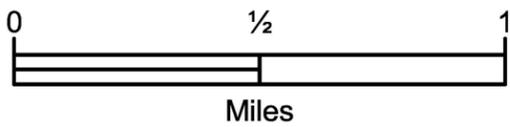
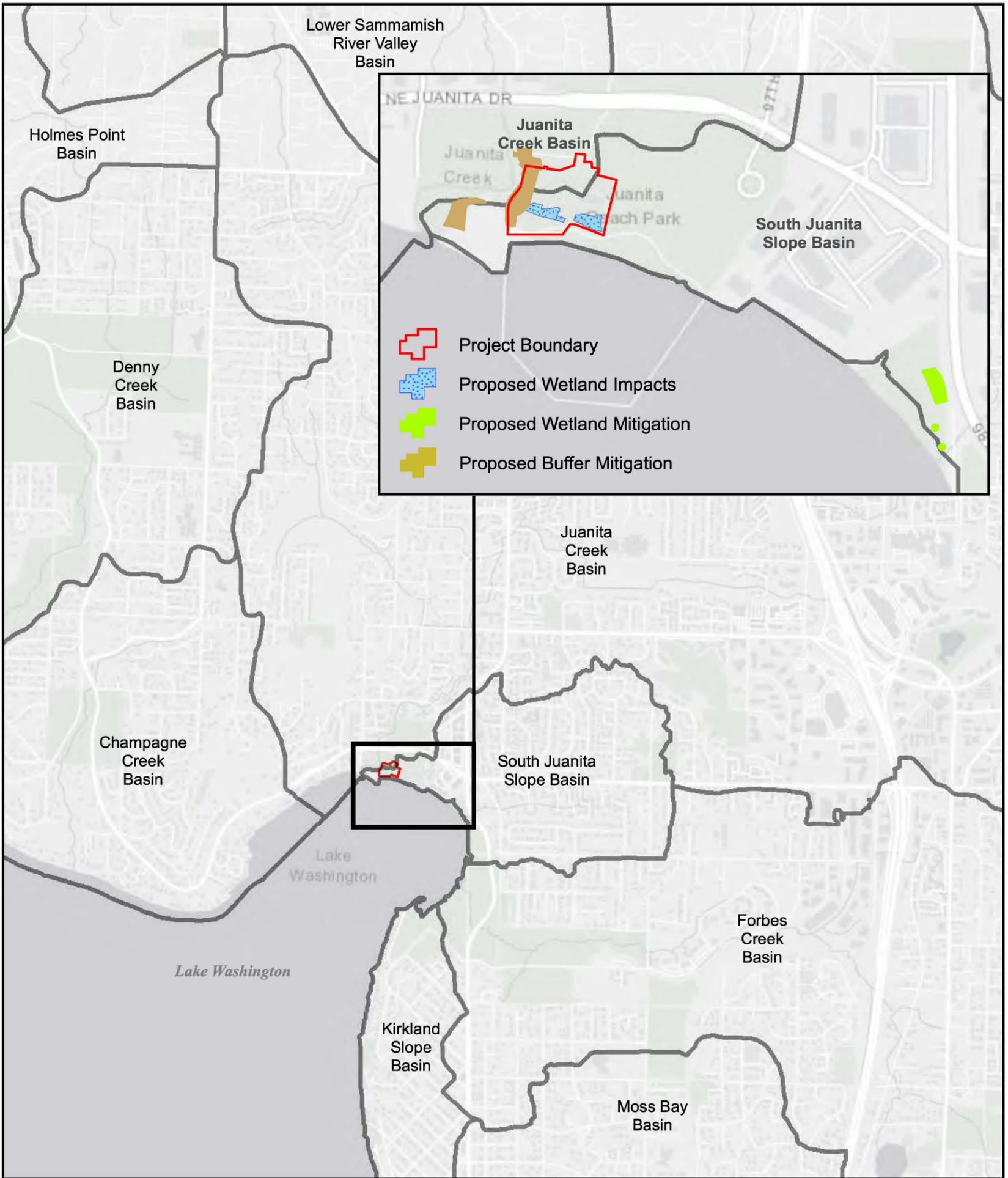


Filename: T:\21-1\22161_Juanita_Beach_Park_Bathroom\AV_mxd\January_2019_Revisions\FIG-2_DrainageBasinMap.mxd Date: 1/9/2019 brl



Juanita Beach Park Property
Kirkland, Washington

DRAINAGE BASINS

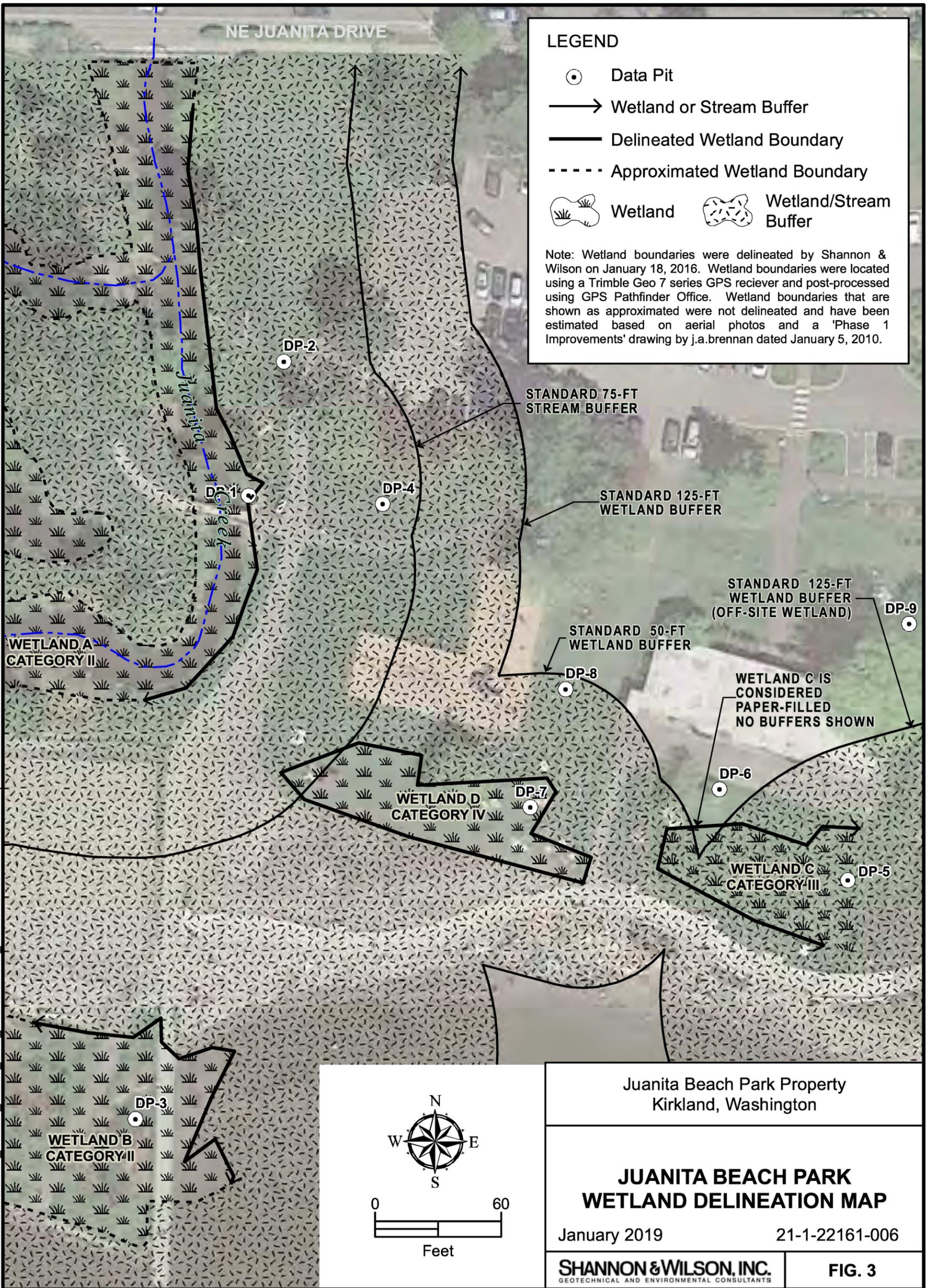
January 2019

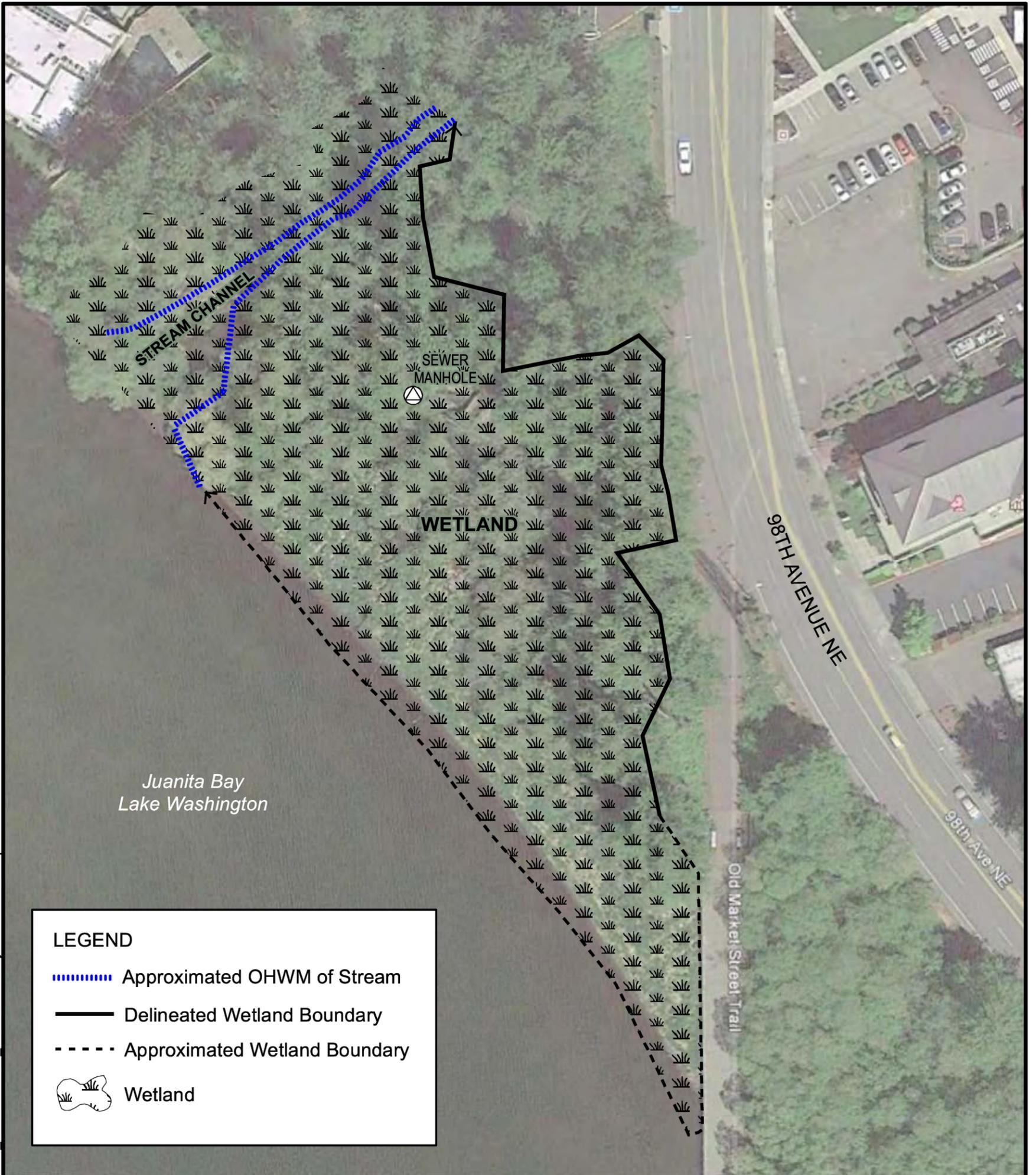
21-1-22161-006

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FIG. 2

Filename: T:\21-1\22161_Juanita_Beach_Park_Bathroom\AV_mxd\Wetland Delineation Map.mxd Date: 3/16/2017 beo

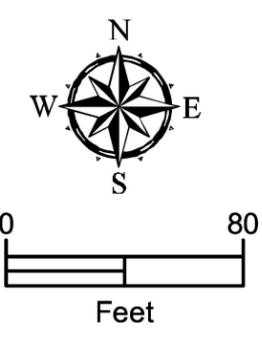




LEGEND

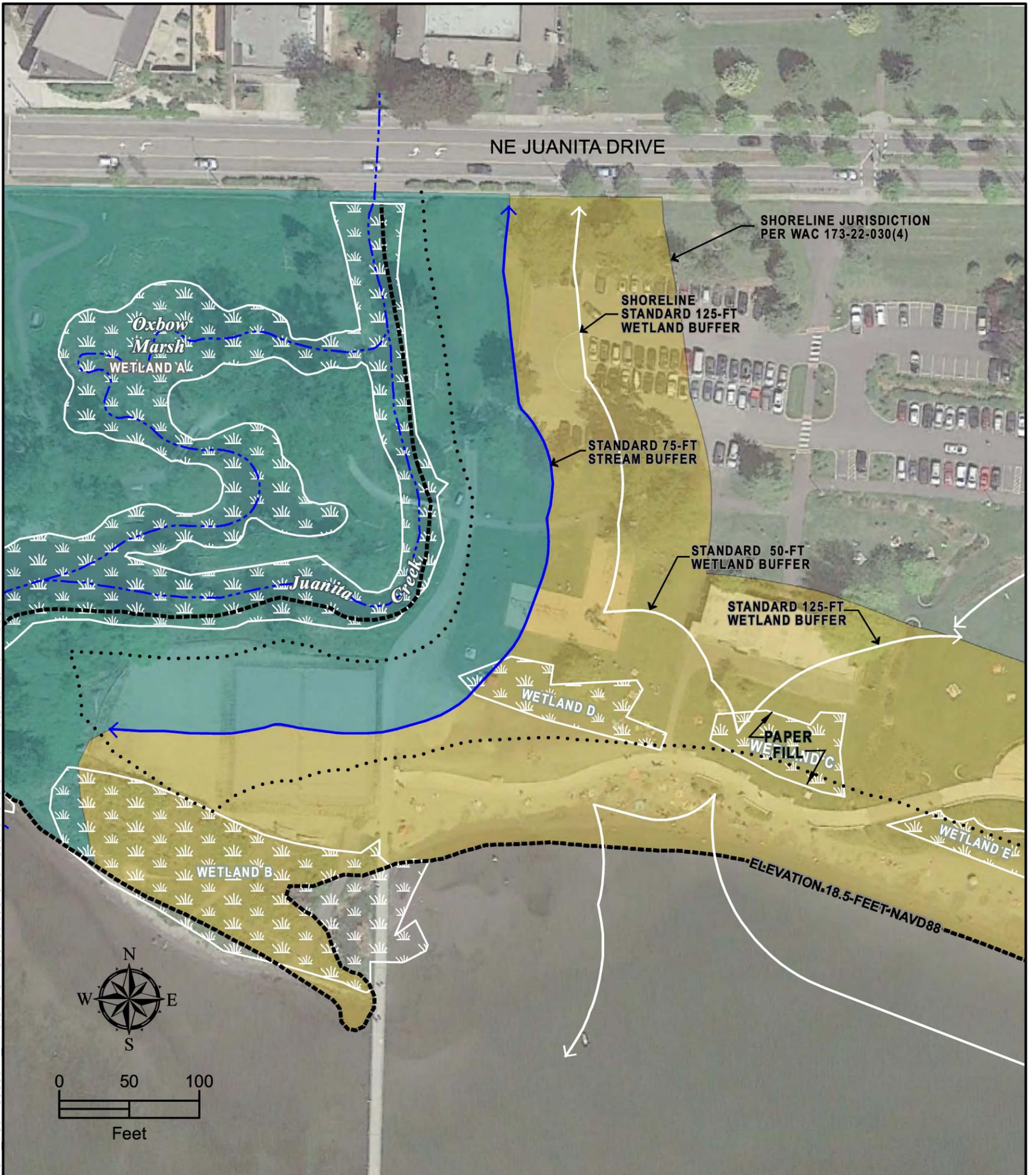
-  Approximated OHWM of Stream
-  Delineated Wetland Boundary
-  Approximated Wetland Boundary
-  Wetland

Note: Delineated wetland boundary shown here was delineated by The Watershed Company in April 2016 (see Appendix A). Shannon & Wilson visited the site in January 2017 to look for the wetland boundary flags and observe site conditions. Wetland boundary flags that were observed in the project wetland mitigation area were located using a hand-held Trimble Geo 7 series GPS receiver. The remaining approximated wetland boundary and ordinary high water mark (OHWM) were estimated by Shannon & Wilson based on field observations and aerial photography.



Juanita Beach Park Property Kirkland, Washington	
JUANITA BAY PARK WETLAND DELINEATION MAP	
January 2019	21-1-22161-006
SHANNON & WILSON, INC. <small>GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS</small>	FIG. 4

Filename: T:\21-1\22161_Juanita Beach Park Bathhouse\AV_mxd\ShorelineJurisdictionandWetlandBuffers.mxd Date: 5/10/2017 beo



Shoreline Jurisdiction

- Urban Conservancy
- Urban Mixed
- Shoreline Setback

- Wetlands Wetlands
- Wetland Buffer
- Stream Buffer

Note: Not all wetland boundaries were delineated by S&W. Some wetland boundaries shown here were approximated or assumed.

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SHORELINE, WETLAND, STREAM BOUNDARIES AND BUFFERS

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FIG. 5

Filename: T:\21-1\22161_Juanita_Beach_Park_Bathhouse\AV_mxd\January_2019_Revisions\FIG-6_SP_BeforeAfter.mxd Date: 1/29/2019 CCB



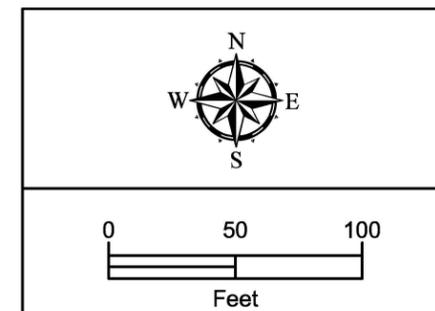
EXISTING CONDITIONS



PROPOSED CONDITIONS

LEGEND

-  Sand/Gravel
-  Lawn
-  Shrub/Tree
-  Paved
-  Bldg
-  Play Area
-  Shoreline Jurisdiction
-  Shoreline Setback
-  Stream Buffer
-  Wetland Buffer
-  Wetland



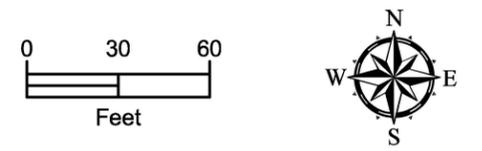
Juanita Beach Park Property Kirkland, Washington	
SITE PLAN BEFORE AND AFTER	
January 2019	21-1-22161-006
SHANNON & WILSON, INC. <small>GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS</small>	FIG. 6

Filename: T:\21-122161_Juanita_Beach_Park_Bathhouse\AV_mxd\January_2019_Revisions\FIG-7_IMPACTS_MAP_dec.mxd Date: 1/29/2019 CCB



Legend

- Project Boundary
- Wetland Fill 8,180 sf
- Permanent Buffer Loss 8,421 sf
- Temporary Buffer Impact 14,904 sf
- Shoreline Setback
Temporary Impacts 7,612 sf
- Shoreline Jurisdiction
- Shoreline Setback
- Buffers



Juanita Beach Park Property Kirkland, Washington	
<h2 style="margin: 0;">WETLAND AND BUFFER IMPACTS</h2>	
January 2019	21-1-22161-006
SHANNON & WILSON, INC. <small>GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS</small>	FIG. 7

WETLAND ENHANCEMENT PLANT SCHEDULE

Symbol	Common Name	Scientific Name	Size/Condition	Spacing ¹	Quantity ²
Emergents					
*	Slough sedge	<i>Carex obnupta</i>	Plugs	2-ft O.C. in select areas ³	200
*	Small-fruited bulrush	<i>Scirpus microcarpus</i>			104
Shrubs					
☼	Red-osier dogwood	<i>Cornus sericea</i>	1-Gallon Container	6-ft O.C.	34
☼	Black twinberry	<i>Lonicera involucrata</i>			34
☼	Salmonberry	<i>Rubus spectabilis</i>			34
☼	Pea-fruit rose	<i>Rosa pisocarpa</i>			34
○	Sitka willow	<i>Salix sitchensis</i>	6-Foot Stakes/Poles		34
Trees					
○	Pacific willow	<i>Salix lucida</i>	6-Foot Stakes/Poles	4-ft O.C.	12
⊙	Western redcedar	<i>Thuja plicata</i>	1-Gallon Container	12-ft O.C. ⁴	11
⊙	Sitka spruce	<i>Picea sitchensis</i>			11

- 1 Place in random, natural clusters (see Typical). Spacing is cumulative on center (O.C.) spacing.
- 2 Quantities based on a total planting area of 4,866 square feet.
- 3 Unlike shrubs and trees, emergent plugs will not be placed over the entire site, but will be placed in patches
- 4 Conifers will be field placed in higher elevation areas to avoid summer inundation.

INSTALLATION NOTES

PRIOR TO THE START OF MITIGATION WORK, THE BIOLOGIST WILL USE FLAGGING OR STAKES TO IDENTIFY IN THE FIELD THE LOCATIONS OF THE PROPOSED MITIGATION AREAS.

INSTALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPs) AS NEEDED AND PROTECT EXISTING NATIVE WOODY VEGETATION IN AND ADJACENT TO THE PLANTING AREAS. EARTH DISTURBANCE SHOULD BE MINIMIZED TO THE EXTENT POSSIBLE TO AVOID DAMAGING EXISTING TREE ROOTS IN THE AREA.

WITH THE ASSISTANCE OF THE BIOLOGIST, INVASIVE SPECIES SHALL BE IDENTIFIED FOR REMOVAL. TO AVOID IMPACTING THE BIRD NESTING SEASON AND HIGH WATER LEVELS IN THE LAKE, INVASIVE SPECIES REMOVAL SHALL OCCUR BETWEEN OCTOBER 15 AND MARCH 1.

REMOVE EXISTING NON-NATIVE INVASIVE SPECIES SUCH AS HIMALAYAN BLACKBERRY, ENGLISH IVY, ENGLISH HOLLY, AND BAMBOO FROM THE ENHANCEMENT AREA USING A COMBINATION OF GRUBBING AND HAND PULLING/CUTTING, DEPENDING ON SIZE OF INDIVIDUALS. ENGLISH IVY VINES GROWING ON TREES SHALL BE CUT AT SHOULDER HEIGHT AND ALL ROOTS AND STEMS BELOW THE CUT AND ALONG THE GROUND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF. HIMALAYAN BLACKBERRY ROOTS SHALL BE GRUBBED OUT. GOLDEN AND PURPLE LOOSESTRIFE SHALL BE HAND PULLED. GRASP THE BASE OF THE PLANT AND PULL SLOWLY

WITH STEADY PRESSURE TO RELEASE THE ROOTS FROM THE SOIL. OLDER PLANTS WITH LARGER ROOTS CAN BE EASED OUT WITH A GARDEN FORK. REMOVE AS MUCH OF THE ROOT SYSTEM AS POSSIBLE, BECAUSE BROKEN ROOTS MAY SPROUT NEW PLANTS. IF THE PLANTS ARE IN FLOWER OR SEED, CUT OFF AND BAG ALL FLOWER STALKS AND SEED HEADS BEFORE PULLING TO PREVENT SEED DISPERSAL. ALL LOOSESTRIFE PLANT PARTS, INCLUDING FLOWERS, SEED HEADS, STEMS, LEAVES AND ROOTS, MUST BE SECURELY BAGGED AND DISCARDED IN THE TRASH OR TAKEN TO A TRANSFER STATION.

INVASIVE SPECIES SHOULD BE DISPOSED OF WHERE THEY CANNOT REESTABLISH IN CRITICAL AREAS OR BUFFERS. CARE SHALL BE TAKEN DURING INVASIVE SPECIES REMOVAL TO PRESERVE NATIVE TREES AND SHRUBS.

AFTER OTHER INVASIVE SPECIES ARE COMPLETELY REMOVED FROM THE SITE, REMAINING REED CANARYGRASS WITHIN THE MITIGATION AREA SHALL BE MOWED TO GROUND LEVEL. IF PLANTING DOES NOT OCCUR PRIOR TO MARCH 1, NEW REED CANARYGRASS GROWTH SHALL BE MOWED AGAIN WITH A HAND-HELD GRASS TRIMMER PRIOR TO PLANTING. HIGH WATER LEVELS IN LAKE WASHINGTON FOLLOWING MARCH 1 WILL PRECLUDE THE USE OF WHEELED OR TRACKED EQUIPMENT IN THE WETLAND MITIGATION AREA.

PROCURE PLANTS AND STORE PROPERLY. PLANT MATERIAL WILL BE NATIVE TO THE PACIFIC NORTHWEST AND FROM PLANT

STOCK GENOMES FROM WESTERN WASHINGTON. BIOLOGIST SHALL REVIEW PLANT MATERIAL AND PLANT LAYOUT PRIOR TO PLANTING. EACH PLANT SHALL BE LOOSELY FLAGGED FOR EASY IDENTIFICATION DURING FUTURE MONITORING VISITS.

MULCH THE MITIGATION AREAS WITH 6 INCHES OF WOOD CHIPS TO DISCOURAGE WEED ESTABLISHMENT. HAND-DIG CIRCULAR PLANT PITS; TAKE CARE TO AVOID CUTTING THROUGH EXISTING NATIVE TREE ROOTS. INSTALL PLANTS BY HAND IN THE PLANTING AREAS IN NATURAL RANDOM CLUSTERS. BACKFILL WITH NATIVE SOIL THAT HAS BEEN MIXED WITH 3 INCHES OF COMPOST. PLANTING SHOULD OCCUR BETWEEN OCTOBER 15 AND APRIL 1 TO TAKE ADVANTAGE OF COOL TEMPERATURES, PRECIPITATION, AND LOW LAKE LEVELS.

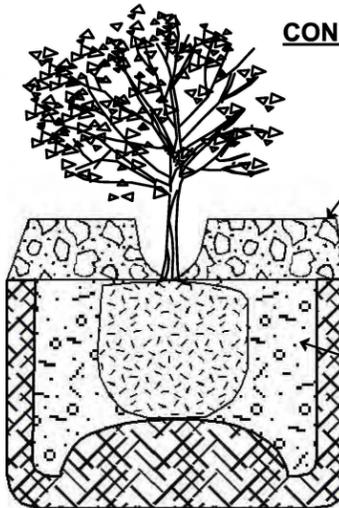
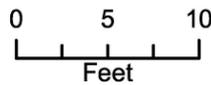
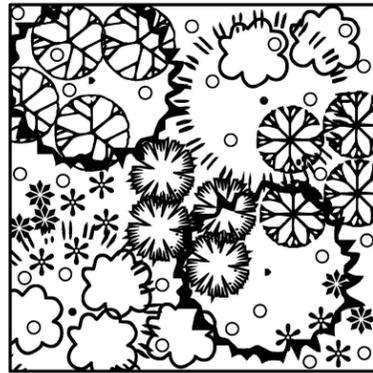
WATER PLANTS THOROUGHLY AFTER PLANTING TO AVOID CAPILLARY STRESS. PLANTED AREAS SHALL BE WATERED WITH APPROXIMATELY 1 INCH OF WATER IMMEDIATELY AFTER PLANTING.

REMOVE CONSTRUCTION DEBRIS AND ANY OTHER UNNATURAL REFUSE. REMOVE BMPs AFTER SITE IS STABILIZED.

LANDSCAPER SHALL SUBMIT COPIES OF THE PLANTING INVOICES SHOWING PLANTED SPECIES AND QUANTITIES.

LANDSCAPER SHALL REPLACE ALL PLANT MORTALITIES AND PERFORM MAINTENANCE FOR ONE YEAR AFTER INSTALLATION.

WETLAND LAYOUT TYPICAL



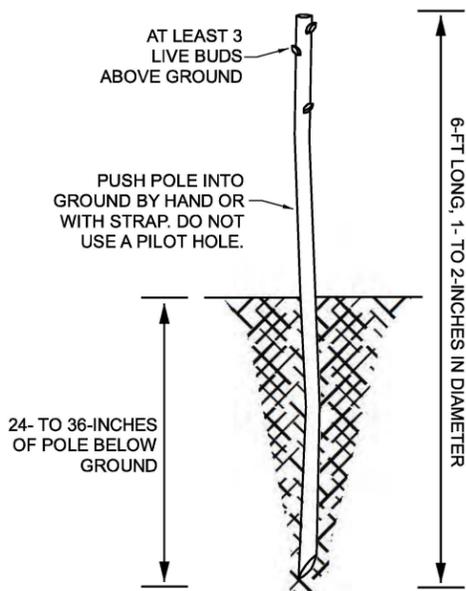
CONTAINER DETAIL (NTS)

APPLY 6-INCHES OF MULCH. COMPOSTED HOG FUEL OR SIMILAR. KEEP MULCH AWAY FROM PLANT STEMS TO PREVENT ROT.

DIG CIRCULAR PITS WITH VERTICAL SIDES. INSTALL PLANT LEVEL WITH NATIVE GROUND SURFACE.

BACKFILL WITH NATIVE SOIL MIXED WITH 3 INCHES OF COMPOST.

STAKE/POLE DETAIL (NTS)



- Wetland Enhancement (4,866 sf)
- Existing Wetland
- Prior Wetland & Buffer Enhancement by Others

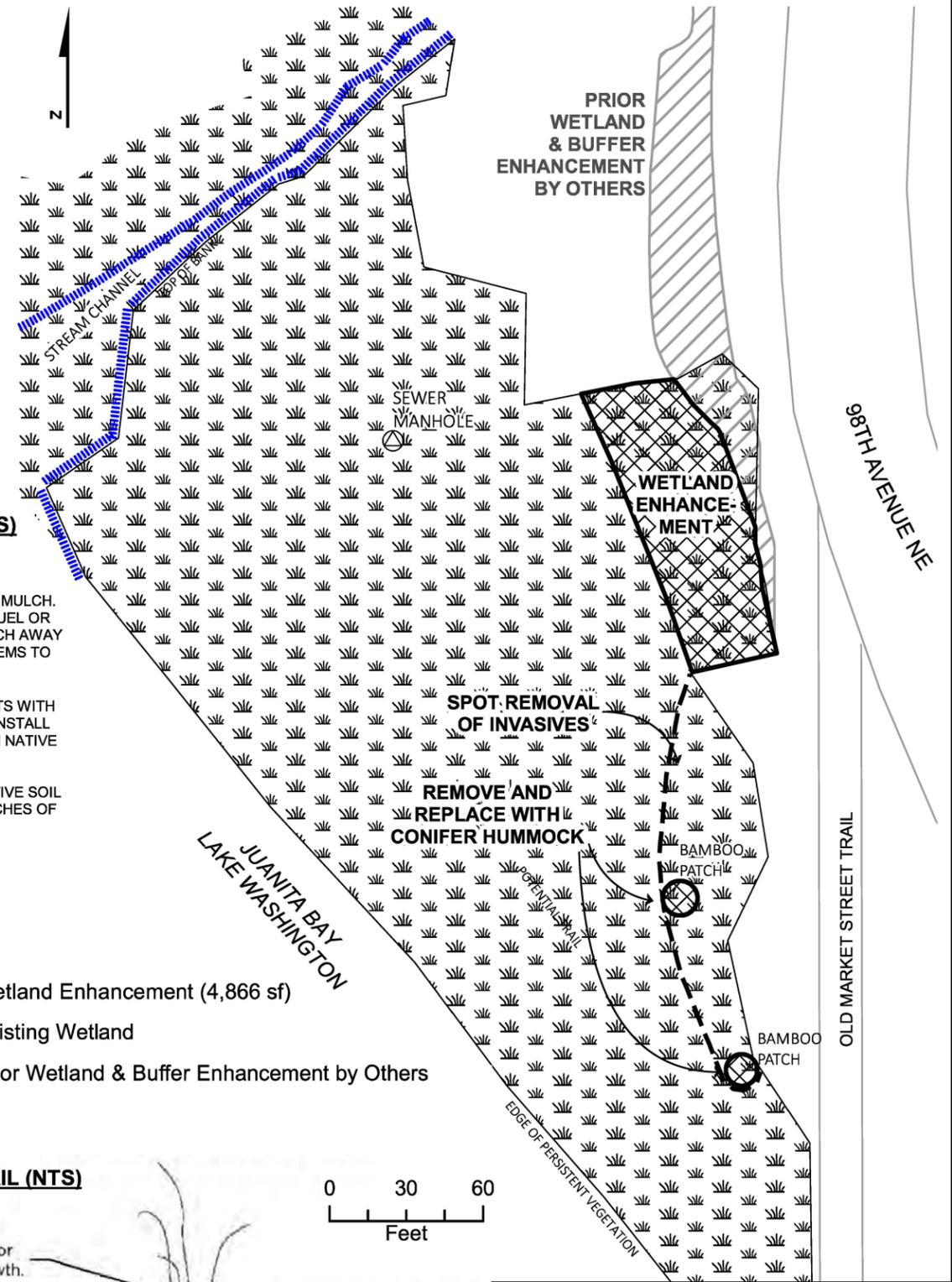
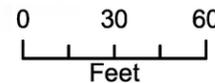
PLUG DETAIL (NTS)

Avoid breaking or burying top growth.

Dig hole w/ dibble, small shovel, or trowel to full root depth. Place plant so roots are fully extended into planting hole. Do not force roots into too small or shallow a planting hole.

Plant at same depth as grown in nursery.

Backfill with native soil ensure good root/soil contact.



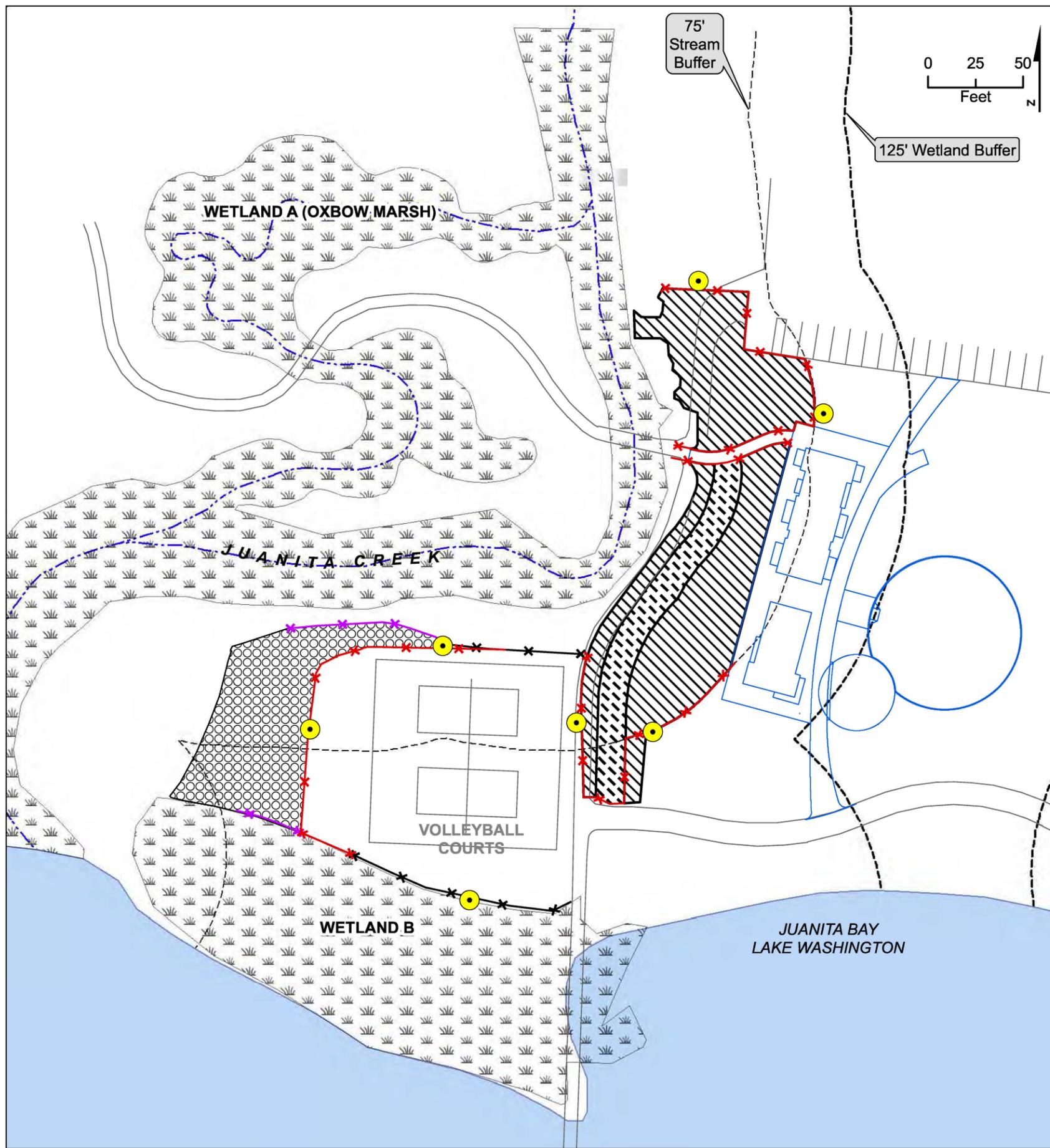
Juanita Beach Park Property
Kirkland, Washington

**WETLAND MITIGATION
PLAN SHEET**

January 2019 21-1-22161-006

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FIG. 8



INSTALLATION NOTES

PRIOR TO THE START OF MITIGATION WORK, THE BIOLOGIST WILL USE FLAGGING OR STAKES TO IDENTIFY IN THE FIELD THE LOCATIONS OF THE PROPOSED MITIGATION AREAS.

INSTALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMPS) AS NEEDED AND PROTECT EXISTING NATIVE WOODY VEGETATION IN AND ADJACENT TO THE PLANTING AREAS. EARTH DISTURBANCE SHOULD BE MINIMIZED TO THE EXTENT POSSIBLE TO AVOID DAMAGING EXISTING TREE ROOTS IN THE AREA.

WITH THE ASSISTANCE OF THE BIOLOGIST, INVASIVE SPECIES SHALL BE IDENTIFIED FOR REMOVAL.

REMOVE EXISTING NON-NATIVE INVASIVE SPECIES SUCH AS HIMALAYAN BLACKBERRY, ENGLISH IVY, AND ENGLISH HOLLY FROM THE ENHANCEMENT AREA USING A COMBINATION OF GRUBBING AND HAND PULLING/CUTTING, DEPENDING ON SIZE OF INDIVIDUALS.

PROCURE PLANTS AND STORE PROPERLY. PLANT MATERIAL WILL BE NATIVE TO THE PACIFIC NORTHWEST AND FROM PLANT STOCK GENOMES FROM WESTERN WASHINGTON. BIOLOGIST SHALL REVIEW PLANT MATERIAL AND PLANT LAYOUT PRIOR

TO PLANTING. EACH PLANT SHALL BE LOOSELY FLAGGED FOR EASY IDENTIFICATION DURING FUTURE MONITORING VISITS.

IN THE FLAT, SANDY PORTION OF THE BUFFER MITIGATION AREA ADJACENT TO THE EXISTING VOLLEYBALL COURT, 4 INCHES OF COMPOST SHALL BE ADDED AND MIXED INTO THE UPPER 12 INCHES OF SOIL. 4 INCHES OF COMPOST SHALL BE TILLED INTO UPPER 8 INCHES OF SOIL IN THE BUFFER ENHANCEMENT AREA BETWEEN THE PROPOSED BATHHOUSE AND EXISTING TRAIL.

MULCH THE MITIGATION AREA WITH 6 INCHES OF WOOD CHIPS TO DISCOURAGE WEED ESTABLISHMENT. HAND-DIG CIRCULAR PLANT PITS; TAKE CARE TO AVOID CUTTING THROUGH EXISTING NATIVE TREE ROOTS. INSTALL PLANTS BY HAND IN THE PLANTING AREAS IN NATURAL, RANDOM CLUSTERS, EXCEPT THAT ROSE SHALL BE CONCENTRATED ALONG FENCE LINE TO DISCOURAGE ACCESS. BACKFILL WITH NATIVE SOIL THAT HAS BEEN MIXED WITH 3 INCHES OF COMPOST. PLANTING SHOULD OCCUR BETWEEN SEPTEMBER 15 AND JANUARY 15 TO TAKE ADVANTAGE OF COOL TEMPERATURES AND PRECIPITATION.

WATER PLANTS THOROUGHLY AFTER PLANTING TO AVOID CAPILLARY STRESS. PLANTED AREAS SHALL BE WATERED WITH APPROXIMATELY 1 INCH OF WATER IMMEDIATELY AFTER PLANTING.

INSTALL WIRE FENCING AROUND EACH PLANT INSTALLATION, AROUND PLANTED CLUSTERS, OR AROUND THE WHOLE MITIGATION AREA WEST OF THE VOLLEYBALL COURTS TO PROTECT FROM BEAVER HERBIVORY. INSTALL SPLIT-RAIL FENCING AS SHOWN ON PLAN.

REMOVE CONSTRUCTION DEBRIS AND ANY OTHER UNNATURAL REFUSE. REMOVE BMPS AFTER SITE IS STABILIZED.

LANDSCAPER SHALL SUBMIT COPIES OF THE PLANTING INVOICES SHOWING PLANTED SPECIES AND QUANTITIES.

LANDSCAPER SHALL REPLACE ALL PLANT MORTALITIES AND PERFORM MAINTENANCE FOR ONE YEAR AFTER INSTALLATION.

● Critical Areas Signs

— Proposed Features
 - - Existing Features

Mitigation Fence

Name

✕ Remove Existing Fence
 ✕ New Split-Rail Fence
 ✕ Existing Fence

BUFFER MITIGATION (See Plant Schedules on Fig. 9, Sh. 2)

▨ Native Shrub 9,881 sf
 ▨ Native Emergent 2,941 sf
 ▨ Native Forest 6,001 sf

Juanita Beach Park Property
 Kirkland, Washington

**WETLAND BUFFER MITIGATION
 PLAN SHEET**

January 2019 21-1-22161-006

SHANNON & WILSON, INC. **FIG. 9**
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS SHEET 1 OF 2

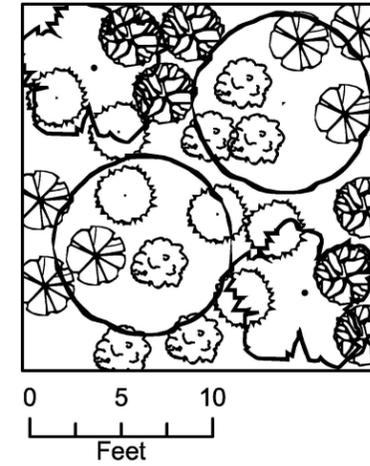
Filename: T:\21-122161- Juanita Beach Park Bathroom\AV_mxd\January 2019 Revisions\FIG-9_Sht2_BufferMitigationPlan.mxd Date: 1/11/2019 btl

NATIVE SHRUB BUFFER ENHANCEMENT PLANT SCHEDULE

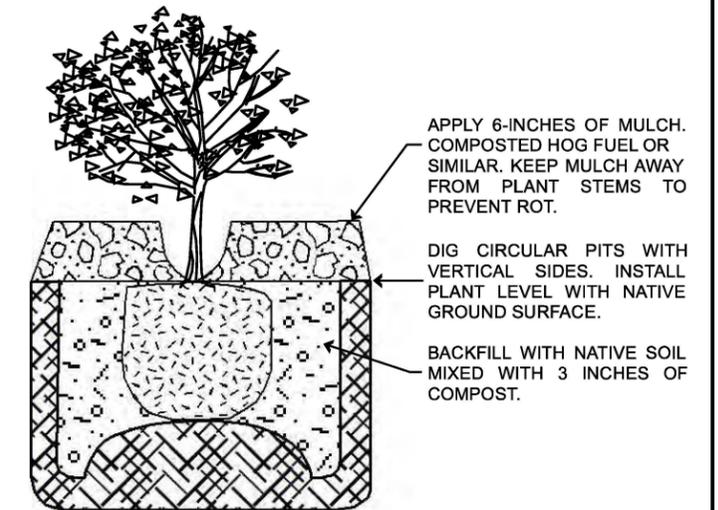
Common Name	Scientific Name	Size/Condition	Spacing ¹	Quantity ^{2,3}
Shrubs				
Red-flowering Currant	<i>Ribes sanguineum</i>	2-Gallon Container	5-ft O.C.	75
Osoberry	<i>Oemleria cerasiformis</i>	2-Gallon Container		60
Red Elderberry	<i>Sambucus racemosa</i>	2-Gallon Container		75
Vine Maple	<i>Acer circinatum</i>	3-gallon Container		35
Nootka rose	<i>Rosa nutkana</i>	2-Gallon Container		75
Oval-leaved blueberry	<i>Vaccinium ovalifolium</i>	2-Gallon Container		75
Groundcovers				
Sword fern	<i>Polystichum munitum</i>	1-Gallon Container	4-ft O.C.	118
Coastal strawberry	<i>Fragaria chiloensis</i>	4" pot		118
Oregon grape	<i>Mahonia nervosa</i>	1-Gallon Container		118
Salal	<i>Gaultheria shallon</i>	3-Gallon Container		118
Nodding onion	<i>Allium cernuum</i>	4" pot		118

- 1 Place in random, natural clusters (see Typical). Spacing is cumulative on center (O.C.) spacing.
- 2 Quantities based on a total planting area of 9,881 square feet.
- 3 Vine maple should be preferential y located along trails and fence lines.

WETLAND BUFFER PLANT TYPICAL



CONTAINER DETAIL (NTS)

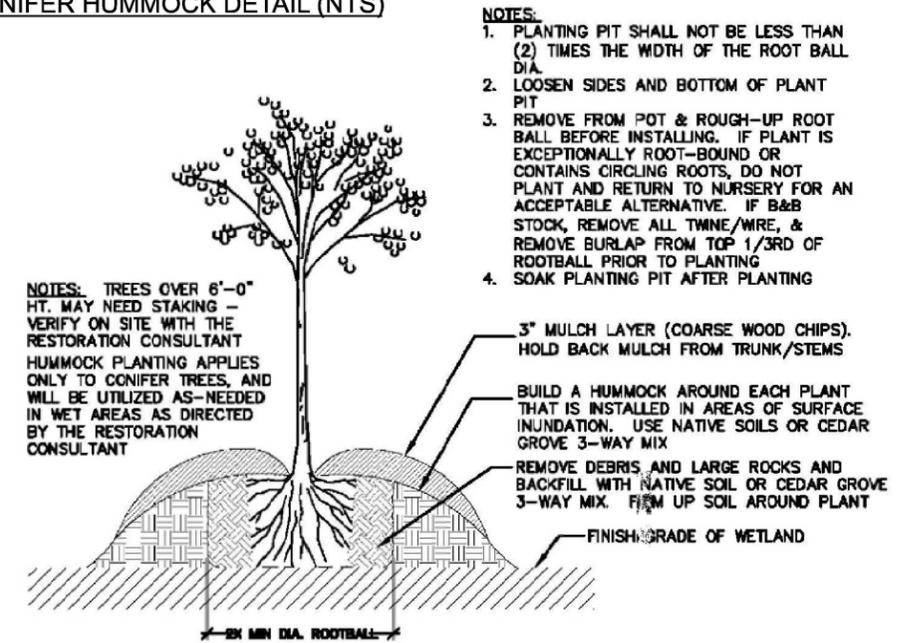


NATIVE FOREST BUFFER ENHANCEMENT PLANT SCHEDULE

Common Name	Scientific Name	Size/Condition	Spacing ¹	Quantity ²
Shrubs				
Red-flowering Currant	<i>Ribes sanguineum</i>	1-Gallon Container	4-ft O.C.	74
Osoberry	<i>Oemleria cerasiformis</i>			74
Red Elderberry	<i>Sambucus racemosa</i>			74
Nootka rose	<i>Rosa nutkana</i>			74
Vine Maple	<i>Acer circinatum</i>			74
Trees				
Cascara	<i>Rhamnus purshiana</i>	1-Gallon Container	10-ft O.C.	30
Douglas Fir	<i>Psuedotsuga menziesii</i>			30

- 1 Place in random, natural clusters (see Typical). Spacing is cumulative on center (O.C.) spacing.
- 2 Quantities based on a total planting area of 6,001 square feet.

CONNIFER HUMMOCK DETAIL (NTS)

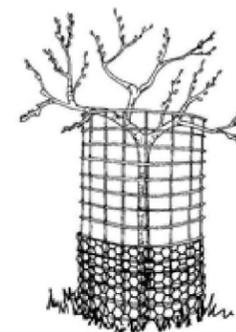


NATIVE EMERGENT BUFFER ENHANCEMENT PLANT SCHEDULE

Common Name	Scientific Name	Size/Condition	Spacing ¹	Quantity ²
Shrubs				
Red-osier dogwood	<i>Cornus sericea</i>	2-Gallon Container	12-ft O.C.	10
Salmonberry	<i>Rubus spectabilis</i>	2-Gallon Container		10
Emergents/Groundcover				
Slough sedge	<i>Carex obnupta</i>	1-Gallon Container	4-ft O.C.	46
Dagger-leaf rush	<i>Juncus ensifolius</i>	1-Gallon Container		46
Sawbeak sedge	<i>Carex stipata</i>	3-Gallon Container		46
Coastal strawberry	<i>Fragaria chiloensis</i>	4" pot		46

- 1 Place in random, natural clusters (see Typical). Spacing is cumulative on center (O.C.) spacing.
- 2 Quantities based on a total planting area of 2,941 square feet.

BEAVER FENCE DETAILS (NTS)



BEAVER FENCE SHALL BE AT LEAST 4 FEET HIGH, PLACED FAR ENOUGH OUT FROM THE PLANT TO PREVENT BEAVER FROM CAUSING DAMAGE, AND BE FIRMLY STAKED TO THE GROUND. PRIOR TO INSTALLATION, REMOVE ALL GRASS AND WEEDS WITHIN THE BARRIER. ADD MULCH TO REDUCE MAINTENANCE NEEDS. AN OPTIONAL 2-FOOT HIGH BAND OF CHICKEN WIRE CAN BE ADDED TO THE BOTTOM TO EXCLUDE SMALL HERBIVORES, IF NEEDED.

Juanita Beach Park Property
Kirkland, Washington

WETLAND BUFFER MITIGATION PLAN SHEET

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FIG. 9
SHEET 2 OF 2