Adjustment Review to PCC Section 33.537.140.C to remove three trees.
- **LU 09-125820 EN AD:** Approval of an Environmental Review for: Preliminary reservoir excavation for Reservoir #2, along with temporary soil stockpiling, temporary stormwater collection, treatment and disposal; relocation of the Goldfinch Trail to move the trail out of the reservoir construction area; widening of the main park entry road; construction of haul roads to provide construction access; removal of 119 native trees; removal of 8 acres of invasive hawthorn and Himalayan blackberry; and approval of two Adjustments for: removal of 47 native trees greater than 6 inches in diameter and farther than 10 feet from proposed structures or 5 feet from proposed paved areas; and replacing 91 conifer trees with Oregon white oak, and other species of trees.

Agency Review: A "Request for Response" was mailed October 7, 2010. The following bureaus responded to BDS staff with no issues or concerns (Exhibits E.1 through E.8):

- Water Bureau: had no objections and had no conditions of approval to recommend.

- Fire Bureau: had no concerns and noted that a successful Fire Code appeal approved the proposed location of fire hydrants and that fire sprinkler protection will be installed in the caretaker's residence.
- Bureau of Parks-Forestry Division: had no concerns regarding the proposal.
- Bureau of Environmental Services (BES) responded with no objections. Additional comments from BES are incorporated below, in the findings of this decision.
- Bureau of Transportation Engineering responded with no objections, but recommended a condition of approval to ensure that an adequate number of parking spaces are provided on-site for different park users.
- Site Development Section of BDS responded with comments noting no objection to the proposed treatment and off-site discharge of stormwater, with verification by BES that the requirements of the Stormwater Management Manual would be met. Site Development also noted that the proposed minor improvements to the outfall structure at Johnson Creek are within the 100-year floodplain, but comply with PCC 24.50. Comments also noted the requirement for special inspections by a geotechnical engineer during grading and construction.
- Life Safety Section of BDS responded that separate building permits will be required for the proposed structures.

Neighborhood Review: A Notice of Proposal in Your Neighborhood was mailed on October 21, 2010. Twenty-eight email messages were received from Ms. Bauer in reference to this Land Use Review application (see Exhibit F.1). Several of the messages are duplicated in this Exhibit. Subject matter in the emailed messages included:

- Technical questions pertaining to proposed design of stormwater management facilities;
- NOAA documentation of flooding by Johnson Creek; 30 pages of detailed descriptions of air quality, noise, water resources, geology, soils, flood plain, wetlands, vegetation, habitats, fish, wildlife, land use, cultural resources, recreation, human health and safety, traffic, and socioeconomic conditions for specified Portland watersheds, and from an unidentified source; non-sequitur budget analysis referencing PCC 33.258.070 D.2; — BDS noted that no questions or comments about this Land Use Review were included in this message;
- Reference to Tree Protection Plan from LU 09-125820, Exhibit C.5 and allegations of violation of Tree Protection Plan;
- Graphic illustration of the "cost of flooding" from National Flood Insurance— BDS noted that no questions or comments were included to respond to;
- Copy of Conditions of Approval B.2 through C.11 from LU 09-125820 EN AD, with attached e-mailed inquiries to the Commissioner's office regarding the status of Conditions C.1 and C.5.

PWB provided detailed responses to the issues raised by Ms. Bauer (Exhibits A.7 – A.28). These discussions are noted below, where they specifically pertain to the approval criteria. Additional testimony and written evidence was offered at the public hearing and written evidence and argument was submitted by various persons during the open record period.

ZONING CODE APPROVAL CRITERIA

I. Conditional Use Master Plan Amendment

33.820.010 Purpose

A Conditional Use Master Plan is a plan for the future development of a use that is subject to the Conditional Use regulations. Expansions of the use may have impacts on surrounding neighborhoods and on public services that are better addressed through the review of the Master Plan than through reviewing the expansions individually over time. In addition, by creating long term plans, some impacts may be prevented that would have occurred with uncoordinated piecemeal expansions. The development of a Master Plan is intended to provide the surrounding

neighborhoods and the City with information about, and an opportunity to comment on plans for the use in future development. The Master Plan also enables the operator of the use and the City to address the effects of the future development. Finally, an approved Master Plan is intended to ensure that the use will be allowed to develop in a manner consistent with the Plan. Master Plans may be completed at various levels of detail. Generally, the more specific the Plan, the less review that will be required as the future uses and development are built.

33.820.050 Approval Criteria
Requests for Conditional Use Master Plans will be approved if the review body finds that the applicant has shown that all of the following approval criteria are met:

A. The Master Plan contains the components required by 33.820.070;

Findings: The Master Plan includes discussion of the boundaries of the Subject Site, a description of the present uses and functions, a site plan, a discussion of development standards, a discussion related to phasing, information related to projected traffic and parking impacts, a section requesting adjustments, and an overview discussion of review procedures, as required by PCC 33.820.070. This criterion is met.

B. The proposed uses and possible future uses in the Master Plan comply with the applicable Conditional Use approval criteria; and

Findings: Compliance with the applicable Conditional Use approval criteria is addressed in the findings below in this decision. Based on these findings, and with recommended conditions of approval, all of the proposed amendments to the Master Plan are in compliance with all applicable Conditional Use approval criteria. Therefore, this criterion is met.

C. The proposed uses and possible future uses will be able to comply with the applicable requirements of this Title, except where adjustments are being approved as part of the Master Plan.

Findings: The proposed amendments to the 2003 Plan include uses and identified future uses that are anticipated to meet all of the requirements of Title 33, including all development standards with the exception of three specific 2003 Plan Development Standards, which are applicable to development on Powell Butte and included in the 2003 Plan approval. The 2003 Plan also provides for review procedures, and specifically notes that Adjustments to the Powell Butte Master Plan Development Standards are allowed, and subject to the criteria of PCC 33.805.040 A-F.

The specific development proposed under this Conditional Use Master Plan Amendment will meet all of the applicable development standards of Title 33, and with approval of the three requested Adjustments as detailed below in this decision, all of the proposed uses and possible future uses are expected to comply with all applicable regulations of Title 33, and the Powell Butte Development Standards embodied in the 2003 Master Plan as Adjusted.

Therefore, this criterion is met.

33.820.060 Duration of the Master Plan
The Master Plan must include proposed uses and possible future uses that might be proposed for at least three years and up to ten years. An approved Master Plan remains in effect until development allowed by the Plan has been completed or the Plan is amended or superseded.

Findings: PWB proposes to amend and update the existing approved Master Plan, and proposes park improvements and development that would take place over the next five years, and requests that the amended Master Plan be extended until 2015.

BDS staff recommended, in Exhibit H.2, that the duration of the amended Master Plan extend *at least* the requested five years from the date of the final decision of this Land Use Review, or until the approved Master Plan is superseded by a request to further amend and update the Master Plan, or until all proposed development approved under this amendment is completed, within a maximum of ten years from the date of the final decision. The Hearings Officer found BDS staff's recommendation to be reasonable and appropriate and no objection was expressed by Applicant.

33.820.070 Components of a Master Plan
The applicant must submit a Master Plan with all of the following components. The review body may modify the proposal, especially those portions dealing with development standards and review procedures. The greater the level of detail in the Plan, the less need for extensive reviews of subsequent phases. Conversely, the more general the details, the greater the level of review that will be required for subsequent phases.

A. Boundaries of the use. The Master Plan must show the current boundaries and possible future boundaries of the use for the duration of the Master Plan.

Findings: The Conditional Use Master Plan boundary for the Subject Site is shown graphically in Figure 1.0, *Vicinity Map.* There are no proposed boundary changes or discussion of any possible future boundary changes included in this application. PWB notes that there are no changes proposed to the Master Plan boundary [page 43, Exhibit A.1, Application Narrative]. This required component is included in the Master Plan submittal and therefore, this criterion is met.

B. General statement. The Master Plan must include a narrative that addresses the following items:

1. A description in general terms of the use's expansion plans for the duration of the Master Plan;

Findings: PWB proposes to amend components of the existing 2003 Plan. No substantial changes to the 2003 Plan development standards, criteria or review procedures are requested.

The current application includes extensive narrative identifying the amendments that would amend and/or change the prior approved projects in the 2003 Plan. PWB's narrative begins on page 32 of Exhibit A.1, Application Narrative, and includes Table 4, which summarizes the proposed Master Plan Amendments and compares the revised project components with the approval under the existing Master Plan. Table 4 includes the reasons for the proposed changes and describes the comparative impacts, as well as lists the applicable figures/site plans for each project. There are four broad categories of amendments that are requested: revisions to the park center components and features; the trail system throughout the Butte, the stormwater management system, and Condition O of the 2003 CU Master Plan.

Table 4 is found on pages 33-42 of Exhibit A.1. Most of the requested amendments consist of refinements to footprint locations of various projects, for reasons ranging from better building orientation to the scenic vistas available from Powell Butte, to the relocation of buildings and portions of trails to avoid impacts on wetlands, drainageways and other sensitive areas within the 2003 Plan, and to further reduce disturbance areas within the Environmental zones. This required component is included in the current application submittal and therefore, this criterion is met.

2. An explanation of how the proposed uses and possible future uses comply with the Conditional Use approval criteria; and

   Findings: PWB discusses how the proposed amendments are consistent with the overall intent of the 2003 Plan, and continues to meet the applicable Conditional Use approval criteria. This specific portion of narrative begins on page 43 of Exhibit A.1, and concludes on page 52. This required component is included in the Master Plan submittal and therefore, this criterion is met.

3. An explanation of how the use will limit impacts on any adjacent residentially zoned areas. The impacts of the removal of housing units must also be addressed.

   Findings: The application narrative addresses anticipated impacts of the overall proposed development, throughout the narrative. The bulk of impacts appear to be limited to environmentally-zoned lands. Given the scale of Powell Butte and the specific area where development is proposed, the amendments are not anticipated to have any adverse impacts on residential properties. Residentially-zoned lands are physically distant and separated from the proposed water facilities and park center improvements. Further, the residentially-zoned lands are buffered and screened by significant topography and vegetation. No housing units are proposed to be removed from any residentially-zoned lands. PWB's narrative addresses these topics on pages 49-51 of Exhibit A.1. This required component is included in the Master Plan submittal and therefore, this criterion is met.

C. Uses and functions. The Master Plan must include a description of present uses, affiliated uses, proposed uses, and possible future uses. The description must include information as to the general amount and type of functions of the use such as office, classroom, recreation area, housing, etc. The likely hours of operation, and such things as the approximate number of members, employees, visitors, special events must be included. Other uses within the Master Plan boundary but not part of the Conditional Use must be shown.

Findings: There are no proposed changes of uses or functions from the existing 2003 Plan. Descriptions of hours, types of functions within the renovated park center, are described in detail in the application narrative. These are fully described in Section I of the application narrative and also summarized in Table 6, which begins on page 54 of the application narrative. This required component is included in the Master Plan submittal and therefore, this criterion is met.

D. Site plan. The Master Plan must include a site plan, showing to the appropriate level of detail, buildings and other structures, the pedestrian, bicycle, and vehicle circulation system, vehicle and bicycle parking areas, open areas, and other required items. This information must cover the following:

1. All existing improvements that will remain after development of the proposed use;

2. All improvements planned in conjunction with the proposed use; and

3. Conceptual plans for possible future uses.

4. Pedestrian, bicycle, and transit facilities including pedestrian and bicycle circulation between:
   a. Major buildings, activity areas, and transit stops within the Master Plan boundaries and adjacent streets and adjacent transit stops; and
   b. Adjacent developments and the proposed development.

Findings: PWB submitted an extensively detailed set of site plans [see Exhibits C.1 through C.95] that include all of the above required elements, in sufficient detail. This required component is included in the Master Plan submittal and therefore, this criterion is met.

E. Development standards. The Master Plan may propose standards that will control development of the possible future uses that are in addition to or substitute for the base zone requirements and the requirements of Chapters 32.32 and 32.34 of the Sign Code. These may be such things as height limits, setbacks, FAR limits, landscaping requirements, parking requirements, sign programs, view corridors, or facade treatments. Standards more liberal than those of the code require adjustments.

Findings: The 2003 Plan established specific development standards for development within the Subject Site. These development standards are included as an addendum to the application, and have been updated, where appropriate, to integrate with amendments to Title 33, Zoning Code regulations that have occurred since the original approval in 2003 Plan. There are no changes proposed. This required component is included in the Master Plan submittal and therefore, this criterion is met.

F. Phasing of development. The Master Plan must include the proposed development phases, probable sequence for proposed developments, estimated dates, and interim uses of property awaiting development. In addition the plan should address any proposed temporary uses or locations of uses during construction periods.

Findings: The current application seeks amendment of the existing 2003 Plan and approval of 'Stage 2' of the development outlined conceptually in the 2003 Plan. Stage 2 will complete the improvements to the water storage and delivery infrastructure, as well as improvements to the Powell Butte Nature Park, which includes new structures, trail realignments, resource enhancements and related work. The proposed work for Stage 2 includes refining and amending previous identified locations of building footprints, trail alignments, etc., to reduce or avoid disturbance areas and related impacts. No additional work beyond this Stage 2 is proposed or contemplated at this time. This required component is included in the Master Plan submittal and therefore, this criterion is met.

G. Transportation and parking. The Master Plan must include information on the following items for each phase.

1. Projected transportation impacts. These include the expected number of trips (peak, events, and daily), an analysis of the impact of those trips on the adjacent street

system, and proposed mitigation measures to limit any projected negative impacts. Mitigation measures may include improvements to the street system or specific programs and strategies to reduce traffic impacts such as encouraging the use of public transit, carpools, vanpools, and other alternatives to single occupant vehicles.

2. Projected parking impacts. These include projected peak parking demand, an analysis of this demand compared to proposed on-site and off-site supply, potential impacts to the on-street parking system and adjacent land uses, and mitigation measures.

   Findings: Appendix D of Exhibit A.1, Narrative, contains the results of the Powell Butte Park Parking Analysis and provides updated results to the 1999 traffic study performed by Lancaster Engineering for the Powell Butte Conditional Use Master Plan approved in 2003. This required component, information about transportation and parking, is included in the Master Plan submittal and therefore, this criterion is met.

H. Street vacations. The Master Plan must show any street vacations being requested in conjunction with the proposed use and any possible street vacations that might be requested in conjunction with future development. (Street vacations are under the jurisdiction of the City Engineer. Approval of the Master Plan does not prejudice City action on the actual street vacation request.)

Findings: There are no street vacations proposed or contemplated in the Conditional Use Master Plan. A statement verifying this is included in the application narrative. This required component is included in the Master Plan submittal and therefore, this criterion is met.

I. Adjustments. The Master Plan must specifically list any adjustments being requested in conjunction with the proposed use or overall development standards and explain how each adjustment complies with the adjustment approval criteria.

Findings: The Applicant requests three Adjustments to the specific development standards embodied in the 2003 Plan. An overview of these requested Adjustments begins on page 79 of Exhibit A.1, and discussion of the approval criteria and PWB's perspective on how each Adjustment request complies with applicable criteria begins on page 81 of Exhibit A.1. An additional Adjustment to resolve a Zoning Code conflict is also requested, with narrative and approval criteria discussion beginning on page 90 of Exhibit A 1. This required component is included in the Master Plan submittal and therefore, this criterion is met.

J. Other discretionary reviews. When design review or other required reviews are also being requested, the Master Plan must specifically state which phases or proposals the reviews apply to. The required reviews for all phases may be done as part of the initial Master Plan review, or may be done separately at the time of each new phase of development. The plan must explain and provide enough detail on how the proposals comply with the approval criteria for the review.

Findings: The Applicant has included concurrent Type II Environmental Review and Adjustment requests with the Conditional Use Master Plan Amendment submittal. This material is found in Section II, Development Review, of Exhibit A 1. Specific review procedures were established under the 2003 Conditional Use Master Plan. The Applicant

proposes no changes to this prior approved review framework. This required component is included in the Master Plan submittal and therefore, this criterion is met.

K. Review procedures. The Master Plan must state the procedures for review of possible future uses if the plan does not contain adequate details for those uses to be allowed without a Conditional Use review.

Findings: Specific review procedures were established under the 2003 Plan. PWB proposes no changes to this prior approved review framework. This required component is included in the Master Plan submittal and therefore, this criterion is met.

33.815.010 Purpose
Certain uses are Conditional Uses instead of being allowed outright, although they may have beneficial effects and serve important public interests. They are subject to the Conditional Use regulations because they may, but do not necessarily, have significant adverse effects on the environment, overburden public services, change the desired character of an area, or create major nuisances. A review of these uses is necessary due to the potential individual or cumulative impacts they may have on the surrounding area or neighborhood. The Conditional Use review provides an opportunity to allow the use when there are minimal impacts to allow the use, but impose mitigation measures to address identified concerns, or to deny the use if the concerns cannot be resolved.

33.815.100 Uses in the Open Space Zone
These approval criteria apply to all Conditional Uses in the OS zone except those specifically listed in other sections below. The approval criteria allow for a range of uses and development that are not contrary to the purpose of the Open Space zone. The approval criteria are:

A. Character and impacts.

1. The proposed use is consistent with the intended character of the specific OS-zoned area and with the purpose of the OS zone;

Findings: The intended character of the Subject Site is that of a natural open space and park, as well as a site for water reservoirs and other transmission and distribution facilities. The intended character of the specific OS-zoned area was established in the early 1920's when the City of Portland initiated the purchase of Powell Butte for future water facilities. Over the years, in addition to siting the water facilities, the City considered a number of other possible uses for the Butte. An interagency partnership between PWB and PPR has guided development and master planning for Powell Butte, with the first Master Plan published in 1986. The Powell Butte Nature Park was formally established in 1987 and subsequently opened to the public in 1990. Therefore, the history of the Butte demonstrates that the original intended character of the specific OS-zoned area [the site] was for the location and operation of water facilities well before the application of the Open Space zone.

The Purpose of the Open Space zone found in PCC 33.100.010 states:

> **33.100.010 Purpose.** The Open Space zone is intended to preserve and enhance public and private open, natural, and improved park and recreational areas identified in the Comprehensive Plan. These areas serve many functions including:
> • Providing opportunities for outdoor recreation;

- Providing contrasts to the built environment;
- Preserving scenic qualities;
- Protecting sensitive or fragile environmental areas; and
- Preserving the capacity and water quality of the stormwater drainage system.

Powell Butte Park is developed as a large natural area for wildlife and recreation. The proposed Master Plan Amendments are consistent with this purpose for several reasons, as described by PWB:

- Outdoor recreation opportunities. At approximately 610 acres, this site is Portland's second largest park, providing diverse and extensive opportunities for outdoor recreation. These opportunities include hiking, biking, horseback riding, wildlife observation, orienteering, and environmental education. The proposed update to the Trail Master Plan will improve on existing outdoor recreational opportunities in several ways, including:
  1. Increase accessibility for limited-mobility users;
  2. Increase accessibility for local residents (e.g., new and improved access points);
  3. Relocate fall-line trails to eliminate erosion impacts and improve user safety; and
  4. Provide a more accessible forest experience, with a variety of routes and loops with more curves and length.

  While not directly relating to recreation, the other amendment components – including the caretaker house, maintenance yard, parking layout, and stormwater plans – do not impinge on or reduce recreational opportunities compared with the 2003 Plan.

- Urban contrast/relief. The large butte promontory and open space provides marked contrast to the built environment, both locally and at a regional scale. These qualities are recognized in the neighborhood plans for the three neighborhoods adjoining Powell Butte (see Criterion D response). It also provides connectivity to other open spaces and greenways.

- Scenic qualities. Scenic qualities are preserved on several levels:
  1. The proposed water system reservoirs and most facilities are buried underground.
  2. The primary buildings at the site (caretaker residence, interpretive center and maintenance building) are designed in a farmhouse architectural vernacular, evoking the farming history of Powell Butte. The design and spatial relationship of these buildings reflect a cohesive theme that earned broad support from the Project Advisory Committee [PAC], special interest groups and the general public.
  3. The parking areas have been relegated to a more subordinate position in the landscape, from five to 15 feet below the 2003 Plan parking elevations, and with parking bays broken into smaller clusters inter-planted with native trees and shrubs. Additional car parking is proposed to accommodate documented and growing demand, but bus and trailer parking is cut by more than half of the quantity in the 2003 Plan (see Appendix D).

The combined result is a site with more attractive buildings, integrated with the natural park setting, and greater access to scenic views of distant mountains and

local views of the natural areas of the Butte. The vision for the park has evolved with input from the Project Advisory Committee (PAC) into a more cohesive plan with an improved balance of recreational, scenic and environmental amenities.

- Sensitive environmental areas. The proposal increases protection of sensitive environmental areas by expanding the size of the designated wildlife habitat area on the site, removing culvert and trail impacts to potential wetlands and streams, and replacing only the essential crossings with bridges and boardwalks. Overall trail and trail user impacts to meadow and forested habitats are reduced through careful siting and design efforts, and the closure or relocation of several trails.

- Stormwater drainage system. The proposal includes several components designed to preserve and improve the treatment of stormwater. Both of the large, concrete channels that currently convey stormwater directly to a piped discharge system will be removed (though a small section of the southern channel will be retained to avoid nearby tree disturbance). These channels will be replaced near their current locations with meandering vegetated swales bordered by clusters of native trees to provide shade cover. This will improve water quality treatment because the native emergent vegetation in the swale will filter and purify surface water (the concrete channel provides no such function). Water quantity will also be enhanced through more measured release and evapotranspiration of stormwater from the swales. Stormwater from the swales replacing the concrete diversion ditches will continue to discharge to Johnson Creek, but potentially at a slower rate. Stormwater from the park center will be directed to the 158th entry road infiltration areas - though keeping the drainage in their current drainage basins.

Condition O of the 2003 Plan relates to tree plantings in conjunction with the previous stormwater plan and specifies development standards specific to plantings. This condition included three provisions that warrant amendment to ensure that water quality and scenic qualities are properly addressed consistent with the purpose of the OS zone. The first is to the condition's reference to an outdated 1990's hydrology study that should be replaced with current City stormwater Best Management Practices. The second is a timing reference that provided only "one year from master plan approval" to plant 101 trees along stormwater facilities that would not be ready for construction until years later. It was generally agreed by BDS and other interested parties that such premature planting was not practical since the trees would need to be removed in order to construct the stormwater system, the reservoir, and water infrastructure. A third provision of Condition O that deserves refinement is the reference to tree spacing of an "average of 10 feet." This is a very dense plant spacing that may not provide the healthiest growing environment for some of the larger native deciduous trees that would be appropriate to plant for shade. The provision also suggests a linear "band" of planting, which is not necessarily consistent with the natural character of the park. The proposal is to plant more natural shaped clusters of trees to shade the stormwater swales, spaced according to the needs of each species to help ensure their successful establishment. To address these issues, the PWB proposes to amend Condition O to read as follows:

> "Within six months of completion of permanent swale/pond construction, applicant shall plant trees to provide shade to the planned stormwater facilities. The trees shall consist of at least 101 deciduous native trees listed on the Portland Plant List. The trees shall be planted consistent with the City of Portland

Stormwater Management Manual (current edition) and PWB standards for clearances from pipelines. The trees shall be at least six feet in height."

Ms. Bauer, an opponent of this application, expressed concerns regarding the completeness of the PWB stormwater proposal. (Exhibits H-4, H-10, H-11, H-12 and Ms. Bauer's public hearing testimony) PWB, BDS staff, and BES staff provided responses to Ms. Bauer's stormwater concerns. (Exhibits H-5, H-18, H-19, H-25, H-26, H-27 and H-28). The Hearings Officer finds that for the most part Ms. Bauer's comments questioned the sufficiency of information or challenged the safety aspects of the emergency outfall aspects of the proposed stormwater system. The Hearings Officer finds that responses by PWB, BDS and BES staff provided substantial evidence demonstrating PWB's compliance with the relevant stormwater approval criteria.

- Pedestrian and bicycle connections. The new trail system provides a diverse range of pedestrian and bicycle transportation connections, including an expanded array of ADA accessible trails. This network is shown on the updated Trail Master Plan (Figure 4.0). Trail system improvements include reductions in trail grades and consequent erosion, avoidance of potential wetlands and streams, improved trailheads and viewpoints, and a more integrated system with better overall circulation based on months of input from the PAC, trail groups and general public.

BDS staff concurred with PWB's analysis as does the Hearings Officer. The proposed amendments to the 2003 Plan are primarily refinements to ensure that sensitive and fragile environmental areas are protected while providing enhanced opportunities for outdoor recreation. The building cluster and parking proposed for the developed park area are refined to ensure that building locations preserve scenic qualities. The buildings are developed in an architectural vernacular of ranch/homestead that is consistent with the history of Powell Butte. The proposed amendments to the building cluster include revisions to situate the proposed development in such a way as to minimize the overall built up environment on Powell Butte, thus emphasizing the natural areas. Stormwater management of the proposed development will meet all applicable regulations and elements of Stage 2, and will result in much improved stormwater detention and drainage systems. Finally, the proposed pedestrian and bicycle amenities will provide enhanced pathway connections and an expansion of ADA accessible trails. For all of the above reasons, this criterion is met.

2. Adequate open space is being maintained so that the purpose of the OS zone in that area and the open or natural character of the area is retained; and

Findings: The Applicant notes the following facts about the proposal:

Nearly all of the 610 acres of open space at Powell Butte Nature Park will be maintained and enhanced. Only three buildings are proposed, and these serve the same use and are of generally the same overall size as the three buildings shown in the 2003 CUMP. The broad range of enhancements noted previously include restoring natural meadow habitats, repairing damaged streams and potential wetlands, adding interpretive and educational components to the park center area, and revising the trail system to make it more functional and sustainable. The combination of these and other efforts such as the re-establishment of native plant communities and the removal of invasive species will help to ensure that the open or natural character of the Nature Park is retained.

One minor change is worth noting: though not clearly defined in the 2003 Plan relates to the size of the Interpretive Center/Restroom facility. The proposed amendment may be modestly larger than the building previously envisioned. In the context of the 640-acre park, however, this small space (1,200 square feet) will have no significant impact on the site's open space. Indeed, the building will offer great new opportunities for interpretation and education at the park, with the strong support of the PAC and public. Both of the other buildings – the maintenance building and caretaker's dwelling – remain consistent with the size anticipated in the 2003 Plan.

BDS staff concurred with the preceding PWB analysis and noted that given the proposed mitigation efforts that include removal of invasive species, realignment of trails to reduce potential impacts on intermittent wetland areas, and planting of native species within specific areas on Powell Butte, the open space will not only be maintained, but appropriately enhanced.

These actions, in combination with the 'building cluster' in the park area and the water infrastructure improvements meet the purpose of the OS zone, and the open and natural character of the area remains intact. For these reasons, this criterion is met.

3. City-designated environmental resources, such as views, landmarks, or habitat areas, are protected or enhanced.

Findings: The proposal increases protection of sensitive environmental areas by expanding the size of the designated wildlife habitat area on the Subject Site, removing culvert and trail impacts to potential wetlands and streams, and replacing only the essential crossings with bridges and boardwalks. Overall trail and trail user impacts to meadow and forested habitats are reduced through siting and design efforts, and the closure or relocation of several trails. Environmental Review of the park center improvements and the proposed trail system is presented later in this decision, in the form of findings for the Powell Butte Master Plan approval criteria for Environmental Review.

In short, the reorganization of the park center layout appears to enhance scenic views by:

- Creating an integrated farmhouse-themed building cluster,
- Moving parking to a lower and less prominent location, and
- Planting additional native plantings to soften and screen parking areas, roads and the maintenance yard.

Appendix C in Exhibit A.1 describes steps taken to protect and enhance environmentally sensitive areas by:

- Removing trails from potential wetlands and steep slopes,
- Removing invasive exotic plant species,
- Planting extensive native vegetation, and
- Creating new wetlands and wetland habitat.

With these vegetation and wetland enhancement projects, and to the degree that the approval criteria for Environmental Review, below, are met, this criterion is also met.

B. Public services.

1. The proposed use is in conformance with the street designations of the Transportation Element of the Comprehensive Plan;

Findings: The Subject Site has multiple pedestrian, bicycle, and equestrian access points for park and recreation activities. All but the main entrance are from Local Service Streets except SE Holgate Boulevard, which enters the west side of the Park and is a designated City Walkway. The only motor vehicle entrance point is a private road extending from the intersection of SE 162nd Avenue and SE Powell Boulevard. Southeast 162nd Avenue is a designated District Collector Street, Minor Transit Street, City Bikeway, City Walkway, and Minor Truck Street. Southeast Powell Boulevard is a designated Neighborhood Collector, Minor Transit Street, City Bikeway, City Walkway, and Major Truck Street.

PWB prepared an analysis of parking and transportation conditions at Powell Butte Park for the 2003 Plan. That analysis, which was prepared by Lancaster Engineering, demonstrated that parking supply on the Subject Site was adequate for current and expected parking demand. The analysis further demonstrated that the intersection of SE Powell Boulevard at SE 162nd Avenue, which serves the main entrance to the Park, operates at an acceptable level-of-service consistent with City requirements. PBOT Engineering and Development has reviewed the proposal for its conformance with street designations and for potential impacts upon transportation services and concluded that the public transportation system is capable of safely supporting the proposed uses (Exhibits E.7 and H.20). There have been no significant changes to street designations since the Lancaster study.

Ms. Bauer, an opponent of the current application, submitted numerous emails (Exhibit F.1), testified at the public hearing and submitted additional evidence during the open record period (Exhibit H.10). Ms. Bauer, in Exhibit H.10, stated that "there does not seem to be any analysis of how the heavy truck traffic used to excavate conduit 5 will affect SE Circle Avenue or SE Jenne Road." PBOT submitted, during the open-record period, a response to Ms. Bauer's heavy truck traffic concern (Exhibit H.20). In part, Exhibit H.20 states:

> "construction related truck traffic is considered a temporary impact and not an evaluation factor in the analysis for adequacy of transportation facilities. Construction projects of the size proposed are required to provide a traffic management plan to PBOT Traffic Management prior to beginning construction activities. These plans generally include safety provisions, identified truck routes, and any street and/or lane closers with hours of operation and flaggers if necessary. PTOT typically requires a photographic record of the existing conditions of the roadways in order to require the applicant to repair any damaged roadways to pre-existing conditions. The Water Bureau is subject to these requirements."

This criterion is met.

2. The transportation system is capable of supporting the proposed use in addition to the existing uses in the area. Evaluation factors include street capacity, level-of-service, and other performance measures; access to arterials; connectivity; transit availability; on-street parking impacts; access restrictions; neighborhood impacts;

impacts on pedestrian, bicycle, and transit circulation; safety for all modes; and adequate transportation demand management strategies;

Findings: PBOT/Development Review has reviewed the application for its potential impacts regarding the public right-of-way, traffic impacts and conformance with adopted policies, street designations, Title 33, Title 17, and for potential impacts upon transportation services (Exhibits E.7 and H.20).

PWB provided a parking analysis prepared by CH2MHill as an update to the traffic study performed by Lancaster Engineering for the 2003 Plan (Exhibit A.1, Appendix D). The evaluation factors as listed above in this criterion were evaluated in the traffic study, and that analysis remains unchanged except as updated in the 2010 Powell Butte Parking Analysis which was based on data collected in the Spring of 2010.
PWB indicated that it is its intent to reduce the number of bus and horse trailer parking spaces due to lack of use, and increase the number of passenger vehicle spaces to better match the true demand for on-site parking. PBOT staff concurred with the Applicant's parking demand analysis and supports the provision of a minimum of 65 passenger vehicle spaces and 4 bus/horse trailer spaces on-site. No other impacts to transportation services are anticipated based on the current proposed changes and improvements to Powell Butte Park (Exhibits E.7 and H.20).

With a condition that a minimum of 65 passenger vehicle spaces and 4 bus/horse trailer spaces be provided on-site, as outlined in this report, the transportation system can safely support the proposed use in addition to existing uses in the area. This criterion is met.

3. Public services for water supply, police and fire protection are capable of serving the proposed use, and proposed sanitary waste disposal and stormwater disposal systems are acceptable to BES.

   Findings: Agency responses note no concerns regarding adequacy of public services for the Subject Site and proposed uses. PWB has no concerns and the Fire Bureau notes no concerns. BES determined that this project has sufficiently demonstrated that it can meet the requirements of the 2008 Stormwater Management Manual and has no objections to approval of this Conditional Use Master Plan Amendment and Adjustments to development standards. BES indicated that PWB has satisfied the BES related public services requirements for the Conditional Use review (Exhibits E.2 and H.26). No specific approval criteria relate to BES and the Environmental Reviews.

   This criterion is met.

C. Livability. The proposal will not have significant adverse impacts on the livability of nearby residential-zoned lands due to:

1. Noise, glare from lights, late-night operations, odors, and litter; and
2. Privacy and safety issues.

   Findings: The uses and development proposed in the Master Plan Amendment request will not adversely affect the livability of nearby residential-zoned lands for the following reasons:

- Nearby residentially-zoned land is defined, for the purposes of this analysis, as those residential properties located within 400 feet of the approved 2003 Plan boundary. Four-hundred feet is the required legal notice area and in this case, because the Powell Butte property is so large and surrounded by residential uses, a street-by-street description is not practical, nor particularly useful in this situation. Because the 400-foot distance includes a significant majority of residences that could be potentially impacted by this Master Plan, the following analysis will focus on this area.

- Residential-zoned lands are physically separated from the proposed development and associated uses by substantial distances, and are screened by topography and/or vegetation. Scaled measurements by City staff utilizing aerial photographs and the City's GIS mapping system demonstrated that residentially-zoned properties closest to the most active portion of the Park, the park center buildings and associated parking, are over 500 lineal feet away and at least 100 feet lower in elevation. Therefore, to the extent the proposed uses and development generate any additional activity, noise or other impacts, the impacts of those uses would dissipate to an undetectable level by the time they reach adjoining residentially-zoned lands.

PWB notes the following aspects of the proposal, and the lack of anticipated impacts to adjacent residentially-zoned lands (Exhibit A.1, pages 50-51):

"Uses proposed as part of this CUMP Amendment are the same as those approved in the 2003 CUMP. The passive nature of the proposed water and recreational uses is compatible with and adds value to nearby residential land uses. The large park with its forested borders, elevated and internalized activity hub (the park center), and direct access to a District Collector Street minimizes any potential adverse impacts to neighborhood livability.

In addition, the proposed Master Plan Amendment will not adversely affect the livability of nearby residential-zoned lands, because:

- No permanent off-site impacts are expected as a result of the amendments to the park center area, including the new layout and design of the farmhouse building cluster, the western shift of the maintenance facility location, the refined design of the Interpretive Center and the amended parking layout. Residential-zoned lands are physically separated from these facilities and associated uses, and are screened by topography and vegetation. The proposed amendments to the layout and design of buildings, parking areas and stormwater facilities are not expected to generate any significant additional activity, noise or other impacts. The operation of the facilities will not generate noise, glare from lights, and will not require late night maintenance operations except in the event of an emergency. Trash receptacles are provided and restroom facilities have been increased in the park center. No odor producing activities currently exist or are proposed.

- The outdoor teaching area is of the same size and located in the same general area as shown in the 2003 CUMP. As is true today, all Park uses are passive and any potential noise or related impacts would dissipate to undetectable levels by the time they reach adjoining residentially-zoned lands.

- No adverse off-site impacts are expected as a result of the amendments to the Trail Master Plan. These changes are largely internal to the Butte, and are aimed at improving the trail system function and sustainability. The primary changes at the residential access points are trailhead and way-finding improvements, which will improve the Park-use experience for primarily local residential users.

- The amended layout and design at the park center includes new native plantings, exceeding the tree plantings envisioned in the 2003 CUMP, without blocking scenic views to the east. In the area north of the maintenance yard, parking and other park center facilities, for example, new trees and shrubs are proposed. Native plantings have been incorporated east of the parking areas to provide additional buffering for the Anderegg Loop residential area (the parking area has been shifted to the west as well).

- The proposed amendments are not expected to generate any additional construction impacts or noise over what was planned in the 2003 CUMP. The amended park center and Trail Plan layout and design is not expected to have a significant impact on the timing, noise or intensity of the construction process.

  The resident caretaker provides surveillance on the site and increases public awareness and education of Park rules. In addition, the caretaker's dwelling has been repositioned at a higher elevation to improve overall surveillance at the park center. The Trail Plan amendments maintain all access connections at public rights-of-way and do not require or encourage access across adjoining private property. None of the amendments will change Park hours or operations, or add any hazards and therefore, will not raise privacy or safety issues. No odor producing activities are currently present, nor are any proposed."

Ms. Bauer, in testimony at the public hearing and in a written submission (Exhibit H.10) raised the issue of the safety. Ms. Bauer states, in Exhibit H.10, that:

> "the applicant has not shown in the application that the approval criteria (C.) which requires that the applicant to show 'safety' and the 'the proposal will not have significant adverse impacts on the livability of nearby residential-zone lands' has been met. The applicant only addresses the stormwater system to Johnson Creek, but does not address how that stormwater system and emergency overflow pipe will impact the 'livability of nearby residential-zone lands.'"

Ms. Cate, Senior BDS Planner, responded to Ms. Bauer's safety concerns (Exhibit H.25). Ms. Cate stated, in Exhibit H.25 the following:

> "She [Ms. Bauer] asserts that the potential for an emergency overflow pipe for the stormwater management system could release a 1,000 year flood event, and therefore there are both impacts that have not bee addressed as well as safety issues associated with this possibility.
>
> Staff notes that the proposed stormwater management system is required to meet the approval criterion at 33.815.100B Public Services, 3, which states:
>
> > *Public services for water supply, police and fire protection are capable of serving the proposed use, and proposed sanitary waste disposal and* ***stormwater disposal systems*** *are acceptable to the Bureau of Environmental Services.* [Emphasis added]

> There is substantial evidence in the record noting that the stormwater management system proposed for the water bureau facility on Powell Butte has been engineered for a 100 year storm event, as required by the City of Portland's current Stormwater Management Manual...
>
> Staff notes that the specified approval criterion is discretionary, and therefore, to the extent that the criterion 33.815.100 C [2], *Safety,* applies to stormwater management system, staff asserts that having a system that meets the regulatory requirements *cannot be considered inherently unsafe.*
>
> For example, if this logic and line of argument was directed towards the structural requirements of the current building code, it would follow that those regulations would result in unsafe buildings because the regulations do not require sufficient safeguards against an extraordinary catastrophic event, such as a direct impact from an asteroid. A 1,000 year storm event, in staff's opinion, is of such potential magnitude that the event could potentially overwhelm *any* carefully engineered system that meets all regulator requirements. Therefore, staff disagrees with the argument that the proposed stormwater system is not safe."

The Hearings Officer found BDS staff's argument to be credible and finds Ms. Bauer's "safety" argument is not persuasive regarding the stormwater management system proposed for the new reservoir.

However, based on the appellant's testimony regarding the necessity of an early warning notification system for residents downstream, City Council is persuaded that the proposal could have significant safety impacts to residents living down stream of the site, if no specific Emergency Notification and Evacuation Plan exists for these residents, should an emergency arise specific to the Water Bureau's operation of the reservoirs that would impact lands adjacent to Johnson Creek. Therefore, Council finds that a Condition of Approval is warranted to ensure that the proposal fully complies with this criterion. The City Council directs the Water Bureau to direct the Portland Office of Emergency Management [POEM] to develop a specific Powell Butte Emergency Notification Plan for those residents along the floodplain of Johnson Creek. Council finds that with such a plan, the affected neighborhood will have an additional layer of safety, and therefore this criterion is met.

D. Area plans. The proposal is consistent with any area plans adopted by the City Council as part of the Comprehensive Plan, such as neighborhood or community plans.

Findings: The Subject Site is within the Pleasant Valley Neighborhood. The Pleasant Valley Neighborhood Plan ("PVNP") was adopted by City Council on March 25, 1996. The PVNP contains policies and objectives that guide development and land uses throughout the neighborhood. This application seeks to refine and update Park plans developed nearly ten years ago based on extensive public input, and current and future PWB and PPR needs. The proposed 2003 Plan Amendments preserve and enhance the ecosystem by planting and maintaining native vegetation, removing invasive species, providing enhanced recreation opportunities for Powell Butte, and supporting long-term expansion plans for the City of Portland's water system. These updates and refinements are consistent with the uses and activities supported and encouraged by the PVNP.

PWB noted the following aspects regarding the proposal and the adopted PVNP (Exhibit A.1 pages 51 and 52):

> "Policy 5, Open Space, reads: 'Continue the unique livability of the Pleasant Valley Neighborhood by ensuring that our current and future parks, green spaces, open spaces and recreational opportunities meet the needs of metropolitan residents for recreational uses.' A long and effective public involvement process led by the Project Advisory Committee ("PAC") helped to define what the current and future recreational needs are and how best to meet them.
>
> The proposed Interpretive Center and expanded interpretive program help to implement PVNP open space programs identified for Powell Butte. They help to 'capitalize, facilitate and enhance the appreciation and enjoyment of the natural environmental and history of the Butte.' The Trail Plan update 'includes trails for the physically disabled.' The PVNP also states: 'consider and perhaps revise the Powell Butte Master Plan to consider the following: demonstration farm, interpretive nature center ...wetland pond environment, wildlife observation points....' These components are incorporated to some degree into the current proposal. While not a demonstration farm *per se*, the farmhouse cluster concept evokes the character of the farming history of the Butte. The Interpretive Center, wetlands and wildlife observation points are all incorporated in the amended plans for the park center and Trail Plan update.
>
> The PVNP recognizes the 100-year orchard on Powell Butte as a historic resource. Based on input from the PAC and public, the orchard will be preserved under the current plan, but is not planned for replacement.
>
> Consistent with the PVNP, the proposed CUMP Amendment preserves and enhances the ecosystem through repair of impacted drainages and potential wetlands, removal of invasive species, and new native plantings. The proposal provides improved and sustainable recreational opportunities for Powell Butte balanced with the natural environment, and the proposal supports long-term expansion plans for the regional water system.
>
> Two other neighborhoods are located adjacent to Powell Butte Nature Park: Centennial and Powellhurst-Gilbert. The respective Neighborhood Plans contain only general references to the Park, but they clearly support preserving the Park and its natural amenities. As the Centennial Neighborhood Plan notes, 'Centennial borders on Powell Butte Park and supports its continued use as a nature park.' One of the goals of the Powellhurst-Gilbert Neighborhood Plan is: 'to support implementation of the Powell Butte Park Plan.' The current proposal will implement this Plan, as updated and improved through the extensive input of the public and the PAC.
>
> The proposal is therefore, consistent with the PVNP and with the area Plans of the two adjacent neighborhoods."

The Hearings Officer concurs with this analysis, and for all of the reasons above-stated, this criterion is met.

II. Powell Butte Master Plan Environmental Review

Condition H of the Order of City Council for LUR 00-00414 CU MS EN EV AD established thresholds for dealing with future reviews of projects within the Powell Butte Master Plan boundary, and approval criteria for those reviews. The thresholds for Type II review, as listed on page 42 of the Powell Butte Master Plan are:

[The project is] Allowed by the Master Plan and

- **Does not require a higher level of review.**
- **Except for trail improvements, the development or use and disturbance area is outside of the Environmental Protection Zone.**
- **The development or use is no greater than 110% larger or more intense than that shown on the approved Master Plan site plan.**
- **The disturbance area is no greater than 110% of that shown on the approved Master Plan site plan.**

The proposed water facility improvements have not changed in any substantive way from those described in the 2003 Plan. The 2003 Plan did not require a higher level of review for these improvements. These improvements are outside of Environmental Protection zone. They also have not expanded in size, intensity or overall disturbance area and therefore, meet the 110% expansion threshold. Therefore, the water facility improvements meet the threshold for Type II review.

All of the park center, stormwater and Trail Plan improvements are consistent with the 2003 Plan, as amended above; their size, intensity and disturbance area meet the 110% expansion threshold. Therefore, this proposal meets all of the thresholds for a Type II review.

Powell Butte Master Plan Approval Criteria for development Allowed by the Master Plan
Approval criteria are provided in Table 3-D1 (pages 42 and 43) of the 2003 Plan, for development, uses, or actions allowed by the Master Plan, including those features allowed by the Master Plan *as amended.* This section provides findings for the approval criteria identified in the Master Plan. They will be applied to the proposed construction of:

- water system facilities including the reservoir, associated facilities and pipelines consistent with the 2003 Plan; and
- park center facilities, stormwater improvements, and trail system consistent with the new amended plans addressed in the 2003 Plan Amendment above.

1. The development or use is in substantially the same area as shown on the approved Master Plan site plan.

Findings: The table below summarizes the area of the proposed development compared with the 2003 Plan site plans or the new amended plans, as applicable. All proposed development is in substantially the same area as shown on the approved plans.

Proposed Development	Approved area (Exhibits from 2003Plan)	Proposed area / Exhibit #
Water System Improvements		
50 MG New Reservoir, piping and assoc. facilities	West of park center and existing reservoir, Master Plan Figure 2-C2 (See Exhibit G.5 this application case file)	Exhibits C.22, C.26, C.28, this LU application
90" Conduit 5	From Reservoir #2, running south and east of park center to Circle Ave., Master Plan Figure 2-C2	Exhibits C.22, C.28, this LU application
Park Improvements		
New Caretaker's Dwelling	Park center amendment, Exhibits C.8-C.11, this LU application	As amended
Maintenance Building/Yard	Park center amendment, Exhibits C.8-C.11, this LU application	As amended
Interpretive Center/ Restrooms	Park center amendment, Exhibits C.8-C.11, this LU application	As amended
Outdoor Teaching Area/ Amphitheater	Park center amendment, Exhibits C.8-C.11, this LU application	As amended
Parking Lot Improvements/ Bike Parking (including ADA improvements)	Park center amendment, Exhibits C.8-C.11, this LU application	As amended
Stormwater Treatment	Stormwater amendment, Exhibit C.28, this LU application	As amended
101 Tree Plantings	Stormwater amendment, Exhibits C.46–C.53 this LU application	As amended
Trail Improvements (including ADA improvements)	Trail Plan amendment, Exhibits C.31-C.38 this LU application	As amended

The proposed water system improvements are situated in substantially the same area as shown on the approved 2003 Plan; and Park, trail, and stormwater improvements are located as shown in the amended 2003 Plan.

This criterion is met.

2. The construction management plan prevents adverse impacts to areas outside of the approved disturbance area.

Findings: This approval criterion requires the protection of resources outside of the proposed disturbance area from impacts related to the proposal, such as damage to vegetation, erosion of soils off the site, and downstream impacts to water quality and fish habitat from increased stormwater runoff and erosion off the site.

Exhibit A.1 (Appendix B) in the application case file describes the Applicant's proposed Construction Management Plan ("CMP"). In addition, an alternate Tree Preservation Plan is presented in Exhibit A.2.

The application includes a construction schedule, general management practices, and provisions for erosion control, tree protection, and site management. Staging and stockpile areas, vehicle circulation routes, and other construction management measures are illustrated in Exhibits C.62 through C.77. Overall construction management proposed by PWB includes the following:

- The contractor will establish normal work hours Monday through Friday, generally 7 a.m. to 6 p.m., with occasional night and weekend shifts. Sunday work is not anticipated at this time. Any lights needed during these times will be directed to shine down and into the work area only, not into the surrounding meadow or forest habitat areas. Lights will remain off when no work is being done, with the exception of potential security and safety lighting determined necessary by the contractor or PWB. Construction activities during nighttime work periods, if needed, will only occur with an approved noise variance.

- Prior to each phase of construction, the limit of disturbance areas will be staked and a construction fence (or tree protection fence where appropriate) will be installed per City of Portland standards. To ensure that the impacts of the reservoir construction are confined to the mapped disturbance area, a temporary metal fence with gates was constructed around the reservoir construction site, including stockpile and staging areas during Stage 1. Additional temporary fencing may be installed by the contractor to ensure worker safety and to provide construction site security.
- Temporary erosion control will be installed around disturbed areas and stockpiles and in compliance with City's Erosion Control Standards (Title 10). Erosion control facilities will be: (a) maintained and modified as necessary during construction and between construction phases, and (b) will be removed upon completion of the project once permanent vegetation is established.

- Site restoration following construction will include seeding and planting of meadow disturbed areas with an appropriate native seed mix developed in coordination with PPR staff and PWB's ecologist. Trees, shrubs and groundcover will be planted around the Interpretive Center, parking areas, maintenance yard, and in conjunction with and the wetland mitigation area and trail improvements.

- Construction management measures for trails will take the following approach:
  Soft surface trails. Forest trails in the protection zone will be constructed using hand tools or with small motorized equipment. (See also Exhibit H-9) Where feasible, existing vegetation in the trail corridor will be stockpiled and utilized to restore decommissioned trails. Fall-line trails have been relocated to eliminate erosion impacts and improve user safety. Trails will be graded to direct water away from the trail surface. Cut and fill slopes will be covered with native forest debris to encourage re-establishment of plants.

  Service Roads. Service roads include asphalt and gravel surfaces, portions of which are utilized as trails. Construction includes grading of the road bed, placement of rock, compaction and where specified, asphalt. The graded areas adjacent to the road will be reseeded or covered with native forest debris.

- Erosion control for trail work will include placement of coir wattles in all places where active erosion is taking place or where earthwork activities require protection of adjacent resources.

Generally, this includes all trail construction and culvert removal and stream restoration. (Exhibit H-9) Detailed erosion control methods are shown on Exhibits C.62-C.77.

- Trail decommissioning will include a variety of techniques that are intended to minimize the erosion that is taking place in the trail bed, encourage plants to re-establish and obscure the abandoned route. Techniques will include scarification of the trail bed, regrading of the trail bed, placement of earth at gullies, planting native plants, seeding of native plants, and placement of woody debris to discourage use.

With regards to stormwater management for the new facilities, the PWB proposes a system designed to manage stormwater runoff from the construction activities and future built out condition, focusing on quality treatment on Powell Butte, and quantity treatment at the base of Powell Butte. The Stormwater Management Plan is presented in detail in Exhibit A.19 in the application case file and is very briefly summarized here. The design reflects current best management practices ("BMP's") and addresses the priorities identified by the PAC and general public. These issues include: 1) minimizing surface water runoff to the north slopes; 2) minimizing and slowing discharges to Johnson Creek during storm events; 3) managing stormwater and sediment control on site as much as practicable; 4) replacing portions of the existing concrete diversion ditches with more naturally flowing swales; 5) minimizing impervious surfaces as much as possible and practical; and 6) maintaining existing drainage patterns where possible.

As shown on Exhibit C.28, and described in Exhibit A.19, two systems are proposed:

- Currently, some of the stormwater from the reservoir area is collected in open concrete channels and piped offsite to the southeast via the 54-inch pipeline that connects to existing Reservoir #1. These channels will be mostly replaced with shallow meandering swales - one north and northeast of proposed Reservoir #2, and one south of Reservoir #1. Swales will be planted with native vegetation and shaded by deciduous trees. Stormwater flows moving through the vegetated swales will be filtered at the soil/root interface, reducing velocities and allowing sediments to be removed from the runoff before leaving the project site.

  The existing 54-inch drainpipe will extend to Reservoir #2 to collect overflow and underdrain. To separate stormwater from the drainage and overflow from Reservoir #1 and #2, discharge from the northern swales will flow to a new 18-inch storm pipe, which will connect to the existing 54-inch overflow pipe downhill. Swales to the south will continue to drain to the existing 36-inch storm pipe that currently connects to the overflow pipe.

- Currently, stormwater from the park center area flows to the north and is piped via a 12-inch storm pipe to an existing infiltration facility at the base of the Butte, at the SE 158th entry road. Per the new design, stormwater from the maintenance facility and park center area will flow to a new stormwater detention pond north of the bus parking area to provide quantity and quality control. The 12-inch sewer will be extended and direct stormwater from the pond to the expanded infiltration area at the base of the Butte.

Stormwater runoff from the Interpretive Center and caretaker's residence is proposed to be routed to either soakage trenches or flow-through facilities, depending on conditions found during construction.

The Hearings Officer finds that the conceptual plans and details provided on Exhibits C.31 through C.36 and C.75 through C.77 show that it is feasible to construct new trails, bridges, and wetland causeways without impacts to resources beyond the construction area; however, these exhibits do not depict surveyed topography or stream conditions, but rather, show "typical" construction methods. Therefore, trail construction plans that include site-specific detail will be required at time of permit, to demonstrate specifically *how* these measures will address actual site conditions. To this end, detailed grading, tree protection and construction plans for specific trails, bridges, boardwalks, stairs and causeways, as well as deconstruction plans for trails to be closed, will be required.

In response to the proposed stormwater plans, the PVNA has submitted e-mail comments and questions (Exhibit F.1) pertaining predominantly, to the technical design parameters of the stormwater management facilities (volume, discharge rate, overflow routes, etc.). PWB responded to each of these inquires in Exhibits A.8 through A.28 in the application case file. The Hearings Officer relies on the technical analysis by City service bureaus to determine if the City requirements for stormwater management are met by the proposal. The City's technical analysis is summarized below and presented in detail in Exhibit E.6.

City service bureaus have reviewed PWB's Construction Plans, Tree Protection Plans, and Stormwater Management Plans and provided technical input, to be used in determining if off site impacts will be prevented by the proposal.

BDS Site Development reviews construction and tree preservation plans and has noted (Exhibit E.5) that Exhibit C.66, Construction Management -Southeast C-5 Corridor, does not show the clearing limits required for the outfall improvements noted on Exhibit C.25, Proposed Development Johnson Creek Outfall Structure. This information will be required at time of permit. Additionally, with regards to protection of trees in and around construction disturbance areas, Site Development will require plans that show how and where tree protection fencing must be installed, as well as the type of tree protection fencing that is required (i.e. 6-foot high chain link fencing with posts embedded in concrete, etc.). This information must be clearly shown on the plans.

As part of this application, the PWB provided a written Alternate Tree Protection Plan (Exhibit A.2). If the guidelines presented in the Alternate Tree Protection Plan are followed, trees outside the disturbance area will be protected. To this end, the PWB will be required to provide a detailed graphic Tree Protection Plan that depicts all tree protection measures described in Exhibit A.2.

The BES administers the City's Stormwater Management Manual, in addition to the City's Title 17 Public Improvements. BES has reviewed the Applicant's stormwater management proposal (Exhibit A.19), and has provided the following comments: "BES has determined that this project has sufficiently demonstrated that it can meet the requirements of the 2008 Stormwater Management Manual and has no objections to approval of this ... Environmental Review..." Detailed comments from BES are presented in Exhibit E.6 in the application case file. BES further commented that parking lot landscaping triggers the Stormwater Management Manual and that Section 1.5 of the SWMM requires that new parking lot landscaped areas must be utilized as vegetated stormwater facilities where feasible.

BES had additional comments pertaining to drainageways on Powell Butte:

> "BES visited this site on October 4, 2010 and October 14, 2010. During the site visit, BES observed several culverts located under the hiking trail and Pipeline Road, north of Reservoir #2. In an email dated October 28, 2010, [Exhibit A.20] a representative from the Portland Water Bureau (PWB) explained that the culverts

were existing and were extended and armored at either end with rock as part of the Stage 1 construction, to avoid creating drainage issues and potential damage when hiking traffic was separated from construction traffic for safety purposes. Upon completion of this project, Pipeline Road will be restored to dual use. New vegetated swales are proposed as part of this project to intercept and convey stormwater runoff.

At the time of building permit review, PWB has proposed to revise construction plans to show details of the culvert extension pipes and armoring and include construction notes as needed to prescribe necessary erosion and sediment control measures (including incorporating more vegetation) that may be necessary around the culverts, along with establishing any necessary drainage reserves to allow for protection. PWB indicated that there will not be any changes to the disturbance area, tree preservation measures, or stormwater management systems. BES has no objections to this proposal.

BES has coordinated with PWB and BDS regarding providing appropriate drainage reserve protections (outside of Environmental Protection overlay zones) and review of proposed modifications within drainage reserves. BES has no objections to the applicant submitting plans that show the locations of existing drainageways, locations of drainage reserves, and proposed modifications within drainage reserve areas at the time of building permit review. PWB has indicated that trail crossings over drainageways are proposed and corrective work is proposed within a drainageway near where the C-5 conduit alignment traverses a steep portion of the east slope of Powell Butte. At the time of building permit, PWB must submit a plan showing all drainageways and any drainage reserve locations, along with detailed information regarding all work proposed to be done within drainage reserve areas."

In light of the evidence above, several conditions of approval are needed to ensure appropriate measures are taken to protect resources beyond the approved disturbance area. They include:

- Providing site-specific trail construction plans and details at time of permit;
- Providing construction plans depicting clearing limits around the outfall at Johnson Creek;
- Providing construction plans detailing culvert extension pipes and armoring along Pipeline Road, as well as restoration of Pipeline Road to dual use, and proposed vegetated swales;
- Addressing the Stormwater Management Manual during permitting of parking lot landscaping;
- Providing a plan showing all drainageways and drainage reserve locations, with specific information regarding all work proposed within drainage reserve areas; and
- Providing graphic plans depicting tree protection according to Exhibit A.2, Alternate Tree Protection Plan (attached).

With these conditions, the project's Construction Management Plans, Tree Protection Plans, and Stormwater Management Plan will prevent adverse impacts to areas outside of the approved disturbance and this approval criterion can be met.

3. A mitigation/restoration plan ensures no net loss of resource values.

Findings: This criterion requires PWB to assess unavoidable impacts and propose mitigation that is proportional to the impacts, as well as sufficient in character and quantity to replace lost resource functions and values. PWB prepared a Mitigation Plan, described in Appendix C of Exhibit A.1 in the application file. The graphic plans are presented on Exhibits C.46 through C.61, C.90 and C.91.

The Subject Site is mapped within the Johnson Creek Basin Protection Plan as Resource Site #29--Powell Butte (*Johnson Creek Watershed Summaries of Resource Site Inventories*, June 1998). Resource values listed for Site #29 on page 1-102, include: water, storm drainage, aesthetics, scenic, pollution and nutrient retention and removal, sediment trapping, recreation, education, and heritage. All of these values are found in some form within Powell Butte Nature Park. An overview of how these functions are addressed and mitigated is provided below.

Impacts that may result from the project are described in detail in Appendix C of Exhibit A.1, and include removal of 153 trees to construct park center improvements, stormwater facilities, Conduit 5, and other park and water system improvements. Mitigation for temporary construction impacts will include restoring areas to prior conditions or better (including uncompacting soil, replanting with native vegetation, restoring site drainage, and restoring access to trails closed during construction). Compensation for permanent impacts (such as tree removal and wetland impacts) will be provided through tree plantings, landscape plantings and wetland restoration and creation (Exhibits C.46 through C.61, C.90, and C.91).

The Subject Site's water quality functions will be improved through a series of stormwater bioswales, shaded by clusters of native trees. These vegetated swale systems will slow and cleanse runoff from numerous surface and water runoff areas, and maintain cool water temperatures through shade provided by new tree plantings. Further water functions are provided by the shaded detention pond and the SE 158th Avenue infiltration area. This infiltration area will provide stormwater discharge from the maintenance yard to SE 162nd Avenue entry road, including the parking lot area. This conveyance and discharge system will provide a collection, conveyance and treatment of runoff that is returned to the soil mantle, recharging local aquifers, rather than piped to surface waters. The replacement of large areas of concrete channel with bioswales will also improve water quality functions. In addition, restoring native meadow, shrub and forest habitats at the site will improve water purification functions and reduce the quantity of runoff through evapotranspiration.

In terms of storm drainage functions, the Subject Site's existing storm drainage generally drains to two distinct areas. These two areas include an infrastructure system of concrete channels, ditches, and pipes that flow to Johnson Creek. The revised system of collection and conveyance maintains the same area of collection and discharges to Johnson Creek. The new system primarily replaces concrete ditches with bioswales. The second area, which currently flows to the north as overland flow and eventually drains to the ground, is replaced with a new collection, conveyance and treatment/detention system to address the improvements that are proposed for this area. Although originally it was thought that the stormwater control would be infiltration on Powell Butte, recent studies have shown that the soils atop Powell Butte become saturated during the winter and do not provide needed infiltration; only at much lower elevations near the base of the Butte does the infiltration capacity improve significantly. In consultation with BES, the PWB design team developed plans for a stormwater detention area adjacent to, and at the top of the SE 158th Avenue entry road, with discharge to new infiltration area at base of Powell Butte along SE 158th Avenue entry road. This system provides service of stormwater collection/conveyance/detention/discharge for the maintenance yard, North Access Road, Interpretive Center, parking lot and other park center improvements.
Smaller drainage areas exist on the northern slopes of the Butte with receiving areas including the recently constructed swales for SE 162nd Avenue entry road, and the new infiltration basin constructed along SE 158th Avenue entry road a few years ago.

The existing drainage system will be improved by the replacement of concrete channels with bioswales and the removal of five culverts on the slopes of Powell Butte. These actions will restore

the natural filtration functions of the waterways, and help to reduce and desynchronize high flows through greater retention, infiltration (where planned) and evapotranspiration.

The aesthetic and scenic functions of the Subject Site will be temporarily impacted by construction activities, which will include the area within the current (site preparation) work limits and the new construction within the park center and along roads and utility corridors. Except for the planned permanent changes, however, the Subject Site will be restored to a scenic landscape condition following construction, with open meadow areas, vegetated swales, and tree and shrub plantings (which serve to visually screen and soften the parking area and maintenance yard). The farmhouse cluster of buildings within the park center is intended to evoke the farmstead history of Powell Butte, complementing the scenic and aesthetic qualities of the Subject Site.

Pollution and nutrient retention and removal, and sediment trapping functions within planned disturbance areas are currently provided in limited quantities by existing, generally non-native grasses and by trees that are generally small in size. As would be expected at the top of a butte and within a City Nature Park, there are essentially no significant sources of pollutants or nutrients. Any potential modest impact to these functions will be fully mitigated by the substantial tree and shrub plantings, and the restoration of native grasses and forbs. Similarly, sediment trapping functions at the top of Powell Butte are currently limited, and will be improved through the replacement of concrete drainage channels with vegetated swales. Potential sediments in runoff from park center improvements will be effectively trapped in these swales and in the detention pond before sediment-free water is carried to the infiltration area along SE 158th Avenue entry road. In addition, during construction, sediments will be addressed through construction management and erosion control measures (Exhibits C.62 through C.77).

The Subject Site's recreation functions will be significantly improved based on both the current trail network and that planned in the 2003 Plan. PWB will remove or re-route trails with potential safety hazards or causing existing impacts; these include trails on steep or eroded slopes, fall-line trails, trails through wetlands, and unplanned desire trails through sensitive habitat areas. With extensive input from trail users, the trail system was redesigned to improve recreational opportunities for all park users.

As shown on Exhibits C.75 through C.77, trail construction will result in 2.7 acres of new trails (permanent disturbance) and 6.8 acres of temporary disturbance area for construction of new trails and repair of existing trails.

Trail impacts will be mitigated by the 4.4 acres of restoration to occur where trails will be removed.

The Subject Site's education functions are substantially expanded by this proposal. A new Interpretive Center will be built with educational displays both in and out-of-doors, and integrated into the adjacent gathering space and trail network. An outdoor teaching area will be created to the southeast of the Interpretive Center. Nearby, an interpretive trail will include a series of displays on different themes.

The Subject Site's heritage functions include its farming past and a "heritage" tree on the Butte. The Subject Site's farming history is reflected in the farmhouse cluster theme for the design and layout of the proposed buildings. Powell Butte contains one Heritage Tree (#260), an approximately 90-inch diameter Douglas fir. This tree is adjacent to the existing Black Tail Deer Trail. No disturbance to this tree is planned. The planned trail reroute will move the trail away from the Heritage Tree, reducing the potential for any future impacts to the tree.

As mentioned above, trees and vegetation will need to be removed within the planned construction disturbance areas. After extensive efforts to minimize disturbance limits, and several field meetings with the City Forester to determine whether additional trees could be saved, a total of 153 trees (6 inches or greater in diameter) will potentially need to be removed. Additionally, construction will impact two potential wetlands onsite; these impacts will be more than offset by the removal of existing stream and wetland impacts elsewhere, and the creation of new a wetland.

Trees will be mitigated in the ratios that exceed those required by the 2003 Plan standards (i.e., three trees for every six inches of tree removed at least ten feet from a paved surface and 20 feet from a structure - minimum of one-half inch diameter and selected from the Portland Plant List). Removal of 153 trees triggers planting of 740 replacement trees. PWB proposes to plant at least 20 percent more trees than the minimum mitigation standard. To mitigate impacts to potential wetlands, PWB will create new wetland area, at a replacement ratio of 1 to 1.5 in area, adjacent to existing wetlands. With these mitigation measures and others illustrated in Exhibits C.46-C.61, C.90, and C.91, and described in Table 7 on pages 59-65 of Exhibit A.1, the project will ensure that there is no net loss of resource values on the site.

In response to PWB's assessment of unavoidable impacts associated with the project, and mitigation of those impacts, both PVNA (Exhibit F.1) and BES (Exhibit E.6) raised questions pertaining to wetland impacts and wetland mitigation. PWB provided supplemental wetland analysis (Exhibit A.21) describing that the past and proposed wetland impacts on the Butte would amount to 12,227 square feet, or 0.28 acre. Wetland impacts and mitigation is depicted graphically on Exhibits C.90 and C.91. PWB is working with Oregon Department of State Lands and U.S. Army Corps of Engineers to coordinate federal, state, and city wetland mitigation requirements. Mitigation, as described in Exhibit A.21, includes creation of a 0.42 acre new emergent and scrub-shrub wetland area (at Wetland B), and creation of a 0.072 acre wetland swale (between Wetland E and F), and is aimed at enhancing amphibian habitat. Detailed wetland enhancement plans that expand upon the concept presented in Exhibit A.21, for this mitigation proposal, will be required at permit review.

The Portland Zoning Code states that required shrubs and trees must survive until maturity. Monitoring and maintenance of the plantings is typically required to ensure survival during the first few years of establishment of new plantings. One hundred percent of the trees required to be planted (not additional 20 percent) will be required to survive, or be replaced. Maintaining shrub and groundcover survival so that 80 percent of the planted areas are covered by native vegetation will ensure that a healthy understory is established. Limiting intrusion into planted areas by invasive species as well as providing water during the dry summer months, for the first few years, will also help to ensure survival of the mitigation plantings. Documentation of these monitoring and maintenance practices should be included in an annual monitoring report to demonstrate success of the Mitigation Plan.

PWB proposes (Exhibit A.1, Appendix C) to monitor and maintain all proposed plantings for five years to ensure their survival and replacement as needed. The Applicant will provide annual written monitoring reports to demonstrate the performance of the plantings.

In light of the findings presented above, conditions of approval will be needed to ensure no net loss of resource values. Conditions will be required to provide the following at time of permit:

- Final planting plans showing all mitigation and landscaping plantings in conformance with Exhibits C.46 through C.61, and C.90 and C.91;

- Detailed wetland mitigation plans as the wetland mitigation proposal is described in Exhibit A.21 and attachments, and in conformance with Exhibits C.90 and C.91;
- Plans depicting reseeding all temporary disturbance areas within 30 days of final grading; and
- Monitoring, reporting, and maintaining all required plantings for five years.

With these conditions of approval, this criterion can be met.

4. Views from the Scenic Viewpoints shown on page 68 of the Scenic Resource Protection Plan will not be blocked or impaired.

Findings: The Scenic Resources Protection Plan identifies six scenic viewpoints and corresponding viewsheds within Powell Butte Nature Park (these viewpoints are also shown on the 2003 Plan Figure 4-A4). The Park provides expansive vistas in all directions, including views of Mt. St. Helens, Mt. Rainier, Mt. Adams, Mt. Hood, the forests of the Clackamas, Sandy and Bull Run Watersheds, and most of the nearby Boring Lava Domes. None of the viewpoints have height restrictions associated with them. Three of the viewpoints are oriented in the general direction of the park center, where the proposed construction activity is focused. Two other viewpoints are near the summit of the Powell Butte and oriented to the south, away from the construction site. The last viewpoint is in the southeastern section of Powell Butte and oriented to the west, also out of view of the construction site.

The 2003 Plan City Council findings noted that the potential scenic impacts of the maintenance yard and other park improvements would be mitigated by tree plantings and other conditions of approval. Thus, the scenic viewpoints were addressed in the 2003 Plan, and the focus of this subsequent review is on "modifications to the structures that will impair views, and [such modifications] must be landscaped to mitigate for any potential impacts on views from designated scenic viewpoints" (Master Plan, page 97). The proposed location of the maintenance facility is a lateral shift of about 200 feet to west, but generally no closer to the viewpoints than the location shown on the 2003 Plan site plan. On the south and southwest sides of the building and yard (the side facing the viewpoints in question), native trees and shrubs are proposed that generally meet or exceed double row of trees stipulated in the 2003 Plan. The maintenance building was conceptualized as a large barn in keeping with the farmhouse cluster theme. This was viewed as an attractive component of the park center therefore, the plantings are designed to afford filtered views of the maintenance building from the caretaker's house and Interpretive Center.

Of the three viewpoints is oriented towards the construction site, two are located at the summit of Powell Butte. These viewpoints are at an elevation of approximately 625 feet mean sea-level. The proposed finish elevation of the new reservoir will be 534 to 537 feet, or roughly 90 feet below the viewpoints. This reservoir will be buried and a meadow habitat will be restored over its surface. The Park improvements near the parking lot are all located at an elevation of approximately 425 to 470 feet, or a minimum 155 feet below the viewpoint. These viewpoints are also located at least 1,000 feet from the nearest proposed development (the new reservoir). The vertical and horizontal separation of these viewpoints from the proposed development, and the fact that it is buried, will minimize any potential for scenic impacts. Upon completion of reservoir construction, PWB will install a four-foot tall, split-rail fence around the perimeter of the existing and new reservoirs; this will be an attractive wood fence that will not block or impair scenic views. The maintenance facility, caretakers residence, and other park center improvements are located more than 2,000 feet from the nearest of the two viewpoints and below elevation 500 feet. This distance, in combination with the planned trees and other screening of the park improvements (Exhibits C.46-C.61), and the 125-foot vertical separation, will prevent designated views from being blocked or impaired.

The third viewpoint in the construction area is located within the proposed 50 MG reservoir footprint. This viewpoint was clearly anticipated by the 2003 Plan and is shown within the footprint in 2003 Plan, Figure 4-A4. No modifications to the proposed size or intensity of the reservoir use or development is anticipated, so this structure should not need further screening or mitigation consistent with the 2003 Plan Council findings cited above. The security fence around the reservoirs will be an open mesh agricultural-type fence material, allowing open views through the fence. All City-identified views from this area would be maintained, and no views would be blocked or impaired.

As noted in the Council findings for the 2003 Plan, "the view corridor prevents developments that would extend above the treeline to interfere with the existing view. Phase 1 developments within this corridor include...the 50 MG reservoir, the maintenance yard and storage building, and the park center improvements. These developments are all within the base zone building height and would not extend into the view corridor." The trails will have no adverse effects on the views or viewpoints.

The vernacular farm cluster design enhances scenic views, as discussed in Section 5 below. The views from the applicable scenic viewpoints will not be blocked or impaired and this criterion is met.

5. **Designated outdoor storage and maintenance areas and maintenance buildings will be landscaped to mitigate for adverse impacts to scenic views from Scenic Viewpoints shown on page 68 of the Scenic Resources Protection Plan.**

Findings: As described under the Amendment findings above, the maintenance building and storage yard have not changed in size, but their location is shifted approximately 200 feet west of the area shown in the 2003 Plan to address concerns related to seismic and slope stability hazards. As shown in Exhibit C.60, the maintenance building and storage yard as amended above, will be landscaped and screened beyond the level previously approved in the 2003 Plan, from designated scenic views to the south. The vernacular farmhouse "barn" style maintenance building will add to the scenic character of the site, and filtered views of it are anticipated from the park center to the east. The building is also located at the southern end of the yard to help provide screening of the yard and maintenance activities therein.

This criterion is met by the proposal.

6. **There are no additional traffic impacts that require traffic improvements or additional parking spaces.**

Findings: The 2003 Plan Amendment findings, as set forth above, addressed the proposal for modified parking, with amendments made to car, bus and trailer parking spaces at Powell Butte. This review addresses the implementation of the new design. As demonstrated in the recent traffic study (Exhibit A.1, Appendix D in the application case file), the proposed parking changes contained in the 2003 Plan Amendments will fully address traffic and parking impacts at the site. No additional traffic impacts that require either traffic improvements or additional parking spaces are anticipated.

PVNA raised the issue of short term heavy truck traffic associated with excavation/construction related to Conduit 5 (Exhibit H.10). PBOT responded (Exhibit H.20) that:

"construction related truck traffic is considered a temporary impact and not an evaluation factor in the analysis for adequacy of transportation facilities. Construction projects of the size proposed are required to provide a traffic management plan to PBOT Traffic

Management prior to beginning construction activities. These plans generally include safety provisions, identified truck routes, and any street and/or lane closers with hours of operation and flaggers if necessary. PTOT typically requires a photographic record of the existing conditions of the roadways in order to require the applicant to repair any damaged roadways to pre-existing conditions. The Water Bureau is subject to these requirements."

The Hearings Officer finds the PVNA concern regarding heavy truck traffic was adequately addressed by the PBOT comments quoted above.
This criterion is met.

7. All Zoning Code requirements are met unless superseded by the Master Plan.

Findings: Zoning Code requirements related to this proposal that are not superseded by the Master Plan are either met or Adjusted below, by this review.

This criterion is met.

8. All Master Plan standards are met.

Findings: Master Plan development standards are listed on pages 45-48 of the 2003 Plan. Applicable 2003 Plan standards are addressed in the Development Standards section below. Standards that are not met are discussed in the Adjusted findings below.

This criterion is met.

Title 33 Adjustment Review
Condition of Approval G for the 2003 Plan established development standards that apply to permitted uses within the Powell Butte Master Plan Boundary. If proposed development does not comply with the Powell Butte Master Plan development standards, it is permitted if the City approves an Adjustment to the relevant standards.

PWB requests three Adjustments to 2003 Plan Development Standards as follows:

- An Adjustment to allow a wider disturbance area [greater than 40 feet in width] for construction of Conduit 5 pipeline;
- An Adjustment to allow a more effective shrub replanting standard for the Conduit 5 corridor and the open meadow area, which will result in a higher density planting of shrubs than required; and
- An Adjustment to allow a wider tree removal exemption area [greater than five feet] in order to construct the new maintenance facility, stormwater detention pond, stormwater line, Conduit 5 and parking areas, all which require an excavation beyond the five-foot limit on moderate slopes.

33.805.040 Approval Criteria
Adjustment requests will be approved if the review body finds that the applicant has shown that either approval criteria A. through F. or approval criteria G. through I., below, have been met.

A. Granting the adjustment will equally or better meet the purpose of the regulation to be modified; and

F. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.

Findings: Three Adjustments are requested, as noted above. PWB requests an Adjustment to the 40-foot disturbance area standard for utility lines and outfalls to construct the Conduit 5 utility line. The 2003 Plan approved the location of Conduit 5. However, the 40-foot disturbance area limit applied to the finished trench width; it did not realistically account for the area required to excavate the trench, transport materials, and safely install the pipeline. The requested Adjustment is based on more detailed construction information, advice from construction and engineering specialists, and the recommendations of the City Forester.

To preserve the ecological and scenic qualities of the open meadow, PWB proposes to plant the open meadow area with herbaceous (grassy) vegetation. To increase the survival rate for shrub plantings in the Conduit 5 disturbance area, PWB proposes to plant bare root shrubs at a higher density than required by the 2003 Plan standard.

The 2003 Plan standard for removing only trees within ten feet of structures and five feet of paved areas does not permit tree removal necessary for construction of the new maintenance facility, stormwater detention pond, stormwater line, Conduit 5, or parking areas, which require the excavation beyond the five-foot limit on moderate slopes.

Because two of the three proposed Adjustments are based on the purpose section of Environmental Zone development standards, and because the Subject Site is located within the Environmental zone, Criteria A and F are considered together.

Adjustment No. 1 (The Conduit 5 Disturbance Area)
This 40-foot disturbance area standard in the 2003 Plan is adapted from the utility line standards of the City's Environmental Zone (33.430.150.B). Therefore, the Purpose Statement from Environmental Zones, Development Standards applies:

33.430.110 Purpose
These provisions are intended to:
A. Encourage sensitive development while minimizing impact on resources;
B. Provide clear limitations on disturbance within resource areas;
C. Ensure that new development and alterations to existing development are compatible with and preserve the resources and functional values protected by the environmental zones;
D. Provide clear planting and erosion control requirements within resource areas;
E. Buffer the resource area from the noise, fumes, lights, and motion of vehicular traffic associated with industrial, commercial, and multi-dwelling residential uses; and
F. Limit the impacts on resources and functional values resulting from construction of certain types of utilities.

Thus, the purpose of the 2003 Plan's original 40-foot disturbance area limit was to "encourage the sensitive development" of Conduit 5, to "provide clear limitations on disturbance within resource areas," and thereby, to "limit the impacts on resources and functional values resulting from construction of certain types of utilities." Based on a more detailed engineering analysis, PWB determined that the existing standard would not allow safe and practicable Conduit 5 construction. As noted below, the adjusted standard allows the "sensitive development" of Conduit 5, with the minimum possible disturbance to trees within a carefully drawn disturbance area.

Based on updated (since 2003) and more detailed information, the adjusted disturbance area standard (40 to 60 feet, depending on topographical and tree conditions) is the minimum necessary to construct the water supply line safely. The adjusted standard limits impacts from construction of this unusually large utility line, which is a 90-inch diameter steel pipe. Generally,

pipes of this size require a work area width of 80 to 100 feet. The reasons why a wider (than 40-foot) disturbance area is normally necessary include:

- Trench Width: Depending on the depth of the trench, the native soil conditions, the ability of the soil to stand at a steep slope, and the safety shoring method used, the trench width itself will be approximately 15 feet at the bottom of the trench, with the width wider at the top of the trench, depending on the trench side slopes, shoring requirements and ground conditions (see Exhibit C.71).

- Excavator Operation: To excavate the trench in the areas with maximum cover over the pipe, the contractor needs to use an excavator with a minimum 25-foot reach. Most excavators with this kind of reach are 14 to 15 feet-wide. When the excavator turns, an additional two feet is required on both sides.

- Stockpiled Material: There are two options for handling excavated material: it must be stored along the utility corridor or removed using a dump truck. Either option requires additional working space. A dump truck roadway requires a minimum width of ten feet on one side of the trench. Moreover, a road is needed on the other side of the trench to deliver material for bedding the pipe and backfilling the trench.

- Pipe Storage: The steel utility pipe has segments that are approximately 40 feet long with ½-inch thick steel walls and cement mortar lining; each segment weighs approximately 24,000 pounds. Storing the pipe segments next to the trench requires an additional ten feet.

- Safety Fence: Personnel access and space to construct a safety fence and/or silt fence require an additional five feet beyond the road or pipe storage area.

To accommodate the concerns listed above, PWB requested a "base" working area width of 60 feet. In collaboration with the City Forester, the design team toured the site and identified areas where the disturbance area may be reduced to 40 feet, allowing for additional tree preservation, as shown on Exhibits C.87, C.88 and C.89. The trees in the proposed disturbance area are relatively young; replanting of the area with dense shrubbery will ensure that the disturbance area regains it functional values over time.

To minimize impacts from construction of Conduit 5, the design team met with representatives from a utility contractor to discuss practicable methods to reduce the work area width from the conventional 80 to 100-foot width required for a large diameter pipeline. The contractor has completed several large diameter pipe projects in the Portland area and other locations. Recognizing that efficiency must sometimes be reduced to achieve environmental objectives, the contractor suggested the following steps to minimize the disturbance area:

- A crane is the most efficient way to unload the pipe from the delivery trucks and to lift the pipe into the trench. However, use of an excavator, rather than a crane, takes less space. Thus, an excavator will be used to unload the pipe for this project.

- Excavated material is stored adjacent to the trench and used for backfill. The size of the pipe and resulting size of the trench would require a large area for material storage. To reduce the width of the disturbance area further, the excavated material will be hauled away, and the trench backfill material will be hauled back and unloaded along the side of the trench, then moved into the trench in lifts and compacted.

- Temporary roadways are constructed on both sides of the trench: one roadway is used to deliver the pipe segments and backfill material, and the other roadway is used to haul excavated material away. To save trees and reduce environmental impacts, one road will suffice for these functions, but at the cost of decreased productivity and increased cost for short stretches of corridor.

- Safety concerns require that the roadway not be too close to the edge of the trench in case the trench wall sloughs due to vibration and travelling loads. However, depending on the stability of the soils and the shoring system used, roadway construction sometimes occur closer to the trench, without compromising safety, thus reducing the disturbance area further in certain areas.

- Finally, areas for worker parking, equipment storage, equipment fueling, equipment maintenance, and material storage will be located outside the forested utility corridor disturbance area.

After taking these extraordinary precautions, a 60-foot based disturbance area will still be required along most of the utility line corridor. Based on the City Forester's recommendation, the contractor will be able to narrow the work width in designated areas to preserve trees. A cross-section showing the base case (60-foot wide disturbance area) and a special narrow case (40-foot wide disturbance area) are shown in Exhibit C.71.

Lost trees will be replaced at a ratio of three trees for every for every six inches of removed tree diameter. Moreover, shrubs will be planted at a higher density in the disturbance area than required by the existing standard. Thus, long-term benefits compensate for short-term construction impacts.

Adjustment No. 2 (Replanting Standard in Utility Disturbance Areas)
The replanting standard is carried over from the utility line standards of the City's Environmental Zone (33.430.150.D); therefore, the purpose statement from Environmental Zone Development Standards is relevant in determining the purpose of the standard (see purpose statement above). In summary, the primary purpose of the replanting standard is to "limit the impacts on resources and functional values resulting from construction of certain types of utilities."

The 2003 Plan calls for preservation of the ecological and scenic qualities of the open meadow; therefore, rather than plant dense shrubs in the open meadow, replanting with native herbaceous vegetation best meets the purpose of this standard, as interpreted through the approved 2003 Plan. Planting shrubs above the utility corridor in the established meadow would create an inappropriate shrubbery line through the grass and forb habitat, and would provide a seed and fruit source for these shrub species to spread. Over time, the vegetative community would change from the desired meadow condition.

The proposed Adjustment better meets the purpose of the Environmental zone because it will keep shrubs out of a managed meadow habitat where shrubs are inappropriate. The proposed Adjustment will provide native herbaceous plantings that compliment the open meadow habitat, while eliminating unnecessary impacts to the meadow's ecological functions.

Within the Conduit 5 corridor that enters the Anderegg subdivision and continues east to Circle Avenue, the goal is to provide a dense shrub layer within the utility corridor. Based on the recommendations of PWB's landscape architect, the best way to increase the survival rate for dense, smaller plantings is to use bare root shrubs (rather than two gallon shrubs as provided in the original Master Plan standard). The 2003 Plan standard is two, two-gallon shrubs for every ten

square feet of disturbance area; PWB proposes to plant 2.5 bare root shrubs for every ten square feet of disturbance area for a total of 25,822 shrubs.

Shrubs within this corridor will provide additional forage and cover habitat adjacent to established forest areas of Powell Butte. Incorporating bare root plantings will help to ensure a better survival rate for smaller plantings. This will help to enhance the resource and mitigate more rapidly and effectively the impact of utility construction. For these reasons, the proposal will limit the impacts on resources and functional values and thus meets the purpose of the standard.

Adjustment No. 3 (Tree Removal Standard)
The 2003 Plan tree removal standard allows tree removal within five feet of the "periphery of paving, outdoor activity areas, driveways or utility line corridors shown on the approved Site Plan." The original basis for this standard was the Johnson Creek Basin Plan District tree removal standards (PCC 33.537.140.C.1) as adjusted by LUR 00-0414 MS CU EN EV AD. Therefore, the Purpose Statement from the Johnson Creek Basin Plan District, South Subdistrict is applicable:

33.537.140 South Subdistrict Development Standards
A. Purpose. *These regulations mitigate the negative impacts that may result from the development of areas where flooding and landslides are common. The impermeable clay soils of the steep-sided Boring Lava hills to the south of the creek contribute to rapid stormwater runoff in the winter, and contribute to flooding. Unlike the flatter areas north of the creek, in the South subdistrict there are numerous small streams that can quickly carry stormwater runoff to Johnson Creek. The extensive tree canopy on these hillsides helps to slow stormwater runoff. Limitations on development density, tree removal, and impervious surface area reduce stormwater runoff, provide groundwater recharge, reduce erosion, protect water quality, and retain native vegetation. These regulations work together to protect watershed health while allowing the safe and efficient development of unconstrained lands.*

It is doubtful that the maintenance and parking areas approved in the 2003 Plan could have been constructed, as originally approved, without an Adjustment to the five-foot tree removal standard. As noted in the Project Description section of this narrative, proposed 2010 Master Plan amendments resulted from an extensive public involvement and design process that balanced neighborhood design preferences, functional requirements for the park and water system, environmental concerns, and compliance with the development standards set forth in the 2003 Plan.

The new location and design of the parking lot and maintenance yard will better preserve the scenic resource values of Powell Butte, which will help to meet the purpose of the complimentary standards of the Environmental zone and South Subdistrict development standards. The Adjustment is necessary to allow PWB to physically construct the proposed parking lot and maintenance yard.

The 2003 Plan tree removal standard within five feet of the "periphery of paving, outdoor activity areas, driveways or utility line corridors" is inadequate to allow construction of the proposed parking and maintenance areas, because this standard does not account for excavation necessary for construction on moderate slopes. As shown on Exhibits C.82 through C.84, approximately 30 trees beyond the five-foot limit must be removed for grading. As shown on Exhibits C.85 through C.87, two trees may be removed beyond the five-foot limit to construct the storm water detention pond that was not anticipated in the 2003 Master Plan.

As shown in the response to Adjustment Criterion E, PWB will plant three trees for every six inches of diameter removed. Over time, these plantings will exceed current tree canopy, which will help to slow/reduce stormwater runoff, provide groundwater recharge, reduce erosion, and protect water quality in Johnson Creek. Thus, this Adjustment will provide both short-term and long-term benefits and thus, better meet the purpose of the South Subdistrict Development Standards.

Adjustment criteria A and F are therefore, met.

B. If in a residential zone, the proposal will not significantly detract from the livability or appearance of the residential area, or if in an OS, C, E, or I zone, the proposal will be consistent with the classifications of the adjacent streets and the desired character of the area; and

Findings: The Adjustments have no bearing on the classifications of the adjacent public streets.

The proposed adjustments are located in an Open Space (OS) zone excepting for a portion of the Conduit 5 corridor located in a Residential zone. Per PCC 33.910 "desired character" is "[t]he preferred and envisioned character (usually of an area) based on the purpose statement or character statement of the base zone, overlay zone, or plan district." In this case, the 2003 Plan further defines the preferred character of the area, which authorizes construction of Conduit 5, park and utility improvements within the OS zone. Thus, to determine if the proposal is consistent with the "desired character of the area," the City must look at the purpose statements of the OS zone, the Environmental zone, and the Johnson Creek Basin Plan. The 2003 Plan as amended also helps define the "desired character of the area" for purposes of these Adjustments.

The purpose statement for the Open Space Zone (PCC 33.100), the Johnson Creek Basin Plan District (PCC 33.537), and the Environmental Zone (PCC 33.430) are as follows:

33.100.010 Purpose
The Open Space zone is intended to preserve and enhance public and private open, natural, and improved park and recreational areas identified in the Comprehensive Plan. These areas serve many functions including:
- *Providing opportunities for outdoor recreation;*
- *Providing contrasts to the built environment;*
- *Preserving scenic qualities;*
- *Protecting sensitive or fragile environmental areas;*
- *Preserving the capacity and water quality of the stormwater drainage system; and*
- *Providing pedestrian and bicycle transportation connections.*

33.537.010 Purpose
The Johnson Creek Basin plan district provides for the safe, orderly, and efficient development of lands which are subject to a number of physical constraints, including significant natural resources, steep and hazardous slopes, flood plains, wetlands, and the lack of streets, sewers, and water services. At certain locations, the density of development is limited by applying special regulations to new land division proposals. In addition, restrictions are placed on all new land uses and activities to reduce stormwater runoff, provide groundwater recharge, reduce erosion, enhance water quality, and retain and enhance native vegetation throughout the plan district. At other locations, development is encouraged and mechanisms are included that provide relief from environmental restrictions. This plan district is intended to be used in conjunction with environmental zoning placed on significant resources and functional values in

the Johnson Creek basin, to protect resources and functional values in conformance with Goal 8 of the Comprehensive Plan and Statewide Planning Goal 5.

33.430.010 Purpose
Environmental zones protect resources and functional values that have been identified by the City as providing benefits to the public. The environmental regulations encourage flexibility and innovation in site planning and provide for development that is carefully designed to be sensitive to the site's protected resources. These regulations also help meet other City goals, along with other regional, state, and federal goals and regulations. The environmental regulations also carry out Comprehensive Plan policies and objectives.

The "general purpose statements" for the Johnson Creek Plan District, Environmental and Open Spaces zones are similar to the "development standards purpose statement" – to protect and preserve significant resources and functional values. The OS zone also provides opportunities for outdoor recreation. Development is "encouraged in certain locations" following Environmental Review. The 2010 CUMP amendment proposal identifies locations appropriate for park and recreational development, parking areas, trails, water facilities and utility corridors.

Adjustment No. 1 (The Conduit 5 Disturbance Area)
As documented above in findings for Criteria A and F, the widening of the Conduit 5 disturbance area from 40 feet to 60 feet (or less in designated areas), is the minimum necessary to construct the 90-inch pipe in a safe and practicable manner. Mitigation in the form of dense, on-site shrubs within the utility corridor and off-site tree plantings compensates for any interim loss of resource or aesthetic value.

The 2003 Plan identified and mapped the Conduit 5 corridor as appropriate for a water utility line in the OS and Residential zones following Environmental Review. This Adjustment is necessary to permit an approved facility at the location shown in the 2003 Plan to be constructed – safely and practicably – in the Open Space and Residential zones.

Adjustment No. 2 (Replanting Standard in Utility Disturbance Areas)
As demonstrated in response to Criterion A, the Adjustment to the utility corridor re-planting standard will: (a) maintain sensitive meadow habitat called for in the 2003 Master Plan by planting grasses instead of shrubs; and (b) provide more effective bare root plants at higher density than required by the 2003 Plan standard in the forested portion of the utility corridor.

As demonstrated in the response to Criterion E, adverse impacts to natural areas resulting from the utility disturbance area and tree removal adjustments are temporary and PWB will mitigate for these impacts. For these reasons, the Adjustments will enhance the natural and desired character of the area.

Adjustment No. 3 (Tree Removal Standard)
As documented under Criteria A and F, extending the tree removal area beyond the five-foot standard for parking, paved areas and utility corridors, is necessary to allow these planned facilities to be constructed in a safe and practicable manner. Proposed mitigation – one new tree for every six inches of tree diameter removed, plus 20 percent, which averages about 6:1 – will ensure that short-term tree loss (and attendant functional values) will be exceeded as trees mature.

In summary, the proposed Adjustments are consistent with the "desired character of the area" defined by the purpose sections of the base OS and R zones, the Johnson Creek Basin Plan, the Environmental Zone and the 2003 Plan, and this criterion is met.

C. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project which is still consistent with the overall purpose of the zone; and

Findings: The "overall purpose" of the applicable zones is described under Criterion B. The "general purpose statements" for the Johnson Creek Plan District, Environmental and Open Spaces zones are similar to the "development standards purpose statement"– to protect and preserve significant resources and functional values. The OS zone also provides opportunities for outdoor recreation. Development is "encouraged in certain locations" following Environmental Review. The 2010 Master Plan Amendment identifies locations appropriate for the park maintenance building, parking areas and utilities for which Adjustments to environmental standards are requested.

The greatest impact from the adjustments will result from tree removal. To mitigate for this short-term tree loss, the PWB will plant approximately 888 trees on Powell Butte. Other mitigation measures include planting of grasses and forbs over the Conduit 5 corridor through the open meadow and planting of shrubs over the Conduit 5 corridor through the forested area.

Thus, each of the three Adjustments has short-term tree removal impacts that are mitigated by measures described in findings for Criteria A, D and E. As shown in findings for Criterion B, above, on balance, the proposed Adjustments will preserve the character of the Open Space zone and protect Powell Butte's significant resources and functional values. As shown in the response to criterion E, the proposed mitigation measures will enhance the site's resources and functional values and provide a long-term net ecological benefit. Taken together, these Adjustments meet the overall purpose of the base zone, Overlay zone and Plan District.

The proposal meets this criterion.

D. City-designated scenic resources and historic resources are preserved; and

Findings: There are no identified historic resources at this site. City-designated scenic views were discussed earlier in this decision. The Scenic Resource Protection Plan shows the Subject Site on Map #20b. There are six City-designated scenic viewpoints on Powell Butte. There is no special height restriction associated with these viewpoints. The three proposed Adjustments have no effect on, or impair panoramic views from, these viewpoints. Powell Butte itself has scenic qualities that are recognized and protected by applicable City zones. Short-term construction impacts on the scenic quality of Powell Butte will be mitigated and scenic qualities enhanced by proposed tree, shrub and herbaceous plantings. The design of Park improvements, farmstead cluster, parking facilities and trails will enhance future scenic values when compared with existing conditions.

This criterion is met.

E. Any impacts resulting from the adjustment are mitigated to the extent practical; and

Findings: Mitigation for the proposed adjustments includes the following:
Adjustment No. 1 (The Conduit 5 Disturbance Area)
The Conduit 5 disturbance area Adjustment will result in the loss of additional trees. Lost trees will be replaced at a ratio of three trees for every six inches diameter removed. Moreover, shrubs will be planted at a higher density in the disturbance area than required by the 2003 Plan. Thus, long-term benefits compensate for short-term construction impacts.

Adjustment No. 2 (Replanting Standard in Utility Disturbance Areas)
The 2003 Plan calls for preservation of the ecological and scenic qualities of the open meadow; therefore, rather than plant dense shrubs in the open meadow, replanting with native herbaceous vegetation best meets the purpose of this standard, as interpreted through the approved 2003 Plan.

Based on the recommendations of PWB's landscape architect, the best way to increase the survival rate for dense, smaller plantings is to use bare root shrubs (rather than two-gallon container shrubs as provided in the original 2003 Plan standard). The 2003 Plan standard is two, two-gallon shrubs for every ten square feet of disturbance area; PWB proposes to plant 2.5 bare root shrubs for every ten square feet of disturbance area for a total of 25,822 shrubs.

Adjustment No. 3 (Tree Removal Standard)
This Adjustment will allow PWB to remove an additional 30 trees beyond the five-foot limit. For every six inches diameter removed, PWB will plant three trees, using the mitigation ratios shown in the 2003 Plan, resulting in approximately 360 new trees. The high tree replacement ratio will expand existing tree canopy, providing a long-term ecological and scenic benefit.

With provision of final planting plans that show how the above-described plantings will be achieved, this criterion can be met.

Additional Adjustment to Zoning Code Standards

A Title 33 Landscape and Screening Code conflict requires an additional Adjustment. In short, the diversity requirement for L3 plantings cannot be met using native plants as required in the Environmental zones that also are listed as high shrubs in the *Portland Tree & Landscaping Manual.*

There are two 2003 Plan standards that specify "high screen" (L3) landscaping: Exterior Storage and Mechanical Equipment. These standards apply to the maintenance yard where the proposed exterior storage and mechanical equipment are located. The L3 standard calls for an evergreen screen of shrubs that will reach a height of at least six feet within three years of planting. Because the maintenance yard is in the Environmental Conservation Overlay Zone, the shrubs must also be native and listed on the *Portland Plant List* (33.430.130).

The conflict arises due to the requirement, in PCC 33.248.030.D, that when more than 25 shrubs are required, no more than 75 percent may be of one species. Thus, since more than 25 shrubs will be planted at the maintenance yard (see Exhibit C.60), at least two native six-foot evergreen shrub species are required. However, only one shrub on the *Portland Plant List* is both evergreen and classified as "high" in the *Portland Tree & Landscaping Manual.* In the absence of a second species of native shrub, this standard cannot be met.

The "high" evergreen that meets the City's standard is hairy manzanita (*Arctostaphyllos columbiana*). This shrub has not been seen in Portland since the 1970's, and historically did not grow on Powell Butte. According to City botanists, this shrub also is not readily available commercially. For these reasons, this species is not proposed to be used for screening at the maintenance yard. Instead, PWB proposes to plant 228 evergreen shrubs (tall Oregon grape) that are native to Powell Butte and listed on the *Portland Plant List* as five to six feet tall. In addition, 202 native "high" deciduous shrubs and 71 native trees are proposed to supplement the high evergreen screen at the maintenance yard.

33.805.040 Adjustment Approval Criteria

A. Granting the adjustment will equally or better meet the purpose of the regulation to be modified; and
E. Any impacts resulting from the adjustment are mitigated to the extent practical; and
F. If in an environmental zone, the proposal has as few significant detrimental environmental impacts on the resource and resource values as is practicable.

Findings: Because the maintenance yard is located within the Environmental zone, Criteria A, E and F are considered together.

The intent of the L3 (high screen) standard is defined in PCC Subsection 33.248.020.C.1:

"1. Intent. The L3 standard is a landscape treatment which uses screening to provide the physical and visual separation between uses or development. It is used in those instances where visual separation is required."

PWB proposes 228 evergreen shrubs (tall Oregon grape) that are native to Powell Butte, and which, according to the *Portland Plant List,* will reach five to six feet in height. To diversify the community, 202 "high" deciduous shrubs (including western serviceberry, oceanspray, mock orange, red-flowering currant, and Scouler's willow) and 71 native trees will be planted around the maintenance yard. The selected plants will form a dense thicket that will screen the maintenance yard year-round. The proposed vegetation will provide a physical and visual separation between the maintenance yard and other areas of the park and adjoining residential properties. The selected species are representative of the vegetative community present on Powell Butte and will diversify the ecological conditions at the maintenance yard site. By using a mix of high and moderately high native shrub species in wide planting areas, the proposal will mitigate any potential screening impacts caused by the conflicting Code requirements.

Therefore, the proposed Adjustment meets Criteria A, E and F.

B. If in a residential zone, the proposal will not significantly detract from the livability or appearance of the residential area, or if in an OS, C, E, or I zone, the proposal will be consistent with the classifications of the adjacent streets and the desired character of the area; and
C. If more than one adjustment is being requested, the cumulative effect of the adjustments results in a project which is still consistent with the overall purpose of the zone; and
D. City-designated scenic resources and historic resources are preserved;

Findings: The maintenance yard is located more than 500 feet from the nearest residential district and generally screened from offsite view by existing mature vegetation, physical separation and topography. In addition, the area will be densely screened by a mix of native evergreen and deciduous shrubs, which preserves the desired character of the Open Space area. The Adjustment has no bearing on the classifications of the adjacent public streets. There are no identified historic resources on site. The City-designated scenic resources identified in previous findings will be preserved by the proposed vegetative screen that will be equally as effective as a high evergreen screen with two plant species, but more diverse and natural in appearance. From the scenic view sites, the maintenance yard plantings will blend in with their surroundings.

For these reasons, the proposed adjustment meets Criteria B, C and D.

In summary, the diversity requirement for L3 plantings exceeding 25 shrubs cannot be met using native plants that are listed as high shrubs in the *Portland Tree & Landscaping Manual.* To

address this conflict in Code provisions, PWB proposes to plant a mix of native evergreen and deciduous shrubs to create a high, diverse and effective screen for the maintenance yard. This proposal therefore, equally or better meets the purpose of the high screen regulation and satisfies all other applicable Adjustment criteria.

DEVELOPMENT STANDARDS and MASTER PLAN CONDITIONS OF APPROVAL

Unless specifically required in the approval criteria listed above, this proposal does not have to meet the development standards in order to be approved during this review process. The plans submitted for a building or zoning permit must demonstrate that all development standards of Title 33 can be met, and those of the 2003 Plan in this case. If they are not shown on permit plans to be met, they must receive Adjustment approval via a Land Use Review prior to the approval of a development permit.

The 2003 Plan specifies development standards and conditions of approval for all projects within the Plan area. Most of the development standards contained in the 2003 Plan apply to the construction of water system and park improvements. These standards are listed on pages 45-48 of the 2003 Plan. The standards are briefly reviewed in this section to show that the standards can and will be shown to be met at the time of development permit review. Following the development standards is a review of the 2003 Plan conditions of approval that must be met at time of permit.

2003 Powell Butte Master Plan Development Standards:
The standards in Table 3E-1 of the Powell Butte CUMP apply to development in the2003 Plan boundary. These standards are generally a hybrid of the land use standards that would normally be applied to allowed and Conditional Uses in the Open Space zone. They are addressed below.

Minimum Building Setback
20 feet from protection-zoned lands, and 1 foot from the property boundary for every 1 foot of building height.

Response: The 50 MG reservoir will be constructed underground at the location shown in the 2003 Plan. The maintenance building is the closest building to the protection zone. This structure is located approximately 700 feet from the protection zone boundary to the west (see Figure 3.0). Thus, all buildings will be located at least 20 feet from protection-zoned lands.

All buildings also meet the one foot for every one foot height setback from property boundaries. The nearest building to the park property boundary (maintenance building) is set back approximately 300 feet from the nearest property line. This standard is met.

Minimum Outdoor Activity Setback
25 feet from an R-zoned property if not illuminated; 50 feet from an R-zoned property if illuminated; 20 feet from protection-zoned lands.

Response: All future outdoor activities will be set back more than 50 feet from residentially-zoned properties. The closest such area is the maintenance yard, which is set back approximately 200 feet from the nearest residential property (see Figure 3.0). The nearest protection-zoned land is 600 feet from the maintenance yard. This standard is met.

Minimum Parking Setback

10 feet from a site or protection zone boundary when improved to an L2 standard; 20 feet when improved to an L1 standard. Topography and/or existing vegetation may fulfill landscape requirements when they result in equal or better screening.

Response: The nearest parking area (bus/trailer lot) will be set back approximately 240 feet from the nearest site boundary and more than 1,200 feet from the nearest protection zone (see Figure 3.0). Site topography, in conjunction with existing and proposed vegetation and the large setbacks, provide effective screening of the parking area. This standard is met.

Extensions into Setbacks
Minor building projections may extend into a setback as provided in PCC 33.110.220. C.

Response: The nearest building (maintenance building) is set back approximately 300 feet from park property lines. There are no proposed building projections into setbacks. This standard is met.

Exterior Storage
Exterior storage of materials, equipment and solid waste shall comply with the setback standards for buildings. The periphery of such storage areas shall be landscaped to an L3 standard except at entries to such areas.

Response: As shown on Figures 6.1 and 6.14, the storage yard will be landscaped to exceed the L3 standard. A double row of trees will be planted on the south and west sides of the storage area (except at entries to the maintenance yard). Existing park vegetation and topography, combined with a 300-foot setback provide additional separation and screening of the exterior storage area from the north and east. This standard is met. Due to a Code conflict and commercial availability, PWB requested an Adjustment to plant one evergreen shrub species and various high deciduous shrubs to meet the "L3" standard. This Adjustment is addressed above.

Mechanical Equipment
The periphery of mechanical equipment located on the ground shall be landscaped to an L3 standard. Mechanical equipment on roofs shall be screened from view from the ground level of any abutting R-zoned lands.

Response: The only mechanical equipment proposed outdoors are three air-conditioning units within the maintenance yard. These are small (three or four-foot high) units. The maintenance yard will be fenced and have a landscape screen meeting the L3 standard (see Figure 6.1 and 6.14). There is no proposed roof mounted equipment. This standard is met.

Hazardous Substances
Storage and use of consumer quantities of hazardous substances is permitted consistent with applicable requirements of this Plan, the Building Code and the Fire Bureau. Temporary storage and use of package quantities of hazardous substances is permitted in conjunction with an emergency declared by the Director of the Water Bureau. If Portland City Code Title 33 is amended to allow it, storage and use of package quantities of hazardous substances not in conjunction with an emergency is permitted consistent with applicable standards.

Response: Hazardous materials at this Subject Site would be those associated with general construction practices and maintenance activities. This includes vehicle fuels, paints, cleaning materials, and caustic construction compounds. Covered areas will be provided around the maintenance facility to allow for vehicle loading and unloading and to provide wash-down areas.

A spill containment area will be provided with the appropriate containment, separators and filtering system, as well as piping to the appropriate discharge location, hydraulically isolating the area from runoff. The only chemicals kept on site will be herbicides in consumer quantity and fuel for the emergency generator and equipment on site, located in locked storage cabinets. Therefore, this standard is met.

Landscaping and Screening
Required landscaping and screening shall comply with applicable provisions of Portland City Code sections 33.248.030 through 33.248.070. Plantings required for environmental mitigation shall comply with Portland City Code section 33.248.090 and 33.430.

Response: As documented in the Planting Plans and Tree Mitigation Plan set (Figures 6.0 through 6.15), applicable landscaping and screening requirements of the Zoning Code will be satisfied. These requirements include standards for tree protection and mitigation plantings. Planting will occur once construction of buildings, parking and water facilities has been completed; this standard will be met at the time of planting.

Pedestrian and Bicycle Trails
Pedestrian and bicycle trails shall be improved to meet minimum standards of the Portland Pedestrian Guide (Office of Transportation Engineering and Development, 1998).

Response: Section D of the Portland Pedestrian Guidelines (1998), provides guidelines for pathways and stairs. These guidelines address issues such as right-of-way width, lighting signage and materials. However, the majority of these guidelines pertain to stairways and pathways adjacent to roadways. No stairs or pathways within the public right-of-way are proposed. Therefore, the majority of these standards are not applicable to the proposed trails. The updated Trail Plan included in this 2003 Amendment application uses the PPR 2009 *Trail Design Guidelines.*

Equestrian Trails
Equestrian trails shall be at least five feet wide and shall be surfaced with bark or wood chips or other suitable natural material.

Response: As addressed earlier under the Amendment to the 2003 Plan review, PWB and PPR are proposing to update the Trail Master Plan, incorporating new PPR trail standards. The Amended 2003 Plan provides a series of multi-use trails that are at least five feet-wide and suitably surfaced for equestrian use. These trails are generally on the upper areas of Powell Butte and are connected to the horse-trailer parking area in the northern part of the park center. As a result of the revised plan, however, five-foot wide trails through steep and sensitive areas of the site were deemed to cause unnecessary impacts; these trails have been reduced to a maximum of four feet. This standard has effectively been replaced through the amendment to the Trail Master Plan.

Fences
Fences are permitted up to eight feet high and of any material, provided they do not obstruct sight distance at intersections and are within approved disturbance areas.

Response: Upon completion of reservoir construction, PWB will install a four-foot tall, split-rail wooden fence around Reservoir #1 and Reservoir #2. The intent of the fence is to identify the extents of the reservoirs to prevent vehicles, equestrians and bicyclists from crossing over the top of the reservoirs. The fence will be largely indiscernible and blend into the natural setting.

An eight-foot high chain link, barbed-wire security fence will also be installed around the maintenance storage yard. As stated in the 2003 Plan, this fence will be vinyl-coated green to blend in with the natural park setting.

Both of these fences meet the eight-foot height threshold. They are sited well back from intersections and will not obstruct sight distances. Both are also within disturbance areas, either as approved by the 2003 Plan, or in the case of the relocated maintenance yard fence, by the present 2003 Plan Amendment. This standard will be met at the time of construction.

Utility Lines and Outfalls

The disturbance area shall be no more than 40 feet- wide for a public outfall or utility line with a diameter of 48 inches or more and shall be no more than 30 feet- wide for a public outfall or utility line with a diameter less than 48 inches.

Response: PWB requests an Adjustment to this standard to provide additional work area needed to install Conduit 5. All work will be contained within the established utility corridor. The Adjustment is addressed above.

The PWB plans to make minor improvements to the existing outfall structure at Johnson Creek, adjacent to the Circle Avenue Bridge. This work involves extending the structure's two wingwalls one foot higher. This work falls under the utility line standard and is within the 40-foot disturbance area limitation.

All modifications to the outfall structure will be made from the bottom area within the structure. This is to facilitate construction and provide improved safety. A temporary ladder will be needed to provide access from the roof of the structure to the bottom, where the work will be performed. Bolt holes on each side of the existing wingwalls will be drilled with a handheld rotodrill powered by a generator located on the truck stationed on SE Circle Avenue.

The work involved will take no more than one week to complete. The work will be performed in late summer/early fall, when the water level in Johnson Creek is low. Construction access limits result in it being anticipated that most of the work to be performed from inside the structure. No access will be allowed to Johnson Creek at any time during the construction period.

All work will be contained within five feet of the existing structure, which will allow construction work crews to stand while guiding the wing wall extensions into position (see Exhibit C.25). Access to the site will be on foot from SE Circle Avenue along a narrow access corridor. Thus, the disturbance area varies from five to ten feet, and complies with the standard.

Disturbance areas shall be planted with native species on the Portland Plant List according to the following densities:

(1) Three different native shrub species are required at a minimum two- gallon size on three- foot centers planted at a density of two plants per ten square feet;

Response: PWB requests an Adjustment to this standard to avoid linear shrub plantings in areas designated as open meadow habitat. The Adjustment is addressed above. All species planted will be listed as native in the *Portland Plant List.*

(2) The remaining area must be planted with native groundcover. Planting can be either with potted growth or seeding, but must be at a level that will achieve 90% groundcover within one growing season. At least eight species of plants must be used. Fifty percent of any seed mix used must be

grass and 50 percent flowers when measured by area covered. If cover and species requirements are not met within one year, or two growing seasons from final inspection, replanting is required and the requirements of this section must be met within one year of replanting.

(3) On slopes greater than 30 percent, live stakes ½ to 1½ inches in diameter, may be substituted for (1) and (2) above. Stakes must be installed at a density of 2 to 4 stakes per square-yard on two to three- foot triangular spacing.

Outfalls may discharge storm water or overflow into Johnson Creek if designed to reduce potential erosive effects and if authorized by applicable state and federal permits.

Response: The disturbance area will be completely restored and planted with native groundcover. As shown on the landscape plans, at least half of the plants will be flowers and other half will be grass (by area coverage), with a total of at least eight species included. Cover and species requirements will be confirmed in one year, or two growing seasons from final inspection.

No new outfalls to Johnson Creek are proposed as a result of this project. In addition, there is no proposed change to the area of stormwater collection that will discharge to Johnson Creek. The means and methods of collecting and conveying the water to the Johnson Creek outfall is changing, with a key change being the replacement of concrete channels with vegetated bioswales, but the stormwater catchment area that flows to Johnson Creek is the same. Also, analysis performed for this project shows the emergency overflow rate that will be available to the system is the same rate as in prior documents (Predesign Report), and the need for an additional 84-inch overflow pipeline, as identified in the Master Plan, is not needed. Further analysis has concluded that changes to the reservoir associated with this project will not alter the probability or severity of an emergency overflow event discharging to Johnson Creek.

Ms. Bauer, an opponent of this application, raised issues regarding safety aspects of the emergency overflow from the storage reservoirs (Exhibits H.4, H.10, H.11, H.12 and Ms. Bauer's public hearing testimony). PWB, BDS staff, and BES staff provided responses to Ms. Bauer's stormwater concerns (Exhibits H.25, H.26, H.27 and H.28). The Hearings Officer concurs with PWB, BDS and BES staff that the amendments sought in this application by PWB will not alter the probability or severity of an emergency overflow event discharging into Johnson Creek.

Except for the two standards for which Adjustments are proposed, these standards are met.

<u>Tree Preservation, Removal and Replacement</u>
(1) Trees may be removed if they are not in an Environmental Protection Zone and:

- *Are species listed as Nuisance Plants or Prohibited Plants on the Portland Plant List, hawthorn trees, or trees shown in the Master Plan as being removed for construction of water supply facilities as approved through this Mater Plan, or*
- *Within ten feet of any proposed structure / building or five feet of the periphery of paving, outdoor activity areas driveways or utility line corridors shown on the approved Site Plan, or*
- *Smaller than six inches in diameter measured four feet above grade, or*
- *May block views from scenic viewpoints as listed on page 68 of The Scenic Resources Protection Plan, as determined by the City Forester or*
- *Otherwise specifically allowed to be removed in the Conditional Use Master Plan.*

Response: PWB requests an Adjustment to this standard to remove 32 trees that are outside of the designated 5-foot and 10-foot maximum widths identified above. This Adjustment is

addressed in the Adjustment section of this decision, above. All other tree removal will comply with this standard.

(2) Trees not on the Portland Plant List in the open meadow area shown on the Site Plan may be removed without replacement. Other trees may be removed if the City Forester finds that they are diseased or damaged or otherwise pose an immediate hazard to people or property. A separate permit from the City Forester is required to plant, remove, prune, spray, or maintain any tree located on public property or the public right-of-way. Except for trees removed from the open meadow area, trees that are removed shall be replaced with native species. A permit from the City Forester is required to plant, break, prune, spray, remove, or impact trees on City Property, including Powell Butte. Mitigation for permitted tree removal will be determined by the City Forester. Mitigation requirements will be consistent with mitigation requirements at other public properties and will not be less than the following:

- *For every six inches of diameter of tree removed, at least three trees shall be replanted on the site at least ten feet from a paved surface and 20 feet from a structure.*
- *The replacement trees must be a minimum of ½ inch diameter and selected from the Plant List.*

Response: PWB proposes to remove 153 trees to implement the park and water system improvements at Powell Butte Nature Park. These trees are shown on the tree removal plans and mitigation plans. For every six inches of diameter of tree removed, three trees will be planted on the site and set back at least 10 feet from all paved surfaces and 20 feet from all structures. The required replacement trees will be at least ½ inch caliper.

Excavations and Fills

Excavations and fills shall comply with PCC 33.830. In addition, to the extent practicable given the needs of the structure in question, fills and structures shall balance excavations so that original contours are restored.

Response: PCC 33.830, Excavation and Fills, was deleted from the City's Zoning Code in June, 2003. This chapter regulated excavation such as that planned for the preliminary reservoir excavation. PCC Section 33.830.020 exempted R and OS zones with Environmental Overlay zoning because they were subject to more restrictive excavation and fill requirements. Therefore, no excavation and fill review is (or would previously have been) required.

Erosion Control

Erosion Control shall conform to the Erosion Control Manual (2000), City of Portland, Bureau of Environmental Services, and PCC 24. 70 (Clearing, Grading and Erosion Control). All development between November 1 and April 30 of any year which disturbs more than 500 square feet of ground, requires wet weather measures described in the City's Erosion Prevention and Sediment Control Technical Guidance Handbook.

Response: Erosion control and stormwater management treatments for the project use BES best management practices conforming to the current Erosion Control Manual (Handbook), and Title 10 and 1200-C permit provisions. At the beginning of construction, the limits of work will be fenced and erosion control measures will be installed around all excavation, staging and stockpile areas soil (see Figures 7.0 – 7.12). This standard will be met.

Traffic Management and Monitoring

At least every five years the applicant shall monitor traffic volume on the butte on a daily basis during peak usage periods. The applicant shall submit a traffic impact study to the Office of Transportation when monitoring shows that average daily vehicle trips to the site during peak usage exceeds 110 percent of the traffic volume reported in the traffic study conducted in support of the 2000 Master Plan. Based on the new traffic study, the Director of the Office of Transportation may require the applicant to improve the Powell Boulevard frontage of the site or other nearby street sections or intersections affected by the increased traffic to maintain the design capacity of those streets, to improve intersections functioning below a level of service D, or to remedy existing hazards in an amount roughly proportional to the impact of traffic associated with the butte.

Response: Recent traffic studies were completed in 2008 and 2010. The 2008 study was reviewed by PBOT and no transportation improvements were required. The 2010 study (Exhibit A.1, Appendix D) focused on parking internal to the site and PBOT staff did not express any concern since the area is outside of public rights-of-way, and no significant change in use is proposed at the site. This standard is met.

Vehicle and Bicycle Parking

At least 40 vehicle parking spaces and at least 10 bus/trailer spaces shall be provided in phase 1. Parking spaces shall comply with PCC 33.266.130. At least ten short term bicycle parking spaces that comply with PCC 33.266.220 shall be provided in phase 1. No bicycle spaces are required to be covered. Bicycle spaces shall be situated in the vicinity of the parking lot or activity areas.

Response: As addressed in this decision, the proposed new parking area will provide parking for 65 vehicles, four of which comply with ADA-accessibility requirements, and four bus/trailer spaces. The amended Plan responds to the findings of the May 2010 Traffic Study (Exhibit A.1, Appendix D) and reflects current and future parking needs at the site. All of the proposed spaces will be paved with permeable paving and comply with the landscaping requirements in PCC 33.266.130. As shown on Figure 3.1-2, nine bike staple racks providing parking for 18 bicycles will be developed near the Interpretive Center. While parking plans are generally consistent with this standard, the standard has been modified through this application and findings addressing the park center.

Signs

Signs shall comply with PCC 33.286, except that signs that are not oriented to or intended to be legible from off-site shall be exempt.

Response: PWB proposes to install kiosk, trail identification and interpretive signage throughout the park. Trail identification and interpretive signage will not be visible offsite. Kiosks that are visible offsite will comply with PCC 33.286. If required by Code, PWB will file a sign permit application for these kiosks. This standard is, or will be met at the time of construction.

Street Trees

Street trees will be native species where practical as determined by the City Forester. No permit will be issued for trees listed as a nuisance plant or prohibited plant on the Portland Plant List. Tree placement will be determined by the City Forester. Street trees shall also comply with PCC 20.40 and 33.430.

Response: Except for SE Anderegg Loop and SE Circle Avenue, this project does not include any public right-of-way. No street trees are expected to be removed and/or required because of the work in this area; thus none are proposed and this standard does not apply.

Lighting

Exterior lights shall be designed, placed and operated so they do not shine into or onto protection-zoned or R-zoned lands and so that they minimize their visibility from off-site.

Response: Exterior lights will be installed at three facilities. The maintenance building will include exterior motion detector security lights. Lighting will also be incorporated on the north and west sides of the building and controlled by interior switches. These lights will be directed so that the light footprint does not go beyond the maintenance yard perimeter. The Interpretive Center will include controlled lights. The caretaker's residence will include exterior lights on the porch, between the house and the garage, and potentially the porch at the primary entrance door to the house. All lighting will be controlled by interior switches. Exterior lighting will also be installed as needed in mechanical spaces, controlled by a hand switch inside the space. No lighting is proposed in the parking area. Lighting will not be visible offsite and will not shine into protection-zoned land. This standard is met.

All Other Standards
Standards that are not specifically stated here shall be those of the Zoning Code (base zone as modified by the plan district or overlay zone)

Response: The intent of the 2003 Plan was to incorporate and refine all applicable Code standards into the above development standards. However additional Environmental standards from Zoning Code Section 33.430.140 apply, including: the "conifers replaced with conifers" standard of 33.430.140.K. Current plans for Stage 2 show that 260 conifers are proposed to be planted on the Butte. These trees will replace the 78 conifers that must be removed, resulting in a 3.33:1 conifer-to-conifer replacement ratio. Therefore, this standard is met.

Review of Conditions of Approval from 2003 Plan

Conditions of approval from previous land use cases apply to the current proposal. This section addresses previous conditions of approval from the 2003 Plan, 2009 Reservoir Excavation and Site Preparation (LU 09-125820 EN AD), and other applicable land use cases.

2003 Plan
The 2003 Plan was approved by City Council on July 15, 2003, with the conditions shown in the Order of Council (LUR 00-00414 CU MS EN EV AD), dated November 21, 2002. These conditions are addressed below.

A. *The Conditional Use Master Plan shall expire ten years from the date this approval becomes effective (July 15, 2003). Approvals for development or uses shown in the Master Plan that have not begun by the date of Plan also expire and those developments or uses are subject to the land use regulations in place at that time.*

Response: This condition is amended in the Master Plan Amendment above, in findings for "33.820.060 Duration of the Master Plan", which extends the 2003 Plan at least five years from the final decision of this Land Use Review. Site preparation commenced in 2009, and the proposed improvements will begin in spring 2011, well before this date. This condition is met.

B. *Prior to issuance of any permit for any development or use approved by this Master Plan PWB shall update the Master Plan document and site plan, incorporating all modifications required by this approval and deliver four copies to the Land Use Review Section of the Office of Planning and Development Review.*

Response: All updates to the Master Plan document and site plan were completed in July, 2003, and are shown in the 2003 Plan. This condition has been met.

C. *Master Plan approval is limited to only those items listed in Phase 1. The Master Plan document shall be modified as necessary to reflect this.*

Response: The Master Plan document was modified in July, 2003, to reflect this fact (see Condition B). This condition has been met.

D. *The Radio Frequency Transmission Facility, including the tower, shall be eliminated from the site plan and Master Plan.*

Response: The Radio Frequency and Transmission Facility, including the tower, were eliminated from the site plan and Master Plan. This condition has been met.

E. *The storage building shall be a maximum of 5,000 square feet within a maintenance yard of 40,000 square feet as shown on the Site Plan. The maintenance yard shall be in the location and general design as set forth on Exhibit H.29 and landscaping shall exceed L3 landscaping standard on the south and west sides of the yard, by planting a double row of trees on those sides generally consistent with Exhibit H.29. The fence around the maintenance yard shall be painted to reduce its visual impact.*

Response: The proposed maintenance yard is approximately 38,000 square feet (see Figure 3.1). The storage building is slightly less than 5,000 square feet. The location of the facility has been moved slightly west of the location shown in the 2003 Plan through the Master Plan Amendment (as reviewed above). A double-row of native trees combined with L3 landscaping is proposed on the south and west sides of the yard. The fence around the maintenance yard will be painted green (or another approved natural color) as indicated in the 2003 Plan to reduce its visual impact. This condition is met.

F. *The Master Plan site plan and all other applicable maps in the Master Plan document shall be modified to include those lands added to the Plan since initial Plan submittal (newly-acquired land and Bull Run pipeline and reservoir overflow line corridors).*

Response: The site plan and other applicable maps were updated in the 2003 Plan document. In addition, newly acquired land includes approximately 0.63 acres of land obtained through a lot-line adjustment for Tax Lot 700 Section 12 lS2E, approved through LU 07-112412 CUMS EN AD, and recorded on February 5, 2009.

G. *Development standards are proposed in pages 26-29 of the Master Plan shall be modified [as stated in the decision]:*

Response: The development standards referenced above have been modified as indicated in the 2003 Plan document and are addressed in the previous section of this application. This condition has been met.

H. *The following table [as shown in the decision] shall replace the text found on pages 21-31 dealing with future reviews and Table 4 on page 32 of the Master Plan:*

Response: The development review procedure with review thresholds and approval criteria was updated in the 2003 Plan document. This condition has been met.

I. *All disturbance areas shall be revegetated with native groundcover. Planting can be either with potted growth or seeding, but must be at a level that will achieve 80% groundcover within one growing season. At least eight species of plants must be used. Fifty percent of any seed mix used must be grass and 50 percent flowers when measured by area covered. If cover and species requirements are not met within one year, or two growing seasons from final inspection, replanting is required and the requirements of this section must be met within one year of replanting.*

Response: All disturbance areas will be planted with native groundcover designed to achieve 80% cover in one growing season. As shown in the landscaping plans eight species of plants meeting this condition will be used. PWB will replant any areas that fail to meet the cover and species requirements within two growing seasons. Full compliance with this revegetation condition will be met following completion of the construction work and regrading of the site.

J. *The PWB shall monitor the survival rate of all planting used for remediation for the environmental violation for at least three years. An 80% survival rate for trees and shrubs and 80% groundcover is required. If the number of trees and shrubs or amount of groundcover drops below this level, new planting to achieve the required level shall be installed.*

Response: Remediation plantings were installed in 2000 by PWB and were maintained for two years. In 2003, the five mitigation areas were inspected and re-planted where necessary by the BES Watershed Revegetation Program. BES maintained the vegetation and monitored the survival rates yearly through 2007, and replaced any trees that did not survive. This condition has been met.

K. *Improvement of the upper parking lot shall include striping of over-size stalls to accommodate bicycle loading/unloading, and striping of drop-off areas and handicapped parking spaces. Trees shall be planted uphill from the parking lot to provide shade to at least one-third of the parking lot surface. Selection of the species to be planted, and the spacing and locations of the trees shall be coordinated with the City Forester, with consideration to be given to balancing the desire for shade against avoiding adverse impacts on the designated vistas and scenic resources from uphill of the trees.*

Response: PWB proposes 65 new, over-size stalls which have been designed to accommodate bicycle loading/unloading. As shown on the planting plan, trees will be planted throughout the parking area to provide shade to at least one-third of the parking lot surface. These species were selected in coordination with the PWB botanist and City Forester, and have been designed to preserve important scenic vistas. This condition has been met.

L. *Prior to issuance of any development permit for any park or recreation improvement, including any parking lot improvements, applicant shall improve the existing pedestrian connection adjacent to the main access road between SE Powell Boulevard at SE 162nd Avenue and the Park Center, to provide a continuous six-foot wide gravel surface.*

Response: A new trail has been installed providing an improved pedestrian connection along the main entry road between SE Powell Boulevard at SE 162nd Avenue and the park center. This project was approved in 2007, by Permit #0714307 and LU 07-112412 CUMS EN AD. The trail was constructed in 2008. This condition has been met.

M. *Prior to issuance of any development permit for any park or recreation improvement, including any parking lot improvements, bicycle parking facilities shall be provided in the vicinity of the Park Center, consistent with Zoning Code requirements.*

Response: Ten bicycle parking spaces were installed in the park center in 2003. As a result of the proposed construction, these spaces will need to be removed. The spaces will be replaced in the park center as shown on the site plans, and four additional spaces will be provided in the maintenance yard. This condition has been met.

N. *To assure an appropriate balance in scheduling the construction of new water system and park facilities, development of the 50 MG reservoir shall be coincident with development of the following parks facilities; parking lot improvements, interpretive center/public restroom remodeling, maintenance yard and storage building, and relocation of the caretaker residence.*

Response: The components of construction cited above - Reservoir #2, parking lot improvements, Interpretive Center/public restroom remodeling, maintenance yard and storage building, and relocation of the caretaker residence – are included in the current proposal and will all be constructed together as part of the same building permit. This condition will be met during the building permit review.

O. *Within one year of master plan approval, applicant shall plant trees to provide shade to the planned detention pond location. The trees shall consist of at least 101 deciduous native trees listed on the Portland Plant List. The trees shall be planted south and southwest (uphill) of the planned detention pond location that is indicated on the Phase 1 Hydrology Exhibit of the Powell Butte Hydrology, Detention and Water Quality Report. The trees shall be at least six feet in height and spaced at an average of ten feet on centers. The trees shall be planted in a band approximately 16 feet deep with no root ball closer than six feet from the edge of the pond.*

Response: This condition is modified through this application to reflect the current stormwater design. 101 trees will be planted along the new stormwater treatment facilities, including vegetated swales.

P. *Within the tree removal corridor for the pump station, final design of the pipeline will continue to analyze alternative pipeline alignment options to preserve, if practical and feasible, large Douglas fir trees in the approved tree removal corridor. The mitigation/restoration plan for the pump station will include planting of Douglas fir trees on both sides of the pipeline trench. The access road and staging/parking area for the pump station shall be finished with a gravel surface.*

Response: No pump station is currently proposed as part of the site preparation or subsequent construction stages. Thus, no trees will be removed in the tree removal corridor and no mitigation is required. This condition does not apply to the current proposal.

Conditions of Approval from Reservoir Excavation and Site Preparation (LU 09-125820 EN AD) - The 2009 Land Use Review for excavation and site preparation was approved with conditions (LU 09-125820 EN AD). The majority of these conditions have recently been verified through the site development review process. However, there are two conditions that are specific to the current proposal: Conditions F and G.

Condition F

At the time of land use review for actual construction of Reservoir #2, PWB shall provide plans showing construction of the vegetated swales as permanent stormwater management facilities in the areas shown in the Powell Butte Master Plan, Figure 4C-II.

Response: As shown on the stormwater plans, PWB is proposing a series of vegetated swales and ponds which will provide permanent stormwater management onsite. This condition is met.

Condition G
At the time of land use review for actual construction of Reservoir #2 PWB shall include plans showing planting of 101 deciduous native trees (at least 6 feet in height, spaced approximately 10 feet on center, in a screen at least 16 feet deep) south and southwest (uphill) of the permanent stormwater swales, as required in Powell Butte Master Plan Condition O.

Response: This condition is modified by the Master Plan Amendment requested in this land use application.

III. CONCLUSIONS

PWB requests approval of a Conditional Use Master Plan Amendment, an Environmental Review pursuant to the approval criteria allowed by the 2003 Plan, and four Adjustments, to develop the park and water facilities included in the 2003 Plan, and 2010 Master Plan Amendment outlined in this application.

Conditional Use Master Plan Amendments: PWB requested approval of an amended and updated Conditional Use Master Plan that will guide development on Powell Butte during 'Stage 2' of the upgrades to both the PWB water supply system and related infrastructure on Powell Butte, as well as significant enhancements to the park center that will include a new Interpretive Center, a new caretaker's residence, realigned hiking trails to avoid potential impacts on intermittent wetlands, removal of invasive species and extensive plantings of native species. PWB provided all of the required elements of a Master Plan application, and has addressed all of the applicable approval criteria for both the proposed Master Plan amendments and the Conditional Use. The proposed amendments to the 2003 Plan for Powell Butte generally extend existing uses and activities, expanding recreation opportunities within the carrying capacity of the site, enhancing natural resources, and supporting long-term expansion of the City of Portland's water supply system. Because all of the applicable approval criteria are found to be met, with Conditions of Approval, the City Council found that the Conditional Use Master Plan should be approved.

Environmental Review and Adjustments: The proposed development is intended to enhance regional recreational opportunities and provide future regional water supply facilities. The Mitigation Plan included with this application ensures that the development will not impact the Subject Site's long-term resource values. The water supply system facilities, park center improvements, and trail improvements proposed by PWB will be constructed in the same general area depicted in the 2003 Plan or the current, amended Master Plan. PWB proposes tree protection and construction management practices, as well as a system for stormwater management, that will protect environmental resources beyond the immediate construction areas, both during and following construction of the improvements. The proposed project will require removal of 153 trees, and impact 0.28 acre of wetland. Vegetation impacts, as well as temporary construction impacts, will be offset by PWB's plans to improve water quality functions through the use of vegetated stormwater swales and through restoration of meadow, shrub and forest habitat. PWB's Mitigation Plan will improve storm drainage, pollution retention/removal, education, and heritage functions at Powell Butte. The proposed mitigation and landscaping improvements – approximately 1,414 trees and 27,357 shrubs, along with creation of a 0.49 acre of new wetland, will provide long-term environmental, scenic and recreational public benefit.

The four proposed Adjustments to the 2003 Plan development standards and Zoning Code landscaping standards will allow the water supply facilities to be constructed, despite challenges

presented by surrounding vegetation and topography; will result in appropriate vegetation within meadow areas; improved survival of required plantings in utility corridors; and will allow the use of native plantings to screen the maintenance area.

An opponent, Ms. Bauer, raised numerous questions and concerns regarding this application. Ms. Bauer argued that the BDS staff, in the Staff Report and Recommendation to the Hearings Officer (Exhibit H.2) erred because BDS staff (1) did not conduct necessary reviews required by the Portland Zoning Code and (2) the PWB stormwater proposal was deficient. The Hearings Officer found that BDS staff, in its Staff Report and Recommendation to the Hearings Officer, properly characterized this application as a proposal to amend the 2003 Plan and therefore conducted all relevant analyses required by the Portland Zoning Code. The Hearings Officer found that the PWB stormwater proposal adequately addressed/met all relevant approval criteria.

The City Council found that this application, based upon the evidence in the record, and with two additional Conditions of Approval, meets all relevant approval criteria and should be approved with conditions.

IV. DECISION

It is the decision of City Council to:

Approval of:

- Amendments to the Conditional Use Master Plan for Powell Butte, with the duration of the amended Master Plan to extend at least the requested five years from the date of the final decision of this Land Use Review, or until the approved Master Plan is superseded by a request to further amend and update the Master Plan, or until all proposed development approved under this amendment is completed, within a maximum of ten years from the date of the final decision;
- Environmental Review to construct water system and park center components, stormwater facilities, and trails; and
- Adjustment Review to allow a disturbance area wider than 40 feet for Conduit 5; to allow shrub plantings as shown on Exhibits C.46 through C.60; to allow tree removal as shown on Exhibits C.78 through C.89;and to allow parking lot plantings as shown on Exhibits C.46 through C.60;

which together, allows the implementation and development of 'Stage 2' construction of a new underground water reservoir, water system components, trails, and park improvements; in substantial conformance with Exhibits C.8 through C.91.

The main features of the water system development include: final construction of Reservoir #2, a new underground 50 million gallon water reservoir; an emergency overflow pipe which connects to an existing overflow structure located at Johnson Creek; and Conduit 5, a new water pipeline which will connect to Conduits 2, 3 and 4 to supply water to the reservoirs from the Bull Run Watershed.

Associated stormwater facilities for the reservoir area and park center improvements, including a new caretaker's residence, a maintenance facility building and storage yard, an Interpretive Center (with ADA-accessible restrooms), an outdoor teaching amphitheater, reconfigured and paved parking area, a revised trail plan, and the SE 162nd Avenue entry road reconfigured with bike and pedestrian lanes are projects included in this approval.

The Environmental Review and Adjustment Review approvals are subject to Conditions of Approval A through D, and F presented below:

The Conditional Use Master Plan Amendment Review approval is subject to Conditions of Approval E through H, presented below:

A. All Permits: As part of any Site Development permit, grading permit, and/or building permit application submittal, the following development-related conditions (B through D) must be noted on each of the required site plans or included as a sheet in the numbered set of plans. The sheet on which this information appears must be labeled "ZONING COMPLIANCE PAGE - Case File LU 10-169463 CU MS EN AD." All requirements must be graphically represented on the site plan, landscape, or other required plan and must be labeled "REQUIRED."

B. Site plans required for permit review: The following site plans shall be submitted with applications for permit review of the project elements. Trail plans shall be at a scale of 1"= 100' or larger. All other site plans listed below shall be at a scale of 1 inch = 60 feet, or larger.

1. Construction management plans shall be included. They shall conform with Exhibits C.62 through C.88 and graphically show the following:
   a. Temporary 4-foot or 6-foot high construction fencing shall be placed along the Limits of Construction Disturbance for the approved development, as depicted on Exhibits C.62 through C.88 Construction Management and Tree Protection Plans, or as required by inspection staff at permit time.
   b. No mechanized construction vehicles are permitted outside of the approved "Limits of Construction Disturbance" delineated by the temporary construction fence or in the case of trail construction, the 'limits of Construction Disturbance' designated for each trail construction corridor. Such equipment is restricted to small-scale walk-behind or ride-on mechanized equipment with a track width no larger than 48 inches. All planting work to be done outside the Limits of Construction Disturbance, shall be conducted using hand held equipment.
   c. Accurately show the clearing limits required for the outfall improvements noted on Exhibit C.25 Proposed Development Johnson Creek Outfall Structure.
   d. Construction management plans shall include details of the culvert extension pipes and armoring along Pipeline Road, and include construction notes as needed to prescribe erosion and sediment control measures (including incorporating more vegetation) around the culverts, and shall show BES-required drainage reserves over all drainageways.

2. Detailed construction plans for trail improvements shall be included at the time of permit review for trails. They shall conform with Exhibits C.31 through C.36 and C.75 through C.77, and graphically show the following:
   a. Accurate topography, delineation of wetlands and water bodies and plant composition existing within 50 feet of each proposed trail.
   b. Site-specific construction plans, including grading, and construction details, footing details, and sections/elevations for each proposed trail, bridge, boardwalk, causeway, and stairway. Grading (earthwork) may be shown using cross sections and details; proposed grading contours need only be shown for hard-surfaced trails.
   c. Accurate alignment, width and paving materials of each trail.
   d. Proposed grading showing existing and proposed contours on hard surface trails.
   e. Proposed temporary construction area delineated and dimensioned along each trail.
   f. Proposed restoration measures for temporary construction areas.
   g. Identify construction techniques (hand held equipment, track hoe, etc.).
   h. Tree protection measures graphically depicted, and approved by the City Forester.
   i. Barricading or restoration measures for trails to be closed.

3. A graphic Tree Protection Plan shall be included with any permit application, indicating the location of construction fencing for tree protection for all trees to be retained, in conformance with attached Exhibit A.2, Alternative Tree Protection Plan. Temporary tree protection fencing shall conform with the Alternative Tree Protection Plan and Tree Protection Plan, or as required by inspection staff during the Plan Review and/or inspection stages.

4. Final Planting plans shall be submitted at permit time, for Planning and Zoning review and approval. The plan shall illustrate the location, species, quantity, spacing and sizes of all required landscape and mitigation plantings. Landscape plans shall include parking lot landscaping and shall demonstrate that all parking-lot landscaping requirements from PCC 33.266 are met.

   The plans shall show each of the following:
   a. A total of 1,414 trees, 27,357 shrubs, and native groundcovers, selected from the Portland Plant List, shall be planted, in substantial conformance with Exhibits C.46 through C.61 and C.90 and C.91.
   b. All temporary construction areas shall be planted with native vegetation.
   c. Plantings shall be installed between October 1 and March 31.
   d. Prior to installing required plantings, non-native invasive plants (including invasive hawthorn and blackberry) shall be removed from all areas within ten feet of plantings.
   e. The Applicant shall water plantings as necessary for survival.
   f. All required trees shall be marked in the field by a tag attached to the top of the plant for easy identification by the City Inspector. All tape shall be a contrasting color that is easily seen and identified.
   g. After installing the required plantings, the Applicant shall request inspection of Permanent Erosion Control Measures (IVR 210) by BDS, who will confirm that all required mitigation plantings have been installed. A letter of certification from the landscape professional or designer of record may be requested by BDS to document that the plantings have been installed according to the approved plans.

5. Final Wetland Mitigation plans shall be provided at permit review and shall include all proposed grading, proposed hydrologic conditions (Ordinary High Water), and all proposed plant species, locations, quantities, sizes, and spacing. These plans shall be consistent with wetland mitigation descriptions presented in Exhibits A.21, C.90 and C.91.

6. Stormwater plans demonstrating that all new parking lot landscaping areas shall be shown to meet the requirements of Section 1.5 of the Stormwater Management Manual, to be reviewed and approved by BES.

7. The Applicant shall submit a plan showing all drainageways and any drainage reserve locations, along with detailed information regarding all work proposed to be done within drainage reserve areas, to be reviewed and approved by BES.

C. An inspection of Permanent Erosion Control Measures shall be required to document installation of the required mitigation plantings.

1. The **Permanent Erosion Control Measures** inspection (IVR 210) shall not be approved until the required mitigation plantings have been installed (as described in Condition B.4 above);

--OR—

2. If the **Permanent Erosion Control Measures** inspection (IVR 210) occurs outside the planting season (as described in Condition B.4 above), then the Permanent Erosion Control Measures inspection may be approved prior to installation of the required mitigation plantings – if the Applicant obtains a separate **Zoning Permit** for the purpose of ensuring an inspection of the required mitigation plantings by March 31 of the following year.

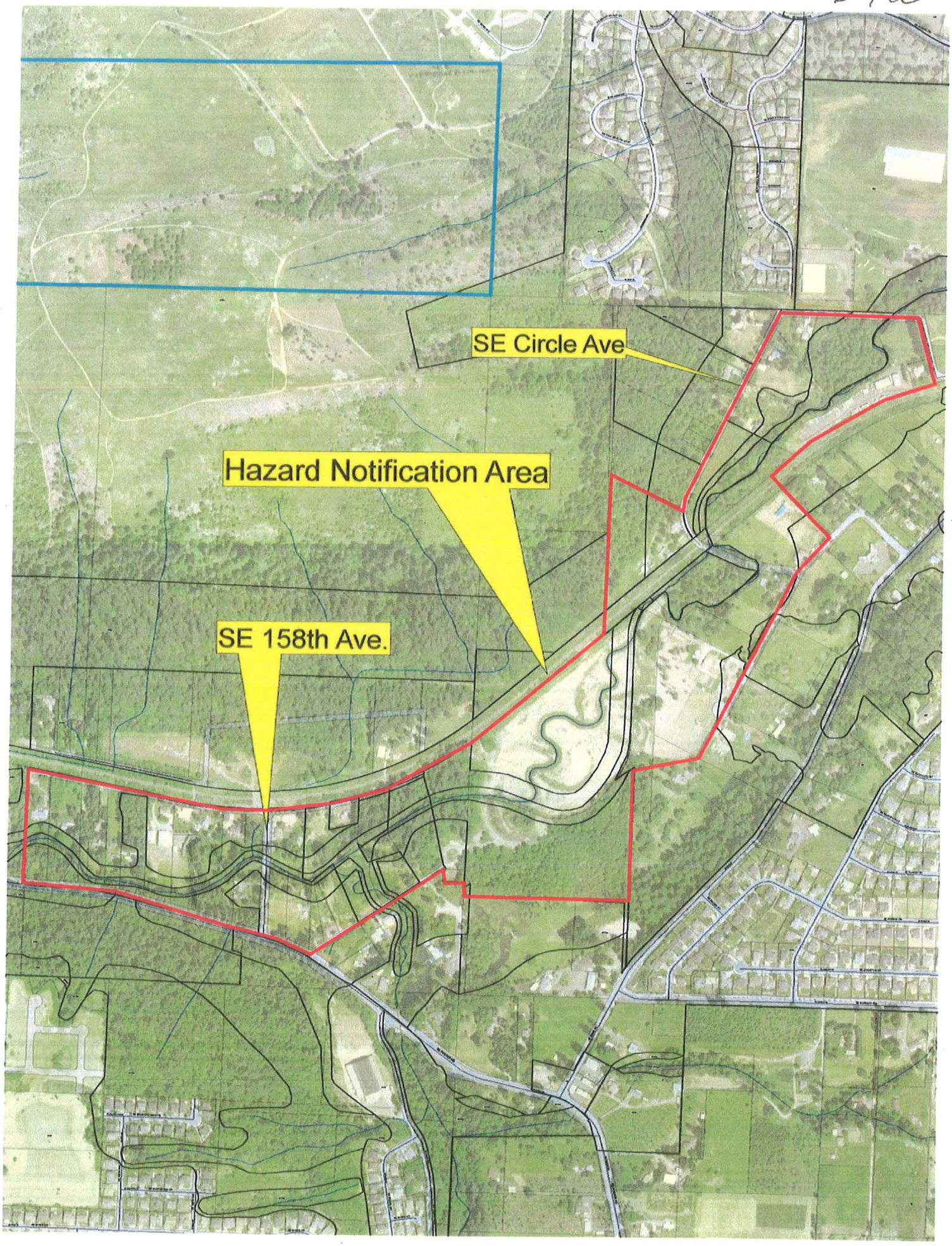
D. The landscape professional or designer of record shall monitor the required plantings for five years to ensure survival and replacement as described below. The land owner is responsible for ongoing survival of required plantings beyond the designated five-year monitoring period. The landscape professional shall:

1. Provide a minimum of five letters (to serve as monitoring and maintenance reports) to the Pleasant Valley Neighborhood Association and to the Land Use Services Division of BDS (Attention: Environmental Review LU 10-169463 CU MS EN AD), containing the monitoring information described below. Submit the first letter within 12 months following approval of the Permanent Erosion Control Inspection of the required mitigation plantings. Submit subsequent letters every 12 months following the date of the previous monitoring letter. All letters shall contain the following information:
   a. A count of the number of planted trees that have died. For the 1,177 required trees, an 80% survival rate is required (replacement must occur within one planting season).
   b. The percent coverage of native shrubs and ground covers. If less than 80 percent of the planting areas, and restored temporary disturbance areas, are covered with native shrubs or groundcovers at the time of the annual count, additional shrubs and groundcovers shall be planted to reach 80 percent cover (replacement must occur within one planting season).
   c. A list of replacement plants that were installed.
   d. Photographs of the mitigation area and a site plan, in conformance with Final Planting Plans described above in Condition B.4, showing the location and direction of photos.
   e. A description of the method used and the frequency for watering mitigation trees, shrubs, and groundcovers for the first two summers after planting. All irrigation systems shall be temporary and above-ground.
   f. An estimate of percent cover of invasive species (invasive hawthorn, English ivy, Himalayan blackberry, reed canarygrass, teasel, clematis) within ten feet of all plantings. Invasive species must not exceed 20 percent cover during the monitoring period.

E. At time of reconfiguration of parking lot, a minimum of 65 passenger vehicle spaces and four bus/horse trailer spaces must be provided.

F. Failure to comply with any of these conditions may result in the City's reconsideration of this land use approval pursuant to PCC, Zoning Code Section 33.700.040 and /or enforcement of these conditions in any manner authorized by law.

G. At time of building permit review, the Water Bureau will submit documentation that the Water Bureau has directed the Portland Office of Emergency Management [POEM] to develop a specific Emergency Notification Plan for the residents in the Hazard Notification Area indicated on the attached map.


SE Circle Ave
Hazard Notification Area
SE 158th Ave.

H. At time of building permit review, the Water Bureau will submit documentation that all applicable state and federal permits have been obtained for the discharge of stormwater overflow to Johnson Creek.

Note: In addition to the requirements of the Zoning Code, all uses and development must comply with other applicable City, regional, state and federal regulations.
This decision applies only to the City's environmental regulations. Activities which the City regulates through PCC 33.430 may also be regulated by other agencies. In cases of overlapping City, Special District, Regional, State, or Federal regulations, the more stringent regulations will control. City approval does not imply approval by other agencies.

Conditions of Approval. This project may be subject to a number of specific conditions, listed above. Compliance with the applicable conditions of approval must be documented in all related permit applications. Plans and drawings submitted during the permitting process must illustrate how applicable conditions of approval are met. Any project elements that are specifically required by conditions of approval must be shown on the plans, and labeled as such.

These conditions of approval run with the land, unless modified by future land use reviews. As used in the conditions, the term "applicant" includes the applicant for this land use review, any person undertaking development pursuant to this land use review, the proprietor of the use or development approved by this land use review, and the current owner and future owners of the property subject to this land use review.

This decision, and any conditions associated with it, is final. It may be appealed to the Oregon Land Use Board of Appeals (LUBA), within 21 days of the date the decision is mailed, as specified in the Oregon Revised Statute (ORS) 197.830. Among other things, ORS 197.830 requires that a petitioner at LUBA must have submitted written testimony during the comment period for this land use review. You may call LUBA at 1-503-373-1265 for further information on filing an appeal.

Recording the final decision.
If this Land Use Review is approved the final decision must be recorded with the Multnomah County Recorder. A few days prior to the last day to appeal, the City will mail instructions to the applicant for recording the documents associated with their final land use decision.

- *Unless appealed,* the final decision may be recorded on or after a date that will be identified in the Hearings Officer's decision.
- A building or zoning permit will be issued only after the final decision is recorded.

The applicant, builder, or a representative may record the final decision as follows:

- By Mail: Send the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to: Multnomah County Recorder, P.O. Box 5007, Portland OR 97208. The recording fee is identified on the recording sheet. Please include a self-addressed, stamped envelope.

- In Person: Bring the two recording sheets (sent in separate mailing) and the final Land Use Review decision with a check made payable to the Multnomah County Recorder to the County Recorder's office located at 501 SE Hawthorne Boulevard, #158, Portland OR 97214. The recording fee is identified on the recording sheet.

For further information on recording, please call the County Recorder at 503-988-3034

For further information on your recording documents please call the Bureau of Development Services Land Use Services Division at 503-823-0625.

Applying for your permits. A building permit, occupancy permit, or development permit may be required before carrying out an approved project. At the time they apply for a permit, permittees must demonstrate compliance with:

- All conditions imposed herein;
- All applicable development standards, unless specifically exempted as part of this land use review;
- All requirements of the building code; and
- All provisions of the Municipal Code of the City of Portland, and all other applicable ordinances, provisions and regulations of the City.

EXHIBITS
NOT ATTACHED UNLESS INDICATED

A. Applicant's Statement
   1. Powell Butte Reservoir #2 – Phase 2 Construction: Application for Conditional Use Maser Plan Amendment, Environmental Review and Adjustments, 8/24/2010
   2. Alternative tree protection plan for Phase 2 Powell Butte Reservoir #2 project, 8/27/2010 **(attached)**
   3. Drainage Reserve Information for Powell Butte, 9/23/2010
   4. Reply to Comments on LU 10-169463 CU MS EN AD – Powell Butte Master Plan Amendment, 9/28/2010
   5. Geotechnical Design and Construction Recommendations, 8/13/2010
   6. Powell Butte Reservoir No. 2, Phase II Project ; Geotechnical Data Report, 8/13/2010
   7. Applicant response to Pleasant Valley Neighborhood Association (PVNA) re: tree removal
   8. Applicant response to (PVNA) re: stormwater management pond volume
   9. Applicant response to (PVNA) re: cost
   10. Applicant response to (PVNA) re: degradation, Johnson Creek
   11. Applicant response to (PVNA) re: stormwater pond volumes
   12. Applicant response to (PVNA) re: wall height in stormwater ponds
   13. Applicant response to (PVNA) re: NOAA flood records for Johnson Creek
   14. Applicant response to (PVNA) re: discharge rates for lower detention pond
   15. Applicant response to (PVNA) re: discharge rates for detention pond
   16. Applicant response to (PVNA) re: stormwater ponds and Stormwater Manual requirements
   17. Applicant response to (PVNA) re: overflow routes for excess stormwater
   18. Applicant response to (PVNA) re: 2009 stormwater engineering report
   19. Powell Butte Reservoir No. 2 Phase 2 Design Stormwater Management Report, 10/27/10
   20. Applicant response to BES re: culverts under Pipeline road
   21. Applicant response to (PVNA) re: wetland reports & wetland mitigation
   22. Applicant response to (PVNA) re: Temporary stormwater system
   23. Applicant response to (PVNA) re: City Forester information about tree removal
   24. Applicant response to (PVNA) re: completion of LU 09-125820ENAD Conditions of Approval
   25. Applicant response to (PVNA) re: discharge rates for stormwater ponds
   26. Applicant response to (PVNA) re: design volume for stormwater facilities
   27. Applicant response to (PVNA) re: discharge differences
   28. Applicant response to (PVNA) re: modeling for stormwater overflow
B. Zoning Map **(attached)**
C. Plans and Drawings
   C.0. Sheet Index
   C.1. Figure 1.0 Vicinity and Zoning Map
   C.2. Figure 2.0 Existing Conditions – Overall Site
   C.3. Figure 2.1 Ex. Cond. – Reservoir Composite
   C.4. Figure 2.2 Ex. Cond. North - SE 162nd Access
   C.5. Figure 2.3 Ex. Cond. West - Reservoir Area
   C.6. Figure 2.4 Ex. Cond. East - Park Center
   C.7. Figure 2.5 Ex. Cond. Southeast - C5 Corridor
   C.8. Figure 3.0 Proposed Development – Composite
   C.9. Figure 3.1 Proposed Development - Park Center **(attached)**
   C.10. Figure 3.1-1 Pr. Dev. - Sight lines from Residence
   C.11. Figure 3.1-2 Pr. Dev. - Interpretive Center (Site Plan)
   C.12. Figure 3.2-1 Interpretive Center (Rendering)
   C.13. Figure 3.2-2 Interpretive Center (Floor Plan)

C.14. Figure 3.2-3 Interpretive Center (Elevations)
C.15. Figure 3.2-4 Maintenance Facility (Rendering)
C.16. Figure 3.2-5 Maintenance Facility (Floor Plan)
C.17. Figure 3.2-6 Maintenance Facility (Elevations)
C.18. Figure 3.2-7 Residence (Rendering) **(attached)**
C.19. Figure 3.2-8 Residence (Floor Plan)
C.20. Figure 3.2-9 Residence (Elevations)
C.21. Figure 3.2-10 Trash Enclosure
C.22. Figure 3.3-1 Water Facilities – Composite **(attached)**
C.23. Figure 3.3-2 Mechanical Space (Plan)
C.24. Figure 3.3-3 Mechanical Space (Elevation)
C.25. Figure 3.3-4 Proposed Development - Johnson Cr. Outfall Structure **(attached)**
C.26. Figure 3.4-1 Utility Plan - West **(attached)**
C.27. Figure 3.4-2 Utility Plan - East **(attached)**
C.28. Figure 3.4-3 Stormwater Plan **(attached)**
C.29. Figure 3.4-4 Stormwater - Typical Swale & C5 Ditch Improvement Detail **(attached)**
C.30. Figure 3.5 Entry Gate at 162nd
C.31. Figure 4.0 Trails – Composite **(attached)**
C.32. Figure 4.1 Trails - Construction Details **(attached)**
C.33. Figure 4.2 Trails - Typical Cross-Sections
C.34. Figure 4.3 Trail Obliteration
C.35. Figure 4.4 Trails - Bridge Details **(attached)**
C.36. Figure 4.5 Trails - Stair & Wall Details
C.37. Figure 4.6 Mountain Finder & Boulder Seating
C.38. Figure 4.7 Trail Signs & Interpretive Bollards
C.39. Figure 5.0 Site Grading – Composite
C.40. Figure 5.1 Interpretive Center (including parking)
C.41. Figure 5.2 Maintenance Facility
C.42. Figure 5.3 Residence
C.43. Figure 5.4 50 MG Reservoir
C.44. Figure 5.5 Trails - Grading and Drainage
C.45. Figure 5.6 Excavation Quantities
C.46. Figure 6.0 Planting Plan – Composite **(attached)**
C.47. Figure 6.1 Plant Schedule **(attached)**
C.48. through C.55. Figure 6.2 thru 6.9 Site Planting
C.56. through C.59. Figure 6.10 thru 6.13 Planting Plan Park Center Area
C.60. Figure 6.14 Maintenance Facility Planting Plan
C.61. Figure 6.15 Residence Planting Plan
C.62. Figure 7.0 Construction Management – Reservoir Composite
C.63. Figure 7.1 Construction Management. North - SE 162nd Access
C.64. Figure 7.2 Construction Management. West - Reservoir Area
C.65. Figure 7.3 Construction Management. East - Park Center
C.66. Figure 7.4 Construction Management. Southeast - C5 Corridor
C.67. Figure 7.5 Construction Management Park Center
C.68. Figure 7.6 Construction Management Maintenance Facility
C.69. Figure 7.7 Construction Management Caretaker's Residence
C.70. Figure 7.8 Construction Management Reservoir 2
C.71. Figure 7.9 Construction Management C5 Corridor Construction Access **(attached)**
C.72. Figure 7.10 Notes and Details
C.73. Figure 7.11 Details
C.74. Figure 7.12 Details
C.75. Figure 7.13 Trails – Construction Management Plan **(attached)**

C.76. Figure 7.14 Trails - Erosion control details
C.77. Figure 7.15 Trails - Culvert Removal
C.78. Figure 8.0 Tree Protection and Removal – Composite **(attached)**
C.79. Figure 8.1 158th Access Road
C.80. Figure 8.2 158th Access Road
C.81. Figure 8.3 158th Access Rd. - Storm Pipe & Pond
C.82. Figure 8.4 Maintenance Facility
C.83. Figure 8.5 Caretaker's Residence
C.84. Figure 8.6 Interpretive Center & Parking
C.85. Figure 8.7 East Access Rd. & Meadow - Storm Pipe
C.86. Figure 8.8 East Access Rd. - Storm Pipe Manholes
C.87. Figure 8.9 C5 Corridor and Storm Pipe
C.88. Figure 8.10 C5 Corridor
C.89. Figure 8.11 C5 Corridor (Circle Ave)
C.90. Figure 9.0 Mitigation Summary **(attached)**
C.91. Figure 9.1 Wetland Mitigation **(attached)**
C.92. Figure 10.1 Powell & 162nd
C.93. Figure 10.2 Circle Ave.
C.94. Figure 10.3 Anderegg Phase 1
C.95. Figure 10.4 Anderegg Phase 2

D. Notification information
1. Request for Completeness Review
2. Request for Response
3. Posting letter sent to applicant
4. Notice to be posted
5. Applicant's statement certifying posting
6. Mailing list
7. Mailed notice

E. Agency Responses
1. Site Development Review Section of Bureau of Development Services
2. Bureau of Environmental Services
3. Water Bureau
4. Life Safety Review Section of BDS
5. Site Development Review Section of Bureau of Development Services
6. Bureau of Environmental Services
7. Bureau of Transportation Engineering and Development Review
8. Land Use Services Division of Bureau of Development Services

F. Letters
1. 28 separate e-mail messages from Pleasant Valley Neighborhood Association

G. Other
1. Original LUR Application
2. Site History Research
3. Pre Application Conference Summary Notes
4. Incomplete Letter
5. LUR 00-00414 MS CU EN AD Figure 2-C2 (Site Plan of Water Facilities)

H. Received in the Hearings Office
1. Hearing Notice - Cate, Sylvia
2. Staff report - Cate, Sylvia
3. Report, 'Clarification of Conditions' (7 pages) - Brooks, Tim
4. Email stream from Elliott to Bauer dated 11/2/10 with attachments A through L - Elliott, Teresa

a. Email stream from Elliott to Kurahashi dated 11/8/10 with diagram attached - Elliott, Teresa
b. Email from Elliott to Bauer dated 11/8/10 - Elliott, Teresa
c. Emails stream from Elliott to Zimmer dated 11/9/10 and Cate to Elliott dated 11/3/10 - Elliott, Teresa
d. Email from Elliott to Phelps and Brooks with map and Mitigating Planting Plan attached - Elliott, Teresa
e. Email from Elliott to Bauer dated 11/9/10 - Elliott, Teresa
f. Email from Elliott to Bauer dated 11/12/10 - Elliott, Teresa
g. Email stream from Elliott to Bauer dated 11/12/10 - Elliott, Teresa
h. Email from Elliott to Bauer dated 11/12/10 with EOC Basic Plan attached - Elliott, Teresa
i. Email from Elliott to dwdcap and Dickinson dated 11/12/10 with letter attached - Elliott, Teresa
j. Email stream from Dickinson to Elliott dated 11/13/10 with diagram attached - Elliott, Teresa
k. Email stream from Brooks to Elliott/Dickinson/Ngan dated 11/13/10 - Elliott, Teresa
l. Powell Butte Reservoir 2 - Phase 2 LU Review - Elliott, Teresa

5. PowerPoint presentation printout - Castleberry, Stacey
6. Letter to Castleberry from Specht - Castleberry, Stacey
7. Email from Elliott to Bauer dated 11/9/10 - Castleberry, Stacey
8. Letter to Castleberry from Pernar/Dickinson dated 11/12/10 - Castleberry, Stacey
9. Letter from Brooks to Castleberry and Cate - Castleberry, Stacey
10. Narrative (25 pages) - Bauer, Linda
11. Narrative (6 pages) - Bauer, Linda
12. Email from Elliott to Bauer dated 11/2/10 - Bauer, Linda
13. Printout of Zoning Code citations - Bauer, Linda
14. Map (11"x17") - Bauer, Linda
15. Emails - Bauer, Linda
    a. EPNO Land Use and Transportation Committee letter - Bauer, Linda
16. Photos - Bauer, Linda
17. Title 10 Erosion and Sediment Control Regulations - Bauer, Linda
18. 5/13/10 Email, David Shaff to Commissioner Fritz - Bauer, Linda
19. David Shaff letter - Bauer, Linda
20. 11/22/10 Memo - Haley, Robert
21. 11/23/10 Memo - Castleberry, Stacey
22. Decision of the City Council LUR 00-00414 CU MS EN EV AD Powell Butte Conditional Use Master Plan - Page 27 - Bauer, Linda
23. Decision of the City Council LUR 00-00414 CU MS EN EV AD Powell Butte Conditional Use Master Plan - Page 27 - Bauer, Linda
    a. Chapter 33.815 Conditional Uses - Bauer, Linda
24. Letter to Castleberry dated 11/2/10 - Specht, H. David
25. Memo to Hearings Officer dated 11/23/10 with attachments - Cate, Sylvia
    a. Final Opinion and Order LUBA No. 2002-164 - Cate, Sylvia
    b. Order of Council - LUR 00-00414 CU MS EN EV AD - Cate, Sylvia
    c. Findings and Decision of the City Council - LUR 00-00414 - Cate, Sylvia
26. Memo to Hearings Officer, Cate and Castleberry dated 11/23/10 - Tunnard, Jocelyn
27. Memo to Hearings Officer dated 11/23/10 with attachments - Brooks, Tim
    a. Copy of email from Thomas to Elliott dated 5/26/10 - Brooks, Tim
    b. Preliminary Powell Butte Reservoir 2 map - Proposed Development - Brooks, Tim **(reduced size attached)**

c. Powell Butte Reservoir 2 map - Construction Management - Brooks, Tim **(reduced size attached)**
d. Powell Butte Reservoir 2 map - Construction Management South East - Brooks, Tim **(reduced size attached)**

28. Memo with attachment - Brooks, Tim
    a. Response to Public Testimony - Brooks, Tim

I. Submitted to City Council at time of appeal hearing:
1. Portland Water Bureau Response to Powell Butte Appeal Issues 2/3/2011
2. PowerPoint Slides: Proposed and Existing Development
3. PowerPoint Slides: Staff Presentation to City Council

PORTLAND PARKS & RECREATION

Healthy Parks, Healthy Portland

Date: 8/27/10
To: Tom Carter, Portland Water Bureau
From: David Kahler, Portland Parks Urban Forestry
Re: Alternative tree protection plan for Phase 2 Powell Butte Reservoir # 2 project.

You asked me to report on specific tree protection issues related to the Reservoir # 2 project at Powell Butte Nature Park. The scope of your request was very narrow and I was tasked only with determining sufficient tree protection zones that adequately protect subject trees but do not meet the Title 33 standard of one-foot radius distance per one-inch stem diameter for Root Protection Zones (RPZ). I have also provided more detail regarding allowed activity, construction techniques and level of protection to satisfy only PCC 33.248.065.B.1 and PCC 33.248.065.B.2.d.

The scope of your request expressly excluded the site plan, tree survey and location of utilities, dry wells and soakage trenches. However, the provided plan set and survey appear to be mostly consistent with field conditions. Recommendations contained herein are in part, based on its accuracy. All conditions, findings and recommendations are as of the 7/7/10 through 8/20/10 inspection dates.

Due to existing conditions, slope, current use and site history, root protection zones may be reduced as described below for each area and will provide equal, or better, tree protection than required under PCC 33.248.068 and fully satisfies the intent and purpose of the code to ensure existing trees are properly preserved.

Tree protection fencing must be erected as required under 33.248.068.B at the prescribed distance from tree stems to denote the Root Protection Zone (RPZ). Fencing must be installed at the edge of the RPZ before any construction activities begin and must remain erected, in good condition, throughout the entire construction period.

Unless otherwise noted below, no disturbance or soil compaction may occur within the RPZ including new buildings, grade changes, new impervious surface, new utility or drainage fields, staging or storage of materials and equipment and access by or maneuvering of vehicles.

Unless otherwise noted below, tree protection as approved in LU 09-125820 EN AD and its accompanying Alternative Tree Protection Plan for Powell Butte Reservoir #2 dated 9/4/09 must remain in place.

Urban Forestry Division
10910 N. Denver Ave.
Portland, OR 97217
Tel: (503) 823-4489 Fax: (503) 823-4493

Administration
1120 S.W. 5th Ave., Suite 1302
Portland, OR 97204
Tel: (503) 823-7529 Fax: (503) 823-6007

Figure 8.3 – SE 158th Gravel Entry Road and Stormwater Detention Pond:

Gravel Entry Road - Several trees in this area are planned to be mitigated. However, only one 44" Douglas fir will be removed due to its close proximity to the gravel road. Other trees have substantial portions of their RPZ within construction limits. The project is committed to retaining as many trees as possible and construction is likely able to avoid significant removal through diligent attention to construction activities and techniques. However, adequate protection under 33.248.068 is impossible and some trees may need to be removed depending upon construction impacts. Several other trees are near the disturbance area yet entire RPZ are outside the construction limits. The steep topography on both sides and roadside ditch render installation of standard tree protection fencing very difficult and access by equipment impossible. All maneuvering, staging, materials storage and construction activities will be confined to the gravel entry road itself. It seems reasonable to permit construction without requiring standard tree protection fencing. However, it is recommended a high visibility tree protection reminder be used along the entire alignment. Options may include orange construction fencing or flagging stems of individual trees.

Stormwater Detention Pond - Two trees in this area are planned to be mitigated. However, removal may or may not occur depending upon construction impacts. Substantial portions of the RPZ are within construction limits. It is the projects intent to retain the trees, which may die, as wildlife snags to further enhance resources. Disturbance will encroach upon the full RPZ of two trees intended to remain. Activities around other trees are outside standard RPZ. Tree 1 is a 16" DBH Douglas fir. Tree 2 is an 8" DBH Douglas fir. Both appear to be in good, vigorous condition growing along the north side of the proposed retention pond. Much of the subject root systems are outside disturbance limits. Tree 1 is expected to tolerate a reduced RPZ no closer than 10' radius from the stem on the retention pond side (south) of the root system. Tree 2 is expected to tolerate a reduced RPZ no closer than 4' radius from the stem on retention pond side (south) of the root system. The remaining RPZ circumference of both trees must meet the one-foot radius distance per one-inch stem diameter standard.

Figure 8.4 - Maintenance Facility:

24" DBH Douglas fir appears to be in good, vigorous condition growing along north side of the maintenance facility spur access off the North Access Road. Grading to construct the spur encroaches within the RPZ. It is recommended the grading be redesigned to contour around a reduced RPZ no closer than 15' from the stem on the southwest side. Tree protection fencing must be installed at 15' radius. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard.

14" DBH Douglas fir appears to be in good, vigorous condition growing along north side of the North Access Road. Grading to construct the road encroaches within the RPZ. It is recommended the grading be redesigned to contour around a reduced RPZ no closer than 7' from the stem on the southwest side. Tree protection fencing must be installed at 7' radius along the south side. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard.

(2) 12" DBH Douglas firs growing along the southeast face of the maintenance yard at the entrance spur appear to be in good, vigorous condition. Utility trenching is expected to encroach within the RPZ. Tree protection fencing must be installed no closer than 6' radius along the southeast side. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard. If necessary, grading for the service road spur will need to contour around the full RPZ no closer than 12' from the stems on the southwest side.

Figure 8.6 - Stormwater Detention Pond and Interpretive Center:

Stormwater Detention Pond - A 12" DBH Douglas fir growing along the east edge and 22" DBH black cottonwood growing along the west inside corner of the SE 158th access road appear to be in good, vigorous condition. It is unusual for significant roots to grow under a road due to the undesirable environment. However, any roots extending toward and under the gravel road are likely well acclimated to the compacted and disturbed conditions continued by long term use. The 12" Douglas fir is expected to be properly protected with a reduced RPZ no closer than 8' radius from the stem on the gravel road side (west) of the root system. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard. The 22" cottonwood is expected to thrive with a reduced RPZ no closer than 11' radius from the stem on the gravel road side (north and east). The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard.

Interpretive Center – A 28" DBH multi-stem black cottonwood growing southwest of the existing restroom building and east of proposed Interpretive Center appears to be in good, vigorous condition. Disturbance is anticipated on the northeast side to allow for demolition of the restroom and grading and along the southwest side for electrical service and storm pipe. The subject tree is expected to survive with a reduced RPZ no closer than 14' radius from the stem on the southwest and northeast sides. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard. If the project is unable to satisfy the reduced RPZ, adequate protection under 33.248.068 cannot be met and the tree should be mitigated or removed.

Figure 8.7 – East Access Road and Meadow

The 8" DBH memorial beech tree will be protected by the full eight-foot radius RPZ. Previously approved tree protection for Phase 1, including reduced RPZ are required if within Phase 2 construction limits. For trees adjacent to the East Access Road, the reduced RPZ is generally the edge of road. See Alternative Tree Protection Plan for Powell Butte Reservoir #2 dated 9/4/09.

Figure 8.8 – East Access Road Storm Pipe

Previously approved Phase 1 tree protection fencing, placed at the southern edge (tree grove side) of the concrete drainage ditch, is to remain in place. See Alternative Tree Protection Plan for Powell Butte Reservoir #2 dated 9/4/09. The project intends to build a permanent split rail fence near the south border of Reservoir Loop Road to limit future park user ingress of a small native tree grove. Portions of the fence will be within the previously approved RPZ. Activities within a RPZ are strictly limited. However, the long term advantage of a permanent protection fence outweighs minor disturbance to build it. Existing tree protection may be temporarily altered only enough to allow for manual construction of the split rail fence. No equipment, staging, materials storage or machine construction may occur within the RPZ.

Figure 8.9 – Conduit 5 Corridor and Storm Pipe

Multiple Douglas fir, alder and cedar are growing in a grove within the disturbance area. Most trees to remain will be protected by the full RPZ. Activities around several trees along the East Access Road, proposed storm pipe and proposed new trail cannot satisfy full RPZ requirements. The stand is growing substantially in good and vigorous condition. It is unusual for significant roots to grow under a road due to the undesirable environment. However, any

Exhibit A.2

roots extending toward and under the gravel road are likely well acclimated to the compacted and disturbed conditions continued by long term use.

20" DBH Douglas fir (south corner of storm pipe / East Access road intersection) appears to be in good, vigorous condition. It is recommended a reduced RPZ be placed along the edge of East Access Road approximately 18' from the stem. Also, the tree is expected to tolerate a reduced RPZ no closer than 15' radius from the stem along the northeast side for stormwater pipe construction. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard.

(2) 20" DBH Douglas firs (southeast side of East Access Road) appear to be in good, vigorous condition. It is recommended a reduced RPZ be placed along the edge of East Access Road approximately 15' from the stem. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard.

Figure 8.10 – Conduit 5 Corridor

8.10a
26" DBH & 24" DBH Douglas fir (west side of SE Anderegg Loop) appear to be growing in good, vigorous condition. The subject trees are adjacent to neighboring residential property as natural screening upslope from proposed pipe construction. It is usual for trees growing on slopes to compensate by sending more of their roots up hill. Tree protection is not likely to be needed southwest and up hill since the land is owned by others and no ingress is expected. The down slope, northeastern portion of the root system is expected to be adequately protected by the RPZ placed 15' radius from the stem. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard.

8.10b
26" DBH bigleaf maple and 36" DBH Douglas fir (east side of pipe work limits) appear to be growing in good, vigorous condition. The subjects are edge trees in a mostly native stand which also extends into adjoining private property. It is likely the 26" maple will require low limb pruning to accommodate construction activities. The west side of the root system will be protected by a reduced RPZ no closer than 20' radius from the stem. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard.

The 36" fir is located in the corner where the mostly north-south pipe alignment turns easterly. The west and south sides of the fir root system are partly within disturbance limits. It is anticipated the west side of the root system will be adequately protected by a reduced RPZ no closer than 25' radius from the stem. On the south side, an adventitious drainage-way has formed likely due to years of water runoff. No exposed roots were observed. The south side of the root system is expected to be well protected by a reduced RPZ no closer than the toe of drainage-way slope approximately 20' radius from the stem. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard.

A 42" DBH fir Douglas fir (south side of pipe work limits) appears to be growing in good, vigorous condition near the south property border. It is anticipated the north side of the root system will be properly protected by a reduced RPZ no closer than 25' radius from the stem. The remaining RPZ circumference must meet the one-foot radius distance per one-inch stem diameter standard. Tree protection is not likely to be needed south and up hill since the land is owned by others and no ingress is expected.

Multiple edge trees of the mostly native stand, on adjacent private property, line the northern work limits east of the above mentioned Douglas fir. All the trees appear to be growing in fair to

good condition at top of slope along the adventitious drainage-way. The drainage-way appears to be between 10' and 15' deep. Some partly exposed roots were observed in the upper profile of the northern slope. No roots were observed in the lower portion, toe or south slope. Also, it is very unlikely any significant underground roots extend as deep as the drainage ditch. It is recommended the tree protection fencing be placed at toe of slope along the drainage-way. Tree protection is not likely to be needed north and up hill since the land is owned by others and no ingress is expected.

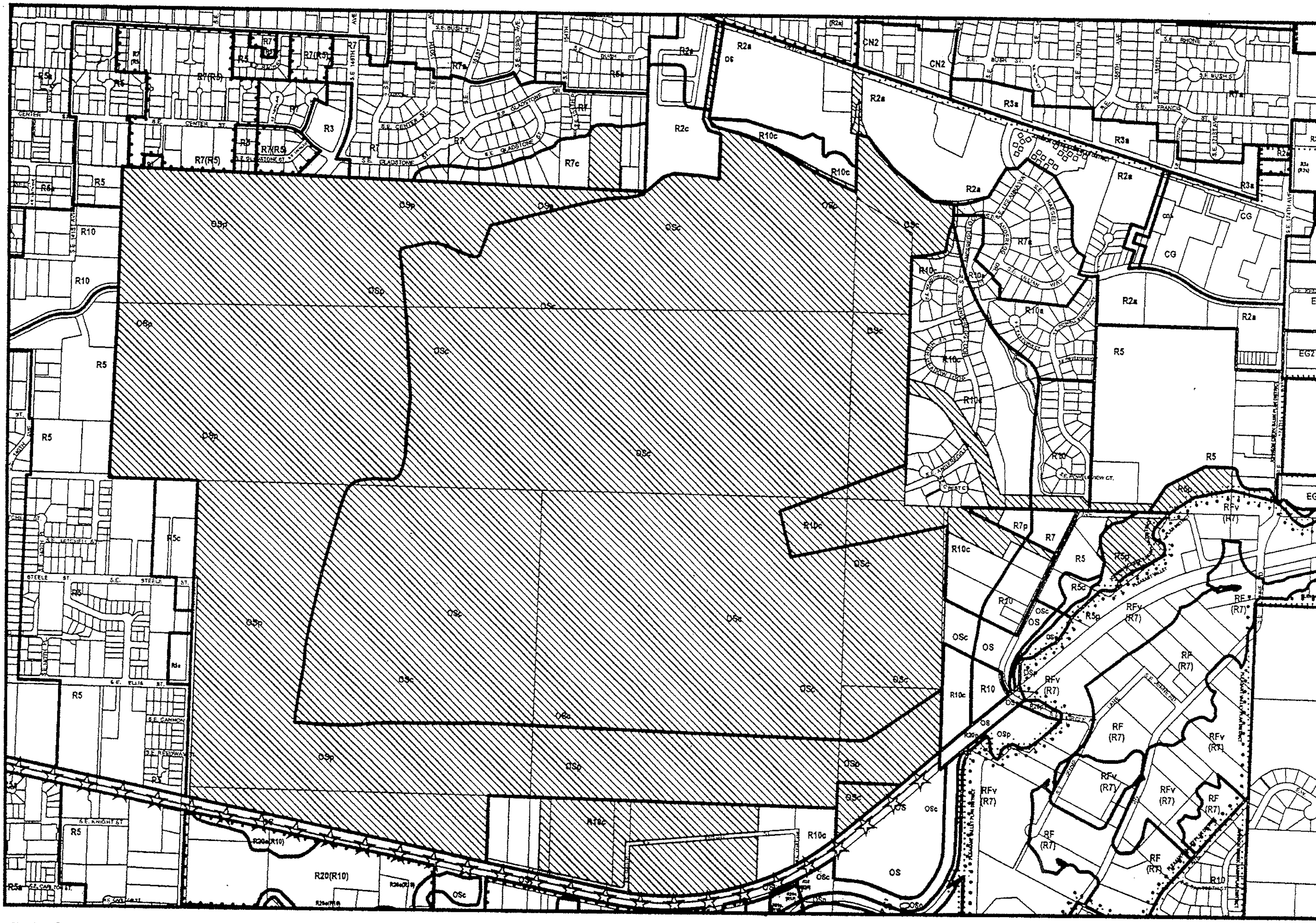
Figure 8.11 Conduit 5 Corridor (Circle Ave.)

8" DBH Douglas fir appears to be in good, vigorous condition growing in the NW corner of the Circle Ave turn. The tree is near adjacent private property to the south. It is recommended a reduced RPZ be placed no closer than 5' from the stem on the north and east sides. The remaining portions of the root system must be protected by satisfying the one-foot radius per one-inch diameter standard or are on private property where no ingress is expected.

Street trees appear to be in good, vigorous condition growing in a landscaped bed along the south side of Circle Ave in front of a private residence. The tree-row appears to be mostly inside the Right-of-Way and protection is required under PCC 20.40. It is likely several trees will need low limb and side clearance pruning to accommodate construction activities. The trees are sufficiently mature to tolerate the pruning well. However, outreach to the adjoining property owner will be necessary. Since the tree row is within a few feet of a paved street to the north, and private property to the south, no tree protection fencing will be needed. However, it is recommended a high visibility tree protection reminder be used along the entire reach to help avoid inadvertent injury. Options may include orange construction fencing or flagging stems of individual trees.

David Kahler
Certified Arborist PNW # 0155 / Tree Inspector
Portland Parks City Nature, Urban Forestry
10910 N Denver Ave. Portland, OR 97217
503.823.1691
(Fax) 503.823.4493
david.kahler@portlandoregon.gov

Exhibit A.2



ZONING

Site

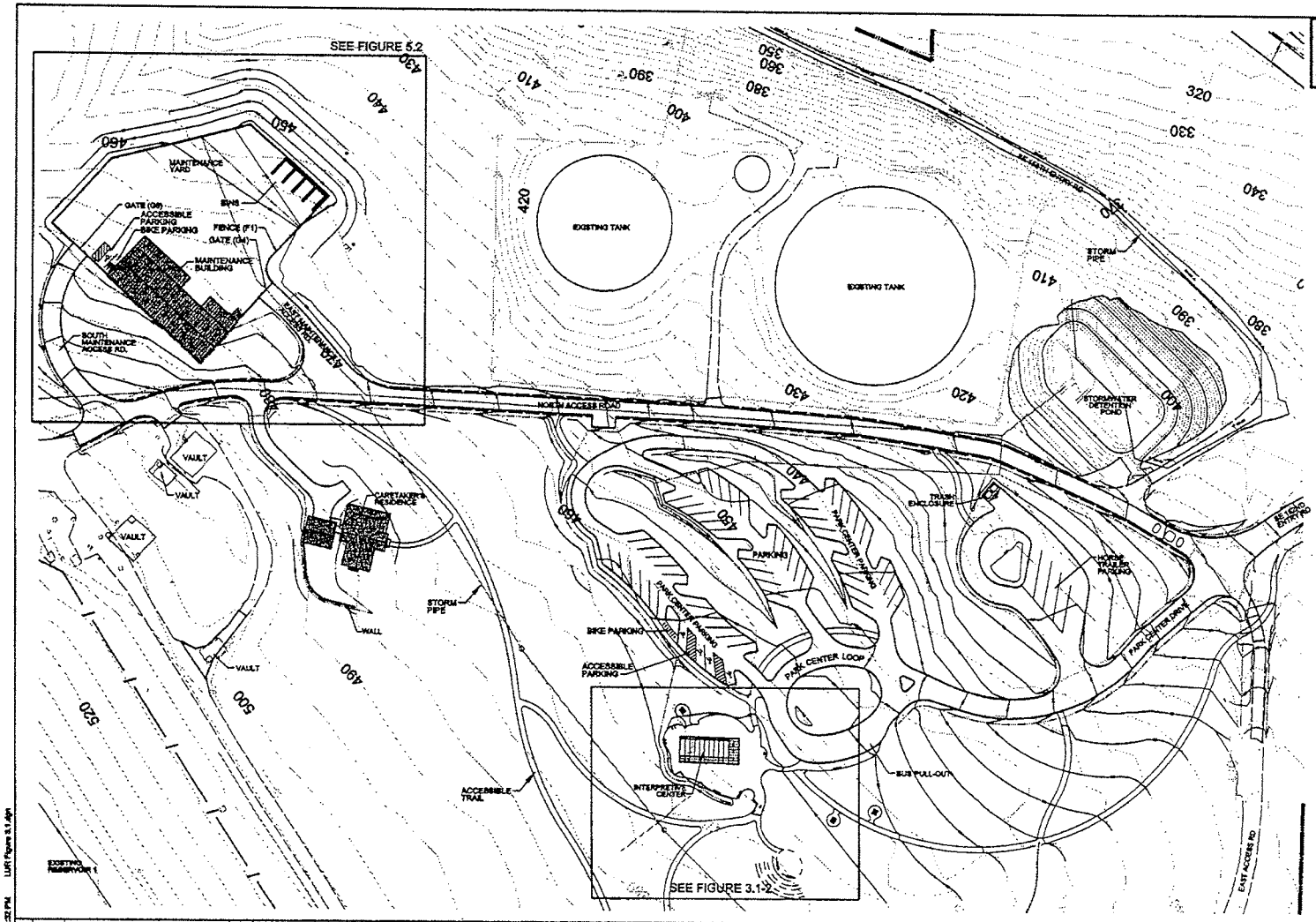
File No. LU 10-169463 CUMS,EN,AD

3445,3446,3447,3545,3546

Scale 1 inch = 900 feet

State Id 1S2E12 700

Figure 3.1
PROPOSED DEVELOPMENT
PARK CENTER



NOTES:

1. SEE Figure 3.4 FOR UTILITIES
   Figure 6.0 FOR GRADING
   Figure 6.0 FOR PLANTING
2. SEE Figure 3.0 FOR ROADWAY SCHEDULE & GATE AND FENCE SCHEDULE

LEGEND

- EDGE OF PAVING
- EDGE OF GRAVEL
- SPLIT RAIL FENCE
- CUMP BOUNDARY
- EXISTING CONTOURS (6')
- PROPOSED CONTOURS (6')
- STORMWATER PIPES

N

0 50 100 150
Scale in Feet

No	Date	Description	Appd
		Revision	

Survey | Book | Page

Landscape Architecture
{ nev-O-ngan }
Neyue | Ngan | Associates
1066 SE Grand Ave., Suite 230
Portland, Oregon 97214
phone 503.231.8608
fax 503.231.0686

Designed By: BN
Drawn By: NNA
Checked By:
Project Mgr:
Program Mgr:
Const Mgr:
Design Engr:
Date:

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

Tilman Bilski, Principal Engineer, PE No 19174
Date

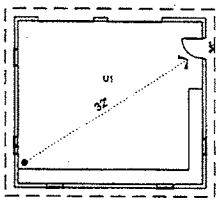
POWELL BUTTE RESERVOIR 2

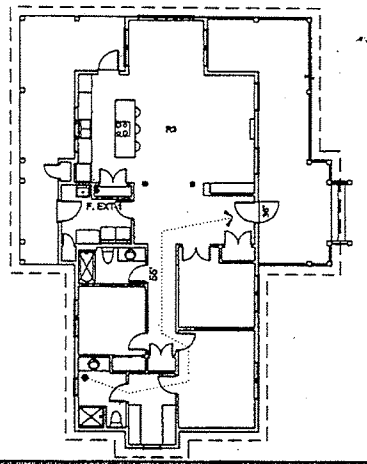
C.9

BWP Project No. W01145
Of Engineer
Drawing No. Slt-Lnd-5010
Sheet No.

6/22/2018 6:06:02 PM LUR Figure 5.1.dgn

Figure 3.2 - 7
PROPOSED DEVELOPMENT
RESIDENCE (RENDERING)





LIFE SAFETY PLAN
NTS

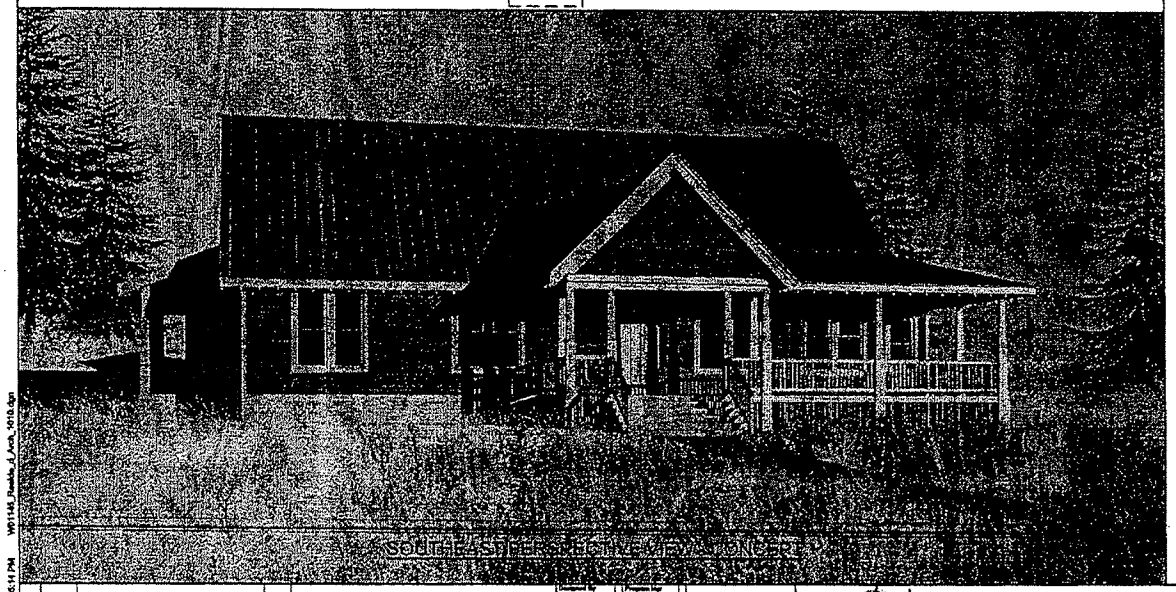
LEGEND

- X' — TRAVEL DISTANCE (X = TOTAL DISTANCE TO EXIT IN FEET)
- X" — EGRESS WIDTH (IN INCHES)
- F. EXT-1 — FIRE EXTINGUISHER
- F. EXT-2 — FIRE EXTINGUISHER
- EYEWASH/SAFETY SHOWER

GENERAL NOTES:

1. FOR SIGN INFORMATION AND TYPE DESCRIPTIONS SEE SPECIFICATIONS SECTION 10 14 00.
2. FOR ARCHITECTURAL LEGEND SEE DWG Gen-Arc-0045.
3. FOR ABBREVIATIONS SEE DWG Gen-Gen-0025 AND Gen-Gen-0030.
4. FOR FIRE EXTINGUISHER INFORMATION SEE SPECIFICATIONS SECTION 10 44 00.

BUILDING FLOOR AREA - 1594 / 704 SF



South-East Perspective View (NTS)

No	Date	Description	Appd
		Revision	

Survey | Rect. | Page

CH2MHILL
3038 SW 9th Avenue Ph 503.235.5000
Portland OR, 97201-5893

AEV | JAH | 90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

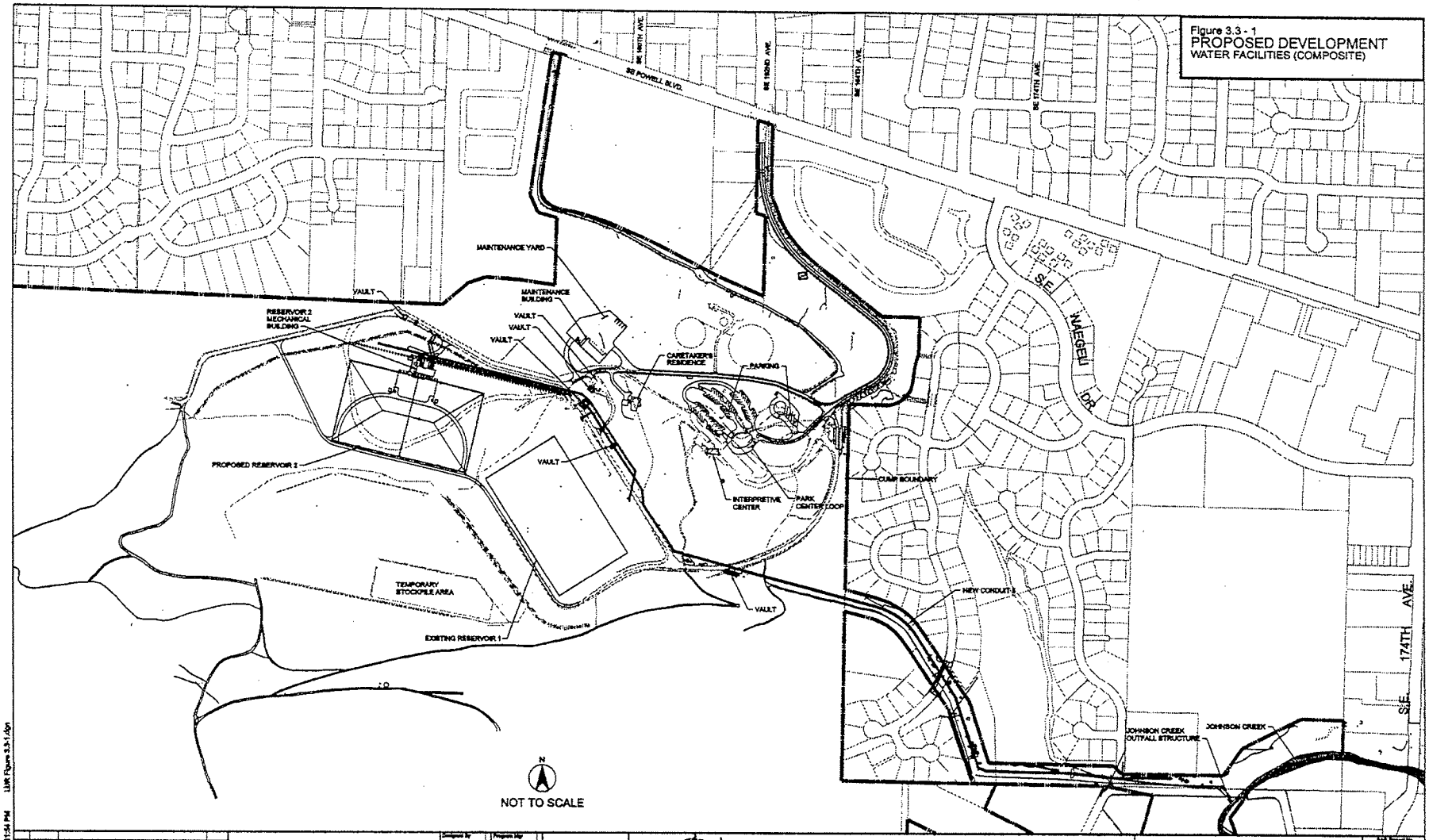
POWELL BUTTE RESERVOIR 2

C.18

W01145

Res-Arc-1010

8/18/2010 1:05:11 PM W01145_Rendering_J_Arch_1010.dgn



CH2MHILL

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

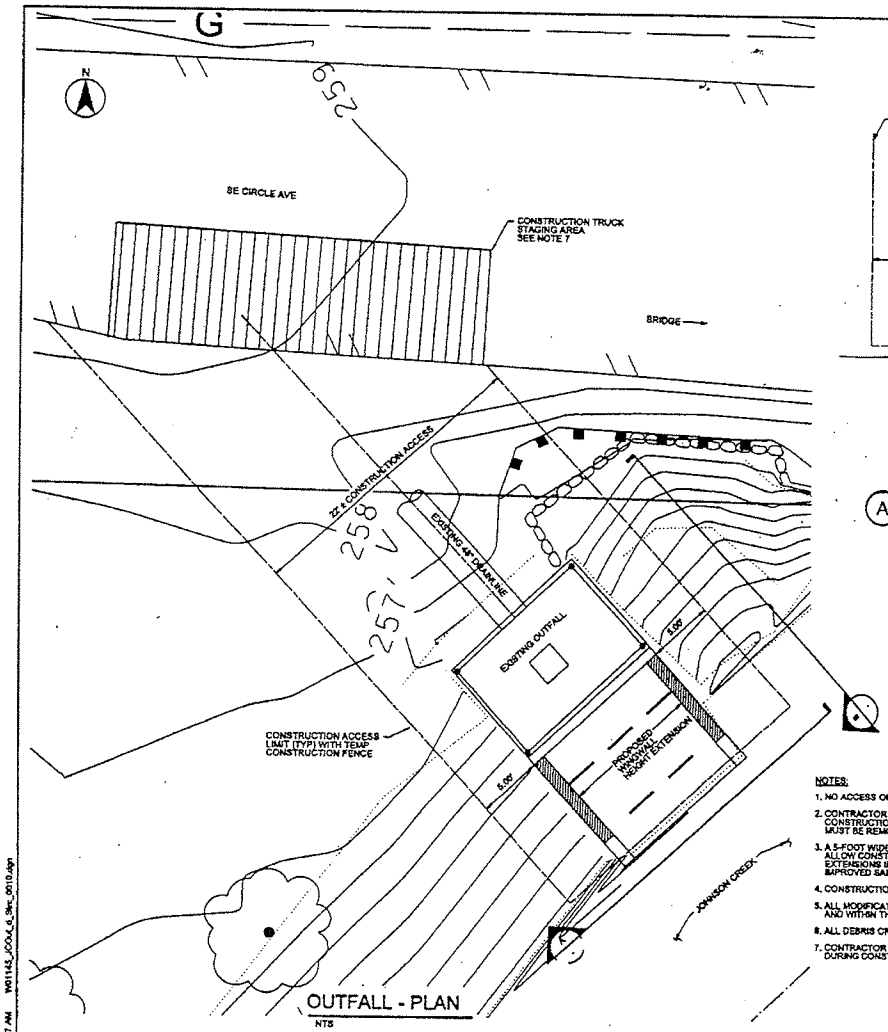
PRELIMINARY

POWELL BUTTE RESERVOIR 2

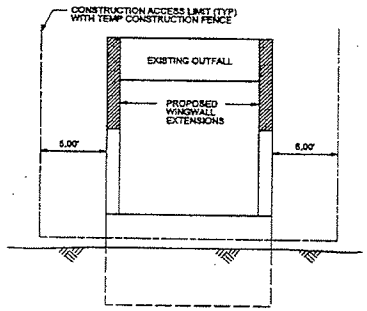
C.22

W01145

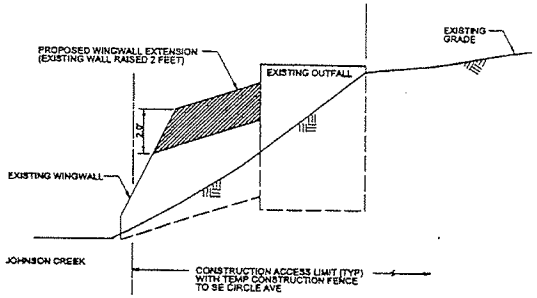
Figure 3.3 - 4
PROPOSED DEVELOPMENT
JOHNSON CREEK OUTFALL STRUCTURE



OUTFALL - PLAN
NTS



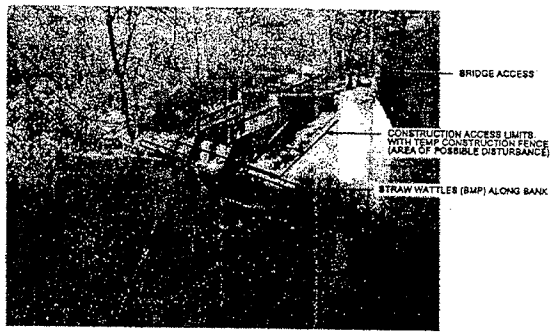
A OUTFALL - ELEVATION
NTS



B OUTFALL - SECTION
NTS

NOTES:

1. NO ACCESS OR WORK IN JOHNSON CREEK WILL BE ALLOWED AT ANY TIME.
2. CONTRACTOR TO INSTALL EROSION CONTROL SUCH AS STRAW WATTLES AND CONSTRUCTION FENCE BEFORE WORK MAY PROCEED AT STRUCTURE AND MUST BE REMOVED WHEN WORK IS COMPLETE.
3. A 5-FOOT WIDE AREA IS PROVIDED OUTSIDE OF THE OUTFALL STRUCTURE TO ALLOW CONSTRUCTION WORK CREWS ACCESS TO HELP GUIDE THE WING WALL EXTENSIONS INTO POSITION. THIS IS TO FACILITATE CONSTRUCTION AND PROVIDE IMPROVED SAFETY.
4. CONSTRUCTION PERSONNEL SHALL ACCESS THE OUTFALL FROM THE ROAD.
5. ALL MODIFICATIONS TO THE DISSIPATOR WILL BE MADE FROM THE BOTTOM AREA AND WITHIN THE STRUCTURE.
6. ALL DEBRIS CREATED FROM THE WINGWALLS MUST BE PROPERLY REMOVED.
7. CONTRACTOR REQUIRED TO MAINTAIN ONE LANE OF TRAFFIC OPEN AT ALL TIMES DURING CONSTRUCTION.



OUTFALL - EXISTING CONDITIONS
NTS

No.	Date	Description	Appd

Survey | Book | Page

AECOM
333 South West 5th Avenue Suite 225
Portland, OR, 97204
(503) 227-1042 tel (503) 227-1048 fax

Designed By JAG
Drawn By RWR
Checked By
Project Mgr
Program Mgr
Const Mgr
Design Engr
Date

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

POWELL BUTTE RESERVOIR 2

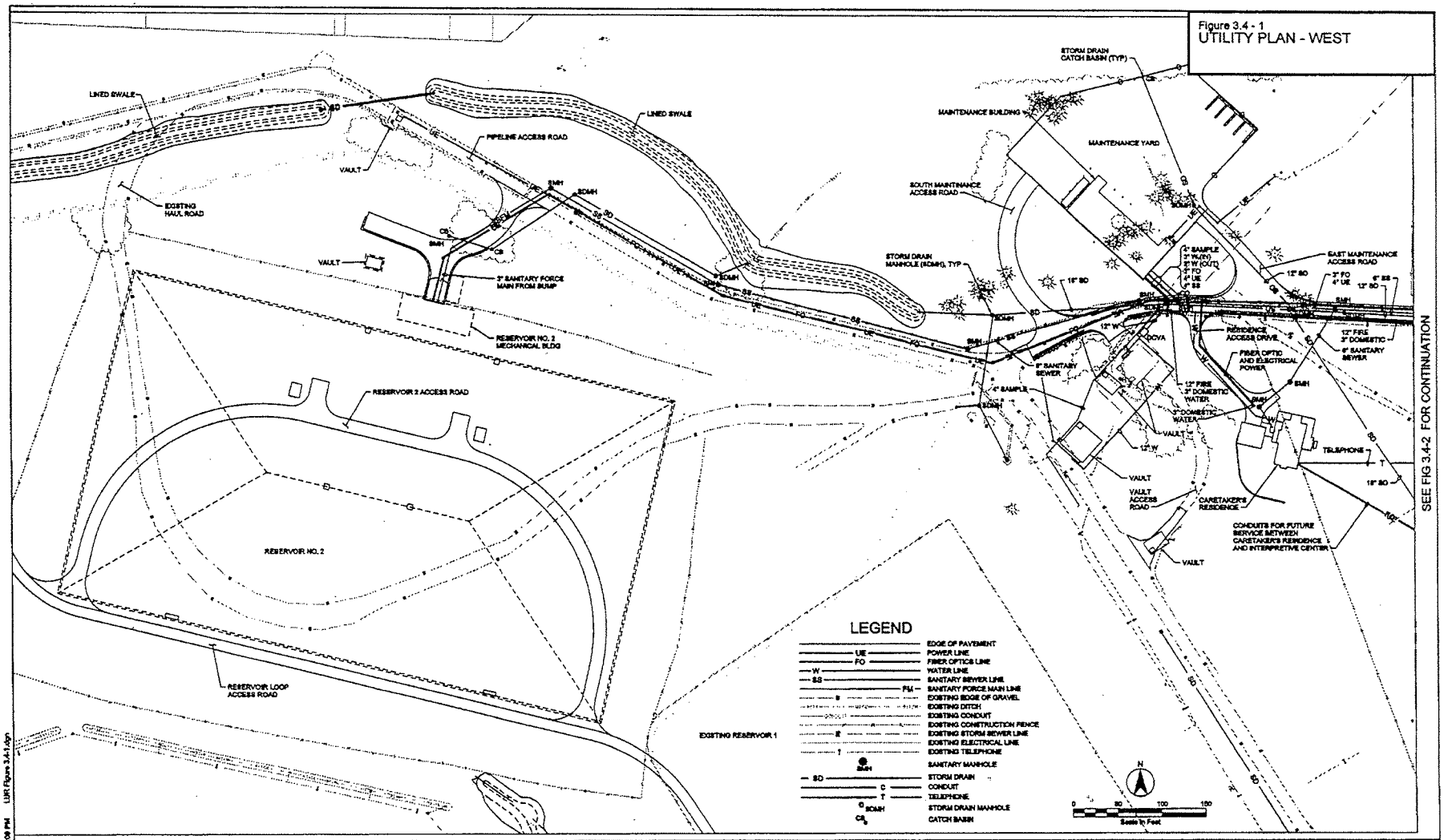
C.25

W01145

JCO-Str-0010

8/26/2010 10:42:07 AM W01145_JCOJJ_6_Str_0010.dgn

Figure 3.4 - 1
UTILITY PLAN - WEST



CH2MHILL
2020 SW 4th Avenue Ph 503.234.3000
Portland OR 97201-4853

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

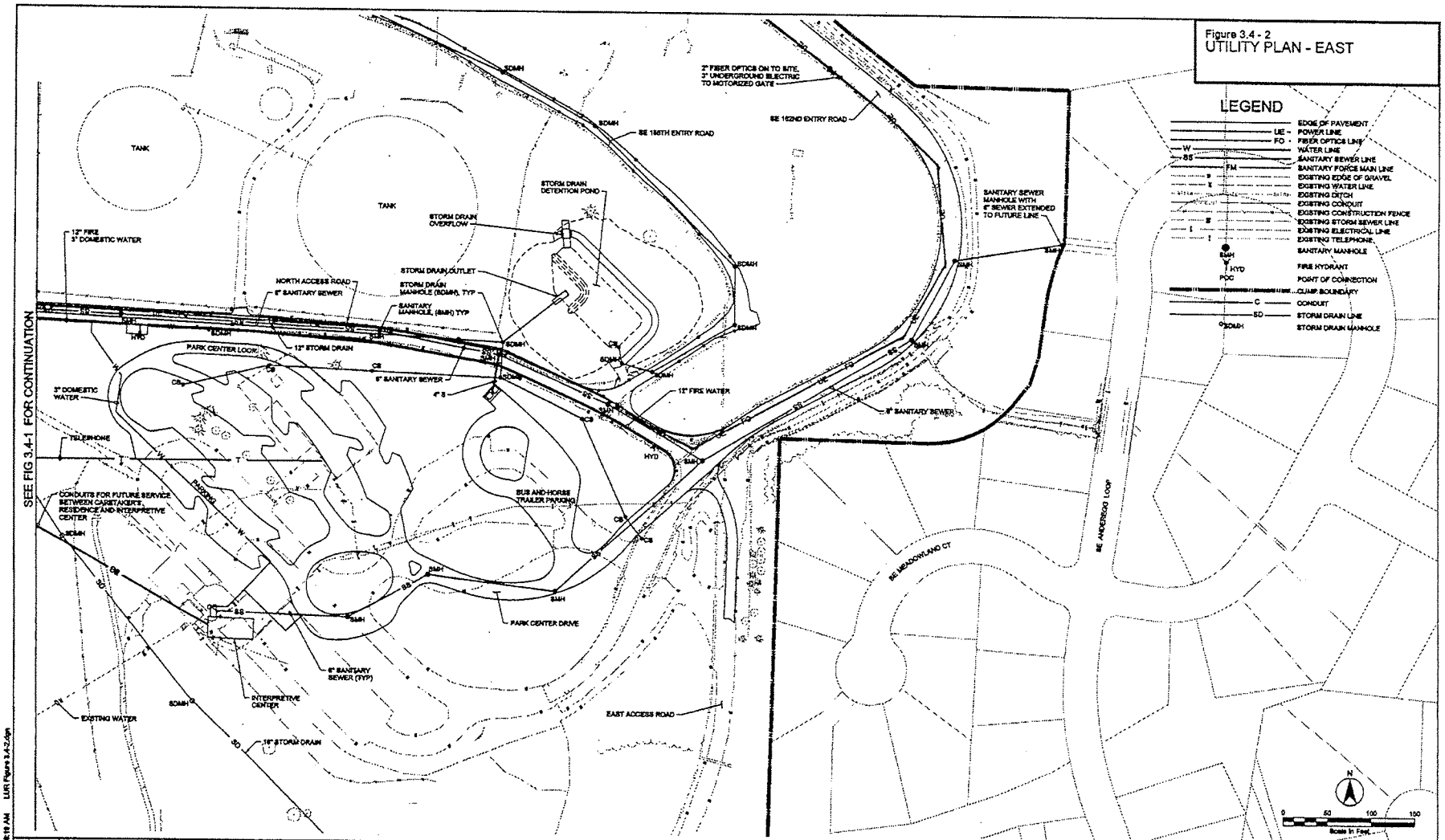
POWELL BUTTE RESERVOIR 2

C.26

W01145

12:37:08 PM LUR Figure 3.4-1.dgn
8/24/2010

Figure 3.4 - 2
UTILITY PLAN - EAST



CH2MHILL
2020 SW 4th Avenue Ph 503.235.5000
Portland OR, 97201-4853

No	Date	Description	Appd
		Revision	

Survey | Book | Page

Designed by | Project Mgr | Drawn by | Chief Mgr | Checked by | Design Engr | Project Mgr | Date

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

Date

POWELL BUTTE RESERVOIR 2

C.27

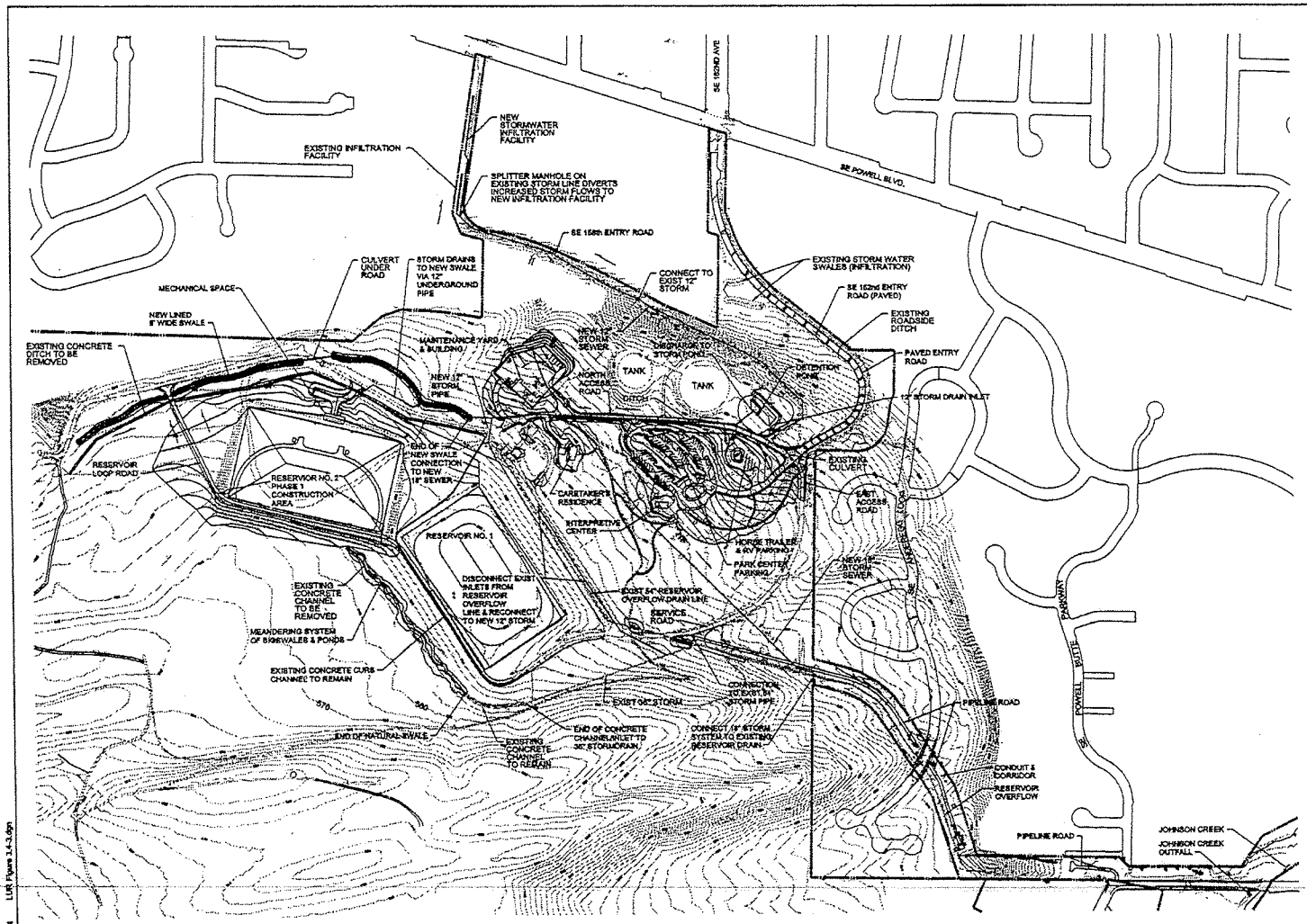
EAP Project No W01145

Drawing No

Sheet No

8/27/2010 10:06:18 AM LUR Figure 3.4-2.dgn

Figure 3.4 - 3
STORMWATER PLAN



LEGEND

- EXISTING 10 FT CONTOUR
- CLIMP BOUNDARY
- EXISTING DITCH
- SLOPE ARROW

GENERAL SHEET NOTES

1. STORMWATER FROM RESERVOIR AREA FLOWS TO SERIES OF SWALES & PONDS.
2. LINED 8' WIDE BIOSWALES TO THE NORTH OF RESERVOIR 2 DRAIN TO NEW 18" STORMPIPE.
3. NEW MEANDERING SYSTEM OF BIOSWALES & PONDS TO THE SOUTH OF RESERVOIR 1 DRAIN TO THE EXISTING 36" STORMPIPE.
4. THE PARK CENTER AREA & MAINTENANCE BUILDING DRAIN TO THE NEW DETENTION POND VIA A NEW 12" STORMDRAIN. THE NEW POND DRAINS TO THE EXISTING 12" STORMPIPE VIA A NEW EXTENSION ALONG THE 158TH ACCESS ROAD. THIS PIPE DRAINS TO A NEW INFILTRATION FACILITY AT THE BASE OF 158TH AVENUE.
5. PORTIONS OF THE PARK CENTER PARKING LOT ARE PAVED WITH PERVIOUS PAVEMENT.
6. EXISTING STORMWATER INLETS WILL BE DISCONNECTED FROM THE EXISTING 54" RESERVOIR OVERFLOW LINE TO SEPERATE RESERVOIR OVERFLOW FROM STORMWATER. THE RESERVOIR OVERFLOW PIPE WILL BE EXTENDED TO RESERVOIR 2.
7. ROOF RUNOFF FROM INTERPRETIVE CENTER & CARETAKER'S RESIDENCE WILL BE ROUTED TO EITHER SOAKAGE TRENCHES OR FLOW-THROUGH FACILITIES, DEPENDING ON CONDITIONS FOUND DURING CONSTRUCTION.

	EXISTING CONDITIONS (ACRES)	PROPOSED CONDITIONS (ACRES)	NET INCREASE (ACRES)
RESERVOIR AREA			
ASPHALT ROAD	0.36	2.71	2.35
ROOFS AND PATIOS	0.10	0.40	0.30
ASPHALT TRAILS (NW PARK CTR)	0	0.12	0.12
CONCRETE CHANNEL	0.91	0.13	-0.78
TOTAL IMPERVIOUS AREA	1.37	3.36	2.00
POROUS ASPHALT *	0	0.37	0.37
TOTAL IMPERVIOUS AREA USING IN STORM CALC'S.	1.37	3.73	2.37
*DISCONNECTED IMPERVIOUS AREA **			
ASPHALT TRAILS (OUTSIDE PARK CTR)	0.15	0.21	0.06
PERVIOUS IMPROVEMENTS			
GRAVEL ACCESS ROAD	0.36	0.76	0.40
GRAVEL PARKING LOTS	1.33	0	-1.33
GRAVEL TRAILS (PARK CENTER ONLY)	0.13	0	-0.13
GRASS-CRETE ACCESS ROADS	0	0.57	0.57
TOTAL PERVIOUS IMPROVEMENTS	1.82	1.33	-0.49

* INFILTRATION RATE OF SOILS IN THIS AREA NOT MEASURED, SO THE AREA OF PERVIOUS PAVEMENT TREATED AS IMPERVIOUS FOR PURPOSES OF STORMWATER CALCULATIONS.

** DISCONNECTED IMPERVIOUS AREA DO NOT DRAIN RUNOFF DIRECTLY INTO STORMWATER COLLECTION SYSTEM AND ARE FILTERED BY FLOWING THROUGH EXISTING VEGETATION. STORMWATER CALCULATIONS TREAT THESE AREA AS PERVIOUS.

AS NOTED ON PLAN, PORTIONS OF SWALE WILL BE REPAVED. STORMWATER MANAGEMENT FOR THIS ROAD IS PROVIDED BY SWALES CONSTRUCTED IN 2000

CH2MHILL
2020 SW 4th Avenue Ph 503.235.5000
Portland OR, 97201-4853

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

POWELL BUTTE RESERVOIR 2

C.28

EAP Project No. W01145

Drawing No.

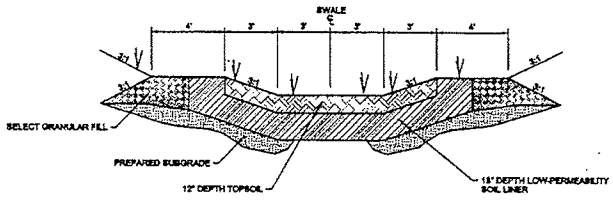
Revision: No. | Date | Description | Appd

Survey | Book | Page

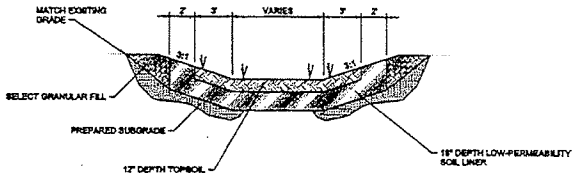
Designed By | Drawn By | Checked By | Project Mgr | Program Mgr | Const Mgr | Design Engrs | Date

8/21/2010 6:12:26 PM LUR Figure 3.4-3.dgn

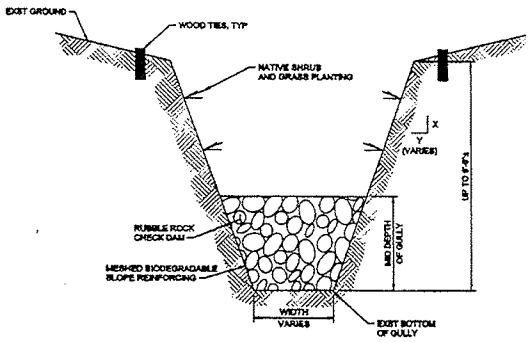
Figure 3.4 - 4
STORMWATER
TYPICAL SWALE
& C5 DITCH IMPROVEMENT



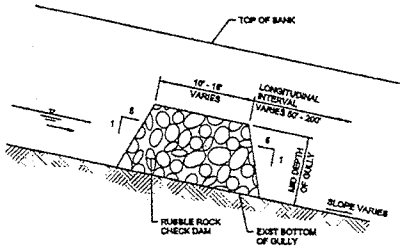
1 TYPICAL 6' SWALE
NTS



2 MEANDERING WIDENED SWALE
NTS



3 C5 GULLY EROSION STABILIZATION - CROSS SECTION
NTS



4 C5 GULLY EROSION STABILIZATION - LONGITUDINAL SECTION
NTS

CH2MHILL
2020 SW 4th Avenue Ph 503.235.3099
Portland OR, 97201-4853

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

POWELL BUTTE RESERVOIR 2

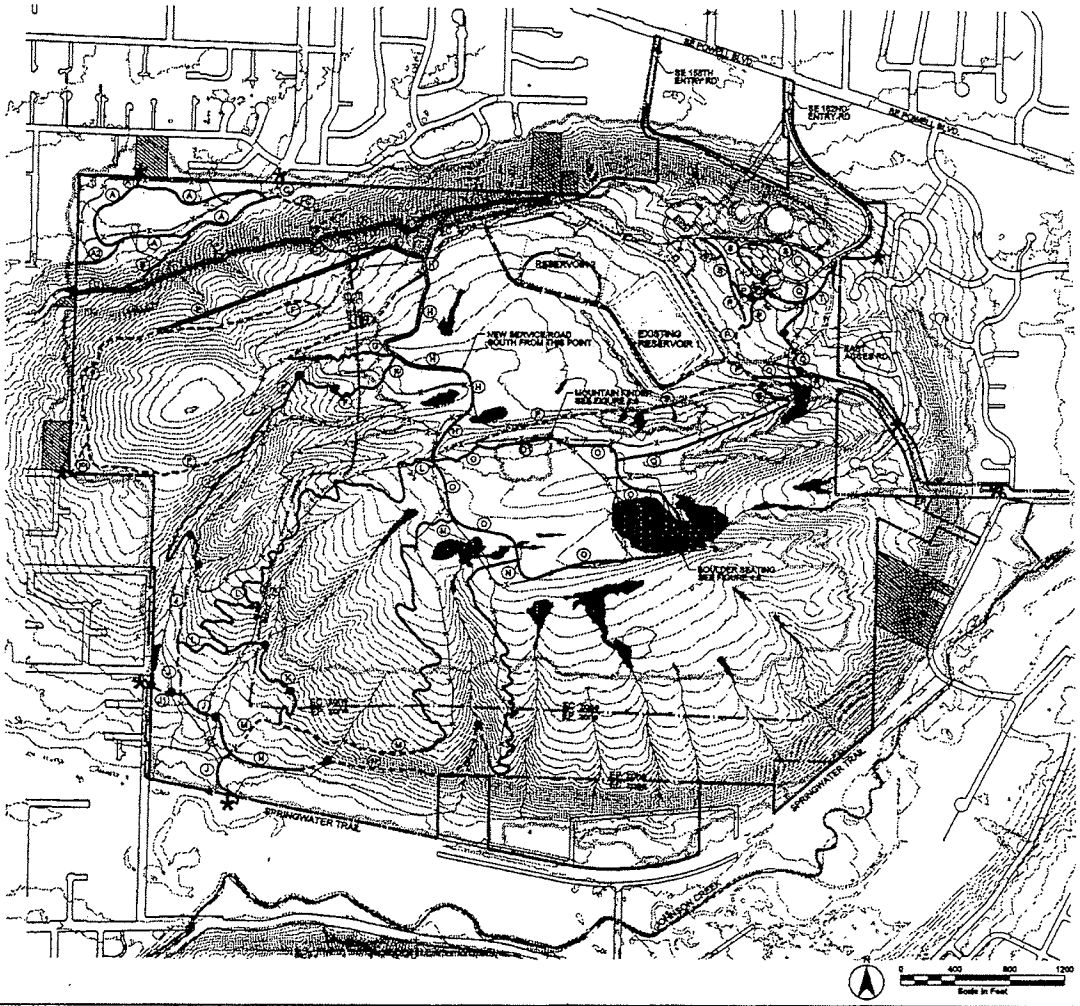
C.29

W01145

CDD-DATE

11/27/06 AM LUR Figure 3.4-4.dgn

Figure 4.0
TRAILS
COMPOSITE



TRAIL SCHEDULE

Trail Name	Trail Code	Trail Width	Surface	CIRTAL NUMBER	Length (ft) Relocated Trail	Length (ft) Trail Repair	Length (ft) Ex. Service Road
Dogwood Trail	A	3	Gravel	7	3,029		
Dogwood Access 1	A1	4	Gravel	7	67		
Dogwood Access 2	A2	4	Gravel	7	384		
Dogwood - Old Holgate	B	3	Soil	7	628		
148th Trail	C	2-4	Soil	3	181	1,147	
148th Trail	C1	2-4	Stairs	82	128		
Old Holgate Road	D	10	Gravel				3,696
Service Rd. Tr.	E	8	Gravel				3,194
Elderberry Trail	F	4	Soil	3	1,737	4,124	
Elderberry Access	F1	4	Soil			278	
Meadowland Trail	G	4	Soil	3	867	1,070	
Goldfinch Trail	K	8	Gravel	5,6			1,443
Goldfinch Trail	H	8	Gravel	5,6	781		
Blacktailed Deer Tr.	J	3-6	Soil	3	2,993	1,290	
Elk Access	J1	4	Soil	3		287	
New Trail	K	2-4	Soil	3	1,219		
Mount Hood Trail	L	2-4	Soil	4	4,423		
Wild Hawthorne Tr.	M	2-4	Soil	3	2,487	1,478	
Pioneer Orchard Tr.	N	2-4	Soil	3	3,065	1,973	
Orchard Loop Tr.	O	8	Gravel	5,6	440		
Orchard Loop Tr.	O1	8	Asphalt		552		
Mountain View Tr.	P	6	Asphalt	1	108	2,488	
Mountain View Tr.	P	6	Asphalt	1			
Wilderness Tr.	Q	2-4	Soil	3	2,665		
Utility Corridor	R	12	Hard Turf (CIVIL				
Park Center Trails	S	6	Asphalt	1	2,070		
Park Center - Andersogg	T	6	Gravel		661		
Obliterated Trails		SEE FIGURE 4.3			31,939		

TOTALS

Relocated Trails	5.4 mi
Trail Repair	2.7 mi
Obliterated Trails	6.1 mi
Temporary Disturbance Area	6.8 ac
Permanent New Disturbance Area	2.7 ac
Obliterated Trails	4.4 ac
New Bridges/ Boardwalk	13

LEGEND:

- SERVICE ROAD
- RELOCATED TRAIL
- EXISTING TRAIL TO REPAIR - SEE NOTE 3
- OBLITERATE TRAIL SEE Figure 4.3
- CAUSEWAY (41 Figure 4.4)
- BRIDGE / BOARDWALK (42 Figure 4.4)
- EXISTING ENTRY KIOSK
- NEW ENTRY KIOSK (PARK STANDARD)
- 10 FT CONTOUR
- DRAINAGEWAY
- EXISTING POTENTIAL WETLAND
- PROPERTY / PROJECT BOUNDARY
- ENVIRONMENTAL PROTECTION ZONE BOUNDARY
- ADJACENT CITY OWNED PROPERTY
- EDGE EXISTING TREE CANOPY

NOTES:

1. TRAILS REMOVAL: WHERE FEASIBLE, PLANTS WILL BE SALVAGED FROM NEW TRAIL LOCATIONS AND USED TO REVEGETATE TRAILS TO BE OBLITERATED.

2. NO EXISTING TREES OVER SIX INCHES DBH WILL BE REMOVED FOR TRAIL CONSTRUCTION. ALL EXISTING NATIVE SHRUBS AND GROUND COVERS OUTSIDE DISTURBANCE AREA WILL BE RETAINED. NON-NATIVE EXOTICS WILL BE REMOVED IN TRAIL DISTURBANCE AREA. NEW PLANTINGS ARE PROPOSED IN RESTORATION AREAS ALONG NEW TRAILS.

3. SOIL TRAILS WILL HAVE AN AVERAGE TEMPORARY DISTURBANCE AREA OF 8 FT.

4. GRAVEL AND PAVED TRAILS WILL HAVE AN AVERAGE TEMPORARY DISTURBANCE AREA OF 20 FT IN MEADOW AND 10 FT IN FORESTED AREAS.

5. TEMPORARY DISTURBANCE AREA WILL SHIFT TO AVOID LARGE TREES AND STEEP SIDE SLOPES.

6. EXISTING TRAILS TO BE IMPROVED BY SLIGHT REALIGNMENT, REESTABLISHING CROSS-SLOPE, AND INSTALLING BOARDWALK OR CULVERTS AT WET AREAS. STRATEGIES SHOWN IN FIGURES 4.1 - 4.6 WILL BE USED.

7. BRIDGE FOOTINGS WILL BE PLACED OUTSIDE DRAINAGEWAY SO CHANNEL IS NOT DISTURBED. ALL LOOSE SOIL WILL BE COVERED WITH ORGANIC MATTER FROM VEGETATION REMOVAL. TRAIL TREADWAY WILL DRAIN AWAY FROM BRIDGE AND BE COMPACTED. SEE FIGURES 7.14 - 7.16 FOR EROSION CONTROL MEASURES TO BE USED.

8. TRAILS WERE LOCATED USING LIDAR CONTOURS AND GPS. ROUTES WILL BE ADJUSTED IN THE FIELD DURING CONSTRUCTION TO AVOID TREES, MINIMIZE IMPACT, AND ENSURE APPROPRIATE SLOPES.

9. SEE FIGURE 3.1 FOR TRAIL WORK IN PARK CENTER AREA.

10. ENTRY KIOSKS AND SIGNS WILL BE LOCATED AT EACH PARK ENTRY. TRAIL SIGNS WILL BE LOCATED AT EACH TRAIL INTERSECTION. SEE FIGURE 4.7

8/23/2010 12:11:27 AM W01145_Trail_8_Gen_0016.dgn

No	Date	Description	Appd
		Revision	

Survey | Bath | Page

Landscape Architecture
[new-o-nan]
Nevue | Ngan | Associates
1086 SE Grand Ave., Suite 230
Portland, Oregon 97214
phone 503.231.0480
fax 503.231.0485

Designed by NNA
Drawn by NNA
Checked by
Project Mgr
Cost Mgr
Design Engr
Project Engr
Date

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

POWELL BUTTE RESERVOIR 2

C.31

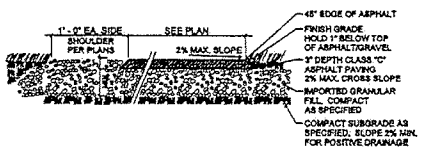
LAP Project No W01145
UI Project 3647, 3646, 3646, 3646, 3647, 3648, 3648, 3646, 3647, 3648
Drawing No Tra-Gen-0010
Sheet No

Figure 4.1
TRAILS
CONSTRUCTION DETAILS

NOTE:
FOR ALL DETAILS ON THIS SHEET, SEE CHART ON FIGURE 4.0 FOR TRAIL WIDTHS

NOTES:

1. CROWN TRAIL OR SLOPE TO SIDE AS SHOWN ON PLANS.
2. MIN. VERTICAL CLEARANCE FOR VEGETATION = 8'. FOR BRIDGES = 12' (INCREASE HEIGHT WITH WIDTH)



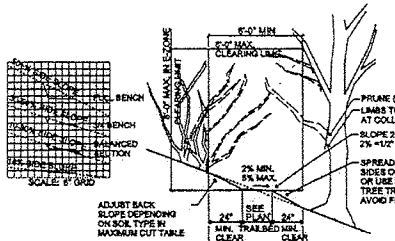
1 ASPHALT TRAIL
NTS

MAXIMUM CUT (BACK) SLOPES

MATERIAL	HORIZONTAL : VERTICAL
SANDY SOIL	3 TO 4 : 1
MOIST CLAY	3 TO 2 : 1
LOOSE, GRAVELLY SOIL OR HUMUS	2 TO 1.5 : 1
SHALE	1 : 1
LOOSE ROCK	1/2 : 1
STABLE ROCK	1/4 : 1

V:H	SLOPE	TRAIL TYPE
1:2 1:4	50% 25%	
1:5 1:6	20% 15%	16-20% I.M.B.A. MAXIMUM
1:7 1:8 1:9 1:10 1:11	14% 12.5% 11% 10% 9%	PP&R HIGHEST CHALLENGE
1:12 1:14 1:15	8.33% 7% 6.67%	PP&R HIGH CHALLENGE
1:20	5%	ACCESSIBLE

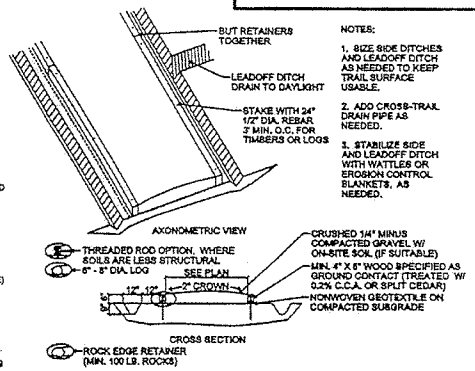
V:H = VERTICAL TO HORIZONTAL
I.M.B.A. = INT'L MOUNTAIN BIKE ASSOC.



3 HIKING TRAIL
NTS

NOTES:

1. REMOVE ALL VEGETATION IN THE TRAILWAY. CUT WOODY PLANTS PER DETAIL.
2. ALLOW NATIVE HERBACEOUS PLANTS TO REVEGETATE ALL BUT TRAILBED
3. BALANCE CUT AND FILL ON SIDESLOPES OF 10-30%
4. SIDESLOPE OF 30-60% - USE 3/4 BENCH
5. LONGITUDINAL SLOPE (RUNNING GRADE) SHOULD BE LESS THAN HALF SLOPE OF HILLSIDE (1/2 RULE)
6. CHOOSE TRAIL ALIGNMENT TO CREATE ROLLING GRADE WITH ADEQUATE CRESTS AND DIPS.
7. SEE "TECHNICAL PROVISIONS FOR ACCESS ROUTES...ACCESSIBLE TRAILS" FOR SPACING OF LANDINGS ALONG STEEPER LONGITUDINAL SLOPES.



NOTES:

1. SIZE SIDE DITCHES AND LEADOFF DITCH AS NEEDED TO KEEP TRAIL SURFACE USABLE.
2. ADD CROSS-TRAIL DRAIN PIPE AS NEEDED.
3. STABILIZE SIDE AND LEADOFF DITCH WITH WATTLES OR EROSION CONTROL BLANKETS, AS NEEDED.

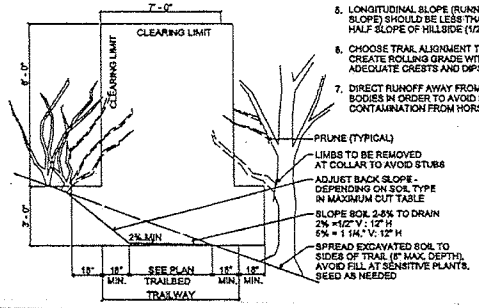
5 CAUSEWAY
NTS

MAXIMUM CUT (BACK) SLOPES

MATERIAL	HORIZONTAL : VERTICAL
SANDY SOIL	3 TO 4 : 1
MOIST CLAY	3 TO 2 : 1
LOOSE, GRAVELLY SOIL OR HUMUS	2 TO 1.5 : 1
SHALE	1 : 1
LOOSE ROCK	1/2 : 1
STABLE ROCK	1/4 : 1

NOTES:

1. VEGETATION REMOVAL IN THE TRAILWAY WILL VARY WITH GROWTH HABIT OF SPECIES
2. CUT WOODY PLANTS BACK OR REMOVE ENTIRELY SO THAT BRANCHES DO NOT ENCROACH IN TRAILWAY.
3. HERBACEOUS PLANTS WILL REVEGETATE ALL BUT TRAILBED
4. USE FULL BENCH CUT WHEREVER POSSIBLE
5. LONGITUDINAL SLOPE (RUNNING SLOPE) SHOULD BE LESS THAN HALF SLOPE OF HILLSIDE (1/2 RULE)
6. CHOOSE TRAIL ALIGNMENT TO CREATE ROLLING GRADE WITH ADEQUATE CRESTS AND DIPS.
7. DIRECT RUNOFF AWAY FROM WATER BODIES IN ORDER TO AVOID POSSIBLE CONTAMINATION FROM HORSE WASTE.



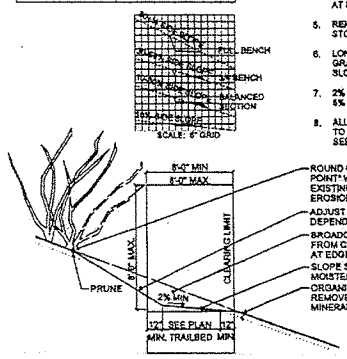
2 HIKING AND EQUESTRIAN TRAIL
NTS

MAXIMUM CUT (BACK) SLOPES

MATERIAL	HORIZONTAL : VERTICAL
SANDY SOIL	3 TO 4 : 1
MOIST CLAY	3 TO 2 : 1
LOOSE, GRAVELLY SOIL OR HUMUS	2 TO 1.5 : 1
SHALE	1 : 1
LOOSE ROCK	1/2 : 1
STABLE ROCK	1/4 : 1

NOTES:

1. USE FULL BENCH CUT WHEREVER POSSIBLE.
2. MAINTAIN OUTSLOPE SO WATER RUNS ACROSS INSTEAD OF DOWN TRAIL.
3. SELECT TRAIL ALIGNMENT TO PROVIDE ROLLING GRADE OF CRESTS AND DIPS THAT MINIMIZE WATER FLOWS ON TRAIL.
4. RETAIN LARGE, STABLE ROUND ROCKS AT SURFACE OF TRAILBED.
5. REMOVE SHARP, POINTED OR LOOSE STONES.
6. LONGITUDINAL SLOPE (RUNNING GRADE) SHOULD BE LESS THAN HALF SLOPE OF HILLSIDE (1/2 RULE).
7. 2% MIN CROSS SLOPE = 1/2 " V: 12" H 5% MAX CROSS SLOPE = 1 1/4" V: 12" H
8. ALLOW NATIVE HERBACEOUS PLANTS TO REVEGETATE ALL BUT TRAILBED, SEED OR MULCH AS NEEDED



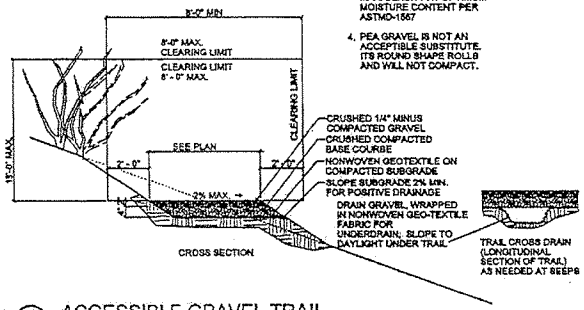
4 HIKING AND SINGLE TRACK MTN BIKE TRAIL
NTS

MAXIMUM CUT (BACK) SLOPES

MATERIAL	HORIZONTAL : VERTICAL
SANDY SOIL	3 TO 4 : 1
MOIST CLAY	3 TO 2 : 1
LOOSE, GRAVELLY SOIL OR HUMUS	2 TO 1.5 : 1
SHALE	1 : 1
LOOSE ROCK	1/2 : 1
STABLE ROCK	1/4 : 1

NOTES:

1. EXCESS CUT TO BE DISTRIBUTED TO SIDES OF TRAIL TO REVEGETATE NATURALLY, RE-SEED AS NEEDED
2. WET AREAS TO DRAIN UNDER GEOTEXTILE IN 6" x 12" TRENCH OF ROUND ROCK ENCLOSED IN GEOTEXTILE
3. REDUCE TOP COURSE TO 1" AND BASE COURSE TO 2" (FINISHED DEPTHS) IF CONTRACTOR CAN COMPACT GRAVEL. LAYERS TO MIN 90% MAX. DENSITY AT OPTIMUM MOISTURE CONTENT PER ASTMD-1557
4. PEA GRAVEL IS NOT AN ACCEPTIBLE SUBSTITUTE. ITS ROUND SHAPE ROLLS AND WILL NOT COMPACT.



6 ACCESSIBLE GRAVEL TRAIL
NTS

No	Date	Description	Appd
		Revision	

Survey | Book | Page

Landscape Architecture
Nevue | Ngan | Associates
1006 SE Grand Ave., Suite 250
Portland, Oregon 97214
phone 503.239.8400
fax 503.239.0605

Designed By	NNA
Drawn By	NNA
Checked By	
Project Mgr	
Program Mgr	
Const Mgr	
Design Supvr	
Date	

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

Date

POWELL BUTTE RESERVOIR 2

C.32

EAP Project No W01145
Drawing No Std-Tra-0375
Sheet No of

LUR Figure 4.1.dgn
12:06:37 PM
8/20/2010

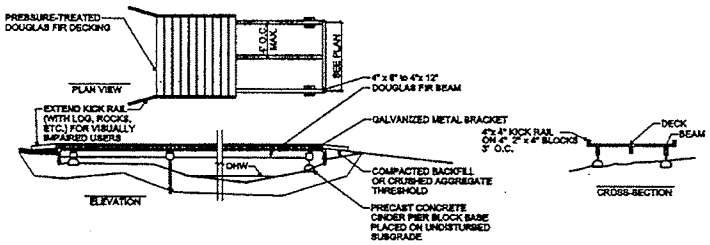
Figure 4.4
TRAILS
BRIDGE DETAILS

NOTES:

LUMBER (EXCEPT RAILINGS AND DECKING) TO BE CEDAR OR DOUGLAS FIR. DOUGLAS FIR TO BE PRESSURE-TREATED CUPERIC

FASTENERS TO BE HOT DIPPED GALVANIZED

OHW - PROJECTED ORDINARY HIGH WATER



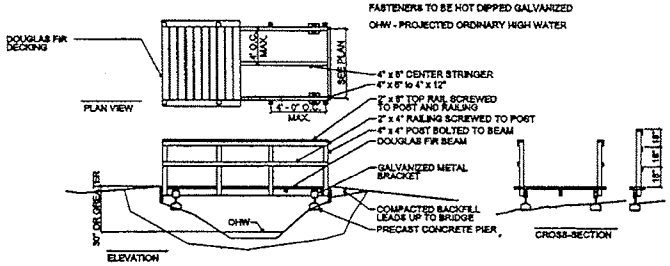
41 BOARDWALK
NTS

NOTES:

LUMBER TO BE CEDAR OR DOUGLAS FIR.

FASTENERS TO BE HOT DIPPED GALVANIZED

OHW - PROJECTED ORDINARY HIGH WATER



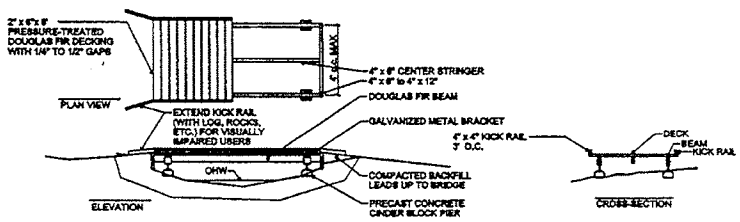
43 BRIDGE WITH RAILING
NTS

NOTES:

LUMBER TO BE DOUGLAS FIR. DOUGLAS FIR TO BE PRESSURE-TREATED CUPERIC (COPPER NAPHTHALATE).

FASTENERS TO BE HOT DIPPED GALVANIZED

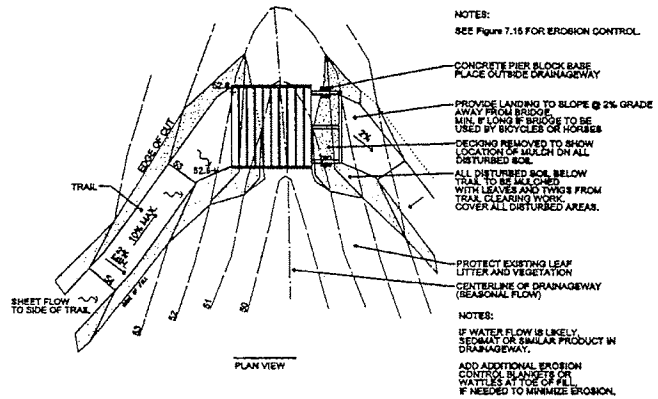
OHW - PROJECTED ORDINARY HIGH WATER



42 BRIDGE
NTS

NOTES:

SEE Figure 7.15 FOR EROSION CONTROL.



NOTES:

IF WATER FLOW IS LIKELY, SEDIMAT OR SIMILAR PRODUCT IN DRAINAGEWAY.

ADD ADDITIONAL EROSION CONTROL BLANKETS OR WATTLES AT TOE OF FILL, IF NEEDED TO MINIMIZE EROSION.

44 EROSION CONTROL AT BRIDGE
NTS

No	Date	Description	Appd
		Revisions	

Survey | Scale | Page

[nev-i-non]
Landscape Architecture
Nevue | Ngan | Associates
1006 SW Grand Ave., Suite 250
Portland, Oregon 97214
phone 503.239.8448
fax 503.239.0665

Designed by NNA
Drawn by NNA
Checked by
Project Mgr

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

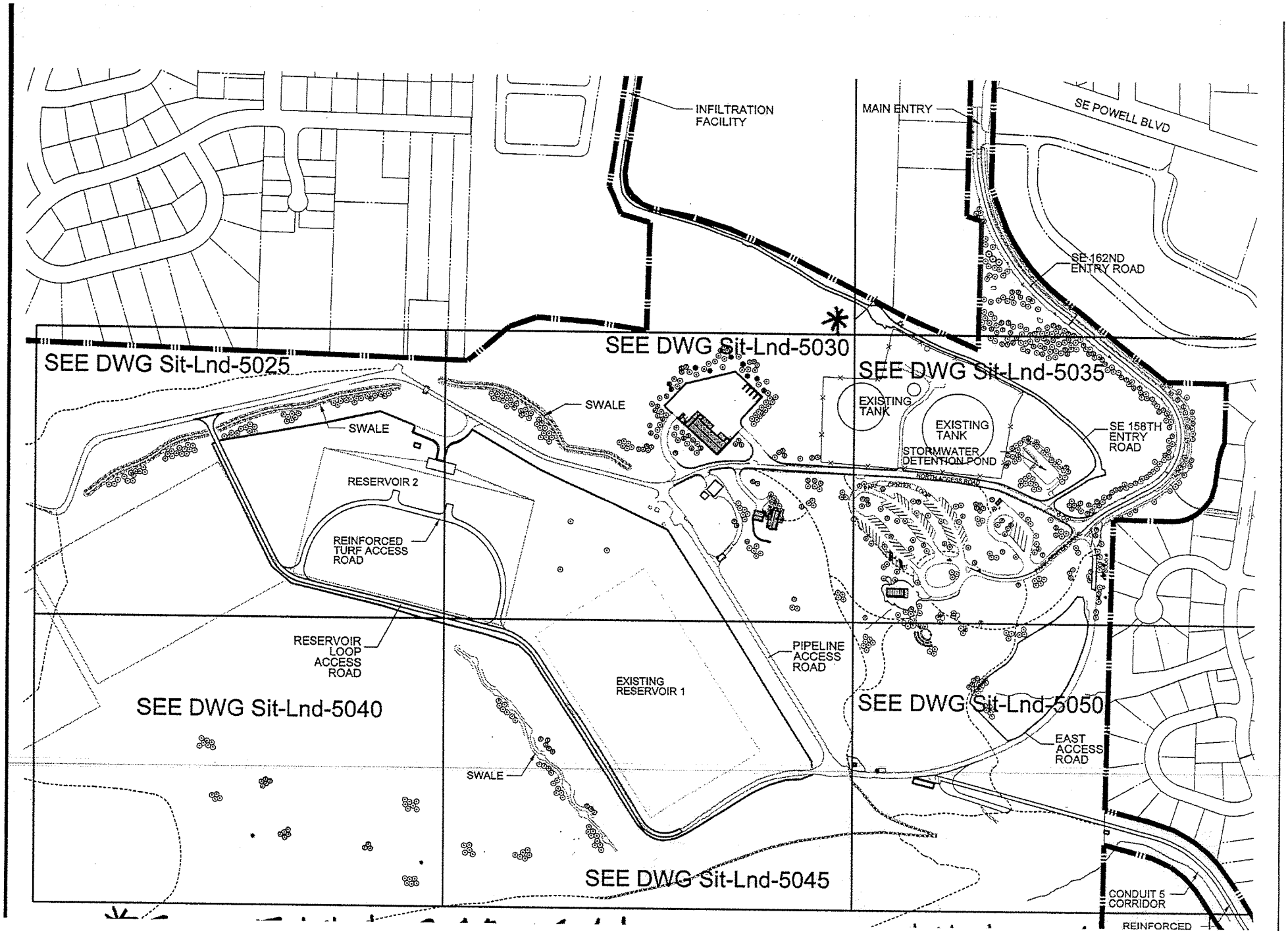
POWELL BUTTE RESERVOIR 2

C.35

W01145

Tre-Lnd-1060

LUR Figure 4.4.dgn
4:26:99 PM
8/22/2010


INFILTRATION FACILITY
MAIN ENTRY
SE POWELL BLVD
SE 162ND ENTRY ROAD
SEE DWG Sit-Lnd-5025
SEE DWG Sit-Lnd-5030
SEE DWG Sit-Lnd-5035
SWALE
SWALE
EXISTING TANK
EXISTING TANK
STORMWATER DETENTION POND
SE 158TH ENTRY ROAD
RESERVOIR 2
REINFORCED TURF ACCESS ROAD
RESERVOIR LOOP ACCESS ROAD
PIPELINE ACCESS ROAD
EXISTING RESERVOIR 1
SEE DWG Sit-Lnd-5040
SEE DWG Sit-Lnd-5050
EAST ACCESS ROAD
SWALE
SEE DWG Sit-Lnd-5045
CONDUIT 5 CORRIDOR
REINFORCED

TREES

	KEY	BOTANICAL NAME	COMMON NAME	SIZE/SPACING	CLASSIFICATION	PARKING LOT see note 1	MAINTENANCE L3 SCREEN see note 2	MAINTENANCE C.U.M.P. see note 2	C-5 CORRIDOR see notes 3, 4 and 16	MITIGATION TREES IN DEVELOPED AREA	ADDITIONAL MITIGATION AREA= 20 AC on Fig 9.0, see note 5	TOTAL TREES FOR MITIGATION see notes 6 and 7	CONDITION 'O' see note 8	WETLAND
TREE REQUIREMENT						69 SPACES: APPROX. 23 TREES	1 LARGE TREE/30 LF, 1 MEDIUM TREE/22 LF, 1 SMALL TREE/15 LF MINIMUM	MAINTENANCE C.U.M.P. DOUBLE ROW OF TREES ON SOUTH AND EAST SIDES		3 NEW TREES / 6" CALIPER REMOVED	273 TREES @ 400 TREES/ACRE		101 TREES PLANTED SOUTH OF SWALE	
						QTY	QTY	QTY		QTY	QTY	TOTAL	QTY	QTY
2" CALIPER (5' HIGH CONIFER)	ACE MAC	*Acer macrophyllum*	Bigleaf Maple	2" CAL	MEDIUM DECIDUOUS		9							
	PIN PON	*Pinus ponderosa*	Ponderosa Pine	5' HT	MEDIUM CONIFER	5	3	15		2				
	PRU EMA	*Prunus emarginata*	Bitter Cherry	2" CAL	SMALL DECIDUOUS*			7						
	PSE MEN	*Pseudotsuga menziesii*	Douglas Fir	5' HT	LARGE CONIFER		9							
	RHA PUR	*Rhamnus purshiana*	Cascara	2" CAL	SMALL DECIDUOUS		8	9						
	QUE GAR	*Quercus garryana*	Oregon Oak	2" CAL	LARGE DECIDUOUS	18		12		15				
1/2" CALIPER BARE-ROOT (3' HIGH CONIFER)	ABI GRA	*Abies grandis*	Grand Fir	3' HT	MEDIUM CONIFER					12				
	ACE MAC	*Acer macrophyllum*	Bigleaf Maple	1/2" CAL	MEDIUM DECIDUOUS					36	98		34	
	ALN RUB	*Alnus rubra*	Red Alder	1/2" CAL	MEDIUM DECIDUOUS					39	112			
	FRA LAT	*Fraxinus latifolia*	Oregon Ash	1/2" CAL	MEDIUM DECIDUOUS					18	14		46	
	PIN PON	*Pinus ponderosa*	Ponderosa Pine	3' HT	MEDIUM CONIFER					120				
	PRU EMA	*Prunus emarginata*	Bitter Cherry	1/2" CAL	SMALL DECIDUOUS					14	28		26	
	PSE MEN	*Pseudotsuga menziesii*	Douglas Fir	3' HT	LARGE CONIFER					43	28			
	RHA PUR	*Rhamnus purshiana*	Cascara	1/2" CAL	SMALL DECIDUOUS					50			3	
	QUE GAR	*Quercus garryana*	Oregon Oak	1/2" CAL	LARGE DECIDUOUS					158			10	
	SAL SCO*	*Salix scouleriana*	Scouler's Willow	1/2" CAL	SMALL DECIDUOUS					24			3	
	THU PLI	*Thuja plicata*	Western Redcedar	3' HT	LARGE CONIFER					2				
	TSU HET	*Tsuga heterophylla*	Western Hemlock	3' HT	LARGE CONIFER					3				
1 GAL SIZE MIN. PLANT BAREROOT	+ +	*Fraxinus latifolia*	Oregon Ash	10' O.C.	FACW									275
	+ +	*Populus trichocarpa*	Black Cottonwood	10' O.C.	FAC									50
		Salix scouleriana	Scouler's Willow	7-10' O.C.	FAC									75
TOTAL						23	29	43		516	281	892	122	400

* - SMALL DECIDUOUS DETERMINED BY APPLYING CANOPY FACTOR FORMULA LISTED IN PACKET - 50' TALL X 40' CROWN X SLOW GROWTH X .01 - SOURCES ARE POJAR AND KRUCKEBERG

SHRUBS

	KEY	BOTANICAL NAME	COMMON NAME	SIZE	CLASSIFICATION	1.5 SHRUBS / PARKING SPACE see note 9	L3 SHRUB SCREEN see note 10	ADDITIONAL SHRUBS	2.5 SHRUBS / 10 SF @ 103,287 SF see notes 3, 4 and 5	WETLAND
SHRUB REQUIREMENT										
SHRUBS	AME ALN	*Amelanchier alnifolia*	Western Serviceberry	1 GAL SIZE BR	HIGH DECIDUOUS		58			
	HOL DIS	*Holodiscus discolor*	Oceanspray	1 GAL SIZE BR	HIGH DECIDUOUS	18	75	17		
NOTE: PLANT BAREROOT	MAH AQU	*Mahonia aquifolium*	Tall Oregongrape	1 GAL SIZE BR	LOW EVERGREEN		228			
	PHI LEW	*Philadelphus lewisii*	Mock Orange	1 GAL SIZE BR	HIGH DECIDUOUS		24			
	RIB SAN	*Ribes sanguineum*	Flowering Currant	1 GAL SIZE BR	HIGH DECIDUOUS		16			
	SAL SCO*	*Salix scouleriana*	Scouler's Willow	1 GAL SIZE BR	SMALL DECIDUOUS		29			
	ROS NUT	*Rosa nutkana*	Nootka Rose	1 GAL SIZE BR	HIGH DECIDUOUS**	97		4		
	ROB PAR	*Rubus parviflorus*	Thimbleberry	1 GAL SIZE BR	HIGH DECIDUOUS**	101		10		
	SYM ALB	*Symphoricarpos albus*	Snowberry	1 GAL SIZE BR	LOW DECIDUOUS	49		9		
SHRUB MIX FOR UTILITY CORRIDOR		*Amelanchier alnifolia*	Serviceberry	1 GAL SIZE BR	HIGH DECIDUOUS				3,873	
		Holodiscus discolor	Oceanspray	1 GAL SIZE BR	HIGH DECIDUOUS				1,291	
		Philadelphus lewisii	Mock Orange	1 GAL SIZE BR	HIGH DECIDUOUS				1,291	
		Rosa nutkana	Nootka Rose	1 GAL SIZE BR	HIGH DECIDUOUS				3,873	
NOTE: PLANT BAREROOT		*Rosa pisocarpa*	Cluster Rose	1 GAL SIZE BR	LOW DECIDUOUS				7,000	
		Spiraea betulifolia v. lucida	Birchleaf Spirea	1 GAL SIZE BR	LOW DECIDUOUS				747	
		Symphoricarpos albus	Snowberry	1 GAL SIZE BR	LOW DECIDUOUS				7,747	
1 GAL SIZE MINIMUM BAREROOT	+ +	*Lonicera involucrata*	Beatberry Honeysuckle	4-5' O.C.	FAC					200
	+ +	*Rosa pisocarpa*	Clustered Rose	4-5' O.C.	FAC					250
	+ +	*Spiraea douglasii*	Hardhack Spirea	4-5' O.C.	FACW					350
TOTAL						265	430	40	25,822	800

** - NON DECIDUOUS DETERMINED BY HEIGHT OF 6' STATED IN CANOPY FACTOR PACKET - BOTH SHRUBS ATTAIN HEIGHTS OF 6' - SOURCE IS WSU EXTENSION OFFICE WEBPAGE

SEED MIXES

	KEY	BOTANICAL NAME	COMMON NAME
DRY PRAIRIE SEED MIX		*Grasses*	
		Bromus carinatus	California Brome
		Danthonia californica	California Oatgrass
see notes 11 and 12		*Elymus trachycaulis*	Slender Wheatgrass
		Elymus glaucus	Blue Wildrye
		Koeleria macrantha	Prairie Jungrass
		Poa secunda	Sandberg Bluegrass
		Flowering Plants	
		Achillea millefolium	Yarrow
		Eriophyllum lanatum	Oregon Sunshine
		Lupinus albicaulis	Sickle-Keeled Lupine
		Lupinus latifolius	Broadleaf Lupine
		Prunella vulgaris var. lanceolata	Heal-all
SHADE TOLERANT SEED MIX AROUND TREES AND SHRUBS		*Grasses*	
		Bromus carinatus	California Brome
		Bromus sitchensis	Sitka Brome
		Bromus vulgaris	Columbia Brome
		Elymus glaucus	Blue Wildrye
		Festuca occidentalis	Western Fescue
		Flowering Plants	
see notes 11 and 12		*Lupinus latifolius*	Large-leaf Lupine
		Prunella vulgaris var. lanceolata	Heal-all
		Tellima grandiflora	Fringe Cup
WET MEADOW SEED MIX FOR SWALES AND STORMWATER PONDS		*Grasses*	
		Danthonia californica	California Oatgrass
		Deschampsia cespitosa	Tufted Hairgrass
		Deschampsia elongata	Slender Hairgrass
		Hordeum brachyantherum	Meadow Barley
		Flowering Plants	
		Carex densa	Dense Sedge
		Carex unilateralis	Lateral Sedge
see notes 11 and 12		*Juncus patens*	Slender Rush
		Juncus tenuis	Spreading Rush
		Lupinus latifolius	Broadleaf Lupine
		Potentilla gracilis	Graceful Cinquefoil
WETLAND ZONE 1 EROSION CONTROL	+ +	*Agrostis exarata*	Spike Bentgrass
	+ +	*Deschampsia cespitosa*	Tufted Hairgrass
	+ +	*Deschampsia elongata*	Slender Hairgrass
	+ +	*Hordeum brachyantherum*	Meadow Barley
WETLAND ZONE 2 EMERGENT		*Carex athrostachya*	Slender Beaksedge
		Carex stipata	Awl-fruit Sedge
		Carex unilateralis	Lateral Sedge
		Eleocharis ovata	Ovate Spikerush
		Juncus patens	Spreading Rush
		Juncus tenuis	Slender Rush
		Scirpus microcarpus	Smallfruit Bulrush

PLANTS FOR TRAIL AND BRIDG

	KEY	BOTANICAL NAME	COMMON NAME
TREES	ACE CIR	*Acer circinatum*	Vine Maple
		Cornus nuttallii	Pacific Dogwood
	COR NUT		
	SAL SCO	*Salix scouleriana*	Scouler's Willow
SHRUBS	MAH NER	*Mahonia nervosa*	Cascade Oregon Grap
	OEM CER	*Oemleria cerasiformis*	Indian Plum
	ROS GYM	*Rosa gymnocarpa*	Baldhip Rose
	RUB SPE	*Rubus spectabilis*	Salmonberry
	SYM ALB	*Symphoricarpos albus*	Common Snowberry
GROUNDCOVER	CAR LEP	*Carex leptopoda/ C. hendersonii*	Dewey's Sedge/ Henderson's Sedge
	POL MUN	*Polystichum munitum*	Sword Fern
	TEL GRA	*Tellima grandiflora*	Fringecup

PARKING LOT see note 1	MAINTENANCE L3 SCRI see note 2	MAINTENANCE C.U.M. see note 2	C-5 CORRIDOR see notes 3, 4 and 16	MITIGATION TREES IN DEVELOPED AREA	ADDITIONAL MITIGATI AREA= 20 AC on Fig 9.0 see note 5	TOTAL TREES FOR MITIGATION see notes 6 a	CONDITION 'O' see note	WETLAND
69 SPACES: APPROX. 23 TREES	1 LARGE TREE/30 LF, 1 MEDIUM TREE/22 LF, 1 SMALL TREE/15 LF MINIMUM	MAINTENANCE C.U.M.P. DOUBLE ROW OF TREES ON SOUTH AND EAST SIDES		3 NEW TREES / 6" CALIPER REMOVED	273 TREES @ 400 TREES/ACRE		101 TREES PLANTED SOUTH OF SWALE	
QTY	QTY	QTY		QTY	QTY	TOTAL	QTY	QTY
	9							
5	3	15		2				
		7						
	9							
	8	9						
18		12		15				
				12				
				36	98		34	
				19	112			
				18	14		46	
				120				
				14	28		26	
				43	28			
				50			3	
				158			10	
				24			3	
				2				
				3				
								275
								50
								75
23	29	43		516	281	892	122	400

40' CROWN X SLOW GROWTH X .01 - SOURCES ARE FOJAR AND KRUCKEBERG

1.5 SHRUBS / PARKING SPACE see note 9	L3 SHRUB SCREEN see note 10	ADDITIONAL SHRUBS	2.5 SHRUBS / 10 SF @ 103,287 SF see notes 3, 4 and 5	WETLAND
	58			
18	75	17		
	228			
	24			
	15			
	29			
97		4		
101		10		
49		9		
			3,873	
			1,791	
			1,791	
			1,873	
			7,000	
			747	
			7,747	
				200
				250
				350
265	430	40	25,822	800

TAIN HEIGHTS OF 6' - SOURCE IS WSU EXTENSION OFFICE WEBPAGE

SEED MIXES

	KEY	BOTANICAL NAME	COMMON NAME	SEEDING RATE
DRY PRAIRIE SEED MIX see notes 11 and 12		*Grasses*		
		Bromus carinatus	California Brome	4 lbs/acre PLS
		Danthonia californica	California Oatgrass	5 lbs/acre PLS
		Elymus trachycaulis	Slender Wheatgrass	4 lbs/acre PLS
		Elymus glaucus	Blue Wildrye	4 lbs/acre PLS
		Koeleria macrantha	Prairie Jungrass	1 lbs/acre PLS
		Poa secunda	Sandberg Bluegrass	2 lbs/acre PLS
		Flowering Plants		
		Achillea millefolium	Yarrow	1 lbs/acre PLS
		Eriophyllum lanatum	Oregon Sunshine	0.25 lbs/acre PLS
		Lupinus albicaulis	Sickle-Keeled Lupine	0.25 lbs/acre PLS
		Lupinus latifolius	Broadleaf Lupine	0.25 lbs/acre PLS
		Prunella vulgaris var. lanceolata	Heal-all	0.25 lbs/acre PLS
SHADE TOLERANT SEED MIX AROUND TREES AND SHRUBS see notes 11 and 12		*Grasses*		
		Bromus carinatus	California Brome	5 lbs/acre PLS
		Bromus stichensis	Sitka Brome	3 lbs/acre PLS
		Bromus vulgaris	Columbia Brome	3 lbs/acre PLS
		Elymus glaucus	Blue Wildrye	5 lbs/acre PLS
		Festuca occidentalis	Western Fescue	3 lbs/acre PLS
		Flowering Plants		
		Lupinus latifolius	Large-leaf Lupine	0.25 lbs/acre PLS
		Prunella vulgaris var. lanceolata	Heal-all	0.25 lbs/acre PLS
		Tellima grandiflora	Fringe Cup	0.25 lbs/acre PLS
WET MEADOW SEED MIX FOR SWALES AND STORMWATER PONDS see notes 11 and 12		*Grasses*		
		Danthonia californica	California Oatgrass	5 lbs/acre PLS
		Deschampsia cespitosa	Tufted Hairgrass	2 lbs/acre PLS
		Deschampsia elongata	Slender Hairgrass	2 lbs/acre PLS
		Hordeum brachyantherum	Meadow Barley	10 lbs/acre PLS
		Flowering Plants		1 lbs/acre PLS
		Carex densa	Dense Sedge	1 lbs/acre PLS
		Carex unilaterals	Lateral Sedge	0.5 lbs/acre PLS
		Juncus patens	Slender Rush	0.5 lbs/acre PLS
		Juncus tenuis	Spreading Rush	
		Lupinus latifolius	Broadleaf Lupine	0.25 lbs/acre PLS
		Potentilla gracilis	Graceful Cinquefoil	0.25 lbs/acre PLS
WETLAND ZONE 1 EROSION CONTROL	+ + + + + +	*Agrostis exarta*	Spike Bentgrass	3 lbs/acre PLS
		Deschampsia cespitosa	Tufted Hairgrass	2 lbs/acre PLS
		Deschampsia elongata	Slender Hairgrass	2 lbs/acre PLS
		Hordeum brachyantherum	Meadow Barley	10 lbs/acre PLS
WETLAND ZONE 2 EMERGENT		*Carex athrostachya*	Slender Beaksedge	100 plugs @ 2' O.C.
		Carex stipata	Awl-fruit Sedge	100 plugs @ 2' O.C.
		Carex unilaterals	Lateral Sedge	250 plugs @ 2' O.C.
		Eleocharis ovata	Ovate Spikerush	250 plugs @ 2' O.C.
		Juncus patens	Spreading Rush	150 plugs @ 2' O.C.
		Juncus tenuis	Slender Rush	250 plugs @ 2' O.C.
		Scirpus microcarpus	Smallfruit Bullrush	150 plugs @ 2' O.C.

NOTES

1. Parking Lot requirements are 1 Large Tree per 4 parking stalls and 1 Medium tree per 3 parking stalls.
(14 LG x 4 = 56 spaces, 9 MED x 3 = 27 spaces for a total of 83 spaces). There are 20% more trees planted than required to account for some loss during establishment

2. Trees are spaced closer than required to account for some loss during establishment.

3. The CUMP directs that 2 shrubs per 10 sf were to be planted over utility corridors. This total includes an additional 0.5 shrubs per 10 s.f.

4. High shrubs will be concentrated along the outer portion of the corridor with the adjacent forest.

5. Trees will be planted with a random spacing between 12-feet and 48-feet o.c. to achieve a density of 400 trees / acre within the designated 20-acre area. See Figure 9.0 for location.

6. The total number of mitigation trees planted includes a 20% more trees to account for some loss during establishment.

7. This total includes trees planted in the Parking Lot, at the Maintenance Facility as a Double Row and for L3 Screening, miscellaneous trees in the developed area and trees in the additional mitigation area.

8. 101 trees are required for Condition O. Total number of mitigation trees planted includes 20% more trees to account for some loss during establishment. These trees are NOT counted toward mitigation for tree removal.

9. 20% more shrubs are shown than are required to account for some loss during establishment.

10. Because there is not an appropriate tall evergreen native shrub to meet the screening requirement, the quantities of Mahonia (medium-sized) are increased and large quantities of large deciduous shrubs have been added to ensure adequate screening.

11. Seed Mix intended to comply with 50/50 flower/grass requirement. Selected flowers provide more coverage than grass per lb. of seed.

12. Note: this mix provides avg. of 230 seeds per sq.ft. (or ~148 grass seeds/82 forb seeds per sq.ft.)

13. Irrigation will be provided to establish trees and shrubs at the Maintenance Facility, the Interpretive Center, and parking lots. The remaining trees and shrubs will be established using hand-watering.

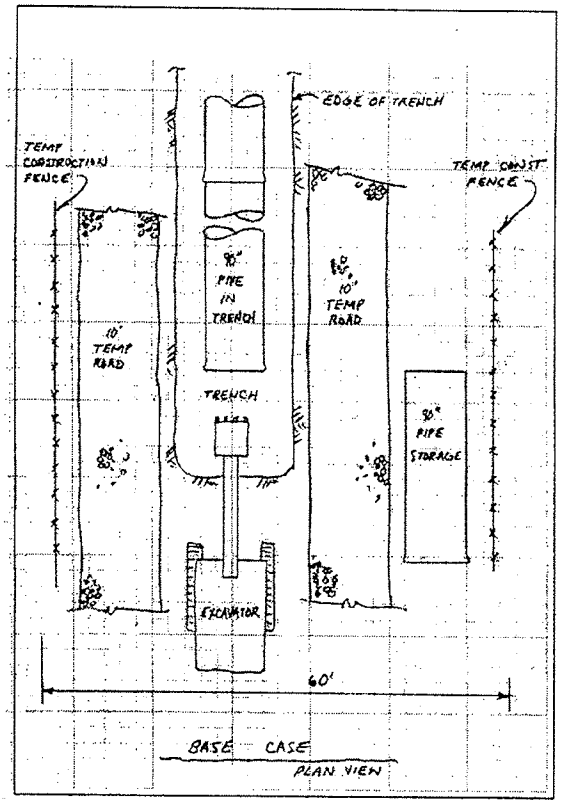
14. Carex unilateralis, Elymus trachycaulis, Koeleria macrantha, and Poa secunda were recently added to the Portland Native Plant List, contact Roberta Jortner with questions.

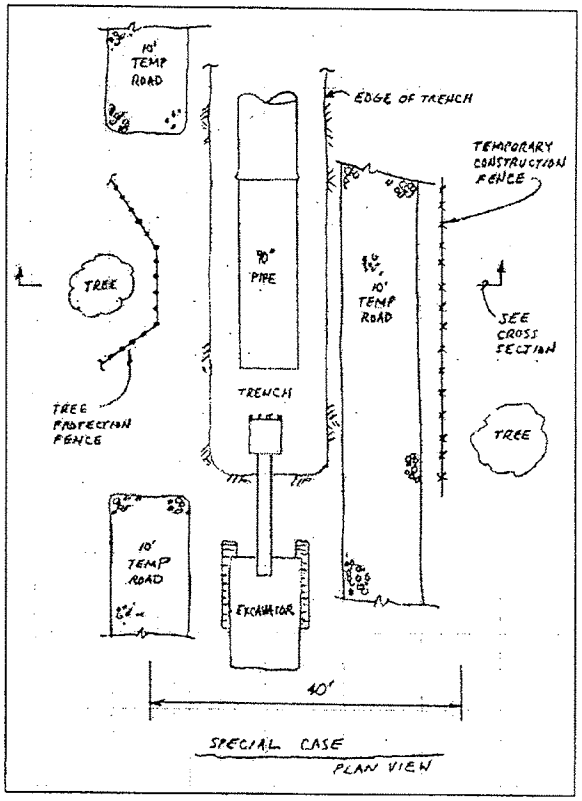
15. Minor adjustments to species mix may be necessary based on plant availability, all substitutions will be on the Portland Native Plant List.

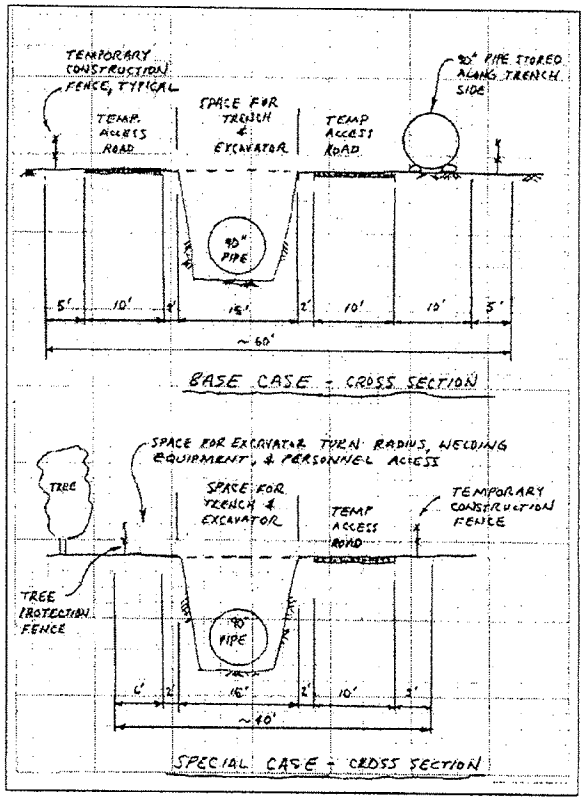
PLANTS FOR TRAIL AND BRIDGE RESTORATION

	KEY	BOTANICAL NAME	COMMON NAME	USFWS WETLAND RATING	PLANTING DENSITY	SIZE		QTY
TREES	ACE CIR	*Acer circinatum*	Vine Maple	FAC	5-7' O.C.	1 gal or BR		
		Cornus nuttallii	Pacific Dogwood	UPL	10' O.C.	1 gal or BR		
	COR NUT							
	SAL SCO	*Salix scouleriana*	Scouler's Willow	FAC	7'-10' O.C.	1 gal or BR		
SHRUBS	MAH NER	*Mahonia nervosa*	Cascade Oregon Grape	UPL	4-5' O.C.	1 gal or BR		
	OEM CER	*Oemleria cerasiformis*	Indian Plum	FACU	5-7' O.C.	1 gal or BR		
	ROS GYM	*Rosa gymnocarpa*	Baldhip Rose	FACU	4-5' O.C.	1 gal or BR		
	RUB SPE	*Rubus spectabilis*	Salmonberry	FAC	5-7' O.C.	1 gal or BR		
	SYM ALB	*Symphoricarpos albus*	Common Snowberry	FACU	4-5' O.C.	1 gal or BR		
GROUNDCOVER	CAR LEP	*Carex leptopoda/ C. hendersonii*	Dewey's Sedge/ Henderson's Sedge	FAC	1.5-2' O.C.	PLUGS		
	POL MUN	*Polystichum munitum*	Sword Fern	FACU	1.5-2' O.C.	PLUGS		
	TEL GRA	*Tellima grandiflora*	Fringecup	UPL	1.5-2' O.C.	PLUGS		
						SEEDING RATES: LBS / 1000SF PLS [PURE LIVE SEED]		
SEED MIX		*Bromus vulgaris*	Sitka Brome	UPL		5		
		Elymus glaucus	Blue wildrye	FACU		5		
		Festuca occidentalis	Western fescue	UPL		5		

Figure 7.9
CONSTRUCTION MANAGEMENT
C5 CORRIDOR CONSTRUCTION ACCESS







CH2MHILL
2020 SW 4th Avenue Ph 503.235.5000
Portland OR, 97201-4923

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

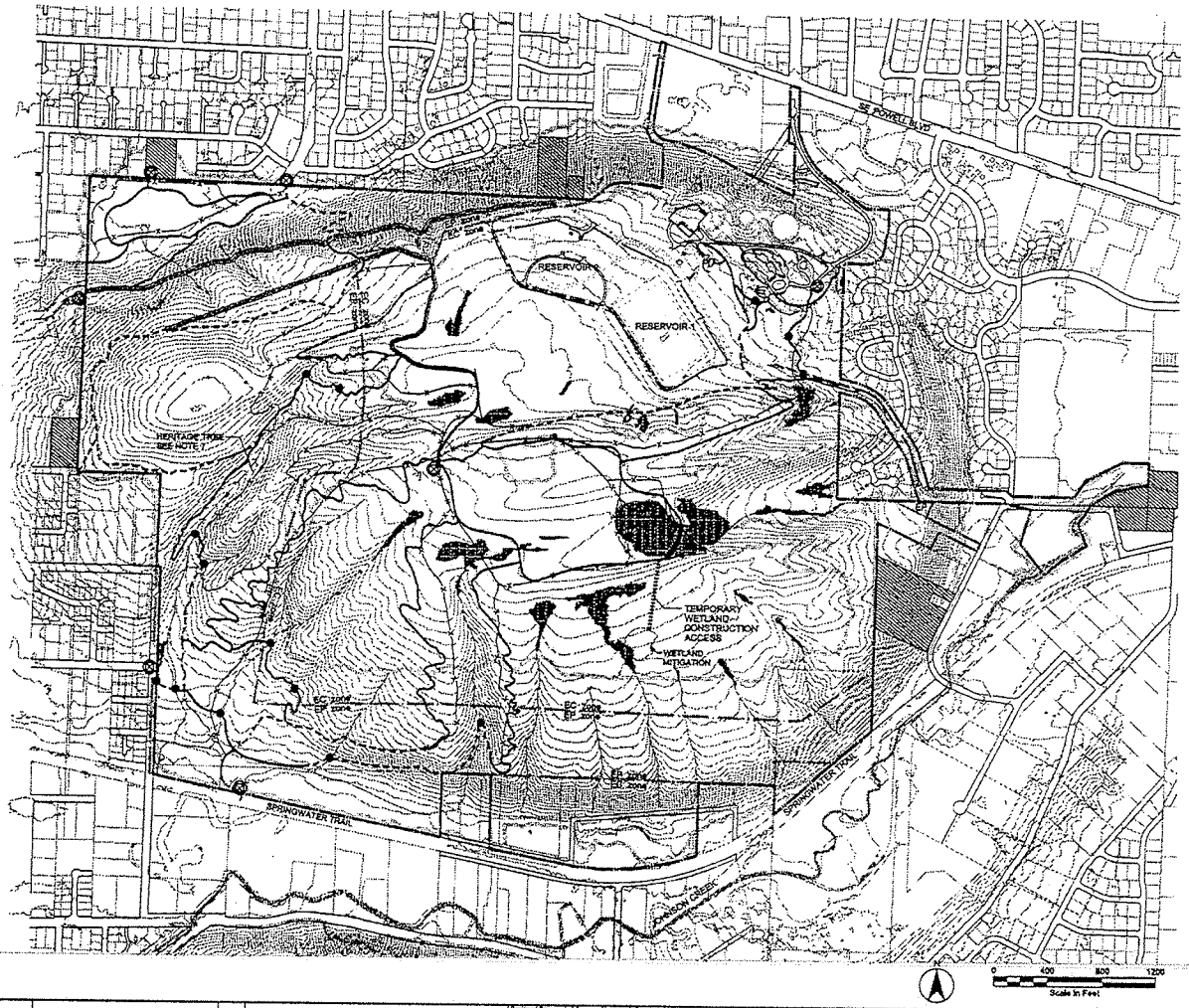
PRELIMINARY

POWELL BUTTE RESERVOIR 2

C.71

W01145

Figure 7.13
CONSTRUCTION MANAGEMENT
TRAILS - PLAN



NOTES:

1. NO EXISTING TREES OVER SIX INCHES DBH WILL BE REMOVED. ALL EXISTING NATIVE SHRUBS AND GROUND COVERS OUTSIDE DISTURBANCE AREA WILL BE RETAINED. NON NATIVE EXOTICS WILL BE REMOVED WITHIN DISTURBANCE AREA. NEW PLANTINGS ARE PROPOSED IN RESTORATION AREAS ALONG NEW TRAILS.

2. SEE FIGURE 7.14 - 7.16 FOR EROSION CONTROL DETAILS. MOST EROSION CONTROL WILL BE PROVIDED THROUGH PREVENTATIVE MEASURES. INVASIVE PLANT MATERIAL AND VEGETATION REMOVED FOR TRAIL WILL BE PLACED TO PREVENT EROSION AT DRAINAGEWAYS. EXISTING VEGETATION & LEAF LITTER WILL GENERALLY CONTROL EROSION, BUT CHIPS,LEAVES, OR EROSION CONTROL FENCING WILL BE PLACED AS NEEDED.

3. SEE FIGURE 4.3 FOR TRAIL OBLITERATION DETAILS

4. EXISTING TRAILS TO BE IMPROVED BY REGRADING OF TRAIL SURFACE TO CREATE POSITIVE DRAINAGE, MODIFYING THE HORIZONTAL ALIGNMENT TO IMPROVE DRAINAGE, STABILIZING TRAIL SURFACE, AND REMOVING CULVERTS, INSTALLING BOARDWALKS AND BRIDGES WHERE APPROPRIATE.

5. SEE FIGURE 7.16 FOR CULVERT REMOVAL. BRIDGE FOOTINGS WILL BE PLACED OUTSIDE DRAINAGEWAY SO CHANNEL IS NOT DISTURBED. ALL LOOSE SOIL WILL BE COVERED WITH ORGANIC MATTER FROM VEGETATION REMOVAL. TRAIL TREADWAY WILL DRAIN AWAY FROM BRIDGE AND BE COMPACTED. VEGETATIVE BUFFERS WILL BE USED ALONG THE TRAIL.

6. TRAILS WERE LOCATED USING LIDAR CONTOURS, AND GPS FOR EXISTING TRAILS, ROUTES WILL BE ADJUSTED IN THE FIELD DURING CONSTRUCTION TO AVOID TREES, MINIMIZE IMPACT AND ENSURE APPROPRIATE SLOPES.

7. HERITAGE TREE LOCATION IS APPROXIMATE, AND WILL BE MARKED IN THE FIELD BY OWNER'S REP PRIOR TO CONSTRUCTION.

LEGEND:

- SERVICE ROAD (NEW AND EXISTING? OR ALL EX?)
- RELOCATED TRAIL
- EXISTING TRAIL TO REPAIR
- EXISTING TRAIL TO REMOVE
- BRIDGE / BOARDWALK
- NEW CAUSEWAY
- 10 FT CONTOUR
- DRAINAGEWAY
- EXISTING POTENTIAL WETLAND
- PROPERTY / PROJECT BOUNDARY
- ENVIRONMENTAL PROTECTION ZONE BOUNDARY
- ADJACENT CITY OWNED PROPERTY
- POSSIBLE STAGING AREA FOR TRAIL CONSTRUCTION (TRAILS TO BE OBLITERATED WILL BE USED WHERE FEASIBLE)
- EDGE OF EXISTING TREE CANOPY

No	Date	Description	Appd
		Revision	
Survey		Book	Page

Landscape Architecture
[nev-ē-nan]
Nevue|Ngan|Associates
1004 SE Grand Ave., Suite 250
Portland, Oregon 97214
phone 503.239.5600
fax 503.239.0605

Designed By: NNA
Drawn By: NNA
Checked By:
Project Mgr:
Program Mgr:
Const Mgr:
Design Engr:
Date:

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

Trevor Elliott, Principal Engineer, PE No 14172
Date

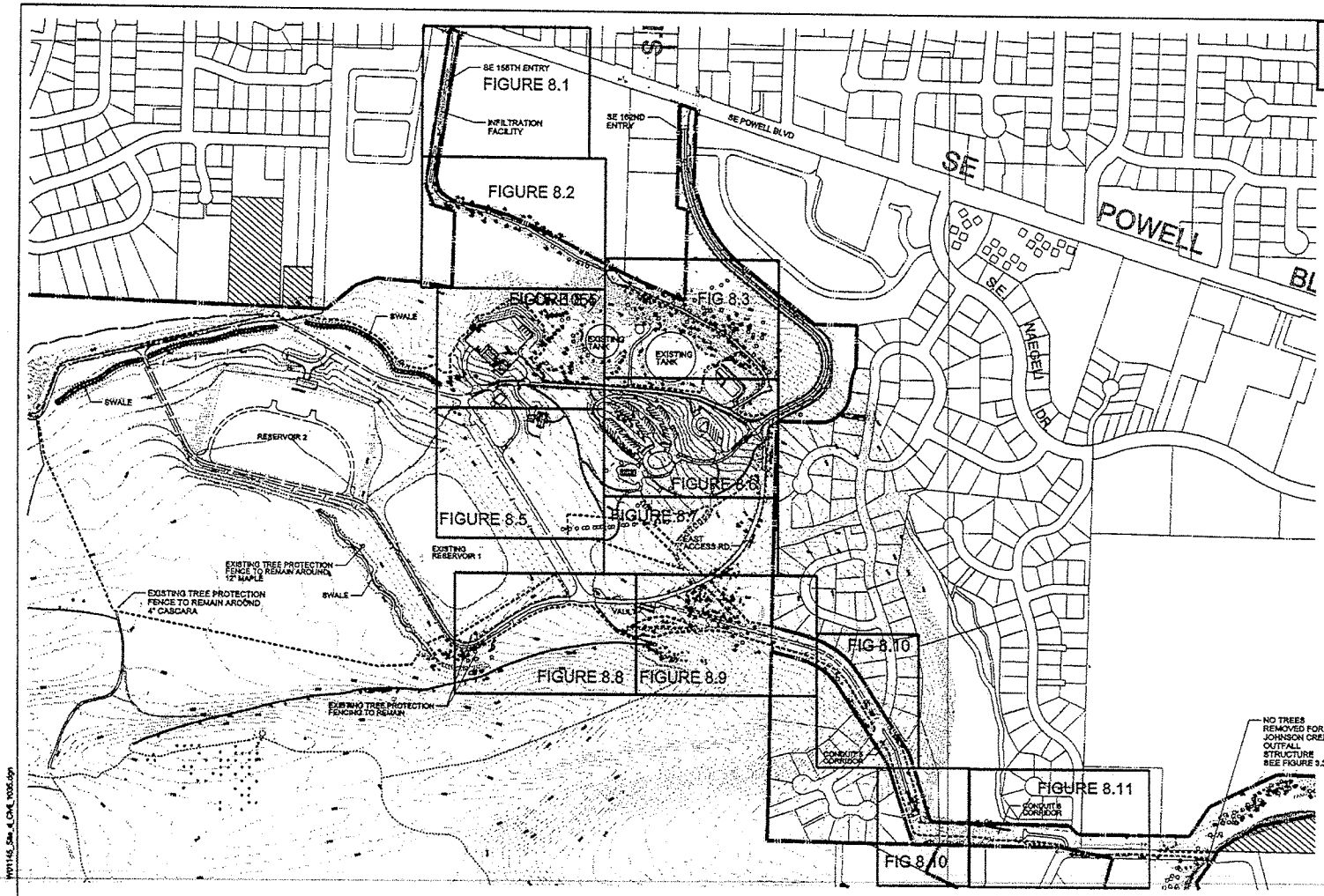
POWELL BUTTE RESERVOIR 2

C.75

BLP Project No W01145
UI Number 3347, 3348, 3448, 3448, 3447, 3448, 3648, 3548, 3647, 3648
Drawing No Tra-Gen-0015
Sheet No

8/27/2010 11:56:44 PM W01145_Trail_Gen_0015.dgn

Figure 8.0
TREE PROTECTION & REMOVAL
COMPOSITE



GENERAL SHEET NOTES:

NO EXISTING TREES OVER SIX INCHES DBH WILL BE REMOVED AS A RESULT OF TRAIL CONSTRUCTION, UNLESS SPECIFICALLY SHOWN ON FIGURE 8 SERIES.

LEGEND

- EDGE OF PAVING
- EDGE OF GRAVEL
- SERVICE ROAD
- TRAIL
- FENCE
- CLMP BOUNDARY
- POTENTIAL WETLAND
- DISTURBANCE AREA

No	Date	Description	Appd
		Revision	

Survey | Book | Page

Landscape Architecture
[nev-i-non]
Nevue Ngan Associates
1000 SE Grand Ave., Suite 250
Portland, Oregon 97214
phone 503.239.0600
fax 503.239.0605

Drawn and By NNA
Drawn By NNA
Checked By
Project Mgr
Project Engr
Design Engr
Date

95% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

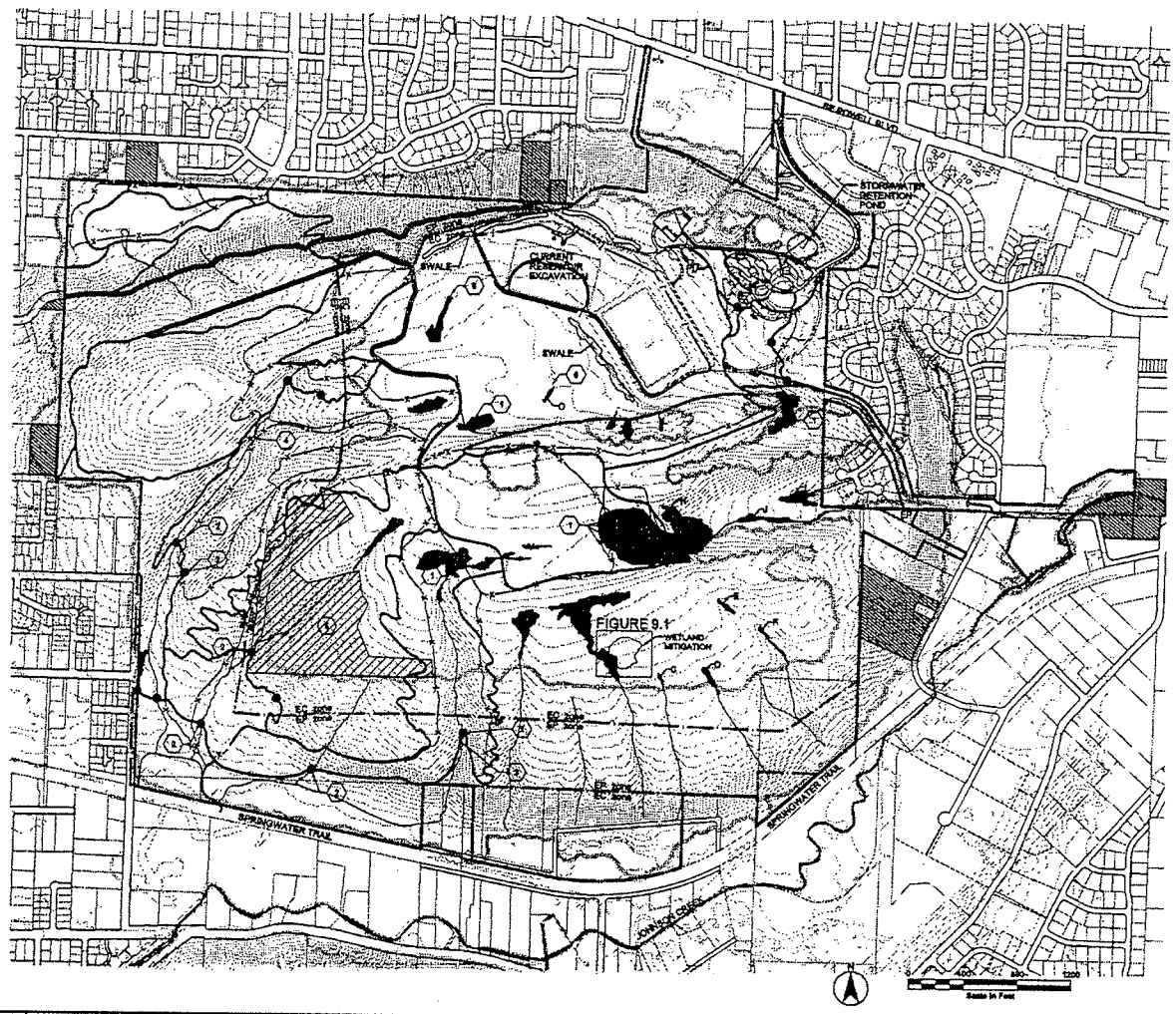
POWELL BUTTE RESERVOIR 2

C.78

BAP Project No. W01145
Drawing No. Sit-Civ-1035

W01145_Site_II_CIVIL_1035.dgn 1:19:21 PM 9/27/2010

Figure 9.0
MITIGATION
NATURAL RESOURCES SUMMARY



KEYED NOTES:

1. REMOVE TRAIL FROM POTENTIAL WETLAND. WETLAND / WET MEADOW ENHANCEMENT
2. REPLACE CULVERT WITH BRIDGE - 270 SF OF DRAINAGEWAY RESTORATION. SEE FIGURE 7.16
3. HILLSIDE / BANK ENHANCEMENT
4. REMOVE TRAIL AND CULVERT FROM STREAM
5. TREE MITIGATION PLANTING AREA:
   TRSE SPECIES - ALN RUB, FRA LAT, ACE MAC, PRU EMA, PSE MEN
   SEE FIG 6.1 FOR PLANT LIST AND QUANTITIES.
6. WETLANDS REMOVED BY PROJECT

GENERAL NOTES:

1. LENGTH OF TRAIL OBLITERATION = 6.1 mi
2. LENGTH OF REROUTED TRAILS = 5.9 mi
   SEE SHEET FIGURE 4.0 FOR DISTURBANCE AREA SUMMARY
3. CAUSEWAY = 272 LF
   = 2176 SF (8' width)
3. TRAILS REMOVED FROM WETLANDS = 1008 LF
   = 12,884 SF (8' width)
4. WETLANDS REMOVED BY PROJECT = 12,425 SF
   NEW WETLANDS = 36,841 SF
5. FOR STORMWATER MITIGATION: SEE Figures 3.4-3 and 3.4-4

LEGEND:

- SERVICE ROAD
- TRAIL
- EXISTING TRAIL TO REPAIR
- EXISTING TRAIL TO OBLITERATE
- BRIDGE / BOARDWALK
- CAUSEWAY
- 10 FT CONTOUR
- DRAINAGEWAY
- EXISTING POTENTIAL WETLAND
- CUMP BOUNDARY
- ENVIRONMENTAL PROTECTION ZONE BOUNDARY
- ADJACENT CITY OWNED PROPERTY
- EDGE OF TREE CANOPY

No	Date	Description	Appd

Survey | Scale | Page

Landscape Architecture
Nevue Ngan Associates
1006 SE Grand Ave, Suite 250
Portland, Oregon 97214
Designed by NNA
Drawn by NNA
Checked by
Project Mgr

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

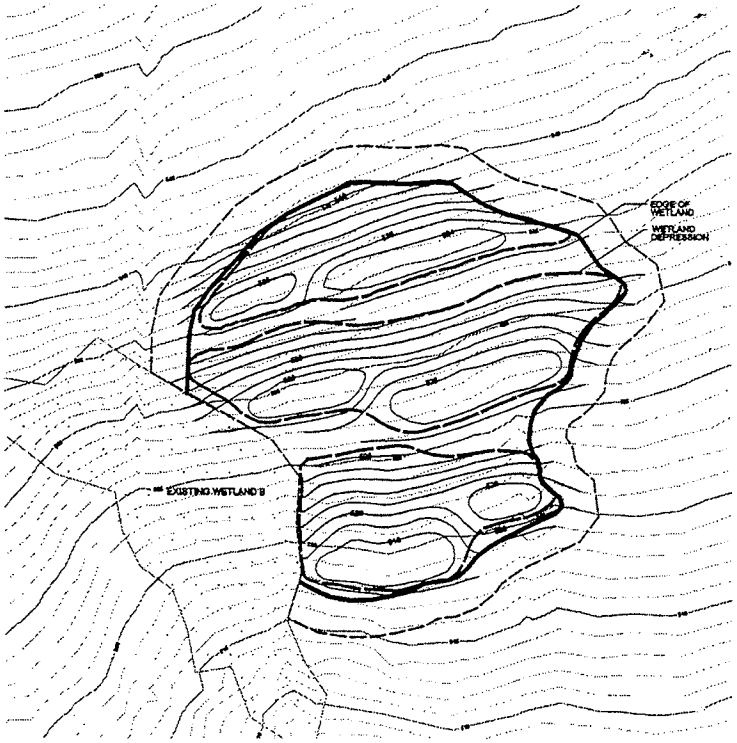
POWELL BUTTE RESERVOIR 2

C.90

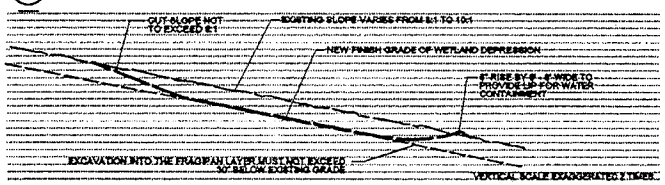
BES Project No W01145
Drawing No Tra-Gen-0020

W01145_TraLE_Gen_0020.dgn 10:07:04 PM 8/21/2015

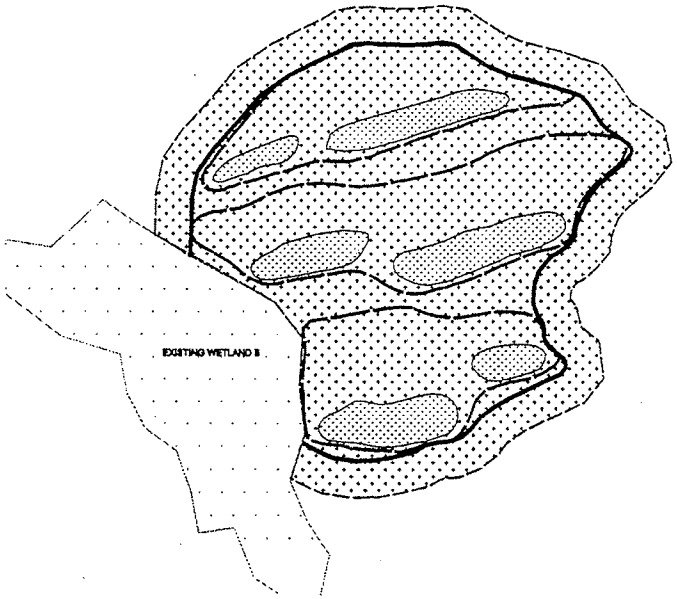
Figure 9.1
MITIGATION
WETLANDS



1 WETLAND GRADING
1"=30'-0"



2 WETLAND DEPRESSION - TYPICAL CROSS-SECTION
NTS



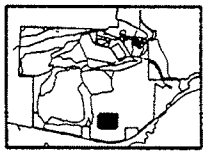
3 WETLAND PLANTING AREAS
1"=30'-0"

LEGEND:

- DISTURBANCE AREA
- ZONE 1 - SHRUB-SCRUB WETLAND PLANTING
- ZONE 2 - EMERGENT WETLAND PLANTING

SEE FIGURE 6.1 FOR PLANT LIST

KEY MAP



No	Date	Description	Appd
		Revisions	

Survey | Book | Page

Landscape Architecture
[nev-i-ngan]
Nevue | Ngan | Associates
1006 SE Grand Ave., Suite 350
Portland, Oregon 97214
phone 503.239.0680
fax 503.239.0685

Designed by BN
Drawn by NNA
Checked by
Project Mgr
Project Engineer
Const Mgr
Design Engr
Date

90% SUBMITTAL

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

PRELIMINARY

POWELL BUTTE RESERVOIR 2

C.91

BOP Project No. W01145
Sheet No. SR-Lnd-5100

8/25/16 PM W01145_Site_Lt_Hdw_R1002.dgn