



US Army Corps
of Engineers
Seattle District



Joint Public Notice

Application for a Department of the Army Permit and a Washington Department of Ecology Water Quality Certification and/or Coastal Zone Management Consistency Concurrence

US Army Corps of Engineers

Regulatory Branch
Post Office Box 3755
Seattle, WA 98124-3755
Telephone: (206) 764-3708
ATTN: Suzanne Anderson,
Project Manager

WA Department of Ecology

SEA Program
Post Office Box 47600
Olympia, WA 98504-7600
Telephone: (360) 407-6068
ATTN: SEA Program,
Federal Permit Coordinator

Public Notice Date: September 6, 2013

Expiration Date: October 6, 2013

Reference No.: NWS-2012-701

Name: Redmond Public Works (Peters
Creek)

Interested parties are hereby notified that the U.S. Army Corps of Engineers (Corps) and the Washington Department of Ecology (Ecology) have received an application to perform work in waters of the United States as described below and shown on the enclosed drawings dated August 19, 2013.

The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA). Ecology will review the work pursuant to Section 401 of the CWA, with applicable provisions of State water pollution control laws and the Coastal Zone Management Act.

APPLICANT: City of Redmond
Public Works Department MS: 1NPW
Attention: Patty Criddle, P.E.
P.O. Box 97010
Redmond, Washington 98073-9710
Telephone: (425) 556-2736

AGENT: The Watershed Company
Attention: Mr. Mark Daniel
750 Sixth Street South
Kirkland, Washington 98033
Telephone: (425) 822-5242

LOCATION: In West Fork Peters Creek, at Redmond, Washington.

WORK: Excavate approximately 215 cubic yards and place approximately 87 cubic yards of fill in West Fork Peters Creek to construct an in-stream sediment detention facility and associated channel improvements. Work would occur in approximately 190 linear feet of stream. The project proposes to regrade/excavate an existing in-stream sediment pond, install a flow by-pass system for use during future removal of accumulated sediment, reinforce an existing weir with boulders, and place a gravel/boulder/cobble mix to create approximately 60 linear feet of engineered roughened channel for improved fish passage. The project would also place boulders to demark the perimeter and bottom elevation of the sediment collection area for future sediment removal, and regrade the

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existing access road. In addition, the project would remove non-native invasive species and install native trees and shrubs in the riparian buffer.

PURPOSE: The applicant's stated purpose is to provide flood protection for the Shadowbrook apartments, improve sediment management, protect the culvert under 148th Avenue Northeast, and restore fish passage.

ADDITIONAL INFORMATION: This action does not include future activities to remove accumulated sediment.

To access the electronic version of this public notice and project drawings, go to the Seattle District's web page at <http://www.nws.usace.army.mil/>, select Regulatory Branch/Permit Information, then Public Notices. Recently-issued public notices are listed in chronological order of the date of issuance. Select and view the listing for this project.

The locations of the ordinary high water marks, shown on the enclosed project drawings, have not yet been verified by the Corps. If the Corps determines the boundaries of the waters are substantially inaccurate, a new public notice may be published.

MITIGATION: No wetlands are located in the project area, so there would be no wetland impacts associated with this project. The project was designed to minimize and avoid stream impacts to the extent possible. To improve fish habitat over existing conditions, the applicant proposes to install approximately 719 square feet of engineered roughened channel, remove or bury two weirs that act as fish passage barriers, and enhance adjacent riparian buffer areas by removing non-native invasive species (predominately Himalayan blackberries) and installing native trees (conifers), shrubs, and ferns. All temporary buffer impacts would be restored.

ENDANGERED SPECIES: The Endangered Species Act (ESA) requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and/or U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or any designated critical habitat. After receipt of comments from this public notice, the Corps will evaluate the potential impacts to proposed and/or listed species and their designated critical habitat.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The proposed action would impact EFH in the project area.

If the Corps determines that the proposed action may adversely affect EFH for federally managed fisheries in Washington waters, the Corps will initiate EFH consultation with the NMFS. The Corps' final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

CULTURAL RESOURCES: The Corps has reviewed the latest published version of the National Register of Historic Places, lists of properties determined eligible and other sources of information. There are no recorded historic properties within the permit area. The project involves activities limited to actions within the demonstrated vertical and horizontal limits of previous construction or disturbance. There is little likelihood for the proposed project to impinge on undisturbed historic property. The Corps invites responses to this public notice from Native American Tribes or tribal governments; Federal, State, and local agencies; historical and archeological societies; and other parties likely to have knowledge of or concerns regarding historic properties and sites of religious and cultural significance at or near the project area. After receipt of comments from this public notice, the Corps will evaluate potential impacts and consult with the State Historic Preservation Officer and Native American Tribes in accordance with Section 106 of the National Historic Preservation Act, as appropriate.

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PUBLIC HEARING: Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing.

EVALUATION – CORPS: The decision whether to issue a permit will be based on an evaluation of the probable impacts, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered, including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people.

The Corps is soliciting comments from the public; Native American Nations or tribal governments; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Any comments received will be considered by the Corps to determine whether to issue, modify, condition or deny a permit for the work. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the activity.

The described discharge will be evaluated for compliance with guidelines promulgated by the Environmental Protection Agency under authority of Section 404(b)(1) of the CWA. These guidelines require an alternatives analysis for any proposed discharge of dredged or fill material into waters of the United States.

SOURCE OF FILL MATERIAL: The applicant has not yet identified the source of the fill material. Should a permit be issued, the Corps will evaluate the fill material source prior to the start of construction.

EVALUATION – ECOLOGY: Ecology is soliciting comments from the public; Federal, Native American Nations or tribal governments, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this activity. Ecology will be considering all comments to determine whether to certify or deny certification for the proposed project.

COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from the author's e-mail account and must include on the subject line of the e-mail message the permit applicant's name and reference number as shown below. Either conventional mail or e-mail comments must include the permit applicant's name and reference number, as shown below, and the commentator's name, address, and phone number. All comments whether conventional mail or e-mail must reach this office, no later than the expiration date of this public notice to ensure consideration.

CORPS COMMENTS: All e-mail comments should be sent to suzanne.l.anderson@usace.army.mil. Conventional mail comments should be sent to: U.S. Army Corps of Engineers, Regulatory Branch, Attention: Ms. Suzanne Anderson, P.O. Box 3755, Seattle, Washington 98124-3755. All comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act including any personally identifiable information such as names, phone numbers, and addresses.

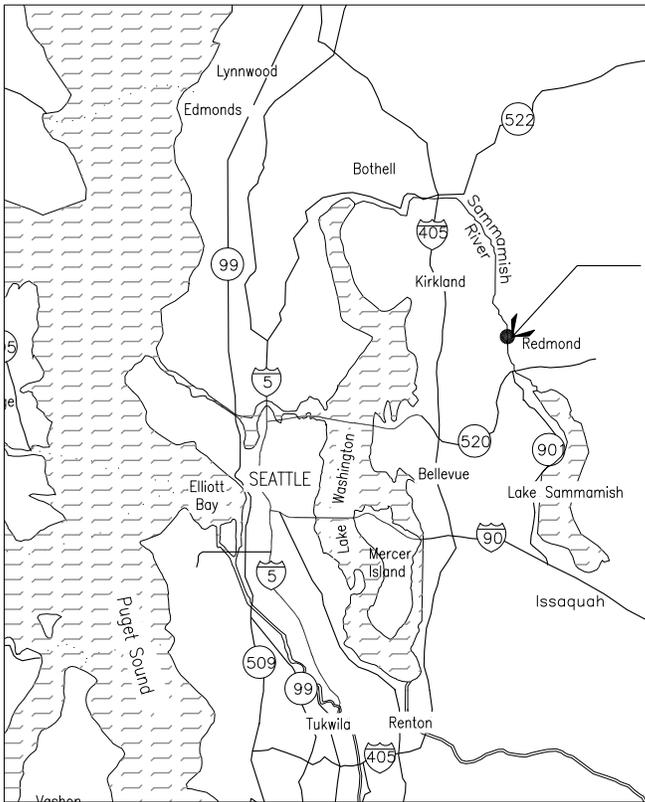
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ECOLOGY COMMENTS: Any person desiring to present views on the project pertaining to a request for water quality certification under Section 401 of the CWA and/or Coastal Zone Management consistency concurrence, may do so by submitting written comments to the following address: Washington State Department of Ecology, Attention: Federal Permit Coordinator, P.O. Box 47600, Olympia, Washington 98504-7600, or e-mail to ecyrefedpermits@ecy.wa.gov.

To ensure proper consideration of all comments, responders must include the following name and reference number in the text of their comments: Redmond Public Works (Peters Creek) NWS-2012-701

Encl: Figures (12)

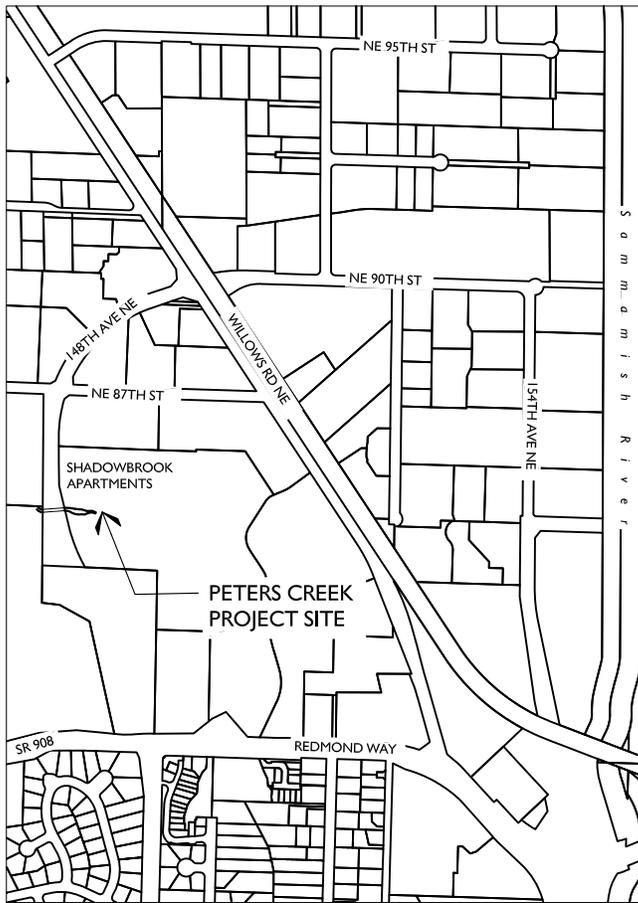
PETERS CREEK STREAM ENHANCEMENTS



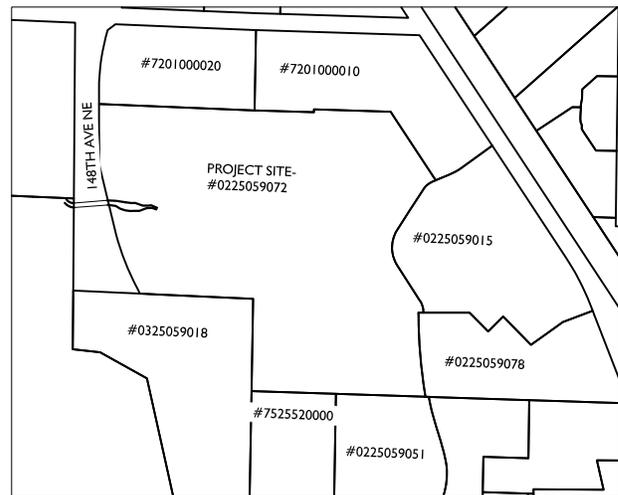
PETERS CREEK PROJECT SITE

SHEET INDEX

1. COVER SHEET
2. EXISTING CONDITIONS
3. PROJECT AREA AND CONSTRUCTION ACCESS PLAN
4. DEMOLITION AND TESC PLAN
5. TESC DETAILS
6. SITE AND GRADING PLAN
7. STREAM PROFILES
8. STREAM RESTORATION DETAILS
9. IMPACTS AND ENHANCEMENT PLAN
10. PLANTING PLAN AND DETAIL
11. STREAM ENHANCEMENT PLAN NOTES
12. MONITORING AND MAINTENANCE NOTES AND PERFORMANCE STANDARDS



VICINITY MAPS



PARCEL MAP

PURPOSE: Flood Reduction

DATUM: NAVD 88

ADJACENT PROPERTY OWNERS:

1. SEE JARPA APPLICATION

APPLICANT: CITY OF REDMOND
NWS
REFERENCE #: 2012- 701

SITE LOCATION ADDRESS: 8500 148TH AVE. NE,
REDMOND, WA 98052

LATITUDE AND LONGITUDE: 47.67869N,
-122.14498 W

PROPOSED: CULVERT PROTECTION, FISH HABITAT
ENHANCEMENT, SEDIMENT POND REGRADING AND
BYPASS PIPE INSTALLATION.

IN: REDMOND AT: PETERS CREEK
COUNTY: KING
SHEET: 1 OF 12

DATE: 6-12-12, REV. 11-30-12, 8-19-13

PROJECT AREA AND CONSTRUCTION ACCESS PLAN

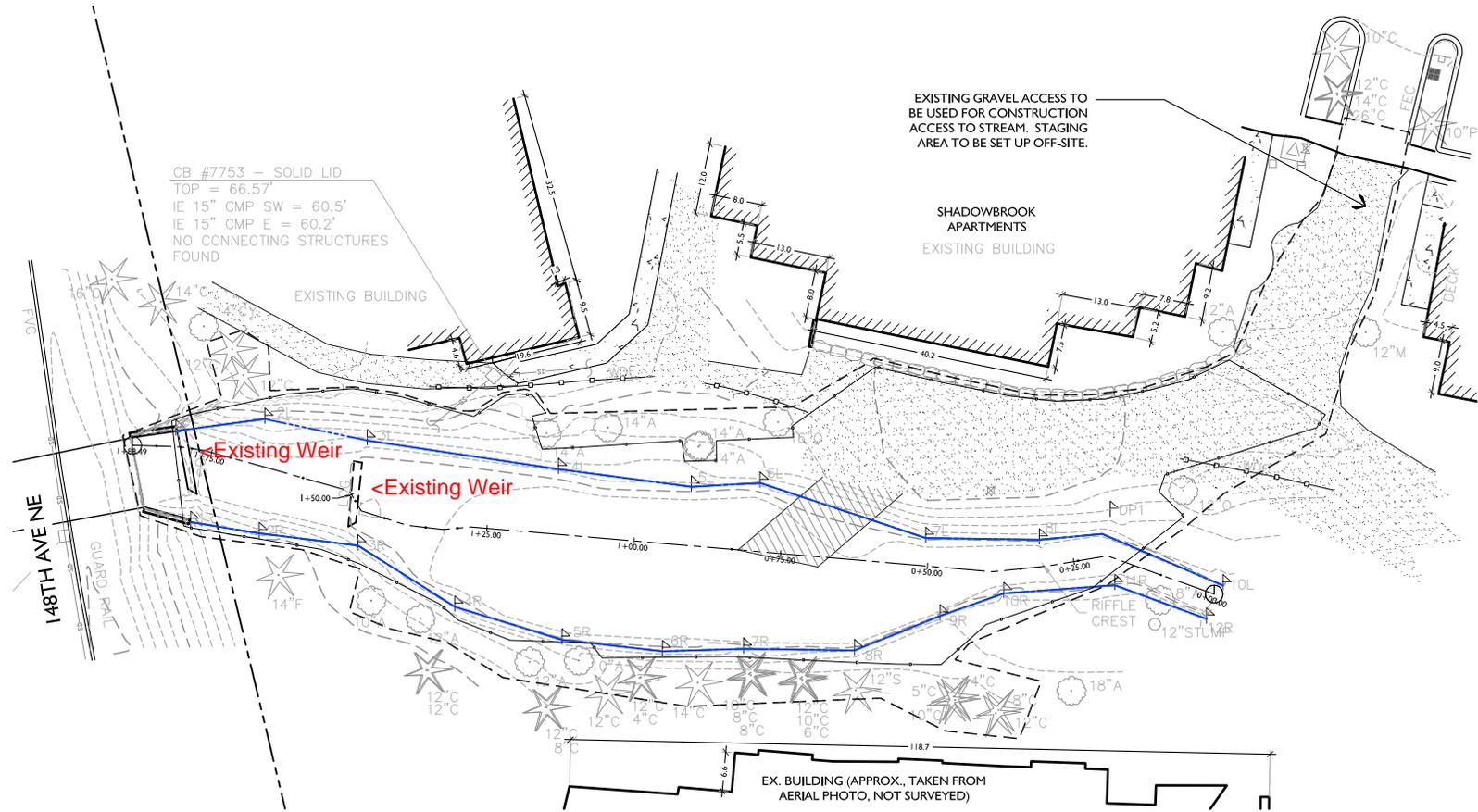
PLAN LEGEND

-  PROPERTY LINE
-  EX. CONTOUR FROM SURVEY (1FT INTERVALS)
-  STREAM ORDINARY HIGH WATER MARK (OHWM)
-  EXISTING STREAM CENTER LINE FROM SURVEY
-  PROJECT AREA
-  PROJECT CLEARING LIMITS
-  CONSTRUCTION ACCESS FOR MECHANIZED EQUIPMENT USES EXISTING GRAVEL ROAD
-  CONSTRUCTION ACCESS RAMP
-  EXISTING TREES

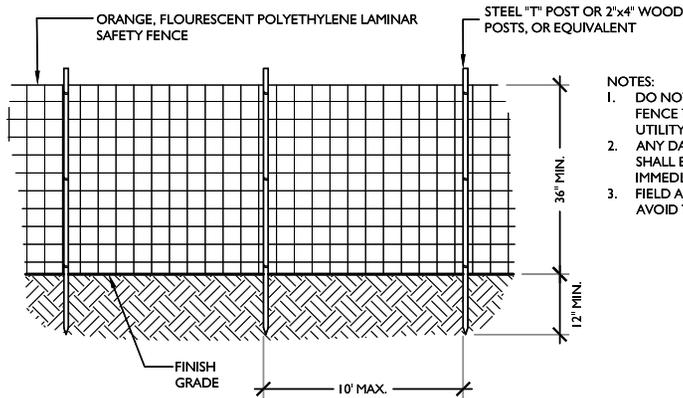


ACCESS NOTES

1. CONTRACTOR TO AVOID EXISTING VEGETATION TO THE GREATEST EXTENT POSSIBLE.
2. ACCESS TO AREAS THAT CANNOT BE REACHED VIA PROPOSED CONSTRUCTION ACCESS ROUTE TO BE ACCESSED VIA WINCH AND PULLEY SYSTEMS.
3. ALL GRAVEL AREAS TO BE RESTORED TO PREVIOUS CONDITION IN COORDINATION WITH THE CITY.

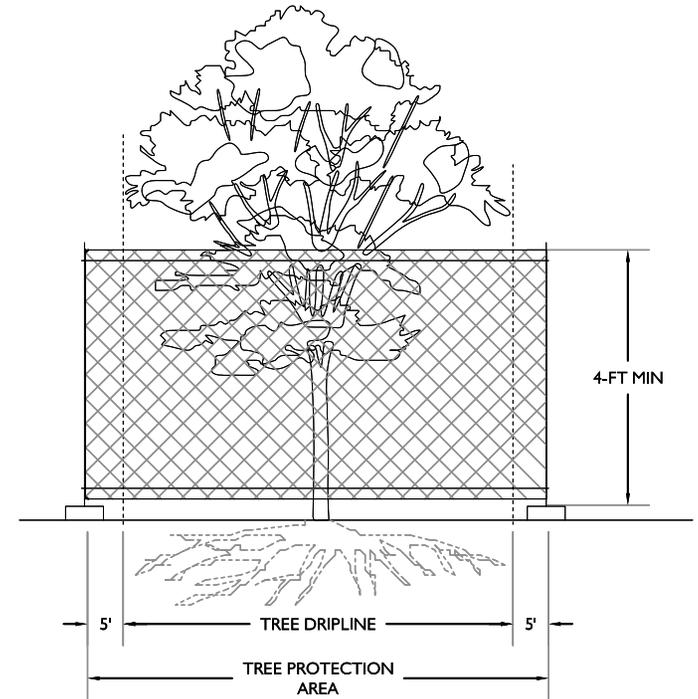


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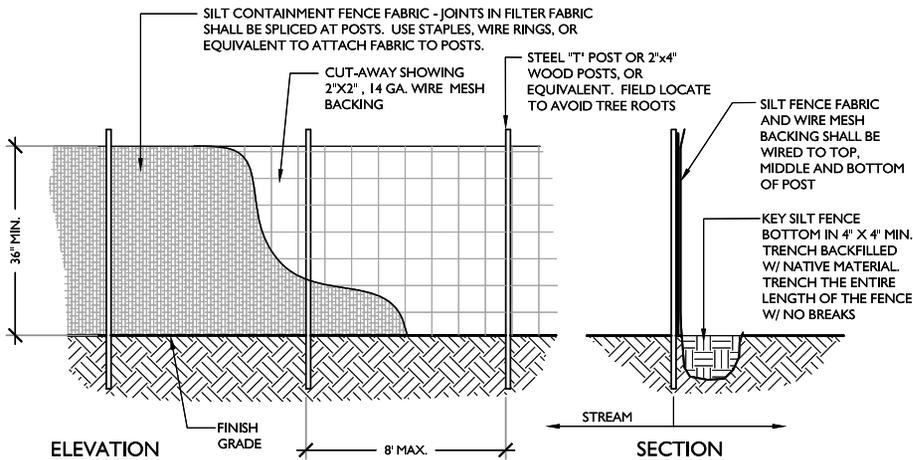
- NOTES:
1. DO NOT NAIL OR STAPLE FENCE TO EXISTING TREES OR UTILITY POLES.
 2. ANY DAMAGE TO THE FENCE SHALL BE REPAIRED IMMEDIATELY.
 3. FIELD ADJUST SILT FENCE TO AVOID TREE ROOTS.

A HIGH VISIBILITY CONSTRUCTION FENCE
N.T.S.



NOTES:

1. A MINIMUM 4-FT. HIGH TEMPORARY TREE PROTECTION BARRIER MADE OF CHAIN LINK FENCE, POLYETHYLENE LAMINAR SAFETY FENCING, OR SIMILAR MATERIAL SHALL BE PLACED AT LOCATIONS SHOWN THE TESC PLAN. INSTALL FENCE POSTS USING PIER BLOCKS ONLY EXCEPT WHERE SLOPE CONDITIONS WILL NOT ALLOW FOR STABLE INSTALLATION. AVOID DRIVING ANY POSTS OR STAKES INTO MAJOR ROOTS.
2. INSTALL TREE PROTECTION AREA SIGNS ON ALL SIDES OF FENCED TREE PROTECTION AREAS.
3. FOR ROOTS OVER 1-IN DIA. THAT ARE DAMAGED DURING CONSTRUCTION, MAKE A CLEAN, STRAIGHT CUT TO REMOVE THE DAMAGED PORTION. ALL EXPOSED ROOTS SHALL BE TEMPORARILY COVERED WITH DAMP BURLAP TO PREVENT DRYING, AND SHALL BE COVERED WITH SOIL AS SOON AS POSSIBLE.
4. WORK WITHIN PROTECTION FENCE SHALL BE DONE MANUALLY. NO STOCKPILING OF MATERIALS, VEHICULAR TRAFFIC, OR STORAGE OF EQUIPMENT OR MACHINERY SHALL BE ALLOWED WITHIN THE LIMIT OF THE FENCING.



SILT FENCE MAINTENANCE STANDARDS:

1. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.
2. SEDIMENT SHALL BE REMOVED WHEN ACCUMULATION EXCEEDS 6" IN DEPTH.

B SILT FENCE
N.T.S.

C TREE PROTECTION FENCE
N.T.S.

NWS-

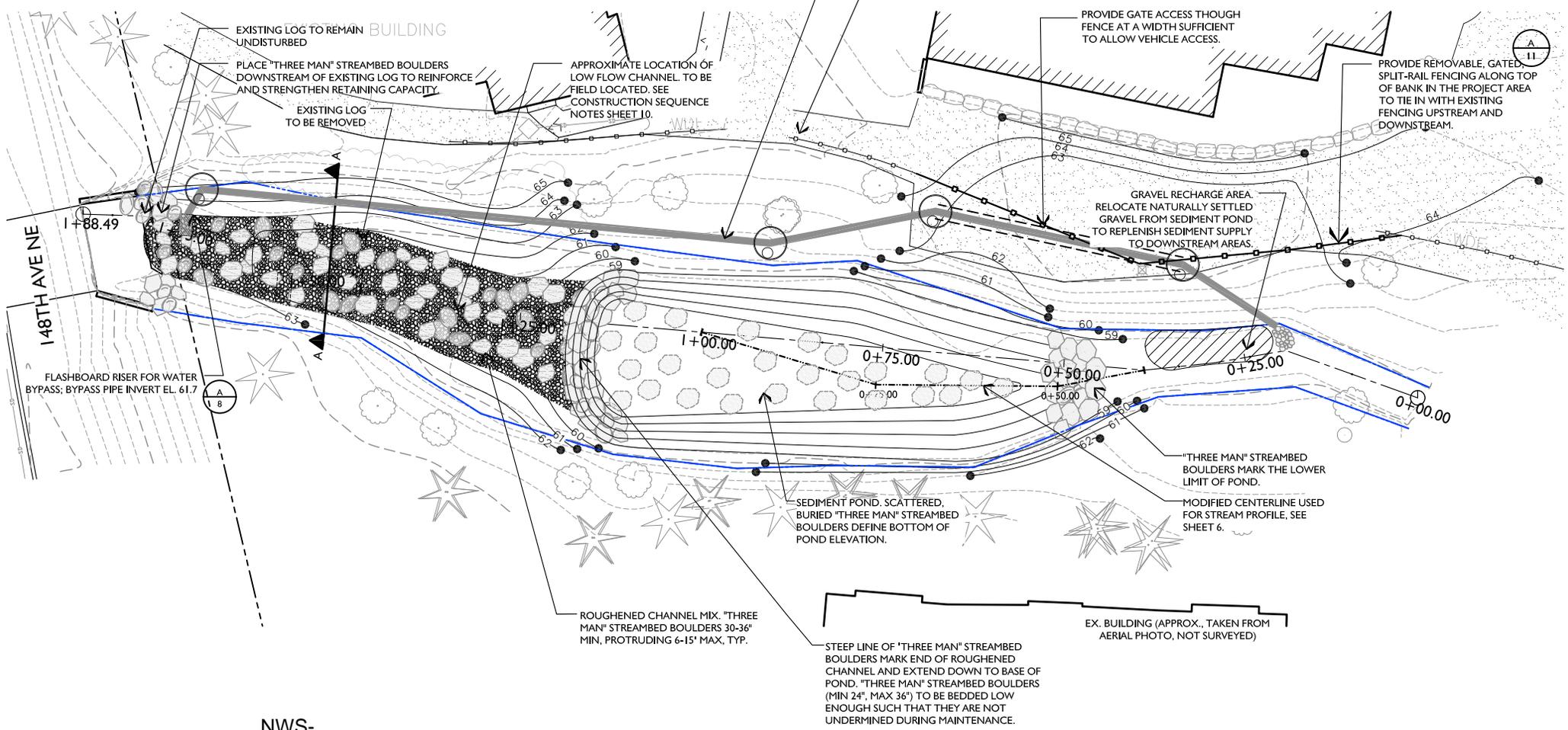
SITE AND GRADING PLAN



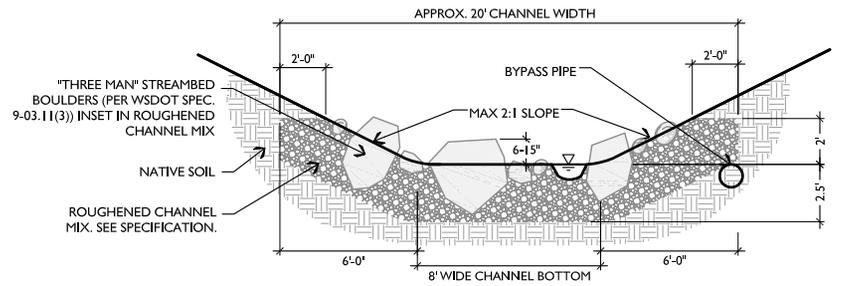
NOTE:
 PROVIDE ELECTRICAL CONDUIT WITHIN THE PROJECT AREA AT THE OWNER'S DIRECTION TO PROVIDE ELECTRICAL POWER FOR THE IRRIGATION SYSTEM.

PLAN LEGEND

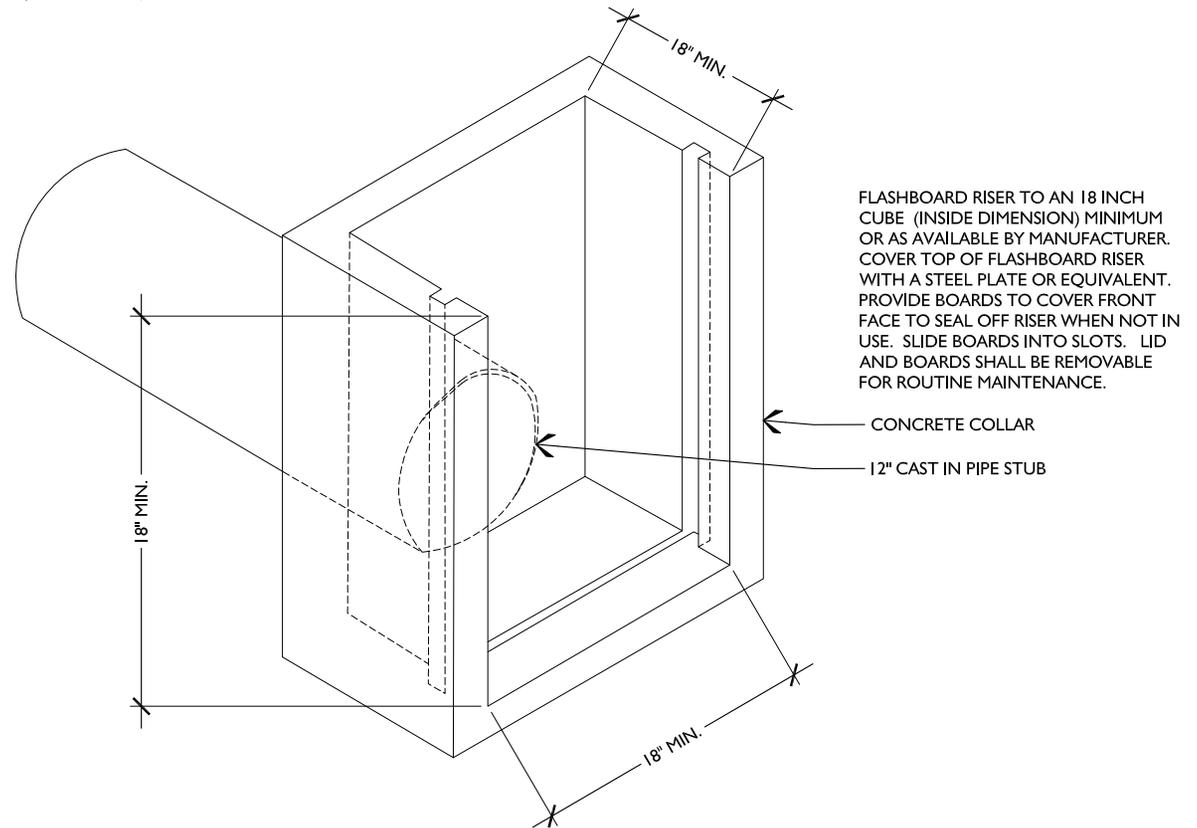
- - - - - EXISTING CONTOUR FROM SURVEY
- PROPOSED CONTOUR
- +—+—+— EXISTING STREAM CENTER LINE
- +—+—+— MODIFIED SECTION OF STREAM CENTERLINE
- +—+—+— EXISTING STREAM OHWM
- ▬▬▬▬▬ WATER BYPASS PIPE
- MANHOLE
- - - - - DUCTILE IRON SLEEVE



NWS-



CROSS SECTION A



FLASHBOARD RISER TO AN 18 INCH CUBE (INSIDE DIMENSION) MINIMUM OR AS AVAILABLE BY MANUFACTURER. COVER TOP OF FLASHBOARD RISER WITH A STEEL PLATE OR EQUIVALENT. PROVIDE BOARDS TO COVER FRONT FACE TO SEAL OFF RISER WHEN NOT IN USE. SLIDE BOARDS INTO SLOTS. LID AND BOARDS SHALL BE REMOVABLE FOR ROUTINE MAINTENANCE.

CONCRETE COLLAR
12" CAST IN PIPE STUB

A FLASHBOARD RISER
NTS

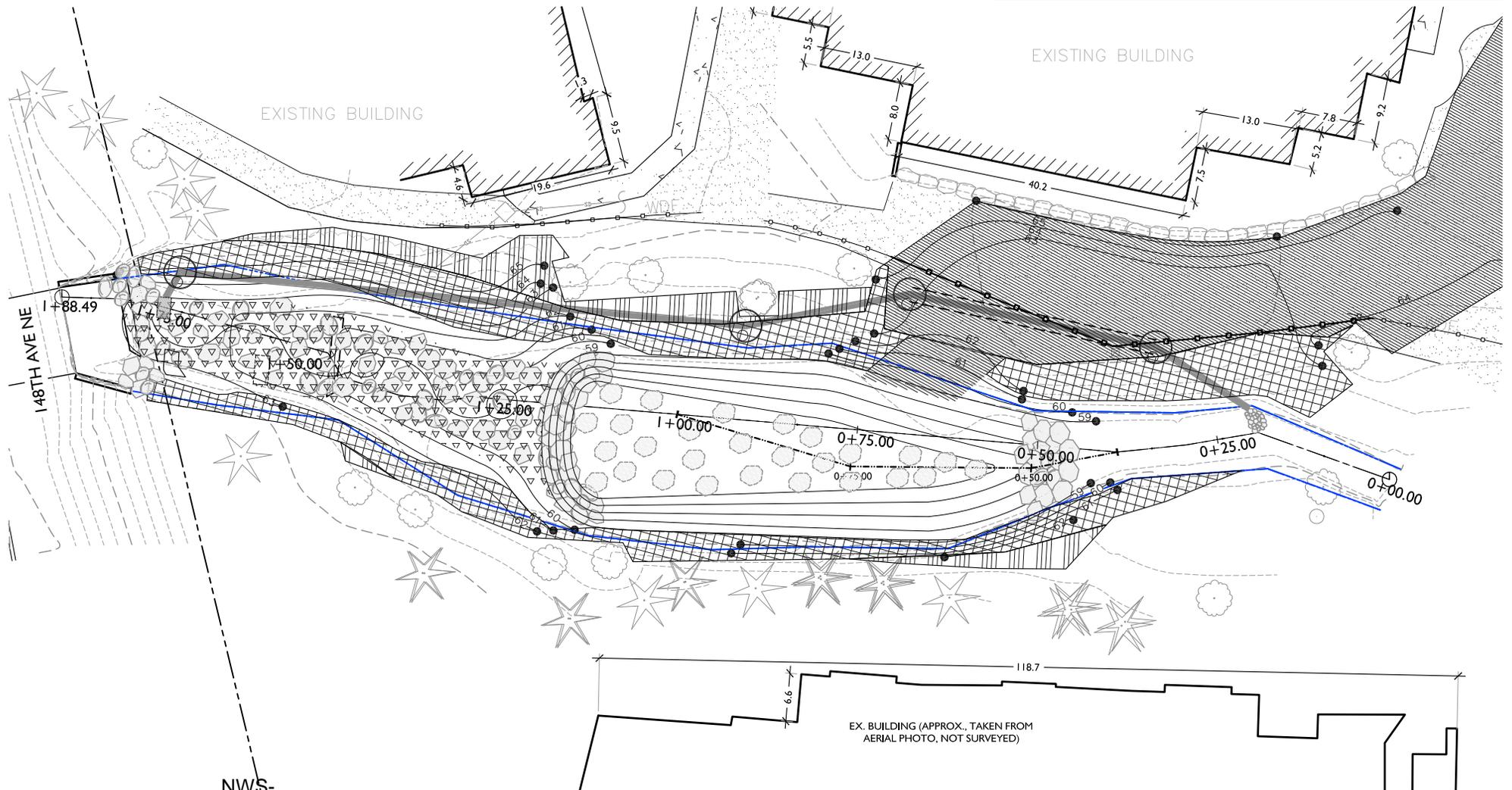
ROUGHENED CHANNEL MIX SPECIFICATION

ROUGHENED CHANNEL MIX AS SPECIFIED FOR THIS PROJECT SHALL CONSIST OF WELL-GRADED ROUNDED ROCK, ESSENTIALLY FREE FROM FINES, CONFORMING CLOSELY TO THE FOLLOWING SIZE GRADATION BY WEIGHT:

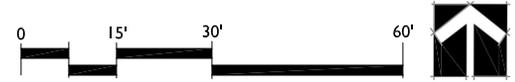
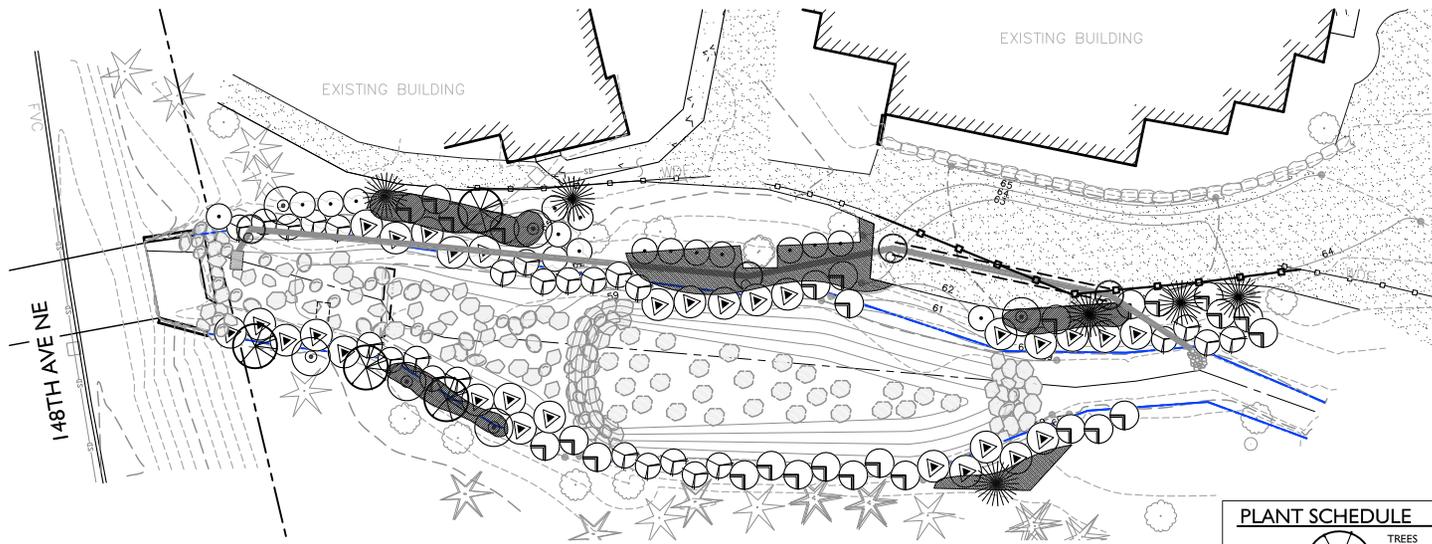
<3/8 INCH	10%
3/8 INCH TO 1 INCH	10%
1 TO 3 INCHES	25%
3 TO 6 INCHES	25%
6 TO 12 INCHES	20%
12 TO 18 INCHES	10%



IMPACTS AND ENHANCEMENT LEGEND		
	TEMPORARY IMPACT TO GRAVELLED AREAS (TO BE REGRAVELLED)	2,185 SF
	TEMPORARY IMPACT TO EXISTING VEGETATION FROM SITE GRADING AND PIPE INSTALLATION, TO BE RESTORED	244 SF
	PERMANENT IMPACT FROM BYPASS FLASHBOARD RISER	5 SF
	RIPARIAN ENHANCEMENT AREA	1,269 SF
	IN-STREAM FISH HABITAT ENHANCEMENT AREA	719 SF



NWS-



PLANTING NOTES AND SEQUENCING

NOTE: THE CITY OR THE CITY'S CONSULTANT, SHALL MONITOR:

1. ALL SITE PREPARATION*
 - A. INVASIVE WEED MANAGEMENT.
 - B. SOIL PREPARATION AND AMENDMENT.

* NOTE: SITE-WIDE MULCH SHOULD BE APPLIED WITHIN TWO WEEKS OF CLEARING AND SOIL PREPARATION OR SOONER IN THE CASE OF INCLEMENT WEATHER.

2. PLANT MATERIAL INSPECTIONS
 - A. PLANT MATERIAL DELIVERY INSPECTION.
 - B. 50% LAYOUT INSPECTION
 - C. 100% LAYOUT INSPECTION
 - D. 100% PLANT INSTALLATION INSPECTION.

PLANTING WORK SEQUENCE

1. WORK SHALL NOT COMMENCE UNTIL THERE HAS BEEN A PRE-CONSTRUCTION MEETING BETWEEN THE GENERAL CONTRACTOR, THE LANDSCAPE CONTRACTOR, THE RESTORATION CONSULTANT AND THE CITY.
2. LOCATE ALL EXISTING UTILITIES WITHIN THE LIMIT OF WORK. THE CONTRACTOR IS RESPONSIBLE FOR ANY UTILITY DAMAGE AS A RESULT OF THE LANDSCAPE CONSTRUCTION.
3. CONTROL INVASIVE SPECIES IN THE PLANTING AREA.
 - A. REED CANARYGRASS PATCHES REMAINING AFTER GRADING AND CONSTRUCTION ACTIVITIES SHOULD BE MOWED.
 - B. DENSE HIMALAYAN, EVERGREEN BLACKBERRY, AND ENGLISH IVY VINES THROUGHOUT THE AREA SHOULD BE CUT BACK AND GRUBBED OUT, REMOVING AS MUCH ROOT MASS AS POSSIBLE.
4. ALL PLANT INSTALLATION IS TO TAKE PLACE DURING THE DORMANT SEASON (OCTOBER 15TH - MARCH 1ST), FOR BEST SURVIVAL.

5. AFTER GRADING HAS BEEN COMPLETED AND GRAVEL AND "THREE MAN" STREAMBED BOULDERS (PER WSDOT SPEC. 9-03.11(3)) HAVE BEEN INSTALLED, SOIL PREPARATION IN THE PLANTING AREAS SHALL OCCUR AS FOLLOWS:
 - A. THE CONTRACTOR SHALL INCORPORATE THROUGH ROTOTILLING OR BY MANUAL MEANS 4 INCHES OF COMPOST INTO THE TOP 8 INCHES OF SOIL. DO NOT ROTOTILL WITHIN THE DRIPLINES OF TREES.
6. COORDINATE REMOVAL OF TESC MEASURES, SUCH AS SILT FENCE, WITH THE CITY BEFORE PLANTING, IF POSSIBLE, TO PROVIDE THE LEAST DISTURBANCE TO PLANTING AREAS. RAKE SOIL SMOOTH AFTER FENCING REMOVAL.
7. LAYOUT PLANTING PER PLANTING PLAN FOR REVIEW BY THE CITY.
8. PREPARE A PLANTING PIT FOR EACH PLANT AND INSTALL PER THE PLANTING DETAILS.
9. APPLY SITE-WIDE SHEET LAYER OF WOOD CHIP MULCH IN ALL PLANTING AREAS WITH WOOD CHIP MULCH FOUR INCHES THICK.

PLANTING MATERIALS

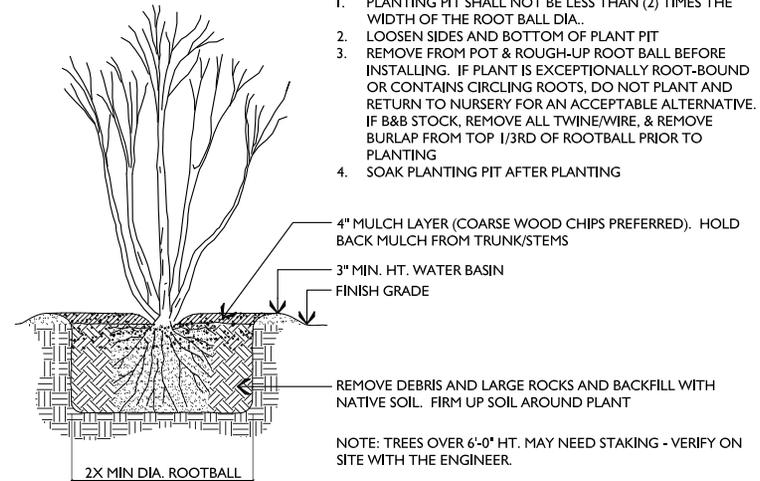
1. WOOD CHIP MULCH: SEE SPECIFICATIONS SECTION 9-14.4(3).
2. COMPOST: SEE SPECIFICATIONS SECTION 9-14.4(8).

PLANT SCHEDULE

TREES	SIZE	QTY	NOTES	SPACING
THUJA PLICATA / WESTERN RED CEDAR	2 GAL.	4	ALL CONIFERS TO BE FULL AND BUSHY	AS SHOWN
PSEUDOTSUGA MENZIESII		6		
SHRUBS				
CORNUS SERICEA / RED-OSIER DOGWOOD	1 GAL.	26	ALL SHRUBS TO BE FULL AND BUSHY	AS SHOWN
CORYLUS CORNUTA / BEAKED HAZELNUT	1 GAL.	6		
PHYSOCARPUS CAPITATUS / PACIFIC NINEBARK	1 GAL.	29		
RUBUS SPECTABILIS / SALMONBERRY	1 GAL.	27		
SYMPHORICARPOS ALBUS / SNOWBERRY	1 GAL.	17		
PERENNIALS AND GROUNDCOVER				
POLYSTICHUM MUNITUM / SWORD FERN	1 GAL.	73	ALL GROUNDCOVER TO BE FULL AND VIGOROUS	24 INCHES O.C.
GAULTHERIA SHALLON / SALAL	1 GAL.	100		24 INCHES O.C.

NOTES:

1. PLANTING PIT SHALL NOT BE LESS THAN (2) TIMES THE WIDTH OF THE ROOT BALL DIA.
2. LOOSEN SIDES AND BOTTOM OF PLANT PIT
3. REMOVE FROM POT & ROUGH-UP ROOT BALL BEFORE INSTALLING. IF PLANT IS EXCEPTIONALLY ROOT-BOUND OR CONTAINS CIRCLING ROOTS, DO NOT PLANT AND RETURN TO NURSERY FOR AN ACCEPTABLE ALTERNATIVE. IF B&B STOCK, REMOVE ALL TWINE/WIRE, & REMOVE BURLAP FROM TOP 1/3RD OF ROOTBALL PRIOR TO PLANTING
4. SOAK PLANTING PIT AFTER PLANTING



A TREE/SHRUB PLANTING DETAIL
N.T.S.

NWS-

CONSTRUCTION SEQUENCE

- 1) INSTALL ALL TEMPORARY EROSION CONTROL MEASURES, GENERAL AND SITE-SPECIFIC, AS NOTED ON THE PLANS AND SUPPORTING DOCUMENTS AND/OR AS REQUIRED BY VARIOUS PERMITS AND AUTHORIZATIONS.
- 2) UNDER THE SUPERVISION OF THE STREAM RESTORATION CONSULTANT, CONSTRUCT A SANDBAG AND PLASTIC DAM ACROSS THE UPSTREAM LIMIT OF THE AFFECTED IN-STREAM WORK AREA DOWNSTREAM OF 148TH AVENUE NE, AT THE EXISTING BOX CULVERT OUTFALL UPSTREAM OF THE EXISTING LOG WEIR, TO CREATE A POOL. PLACE FLEXIBLE DIVERSION PIPE OF SUFFICIENT SIZE TO CARRY ANTICIPATED WORK WINDOW FLOW IN THE UPSTREAM POOL TO A POINT DOWNSTREAM OF THE DOWNSTREAM LIMIT OF THE WORK AREA. ALTERNATIVELY, FLOW MAY BE PUMPED AROUND THE WORK AREA. IF A PUMP IS USED, THE PUMP INTAKE IS TO BE SCREENED BY AN INNER SCREEN WITH MAXIMUM 1/8-INCH MESH TO KEEP FISH FROM ENTERING THE PUMP AND AN OUTER SCREEN WITH MAXIMUM 1/2-INCH MESH TO RETAIN DEBRIS. THE INNER SCREEN AREA IS TO BE LARGE ENOUGH TO ENSURE VELOCITIES THROUGH THE SCREEN OF LESS THAN 0.4 FEET PER SECOND UNDER MAXIMUM EXPECTED FLOWS DURING THE PERIOD OF PROJECT DURATION. THE DISCHARGE IS TO BE POSITIONED TO MINIMIZE EROSION OR TURBIDITY RESULTING FROM THE DISCHARGE VELOCITY OF THE WATER.
- 3) UNDER THE SUPERVISION OF THE STREAM RESTORATION CONSULTANT, CONSTRUCT A SANDBAG AND PLASTIC DAM ACROSS THE DOWNSTREAM LIMIT OF THE AFFECTED WORK AREA TO PREVENT FLOWS FROM BACKWATERING INTO THE WORK AREA AND ALSO TO RETAIN ANY SILT-LADEN WATER THAT MAY COLLECT AS A RESULT OF IMPLEMENTATION ACTIVITIES. COLLECTED SILT-LADEN WATER IS TO BE PUMPED TO UPLAND AREAS FOR DISCHARGE, BIOFILTRATION, AND/OR INFILTRATION.
- 4) ANY FISH ISOLATED IN THE LOCALIZED IN-STREAM WORK AREA WILL BE REMOVED BY THE STREAM RESTORATION CONSULTANT. GIVEN THE SIZE AND CHARACTERISTICS OF PETERS CREEK, IT IS EXPECTED THAT STRANDED FISH CAN BE LOCATED AND CAPTURED USING DIPNETS. CAPTURED FISH WOULD BE RELEASED IN UNAFFECTED REACHES DOWNSTREAM OF THE PROJECT AREA.
- 5) GRADE THE ROUGHENED CHANNEL SECTION AREA TO SUB-GRADE DIMENSIONS TO ALLOW PLACEMENT OF THE TOE ROCK MARKING THE DOWNSTREAM END OF THE ROUGHENED CHANNEL AND THE SPECIFIED GRAVEL/COBBLE/BOULDER MIX TO THE DEPTH AND OTHER DIMENSIONS AS SHOWN ON THE CROSS SECTIONS AND PROFILE.
- 6) EXCAVATE AND SHAPE THE SEDIMENT POND AREA TO ITS BASELINE DIMENSIONS AS SHOWN ON THE GRADING PLAN, READY TO STORE SEDIMENT UNTIL THE NEXT MAINTENANCE EVENT. ESTABLISH A "GRAVEL RECHARGE AREA" BY INCLUDING THE PLACEMENT OF APPROXIMATELY 10 CUBIC YARDS OF THE DREDGE SPOILS ALONG THE STREAMBANKS NEAR THE POND OUTLET TO SUPPLY DOWNSTREAM CHANNEL SECTIONS WITH GRAVELLY BEDLOAD, AS DESCRIBED ON THE PLANS. SCATTERED "THREE MAN" STREAMBED BOULDERS (PER WSDOT SPEC. 9-03.11(3)) WILL BE BURIED WITHIN THE POND AT THE DIRECTION OF THE STREAM RESTORATION CONSULTANT.
- 7) INSTALL THE PERMANENT FLOW BYPASS PIPE ACCORDING TO THE PLANS AND DETAILS, TO BE USED TO FACILITATE PERIODIC SEDIMENT REMOVAL FROM THE IDENTIFIED SEDIMENTATION AREA.
- 8) PLACE THE SPECIFIED ROUGHENED CHANNEL MIX ACCORDING TO THE PLAN, PROFILE, AND DETAILS TO FORM THE ROUGHENED CHANNEL EXTENDING FROM THE EXISTING LOG WEIR AT THE OUTLET OF THE EXISTING BOX CULVERT DOWNSTREAM TO THE SEDIMENTATION POND. BEGIN BY PLACING THE TOE ROCK AS SHOWN ON THE PLANS AND DETAILS, WHICH MARK THE BOUNDARY BETWEEN THE DOWNSTREAM END OF THE ROUGHENED CHANNEL AND THE UPSTREAM END OF THE SEDIMENTATION POND. PROCEEDING UPSTREAM, LARGER "THREE MAN" STREAMBED BOULDERS (PER WSDOT SPEC. 9-03.11(3)) ARE TO BE INDIVIDUALLY KEYED IN AND PLACED AT THE DIRECTION OF THE STREAM RESTORATION CONSULTANT TO CREATE THE DESIRED ROUGHNESS ELEMENTS. ALSO AT THE DIRECTION OF THE STREAM RESTORATION CONSULTANT, A LOW-FLOW CHANNEL OR PATHWAY IS TO BE FORMED TO MAINTAIN SOME DEPTH AT LOW FLOWS FOR FISH USE AND PASSAGE.
- 9) PLACE SILT FENCING ALONG THE ORDINARY HIGH WATER LINE OF BOTH BANKS.
- 10) REMOVE THE SAND BAG DAM FIRST AT THE DOWNSTREAM LIMIT OF THE WORK AREA, BELOW THE SEDIMENTATION POND OUTLET, AND THEN AT THE UPSTREAM LIMIT, THEREBY ALLOWING FLOW TO PASS THROUGH THE RECONSTRUCTED CHANNEL SECTION. REMOVE THE TEMPORARY DIVERSION PIPE AND ASSOCIATED MATERIALS AND FEATURES.
- 11) ISOLATE A SEPARATE, UPSTREAM WORK AREA TO ARMOR THE RIGHT BANK AT THE CULVERT INLET BY CONSTRUCTING A SAND BAG AND PLASTIC BARRIER STARTING UPSTREAM OF AND ON THE SAME BANK AS THE PROPOSED WORK AND ENDING ON THE SAME BANK AGAINST THE CONCRETE WALL INSIDE THE CULVERT DOWNSTREAM OF THE WORK AREA. SUCH A BARRIER WILL FORCE ACTIVE, LOW STREAM FLOW AGAINST THE OPPOSITE BANK FROM THE PROPOSED WORK ACTIVITIES. AS DESCRIBED ABOVE, SAFELY REMOVE ANY FISH FROM THE ISOLATED AREA, AND PUMP ANY SILT-LADEN WATER COLLECTING IN IT TO UPLAND AREAS FOR DISCHARGE, BIOFILTRATION, AND/OR INFILTRATION. ROCK PLACEMENT FOR BANK ARMORING AT THE CULVERT INLET MAY BE CONDUCTED INDEPENDENTLY OF THE DOWNSTREAM WORK, OBSERVING APPLICABLE TIMING RESTRICTIONS FOR IN-WATER WORK.
- 12) AMEND SOIL AND REVEGETATE DISTURBED AREAS PER PLANTING NOTES ON THE PLANTING PLAN.

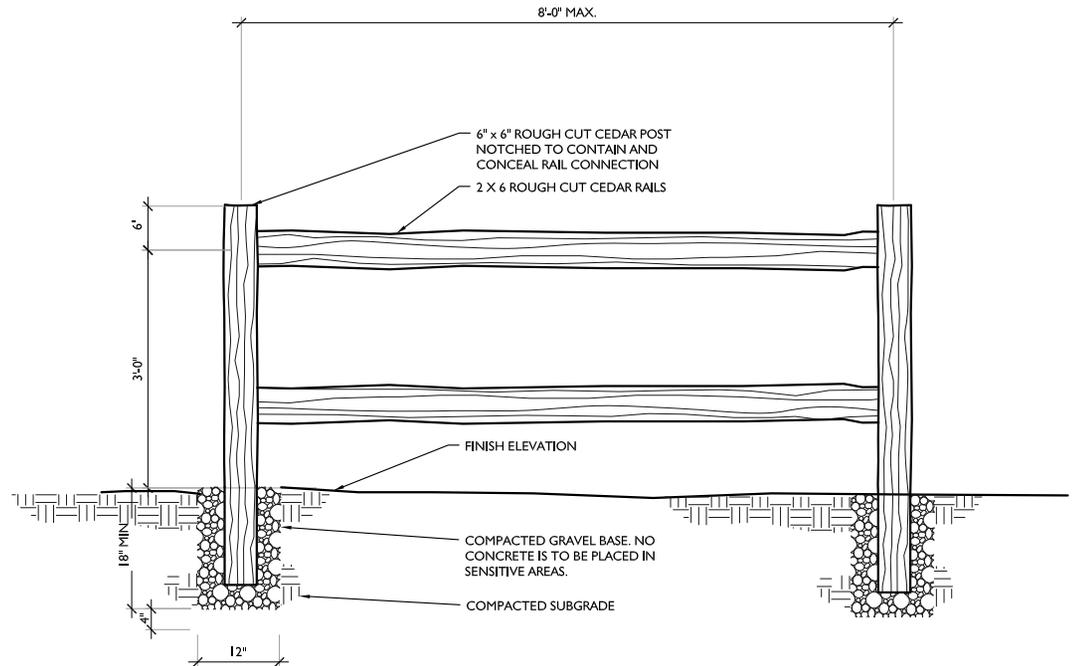
PETERS CREEK SEDIMENTATION POND
MAINTENANCE PROTOCOL

FOR MAINTENANCE TO BE TRIGGERED, THREE CIRCUMSTANCES MUST COINCIDE:

1. SEDIMENT ACCUMULATION ABOVE AN ESTABLISHED MINIMUM THRESHOLD. IT IS RECOMMENDED THAT SEDIMENT REMOVAL MAINTENANCE OCCUR WHEN THE POND IS APPROXIMATELY THREE-QUARTERS FULL.
2. POSSESSION OF A VALID PERMIT AUTHORIZING THE REQUIRED IN-STREAM WORK FROM WDFW.
3. BEING WITHIN THE VALID SEASONAL TIME FRAME (WORK WINDOW) AS AUTHORIZED BY THAT OR OTHER APPLICABLE PERMITS.

SEQUENCING:

1. CHECK THE DOWNSTREAM END OF THE PERMANENT BYPASS PIPE TO MAKE SURE IT IS UNBLOCKED AND CLEAR SUCH THAT DISCHARGE FROM IT WOULD OCCUR IN A MANNER WHICH DID NOT OVERLY IMPACT THE STREAM DUE TO TURBIDITY ETC. CLEAN OR OTHERWISE MAINTAIN AS APPROPRIATE.
2. REMOVE THE LOCKING COVER PLATE FROM THE BYPASS PIPE INLET AND SIMILARLY CHECK TO SEE THAT IT IS OPEN AND CLEAR, AND ALSO CONDUCT MAINTENANCE AS APPROPRIATE.
3. PARTIALLY-BUILD A TEMPORARY, WELL-SEALED, PLASTIC-AND-SAND-BAG COFFER DAM ACROSS THE CHANNEL IMMEDIATELY BELOW THE BYPASS INTAKE SUCH THAT THE FLOW IS PARTIALLY DIVERTED THROUGH THE BYPASS.
4. REMOVE FISH FROM THE STREAM SECTION BETWEEN THE BYPASS INLET AND OUTLET BY SEINING, DIPNETTING, AND ELECTROFISHING IN THAT ORDER OF PREFERENCE IN SEVERAL ITERATIONS OR PASSES. THE UPSTREAM DAM SHOULD BE ADJUSTED TO DECREASE THE FLOW THROUGH THE CHANNEL WITH EACH SUCCESSIVE ITERATION OR PASS SUCH THAT ALL FISH ARE REMOVED PRIOR TO ANY PORTION OF THE CHANNEL BECOMING DEWATERED OR EXCESSIVELY TURBID.
5. ONCE CATCH PER UNIT EFFORT APPROACHES ZERO, THE UPPER DAM CAN BE COMPLETED SUCH THAT ALL OR AS MUCH OF THE WATER AS POSSIBLE IS ROUTED THROUGH THE BYPASS.
6. PROCEED WITH DREDGING OUT THE SEDIMENTATION POND TO ITS BASELINE DIMENSIONS AS REPRESENTED BY THE AS-BUILT DRAWINGS FOR POND CONSTRUCTION, TAKING CARE NOT TO DISLodge OR REMOVE THE BURIED BOULDERS WITHIN THE POND OR THE LINES OF PLACED TOE ROCKS MARKING THE UPSTREAM AND DOWNSTREAM ENDS OF THE SEDIMENTATION POND. IF NECESSARY, A PLASTIC-AND-SAND-BAG-DAM MAY ALSO BE PLACED JUST UPSTREAM OF THE BYPASS OUTLET TO PREVENT BACKWATERING OF THE WORK AREA. ANY EXCESSIVELY TURBID WATER WHICH WOULD OTHERWISE FLOW DOWNSTREAM PAST THE BYPASS OUTLET IS TO BE INTERCEPTED AND PUMPED TO UPLAND AREAS FOR DISCHARGE AND INFILTRATION.
7. PLACE OF APPROXIMATELY 10 CUBIC YARDS OF THE DREDGE SPOILS ALONG THE STREAMBANKS NEAR THE POND OUTLET TO SUPPLY DOWNSTREAM CHANNEL SECTIONS WITH GRAVELLY BEDLOAD, AS DESCRIBED AND SHOWN ON THE PLANS.
8. ONCE DREDGING IS COMPLETE, CONTINUE TO BYPASS FLOWS UNTIL TURBIDITY IN THE SEDIMENTATION POND DIMINISHES TO NEAR BACKGROUND LEVELS, ANTICIPATED TO TAKE UP TO 48 HOURS.
9. REMOVE THE DOWNSTREAM COFFER DAM (IF PRESENT), THE UPSTREAM DIVERSION DAM, AND REPLACE THE LOCKING COVER PLATE ON THE BYPASS PIPE INLET, RESTORING FLOWS TO THE STREAM CHANNEL.



A SPLIT-RAIL FENCE DETAIL
N.T.S.

NWS-

MONITORING AND MAINTENANCE NOTES AND PERFORMANCE STANDARDS

EXECUTIVE SUMMARY

THE PETERS CREEK STREAM ENHANCEMENTS DETAILED IN THIS PLAN ARE DESIGNED TO IMPROVE FLOW DYNAMICS, PREVENT FLOODING, FACILITATE SEDIMENT STORAGE AND REMOVAL MAINTENANCE, AND IMPROVE FISH PASSAGE TO AVAILABLE HABITAT EXTENDING UPSTREAM. SPECIFICALLY, THIS PROJECT WILL PROTECT THE STRUCTURAL INTEGRITY OF AN EXISTING CULVERT BY REINFORCING A FAILING LOG WEIR, IMPROVE FISH PASSAGE BY INSTALLING AN ENGINEERED ROUGHENED CHANNEL, AND REDUCE SEDIMENT LOADING EXTENDING DOWNSTREAM FROM THE SITE BY INSTALLING A STREAMFLOW BYPASS PIPE TO FACILITATE PERIODIC MAINTENANCE OF AN UPGRADED SEDIMENT POND. IN-STREAM WORK WILL COVER APPROXIMATELY 189 LINEAL FEET AND 719 SQUARE FEET OF THE WEST FORK OF PETERS CREEK. RIPARIAN BUFFER IMPACTS REQUIRING RESTORATION AND ENHANCEMENT TOTAL 1,513 SQUARE FEET (1,269 SF FOR CONSTRUCTION ACCESS/GRADING AND 244 SF FOR BYPASS PIPE INSTALLATION). STREAM BUFFER DISTURBED DURING CONSTRUCTION WILL BE REPLANTED WITH A DIVERSE ASSEMBLAGE OF NATIVE PLANT SPECIES.

EXISTING CONDITIONS

CURRENTLY THE WEST FORK OF PETERS CREEK REQUIRES SEDIMENT REMOVAL TO PREVENT SEASONAL FLOODING ONTO THE ADJACENT PROPERTY, SHADOWBROOK APARTMENTS. AFTER PASSING THROUGH THE BOX CULVERT UNDER 148TH AVENUE NE, THE STREAM GRADIENT REDUCES ABRUPTLY, CAUSING SEDIMENTS TO DEPOSIT. OVER TIME, SEDIMENT REMOVAL ACTIVITY HAS CREATED A NEAR-ZERO-GRADIENT POND ADJACENT TO A BERM AND A MUCH OVER-STEEPENED CHANNEL SECTION LEADING FROM THE CULVERT OUTFALL TO THE POND. THE OVER-STEEPENED SECTION INCLUDES TWO FAILING LOG WEIRS, ONE OF WHICH AT THE BOX CULVERT OUTLET PRECLUDES FISH PASSAGE. THE STRUCTURAL INTEGRITY OF THE WEIRS IS POOR. IF THESE STRUCTURES SHOULD FAIL, THE CHANNEL COULD HEADCUT UPSTREAM THROUGH THE BOTTOMLESS CULVERT AND EXPOSE ITS FOOTINGS.

THE RIPARIAN BUFFER CONTAINS A NUMBER OF YOUNG CONIFER AND DECIDUOUS TREES, TYPICALLY 8-10 INCHES IN DIAMETER OR LESS. THESE INCLUDE WESTERN RED CEDAR, WESTERN HEMLOCK, RED ALDER, AND BIGLEAF MAPLE. THESE TREES WILL NOT BE REMOVED AS A RESULT OF PROJECT IMPLEMENTATION. GROUND COVER CONSISTS PRIMARILY OF SPARSE GRASSES AND WEEDS, AND A FEW NATIVE SHRUBS INCLUDING SALMONBERRY AND VINE MAPLE ARE ALSO PRESENT.

AVOIDANCE & MINIMIZATION

IMPROVING STRUCTURAL INTEGRITY AND FUNCTION OF THE EXISTING BOX CULVERT AND WEIRS REQUIRES IN-STREAM WORK. THE WORK AREA IS THE MINIMUM NECESSARY TO IMPLEMENT A LONG-TERM DESIGN SOLUTION. EXISTING SIGNIFICANT TREES WILL BE RETAINED AND BUFFER DISTURBANCE WILL BE MINIMIZED.

MITIGATION

IN-STREAM IMPROVEMENTS ARE SELF-MITIGATING AND CONSTITUTE AN IMPROVEMENT OVER THE EXISTING CONDITION. TEMPORARY RIPARIAN BUFFER IMPACTS WILL BE RESTORED IN PLACE AT A ONE-TO-ONE RATIO.

OBJECTIVES

1. RESTORE UPSTREAM FISH PASSAGE TO THE UPPER REACHES OF THE WEST FORK OF PETERS CREEK.
2. PROVIDE FOR AND PROTECT THE STRUCTURAL INTEGRITY OF THE CULVERT.
3. IMPROVE SEDIMENT MANAGEMENT AND MAINTENANCE, INCLUDING ALLOWING A PORTION OF THE SEDIMENT BEDLOAD TO BE TRANSPORTED DOWNSTREAM TO SUPPLY CHANNEL SECTIONS THAT ARE CURRENTLY SEDIMENT-STARVED.
4. PROVIDE ADEQUATE FLOOD PROTECTION FOR THE ADJACENT PROPERTY, SHADOWBROOK APARTMENTS.

PERFORMANCE STANDARDS

THE STANDARDS LISTED BELOW SHALL BE USED TO JUDGE THE SUCCESS OF THE RESTORATION PLAN OVER TIME. THE PERFORMANCE STANDARDS COVER A FIVE-YEAR PERIOD.

STREAM CHANNEL RESTORATION AND ENHANCEMENT

1. STRUCTURAL INTEGRITY OF THE BOX CULVERT FOOTINGS SHALL BE SOUND WITH LITTLE OR NO EVIDENCE OF HEADCUTTING OR EROSION.
2. ROUGHENED CHANNEL CONDITION SHALL EXTEND FROM STATION 1 +75 DOWN TO THE STEEP BOULDER LINE NEAR STATION 1 +25.
3. THE SEDIMENT PONDS AND BYPASS PIPE SHALL FUNCTION AS INTENDED, RESULTING IN:
 - a. EFFICIENT AND LOW-IMPACT SEDIMENT REMOVAL MAINTENANCE,
 - b. GRAVEL AND SEDIMENT RECHARGE DOWNSTREAM, AND
 - c. NO FLOODING OF THE ADJACENT PROPERTY.
4. IN-STREAM HABITAT AND STREAM FLOW CONDITIONS SHOULD BE SUFFICIENT TO SUPPORT FISH USE AND UPSTREAM MIGRATION.

STREAM BUFFER RESTORATION

1. SURVIVAL: THIS STANDARD CAN BE MET THROUGH PLANT ESTABLISHMENT OR THROUGH REPLANTING AS NECESSARY TO ACHIEVE THE REQUIRED NUMBERS.
 - a. ACHIEVE 100 PERCENT SURVIVAL OF INSTALLED PLANTS BY THE END OF YEAR 1.

- b. ACHIEVE 80 PERCENT SURVIVAL OF TREES AND SHRUB IN ALL SUBSEQUENT MONITORING YEARS; OR
- c. ACHIEVE THE NATIVE COVER TARGETS BELOW IN YEARS 2-5.

2. NATIVE WOODY COVER:

- a. ACHIEVE 30 PERCENT COVER IN YEAR 2, 50 PERCENT COVER BY YEAR 3 AND 75 PERCENT COVER BY YEAR 5. NATIVE "VOLUNTEER" VEGETATION MAY BE INCLUDED IN COVER ESTIMATES. (NOTE: THE SURVIVAL STANDARD ABOVE MAY BE SUBSTITUTED FOR THIS COVER STANDARD.)

3. INVASIVE COVER:

- a. NO MORE THAN 10% COVER BY INVASIVE NOXIOUS WEED SPECIES IS TO OCCUR IN STREAM BUFFER RESTORATION AREAS IN ANY MONITORING YEAR.

MONITORING PLAN

THIS MONITORING PROGRAM IS RECOMMENDED FOR THIS RESTORATION PROJECT TO TRACK THE SUCCESS OF THE MITIGATION SITE OVER TIME AND TO MEASURE THE DEGREE TO WHICH IT IS MEETING THE PERFORMANCE STANDARDS OUTLINED ABOVE.

AN AS-BUILT PLAN WILL BE PREPARED BY THE RESTORATION SPECIALIST PRIOR TO THE BEGINNING OF THE MONITORING PERIOD. THE AS-BUILT PLAN SHALL BE A MARK-UP OF THE PLANTING PLANS INCLUDED IN THIS PLAN SET. THE AS-BUILT PLAN WILL DOCUMENT ANY DEPARTURES IN PLANT PLACEMENT OR OTHER COMPONENTS FROM THE PROPOSED PLAN.

THE STREAM CHANNEL WILL BE EXAMINED VISUALLY ONCE PER YEAR, PREFERABLY DURING OR FOLLOWING A SPRING RAIN EVENT WHEN SIGNIFICANT FLOW IS PRESENT, AND PHOTOGRAPHED AT REPRESENTATIVE LOCATIONS. STREAM CHANNEL MONITORING IN THE SPRING ALLOWS FOR ANY RECOMMENDED CORRECTIVE ACTIONS TO OCCUR DURING THE UPCOMING LOW-FLOW SEASON. ANY PLUNGES MORE THAN 12 INCHES IN HEIGHT, DOWN-CUTTING THAT EXPOSES NATIVE SOIL, OR BANK EROSION THAT EXPOSES NATIVE SOIL WILL BE IDENTIFIED AND PHOTOGRAPHED FOR MAINTENANCE. MAINTENANCE RECOMMENDATIONS MAY INCLUDE HAND-ADJUSTMENT OF WATERCOURSE MATERIAL OR IMPORTATION OF SUPPLEMENTAL AND/OR LARGER WATERCOURSE MATERIAL.

VEGETATION MONITORING SHOULD TAKE PLACE AT LEAST ONCE ANNUALLY FOR FIVE YEARS IN THE LATE SUMMER OR FALL. FIRST-YEAR MONITORING SHOULD COMMENCE IN THE FIRST SUMMER SUBSEQUENT TO PLANT INSTALLATION. IF INVASIVE WEED COVER IS HIGH, SPRING MONITORING MAY ALSO BE CONDUCTED. AS NOTED ABOVE, CHANNEL MONITORING SHOULD TAKE PLACE ONCE ANNUALLY IN THE SPRINGTIME, PREFERABLY FOLLOWING A RAIN EVENT.

A FORMAL SUMMER/FALL MONITORING VISIT SHALL RECORD AND REPORT ANNUAL SITE PERFORMANCE FOR SUBMISSION TO CITY OF REDMOND PARKS AND THE CORPS. ANNUAL REPORTS WILL INCLUDE:

1. PLANT COUNTS: SURVIVAL COUNTS OF PLANTS BY SPECIES IN EACH PLANTING AREA WILL BE CONDUCTED IN EACH MONITORING YEAR.
2. ESTIMATE OF HERBACEOUS INVASIVE WEED COVER USING THE COVER CLASS METHOD SITE-WIDE.
3. PHOTOGRAPHIC DOCUMENTATION FROM FIXED REFERENCE POINTS OR TRANSECT ENDS.
4. INTRUSIONS INTO THE PLANTING AREAS, VANDALISM OR OTHER ACTIONS THAT IMPAIR THE INTENDED FUNCTIONS OF THE PLANTED AREAS.
5. REPORT ON CONDITION AND FUNCTIONING OF PLACED IN-STREAM MATERIAL.
6. AN ASSESSMENT OF THE CHANNEL CONDITION.
7. RECOMMENDATIONS FOR MAINTENANCE OR REPAIR OF ANY PORTION OF THE RESTORATION AREA.

NWS-

IN: REDMOND	REF #: 2012-701	APPLICANT: CITY OF REDMOND	PROPOSED: CULVERT PROTECTION, FISH HABITAT
AT: PETERS CREEK		ENHANCEMENT, REGRADING SEDIMENT POND, BYPASS PIPE	DATE: 8/19/13
			SHEET: 12 OF 12