



Technical Memorandum

Subject: Filtration Facility Site Plan – Landscape Updates

PWB Project #s: W02229

Date: January 26, 2023

To: Lyda Hakes, P.E., Project Manager
Portland Water Bureau

From: Mark Graham, P.E., PMP, Project Manager
Stantec

Prepared by: Jason Hirst, Oregon #LA0821
NNA Landscape Architecture LLC



in association with
carollo
and other firms

Reviewed by: Mark Graham, P.E.
Stantec



EXPIRES: 6/30/2023

Exhibit A.182

The drawings attached to this technical memorandum (TM) were prepared in support of the City of Portland Water Bureau’s Bull Run Treatment Facilities’ land use applications in Multnomah County. These drawings update and supplement the drawings included in *Filtration Facility Site and Lighting Plans Technical Memorandum* dated September 23, 2022. They reflect the current status of the Filtration Facility design, which is approximately 90% complete as of the date of this TM. The drawings have been prepared and compiled for the specific purpose of addressing conformance to Multnomah County land use requirements as expressed in the Multnomah County Code.

Table 1. Civil Engineering Drawings (Off-Site Improvements)

Drawing Number	Drawing Name
00-LU-302	Proposed Conditions Site Plan
00-LU-409	Plant Species and Sizes
00-LU-410	Planting Details

Attachment A: Site Plans

Individual Plants

Botanical Name	Common Name	Plant Size
Trees		
<i>Alnus rhombifolia</i>	White Alder	1.5' Cal.
<i>Celastrus occidentalis</i>	Ironwood	5' Height
<i>Pinus ponderosa</i>	Shore Pine	5' Height
<i>Pinus contorta var. contorta</i>	Shore Pine	5' Height
<i>Pinus ponderosa var. benthamiana</i>	Shore Pine	5' Height
<i>Pseudotsuga menziesii</i>	Douglas-fir	1.5' Cal.
<i>Quercus garryana</i>	Oregon White Oak	1.5' Cal.
<i>Rhamnus purshiana</i>	Cascara	2' Cal.
<i>Thuja occidentalis</i>	Western Red Cedar	1.5' Cal.
<i>Thuja plicata</i>	Western Red Cedar	5' Height
<i>Thuja plicata</i>	Western Red Cedar	8' Height
Sub-Trees (10-15')		
<i>Vine Maple</i>	Vine Maple	15 Gal.
<i>Aster multiflorus</i>	Wester Service Berry	15 Gal.
Large Shrubs (5-10')		
<i>Salix lasiolepis</i>	Silk Tassel Tree	5 Gal.
<i>Myrica californica</i>	Pacific Wax Myrtle	5 Gal.
<i>Rubus parviflorus</i>	Thimbleberry	1 Gal.
<i>Viburnum trilobum</i>	American Cranberry	1 Gal.
Small Shrubs (2' - 5')		
<i>Cornus 'Kelsey'</i>	Kelsey's Dogwood	1 Gal.
<i>Mahonia aquifolium</i>	Common Oregon Grape	1 Gal.
<i>Malva moschata</i>	Malva	1 Gal.
<i>Mahonia 'Soft Caress'</i>	Soft Caress Mahonia	5 Gal.
<i>Phacelia lewisii</i>	Blue Linum	1 Gal.
<i>Phacelia lewisii 'Snow Dwarf'</i>	Snow Dwarf	1 Gal.
<i>Polystichum munifolium</i>	Western Sword Fern	5 Gal.
<i>Spiraea betulifolia var. 'Tr'</i>	Bitchleaf Spiraea	1 Gal.
<i>Vaccinium oxycoccos</i>	Evergreen Huckleberry	5 Gal.
Perennials, ferns, grasses		
<i>Achillea Millefolium</i>	Milkwort	1 Gal.
<i>Asclepias speciosus</i>	Columbine	1 Gal.
<i>Aquilegia columbiana</i>	Pacific Redblossom	1 Gal.
<i>Chelidonium majus</i>	Golden Thread	1 Gal.
<i>Deschampsia cespitosa</i>	Gold Dew Tufted Hairgrass	1 Gal.
<i>Helleborus argenteo</i>	Conium Helibore	1 Gal.
<i>Phlox paniculata</i>	Phlox	1 Gal.
<i>Salix polycephala</i>	Big Leaf Lupine	1 Gal.
<i>Salix caprea</i>	Checker Mallow	1 Gal.
<i>Thalictrum grandiflorum</i>	Fringecup	1 Gal.
Groundcover (12" or less)		
<i>Arctostaphylos 'Vanouver Jale'</i>	Vanouver Jale Bearberry	1 Gal.
<i>Carex lasiocarpa</i>	Shore Sedge	1 Gal.
<i>Malva moschata</i>	Malva	1 Gal.
<i>Mahonia repens</i>	Cascade Oregon Grape	1 Gal.
<i>Sedum spaldingii</i>	broadleaf sedum	1 Gal.
<i>Sedum oregonum</i>	oregon sedum	1 Gal.
Unmanaged Landscape Areas		
Common Name		
<i>Pinus contorta var. contorta</i>	Shore Pine	Plant Size
<i>Pinus ponderosa var. willametteensis</i>	Williamette Valley Ponderosa Pine	5' Height
<i>Pinus contorta var. contorta</i>	Shore Pine	12" Bareroot
<i>Quercus garryana</i>	Oregon Oak	2' Cal.

Groundcover Mix - See sheet 00-LU-410 for layout details

Legend	Botanical Name	Common Name	Plant Size	% Composition
	<i>Arctostaphylos 'Vanouver Jale'</i>	Vanouver Jale Bearberry	1 Gal.	33%
	<i>Carex lasiocarpa</i>	Grey Sedge	1 Gal.	33%
	<i>Fragaria chiloensis</i>	Beach Strawberry	1 Gal.	34%

Type 1 Seeding

Legend	Botanical Name	Common Name	Percentage/PLS
	<i>Pleur de Lavin Blanche</i>	Residential Ryegrass	20%
	<i>Festuca trachyphyla</i>	Hard Fescue	20%
	<i>Quatro Tetraploid Sheep Fescue</i>	Quatro Tetraploid Sheep Fescue	20%
	<i>Trifolium repens</i>	White Clover	5%
	<i>Achillea millefolium</i>	Milkwort	5%
	<i>Prunella vulgaris ssp. lanceolata</i>	Common Selfheal	5%
	<i>Baile perennis</i>	Single White English Daisy	5%

Screening Planting Mixes - See sheet 00-LU-410 for layout details

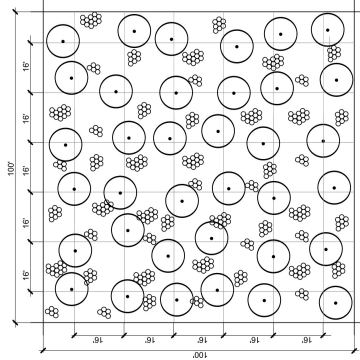
Legend	Botanical Name	Common Name	Plant Size	% Composition
	<i>Abies grandis</i>	Grand Fir	3" Ht. Bareroot	15%
	<i>Acer macrophyllum</i>	Bigleaf Maple	1.5" Cal. Bareroot	5%
	<i>Ceanothus decurrens</i>	Western Ceanoth	2" Ht. Bareroot	5%
	<i>Pinus ponderosa</i>	Ponderosa Pine	3" Ht. Bareroot	10%
	<i>Pseudotsuga menziesii</i>	Douglas Fir	3" Ht. Bareroot	5%
	<i>Rhamnus purshiana</i>	Cascara	3" Ht. Bareroot	5%
	<i>Salix scouleriana</i>	Scouler's Willow	3" Ht. Bareroot	5%
	<i>Milvina aquifolium</i>	Milvina	Bareroot	15%
	<i>Oenothera caescaiformis</i>	Osoberry	Bareroot	5%
	<i>Polystichum munifolium</i>	Swordfern	Bareroot	5%
	<i>Rubus parviflorus</i>	Thimbleberry	Bareroot	5%
	<i>Symphoricarpos albus</i>	Snowberry	Bareroot	5%

Screening Mix - Shubby Untirrigated

Legend	Botanical Name	Common Name	Plant Size	% Composition
	<i>Cornus nuttallii</i>	Pacific Dogwood	1.5" Bareroot	5%
	<i>Pinus contorta var. contorta</i>	Shore Pine	1.5" Bareroot	10%
	<i>Salix lasiocarpa</i>	Shore Sedge	1 Gal.	5%
	<i>Salix lasiocarpa</i>	Shore Sedge	1 Gal.	5%
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Planting Clusters - See sheet 00-LU-410 for layout details

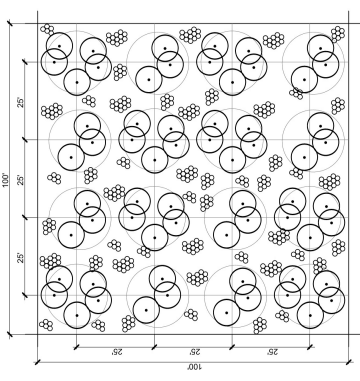
Legend	Botanical Name	Common Name	Plant Size	% Composition
	<i>Pinus ponderosa var. benthamiana</i>	Oregon White Oak	1.5" Bareroot	20%
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	<i>Pinus ponderosa var. benthamiana</i>	Oregon White Oak	1.5" Bareroot	20%
	<i>Pinus ponderosa var. benthamiana</i>	Oregon White Oak	1.5" Bare	



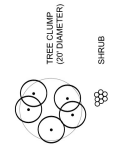
- NOTES**
- 1) Place as indicated, check, apply Grassland Seeding mix and establish for 45-day minimum.
 - 2) Install trees in clumps within a 20' diameter circle spaced 25' on-center. 50% of trees clumps to be 5 trees, 3 clumps and 2 clumps, 50% of tree clumps to be 3 clumps.
 - 3) Install trees in groups of 3-12 plants per species. Space shrubs 1' min to 3' max on-center.
 - 4) Install shrubs in groups of 3-12 plants per species. Space shrubs 1' min to 3' max on-center.
 - 5) Spread species throughout the given planting area to avoid species. Trees, in a random 10,000 s.f. sample should contain all species.
 - 6) Provide 5' minimum spacing between shrub groups.
 - 7) Plant shrubs in groups of 3-12 plants per species. Space shrubs 1' min to 3' max on-center.
 - 8) Maintain a 1" diameter plant-free area around all stems and much with wood chip mulch to prevent weeds.
 - 9) See Planting Mixes on 00-GENL.101 for planting types and densities.



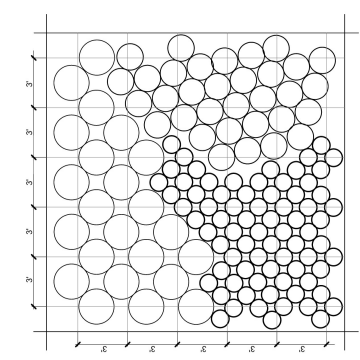
Screening Mix: Forested Planting
NTS



- NOTES**
- 1) Place as indicated, check, apply Grassland Seeding mix and establish for 45-day minimum.
 - 2) Install trees in clumps within a 20' diameter circle spaced 25' on-center. 50% of trees clumps to be 5 trees, 3 clumps and 2 clumps, 50% of tree clumps to be 3 clumps.
 - 3) Install shrubs in groups of 3-12 plants per species. Space shrubs 1' min to 3' max on-center.
 - 4) Spread species throughout the given planting area to avoid species. Trees, in a random 10,000 s.f. sample should contain all species.
 - 5) Maintain a 1" diameter plant-free area around all stems and much with wood chip mulch to prevent weeds.
 - 6) See Planting Mixes on 00-GENL.101 for planting types and densities.



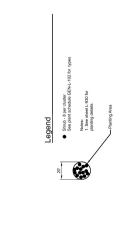
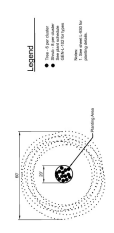
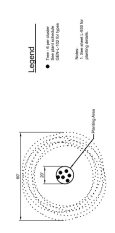
Screening Mix: Shrubby Planting
NTS



- NOTES**
- 1) Install *Arctostaphylos 'Vancouver Jade'* average 3' on-center, square spacing.
 - 2) Install *Carex albica* average 1.5' on-center, square spacing.
 - 3) Install *Fragaria chiloensis* average 2' on-center, square spacing.
 - 4) Install groundcover plants in groups of a minimum of 5 plants per species to a maximum of 610 or plants per species.
 - 5) Final observation will be approved by Owner's representative prior to planting. Plant groupings should be representative of the site's topography and soil conditions.
 - 6) A single bed area sample should contain all species.
 - 7) Planting groups shall not add species of the same group.
 - 8) Maintain a 1" diameter plant-free area around all stems and much with wood chip mulch to prevent weeds.
 - 9) See Planting Mixes on 00-GENL.101 for planting types and densities.

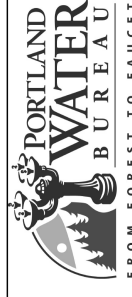


Groundcover Planting
NTS



Cluster Planting
NTS

Designated By	Design Mgr	XXX	XXX	XXX	XXX
Drawn By	Corey Mgr	XXX	XXX	XXX	XXX
Checked By	Corey Mgr	XXX	XXX	XXX	XXX
Project Mgr	Date	12/30/22			



Bull Run Filtration Facility
Land Use Plans
Planting Details

REGISTERED ARCHITECT
JASON BEERS
02/27/2014
00-LU-410
20