



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) 316-3047
ATTN: Steve Manlow,
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: December 05, 2013
Expiration Date: January 04, 2014

Reference No.: NWS-2011-1005
Name: Washington Department of
Fish & Wildlife
(Modrow Trap)

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 November 27, 2013.

The Corps will review the work in accordance with Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. Ecology will review the work pursuant to Section 401 of the CWA, with applicable provisions of State water pollution control laws.

APPLICANT: Washington Department of Fish & Wildlife
Attention: Cindy Knudson
600 Capitol Way North
Olympia, Washington 98501
Telephone: (360) 902-8300

LOCATION: In the Kalama River near 161 Modrow Road, near Kalama, Cowlitz County, Washington

WORK: The proposed project is to renovate an existing fish trapping facility located in the Kalama River. Proposed work includes the following: increase the size of the fish trap from 720 to 1,295 square feet; replace an existing manual fish crowder with a motorized fish crowder; replace an existing fish loading hopper with a fish lift; install rock riprap along 60 linear feet of bank upstream and downstream of the trap; and, install temporary work area isolation structures, including supersacks, turbidity barriers, and isolation liners. Work below the ordinary high water line will include the excavation of up to 384 cubic yards of bed material and placement of up to 292 cubic yards of rock and concrete fill.

PURPOSE: The purpose of the project is to improve the holding, sorting and transport efficiency of the Modrow Fish Trap, in accordance with current State and Federal requirements.

ADDITIONAL INFORMATION: Copies of this public notice which have been mailed or otherwise physically distributed feature project drawings in black and white. The electronic version features those drawings in color, which we think more accurately communicates the scope of project impacts. To access the electronic version of this public notice, go to the Seattle District's web page at <http://www.nws.usace.army.mil/> and under the heading

NWS-2011-1005; Washington Department of Fish & Wildlife

Open Public Comment Periods select Regulatory 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 location of the ordinary high water mark shown on the project drawings have not yet been verified by the Corps. If the Corps determines the boundaries of the wetland/waters are substantially inaccurate a new public notice may be published.

MITIGATION: Proposed mitigation includes installing six large woody material structures in a side channel located at River Mile 0.5 of the Kalama River.

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 (EFH): 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 EFH. The Corps has determined that the proposed action will adversely affect designated EFH for federally managed fisheries in Washington waters. The Corps has initiated EFH consultation 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. Historic properties are recorded near the proposed project. However, they do not occur in the permit area. The permit area has been so extensively disturbed by modern development that little likelihood exists for the proposed project to impinge upon an 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.

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, navigation, 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.

NWS-2011-1005; Washington Department of Fish & Wildlife

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.

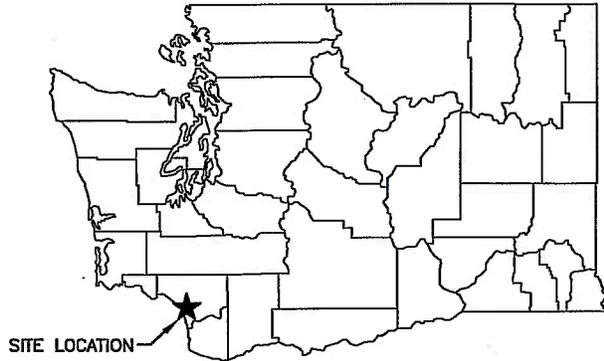
COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from 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 steven.w.manlow@usace.army.mil. Conventional mail comments should be sent to: U.S. Army Corps of Engineers, Regulatory Branch, Attention: Steven Manlow, 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.

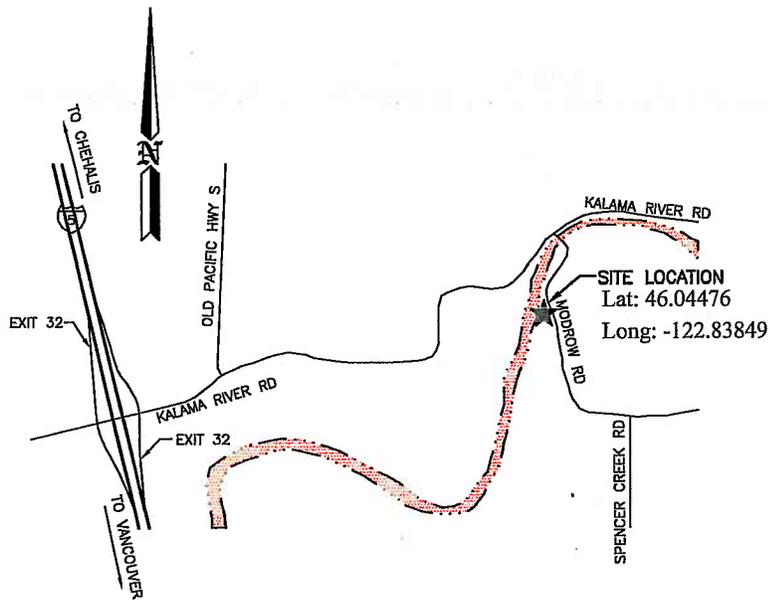
ECOLOGY COMMENTS: Any person desiring to present views on the project pertaining to a request for water quality certification under Section 401 of the CWA may do so by submitting written comments to the following address: Washington State Department of Ecology, Attention: Federal Permit Coordinator, 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: Washington Department of Fish & Wildlife; NWS-2011-1005

Encl: Figures (19)



STATE MAP
NOT TO SCALE



VICINITY MAP
NOT TO SCALE

ENG. PROJECT NO. **CZ:H28:11-1**

PORTION OF: **SEC 32, T7N, R1W**

REFERENCE NUMBER: **NWS-2011-1005**

APPLICANT:
**WASHINGTON DEPT. of FISH & WILDLIFE
600 CAPITOL WAY N.
OLYMPIA, WA 98501-1091**

PROJECT LOCATION (ADDRESS):
**MODROW FISH TRAP
161 MODROW ROAD
KALAMA, WA 98625**

PROPOSED PROJECT:
TRAP MODIFICATIONS

ADJACENT PROPERTY OWNER:

1. **LEDGETT**

2

LAT/LONG: **046°02'41.8"N 122°50'14"W**

DATUM: **11/27/13**

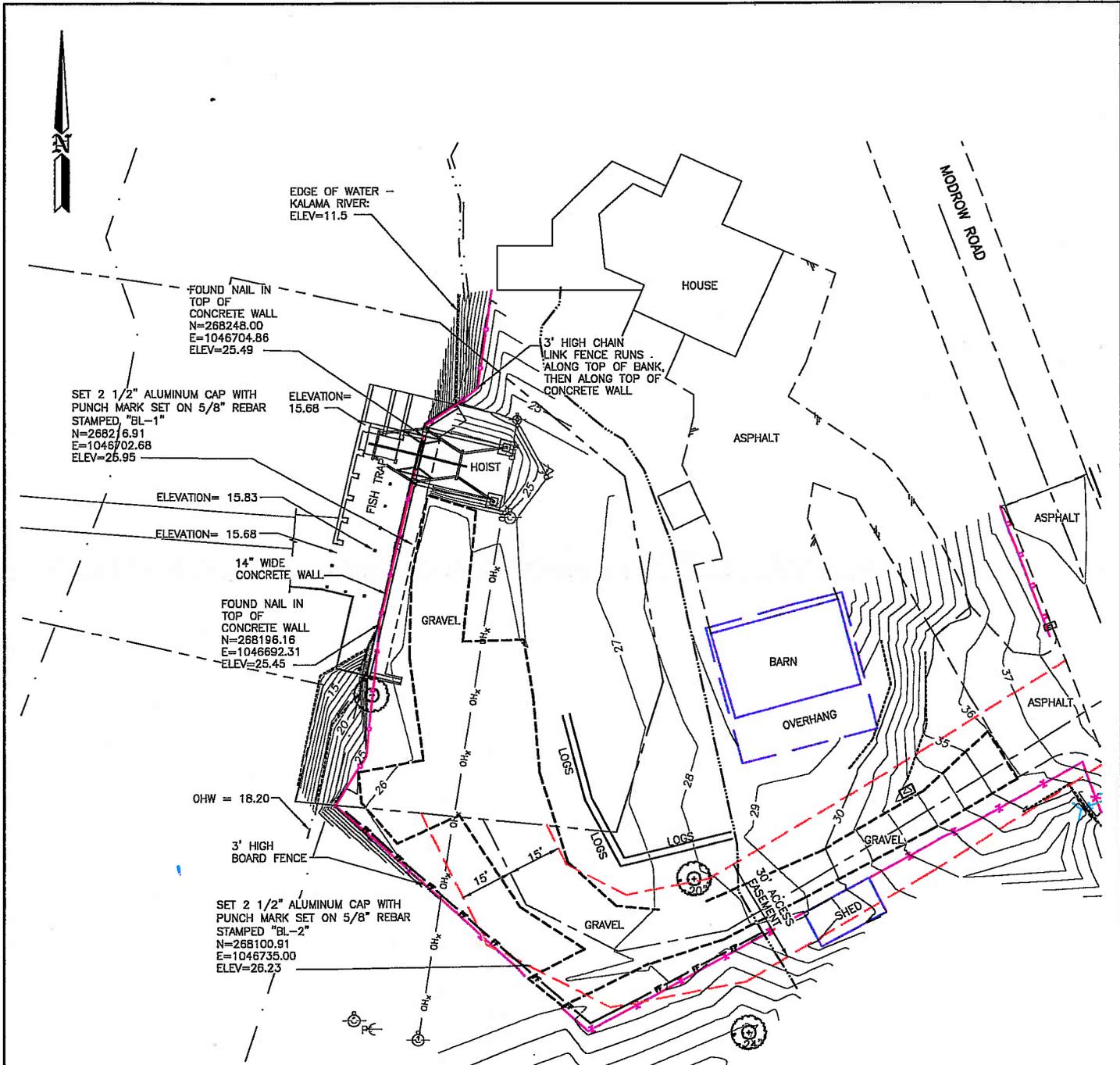
SHEET **1** OF **19** DATE: **09/14/2013**

IN: **KALAMA RIVER**

NEAR/AT: **KALAMA**

COUNTY: **COWLITZ**

STATE: **WA**



EXISTING SITE PLAN

SCALE: 1" = 40'



SCALE: 1" = 40'

In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005

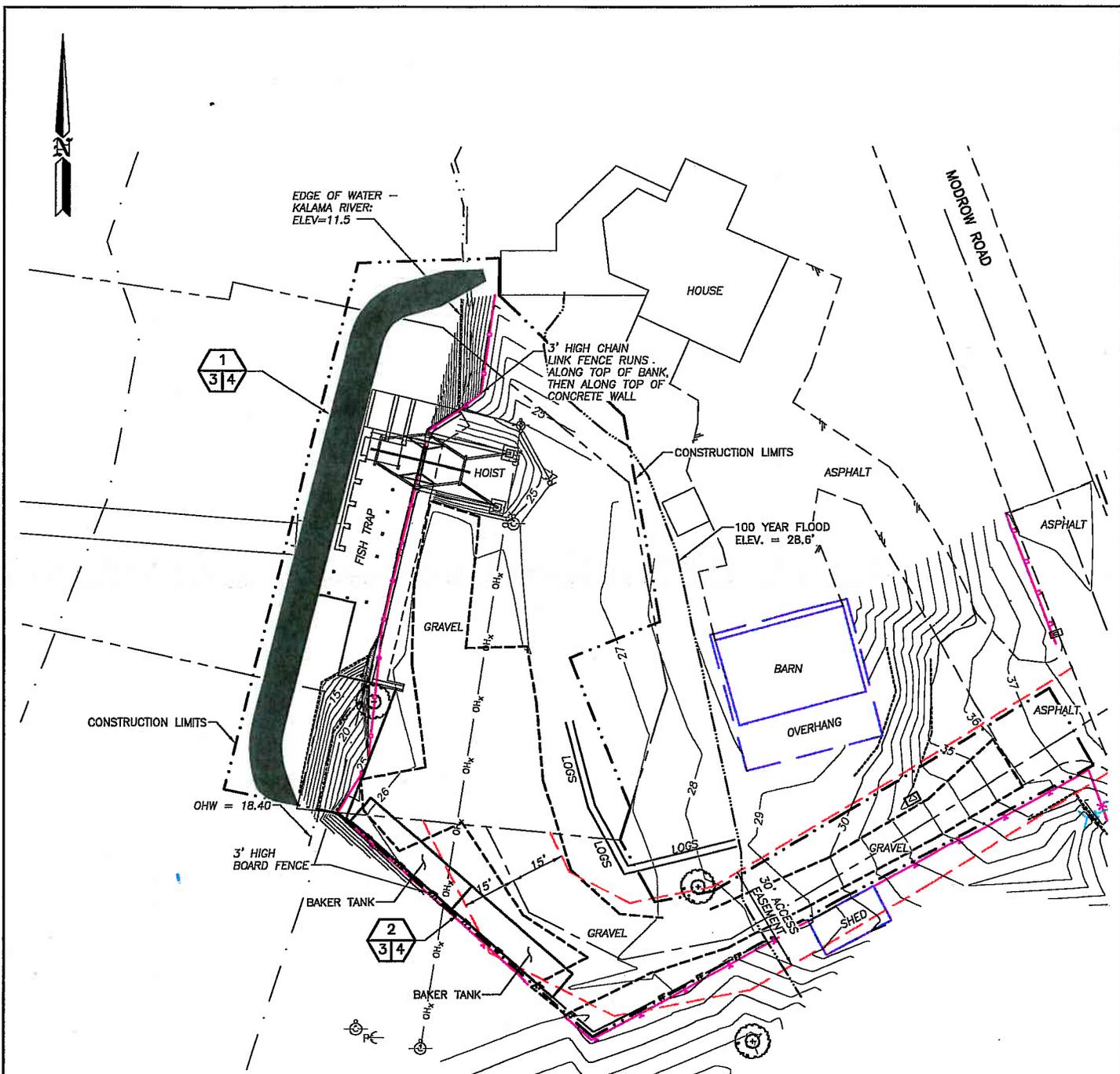
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE

PROPOSED PROJECT:

TRAP MODIFICATIONS

LOCATION: MODROW FISH TRAP 11/27/13

SHEET 2 OF 12 19 DATE: 08/11/2013



EROSION CONTROL PLAN

SCALE: 1" = 40'

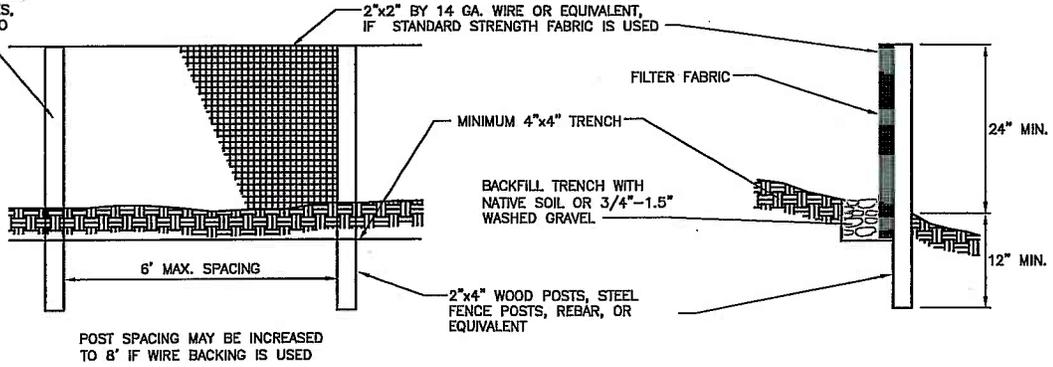


SCALE: 1" = 40'

In: Kalama River
 Near/At: Kalama
 County: Cowlitz
 State: WA

REFERENCE NUMBER: NWS-2011-1005
 APPLICANT NAME:
 WASHINGTON DEPT. of FISH & WILDLIFE
 PROPOSED PROJECT:
 TRAP MODIFICATIONS
 LOCATION: MODROW FISH TRAP 11/27/13
 SHEET 3 OF 12 19 DATE: 09/24/2013

JOINTS IN FILTER FABRIC SHALL BE SPLICED AT POSTS. USE STAPLES, WIRE RINGS, OR EQUIVALENT TO ATTACH FABRIC TO POSTS.



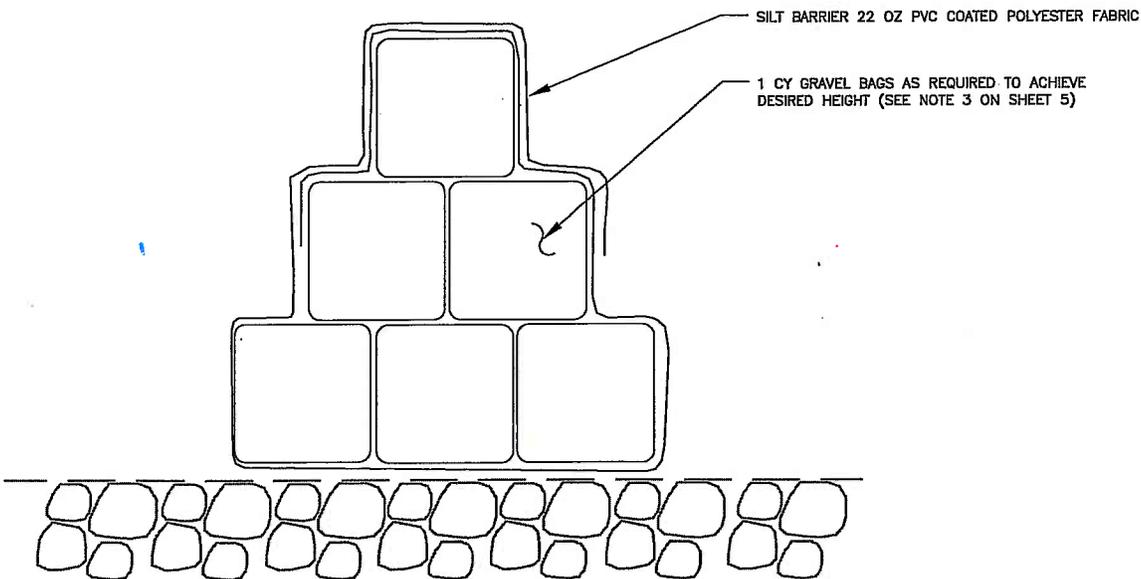
FILTER FENCE

NOT TO SCALE



NOTES:

1. FILTER FABRIC FENCES SHALL BE INSTALLED ALONG CONTOURS WHENEVER POSSIBLE.
2. FABRIC SHALL BE EQUAL TO "MIRAFI" WITH 100 LB GRAB TENSILE STRENGTH, 200 PSI BURST STRENGTH, AND 70-200 SIEVE # APPARENT OPENING.



POSSIBLE COFFERDAM

NOT TO SCALE



In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 4 OF 19 DATE: 09/11/2013

TEMPORARY EROSION AND SEDIMENT CONTROL NOTES

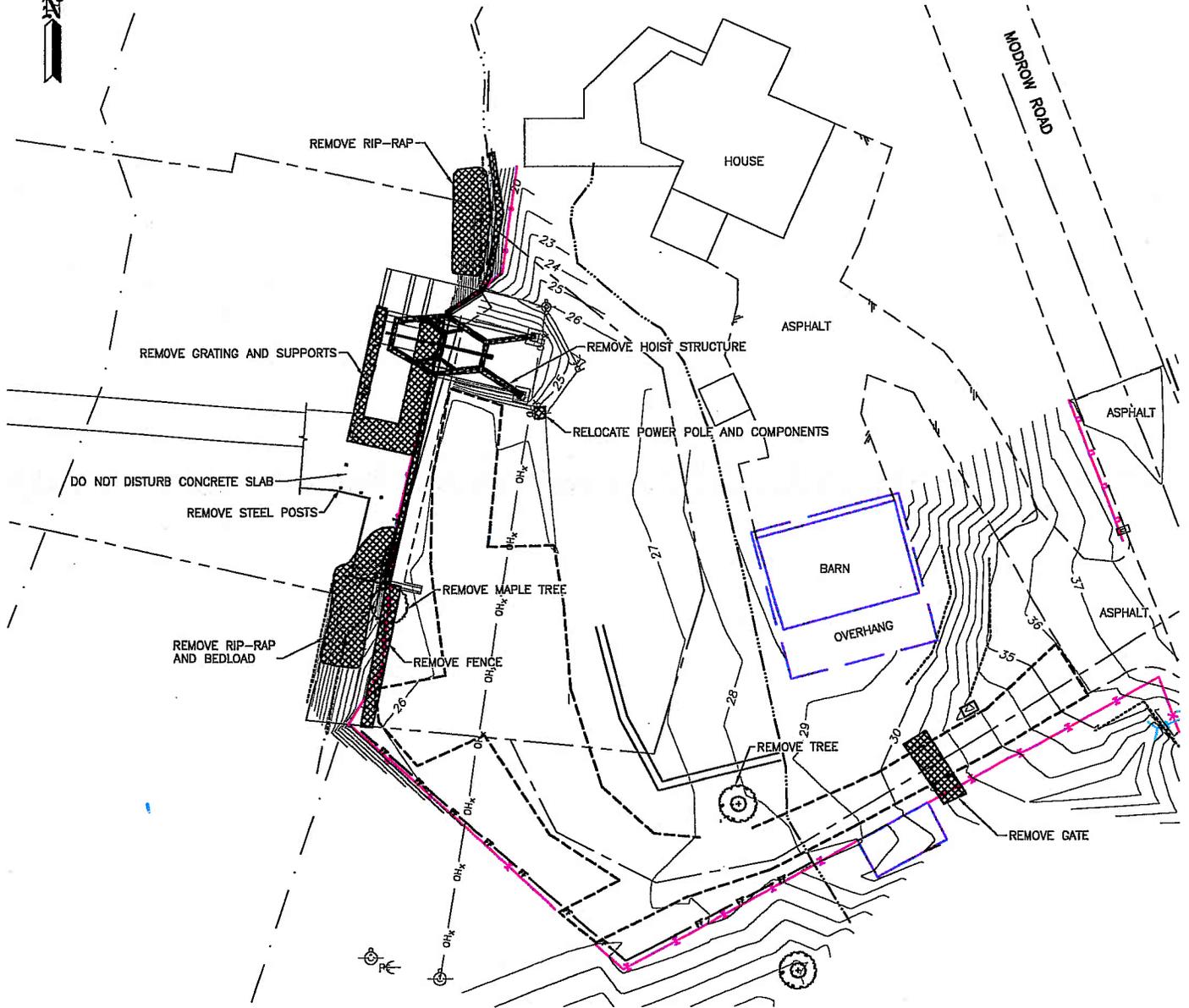
1. THE START AND END DATES OF THE IN-WATER COFFERDAM CONSTRUCTION WORK AND OTHER IN-WATER-WORK ON THE PROJECT SHALL COMPLY WITH THE PERMIT REQUIREMENTS.
2. THE WDFW AREA HABITAT BIOLOGIST ASSIGNED TO THIS PROJECT, SHALL RECEIVE WRITTEN NOTIFICATION (FAX, EMAIL, MAIL) NO LESS THAN THREE WORKING DAYS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
3. THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEM, AND ADJACENT PROPERTIES IS MINIMIZED.
4. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR THE ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS
5. THE TESC FACILITIES SHALL BE INSPECTED DAILY BY THE APPLICANT/TESC SUPERVISOR AND MAINTAINED TO ENSURE CONTINUED PROPER FUNCTIONING. WRITTEN RECORDS SHALL BE KEPT OF WEEKLY REVIEWS OF THE TESC FACILITIES DURING CONSTRUCTION.
6. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TWO DAYS DURING THE WET SEASON OR SEVEN DAY DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED TESC METHODS (E.G. SEEDING, MULCHING, PLASTIC COVERING, ETC.).
7. THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS OF FOLLOWING A STORM EVENT.
8. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM 2-INCH THICKNESS.
9. THE COFFERDAMS SHALL BE COMPLETELY SEALED TO PREVENT CONCRETE OR OTHER DELETERIOUS PRODUCTS FROM LEACHING INTO THE RIVER. UPON COMPLETION OF THE PROJECT, ALL COFFERDAM MATERIALS SHALL BE REMOVED.
10. ALL WASTE MATERIAL SUCH AS CONSTRUCTION DEBRIS, SILT, EXCESS DIRT OR OVERBURDEN RESULTING FROM THIS PROJECT SHALL BE DEPOSITED ABOVE THE LIMITS OF FLOODWATER IN AN APPROVED UPLAND DISPOSAL SITE.
11. WASTEWATER FROM PROJECT ACTIVITIES AND WATER REMOVED FROM IN THE WORK AREA SHALL BE ROUTED TO AN AREA UPLAND OF THE ORDINARY HIGH WATER LINE TO ALL REMOVAL OF FINE SEDIMENT AND OTHER CONTAMINANTS PRIOR TO DISCHARGE INTO THE RIVER.
12. MAINTENANCE AND FUELING OF CONSTRUCTION EQUIPMENT SHALL BE PERFORMED IN SUCH A MANNER TO MINIMIZE THE POTENTIAL CONTAMINATION OF STORMWATER RUNOFF AND ADJACENT WATERWAYS. SPILL CONTAINMENT AND CLEANUP KITS SHALL BE MAINTAINED ONSITE AND ANY SPILLS OF FUELS, HYDRAULIC FLUID, LUBRICANTS, OR OTHER HAZARDOUS MATERIAL SHALL BE CLEANED UP AND IMMEDIATELY AND PROPERLY DISPOSED OF.
13. EQUIPMENT USED FOR THIS PROJECT SHALL BE FREE OF EXTERNAL PETROLEUM-BASED PRODUCTS WHILE WORKING NEAR THE RIVER. ACCUMULATION OF SOIL AND DEBRIS SHALL BE REMOVED FROM THE DRIVE MECHANISMS AND THE UNDERCARRIAGE OF EQUIPMENT PRIOR TO ITS WORKING INSIDE THE COFFERDAMS. EQUIPMENT SHALL BE CHECKED DAILY FOR LEAKS AND ANY NECESSARY REPAIRS SHALL BE COMPLETED PRIOR TO COMMENCING WORK ACTIVITIES NEAR THE RIVER.
14. EXCAVATION EQUIPMENT WILL WORK FROM ABOVE THE EXCAVATION AND DIG UPSLOPE TOWARDS THEM. EXCAVATED MATERIAL WILL BE PLACED DIRECTLY INTO TRUCKS AND HAULED OFFSITE.
15. RESTORE UNDEVELOPED DISTURBED AREAS ON THE BANK OF THE KALAMA RIVER WITH WEIGHTED JUTE MATTING.
16. BAKER TANKS SILT BAGS WILL BE USED FOR THE COLLECTION OF WATER FROM THE COFFERDAMS AND DEEP EXCAVATIONS TO PREVENT DISCHARGING HIGH TURBIDITY WATER INTO THE RIVER.

RECOMMENDED CONSTRUCTION SEQUENCE:

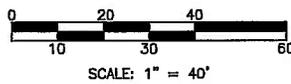
1. PRE-CONSTRUCTION MEETING.
2. FLAG OR FENCE CONSTRUCTION LIMITS.
3. INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.)
4. GRADE AND STABILIZE CONSTRUCTION ROADS.
5. INSTALL COFFERDAM AND WATER HANDLING SYSTEM (BAKER TANKS.)
6. MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE REQUIRED TECHNIQUES AND FREQUENCY.
7. JUST PRIOR TO THE PROJECT COMPLETION, ENSURE ALL DISTURBED AREAS ARE STABILIZED AND REMOVE TESC FEATURE IF APPROPRIATE (PERIMETER MARKING, FILTER FENCING, SEDIMENT TRAPS, ETC.).

In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 5 OF 19 DATE: 09/11/2013



DEMOLITION PLAN
SCALE: 1" = 40'

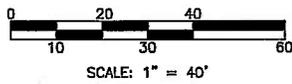


In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 6 OF 19 DATE: 05/11/2013

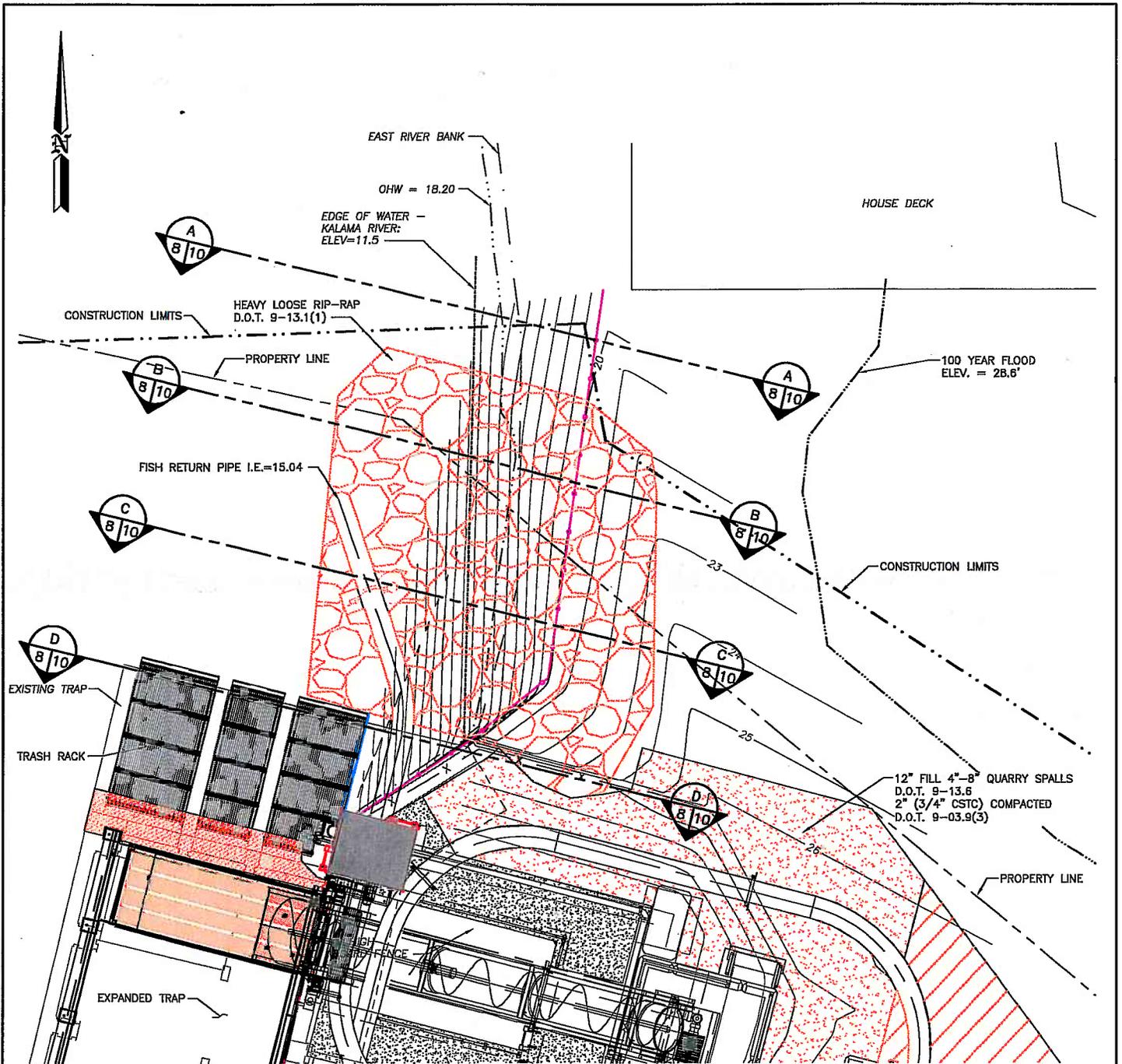


SITE PLAN
SCALE: 1" = 40'



In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 7 OF 12 19 DATE: 09/11/2013



UPSTREAM PLAN

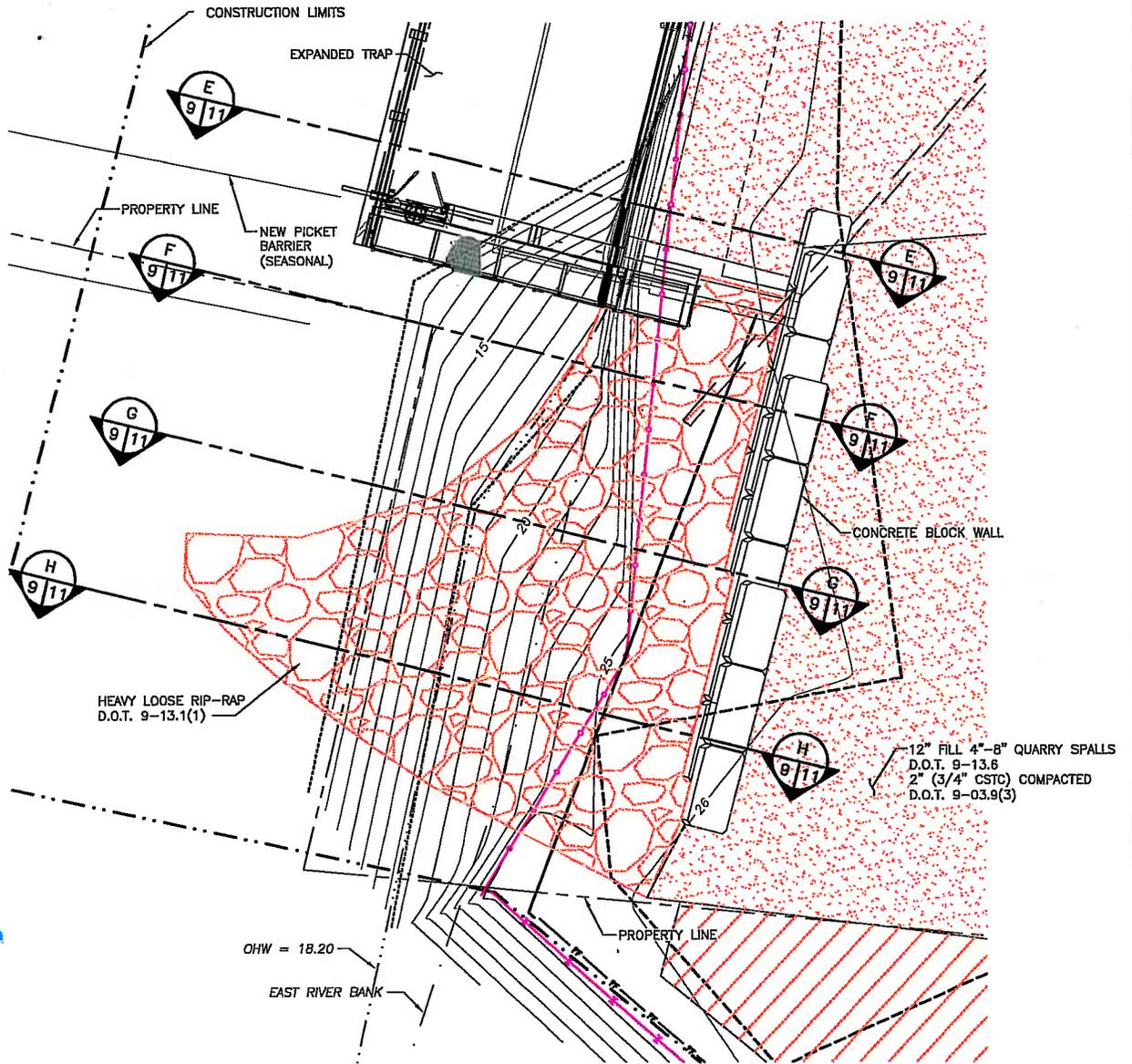
SCALE: 1" = 40'



SCALE: 1" = 40'

In: Kalama River
 Near/At: Kalama
 County: Cowlitz
 State: WA

REFERENCE NUMBER: NWS-2011-1005
 APPLICANT NAME:
 WASHINGTON DEPT. of FISH & WILDLIFE
 PROPOSED PROJECT:
 TRAP MODIFICATIONS
 LOCATION: MODROW FISH TRAP 11/27/13
 SHEET 8 OF 19 DATE: 09/17/2013



DOWNSTREAM PLAN

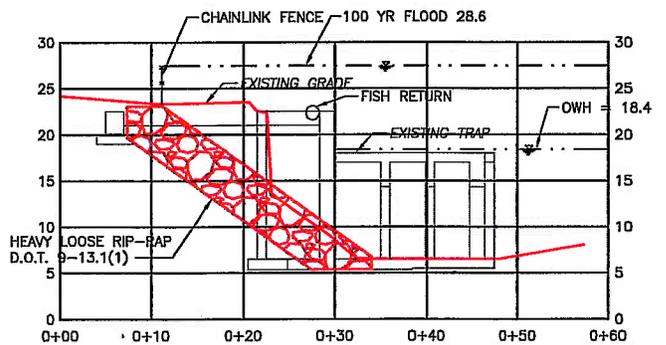
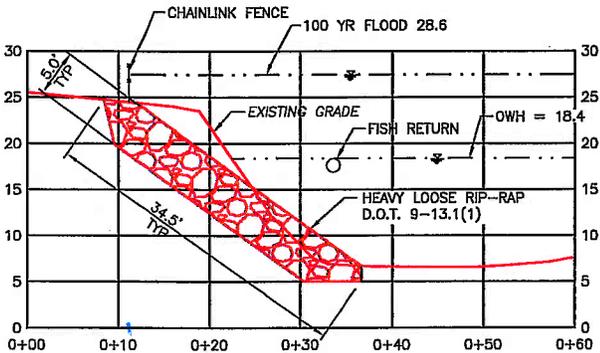
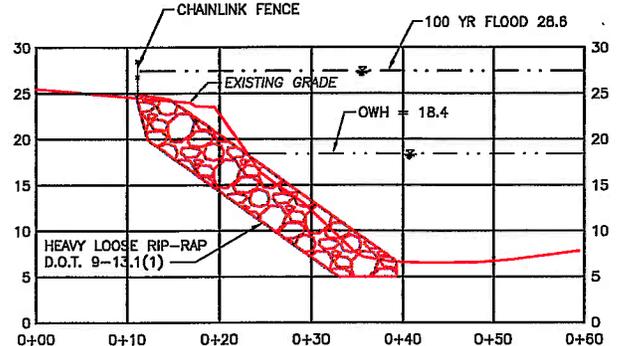
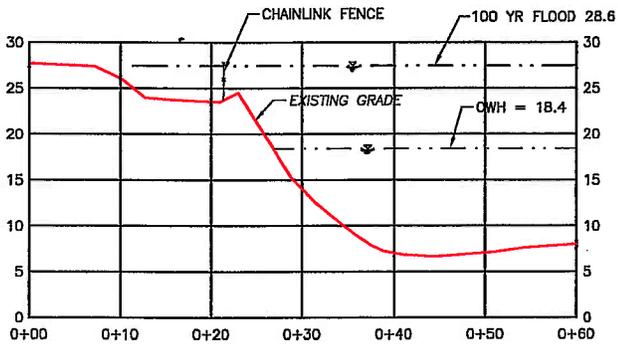
SCALE: 1" = 40'



SCALE: 1" = 40'

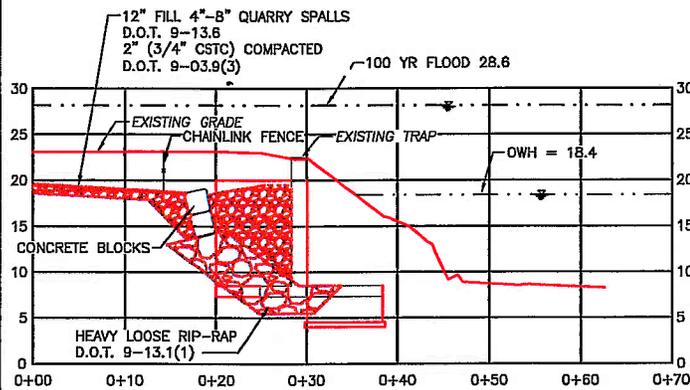
In: Kalama River
 Near/At: Kalama
 County: Cowlitz
 State: WA

REFERENCE NUMBER: NWS-2011-1005
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 WASHINGTON DEPT. of FISH & WILDLIFE
 PROPOSED PROJECT:
 TRAP MODIFICATIONS
 LOCATION: MODROW FISH TRAP 11/27/13
 SHEET 9 OF 19 DATE: 05/14/2013

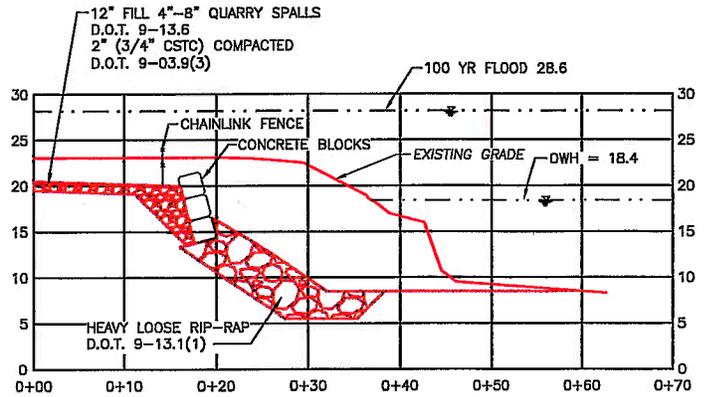


In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

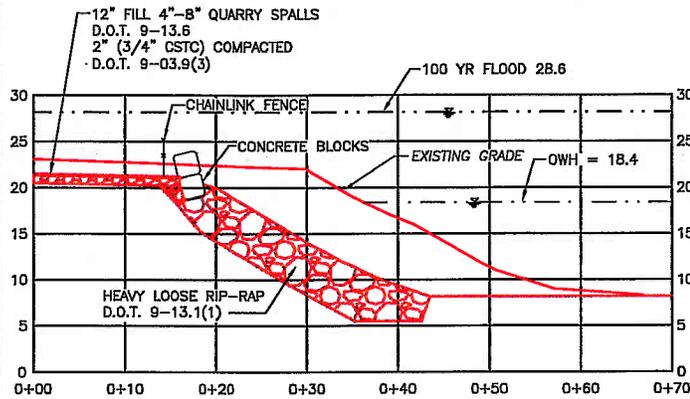
REFERENCE NUMBER: NWS-2011-1005
APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 10 OF 12 19 DATE: 09/11/2013



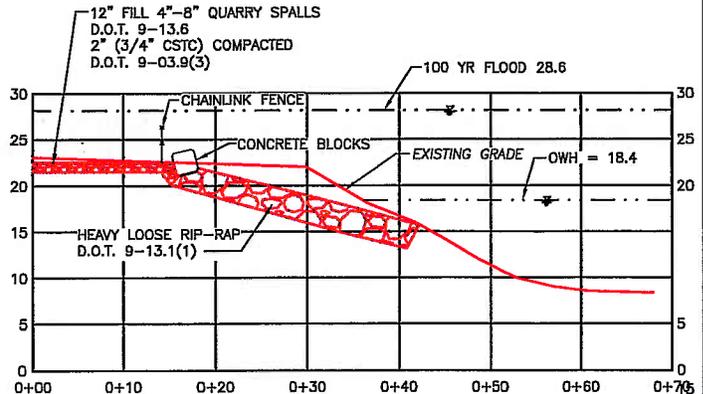
SECTION E
SCALE: 1" = 20'



SECTION F
SCALE: 1" = 20'



SECTION G
SCALE: 1" = 20'



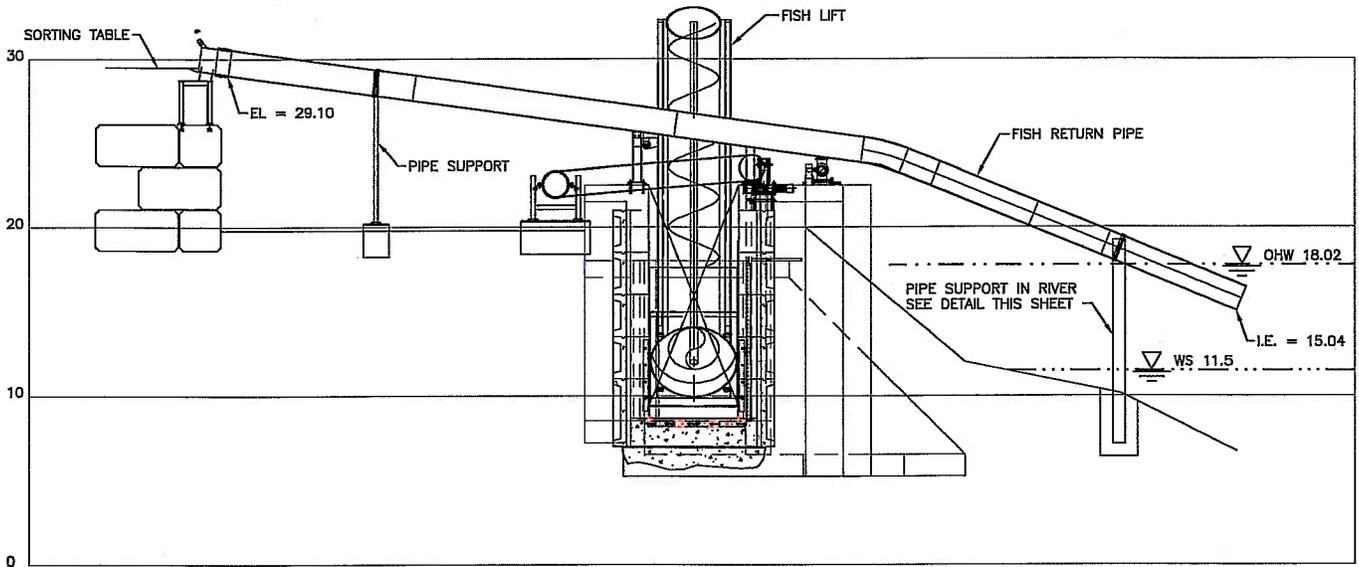
SECTION H
SCALE: 1" = 20'

CUT DATA		
SITE	CUT ABOVE OHW	CUT BELOW OHW
UPSTREAM OF TRAP	41	62
DOWNSTREAM OF TRAP	136	281
LIFT SUMP	21	18
FISH LIFT OPENING (CONC. DEMO)	1	3
FISH LIFT VAULT	12	37
SORTING AND LOADING	637	127
ACCESS ROAD AND PARKING AREA	43	0
SUBTOTAL	891	548
TOTAL CUT = 1439 (cu.yd)		

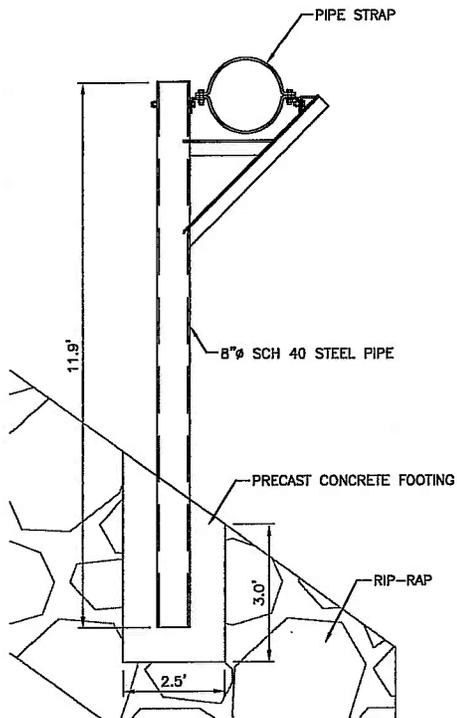
FILL DATA		
SITE	FILL ABOVE OHW	FILL BELOW OHW
RIPRAP - UPSTREAM OF TRAP	34	103
RIPRAP - DOWNSTREAM OF TRAP	16	135
4"-8" ROCK BACKFILL (DOWN STREAM)	6	9
STRUCTURAL STEEL	0	6
4"-8" ROCK BACKFILL SORTING/LOADING AREA	150	0
5/8" MINUS CRUSHED ROCK	27	0
CONCRETE SLABS (TREMIE, LIFT SUMP)	0	31
CONCRETE BLOCK RETAINING WALL	8	8
FISH SORTING PLATFORM	52	0
ACCESS ROAD	35	0
SUBTOTAL	328	292
TOTAL FILL = 620 (cu.yd)		

In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

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APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
PROPOSED PROJECT:
TRAP MODIFICATIONS
LOCATION: MODROW FISH TRAP 11/27/13
SHEET 11 OF 19 DATE: 09/11/2013



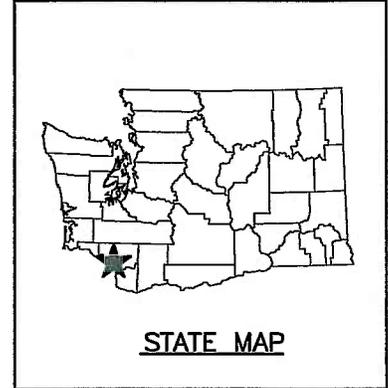
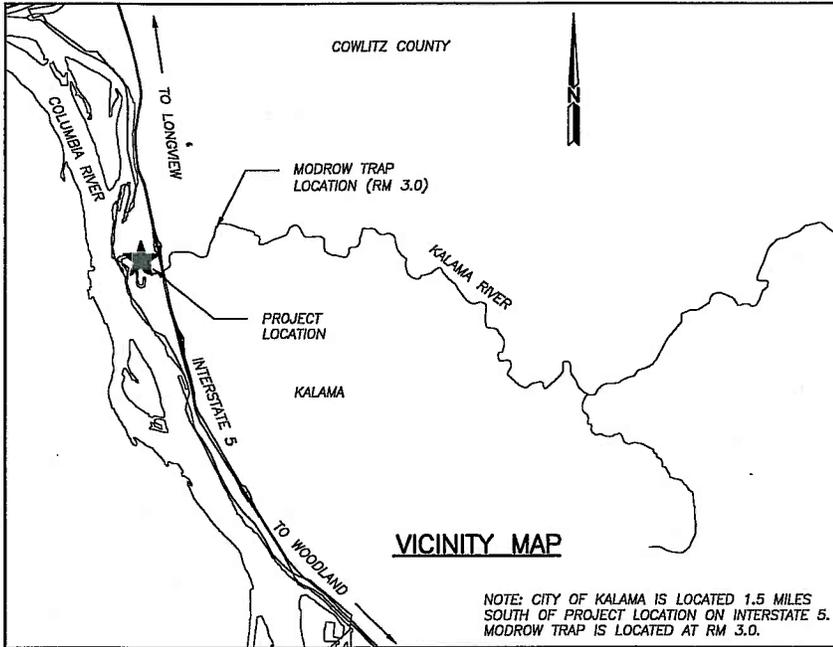
FISH RETURN PIPE
NOT TO SCALE



FISH RETURN PIPE SUPPORT
NOT TO SCALE

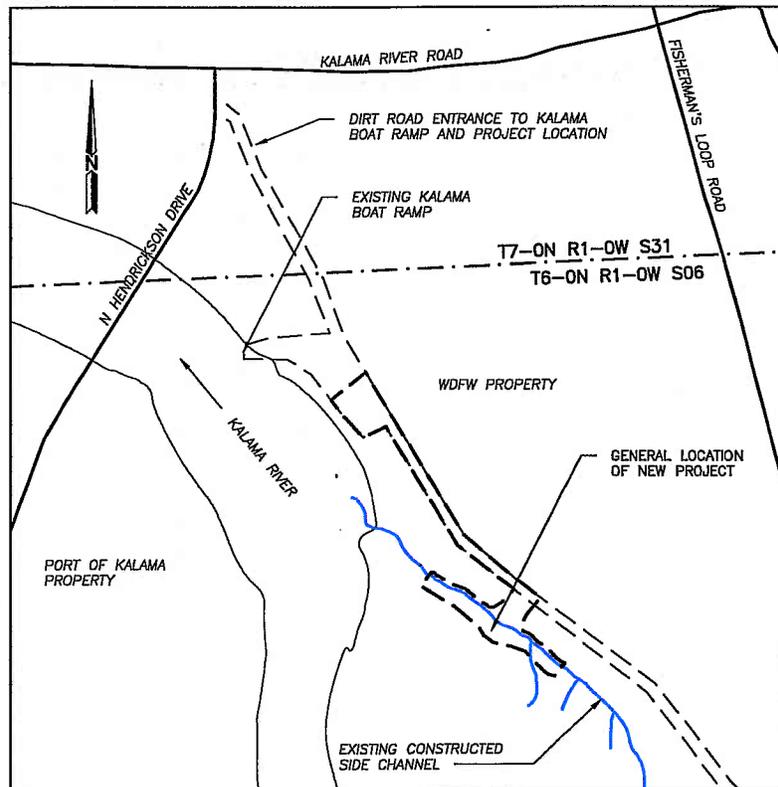
In: Kalama River
Near/At: Kalama
County: Cowlitz
State: WA

REFERENCE NUMBER: NWS-2011-1005
 APPLICANT NAME: WASHINGTON DEPT. of FISH & WILDLIFE
 PROPOSED PROJECT: TRAP MODIFICATIONS
 LOCATION: MODROW FISH TRAP 11/27/13
 SHEET 12 OF 19 DATE: 06/11/2013



PRELIMINARY - 90% SUBMITTAL

PROJECT OVERVIEW
SCALE: 1" = 400'-0"



ENG. PROJECT NO. CZ:H28:12-2

PORTION OF: _____

REFERENCE NUMBER: **NWS-2011-10052** PROJECT LOCATION (ADDRESS):
 APPLICANT: **MODROW TRAP MITIGATION**
WASHINGTON DEPT. of FISH & WILDLIFE N HENDRICKSON DR & KALAMA RIVER RD
600 CAPITOL WAY N. KALAMA, WA
OLYMPIA, WA 98501-1091

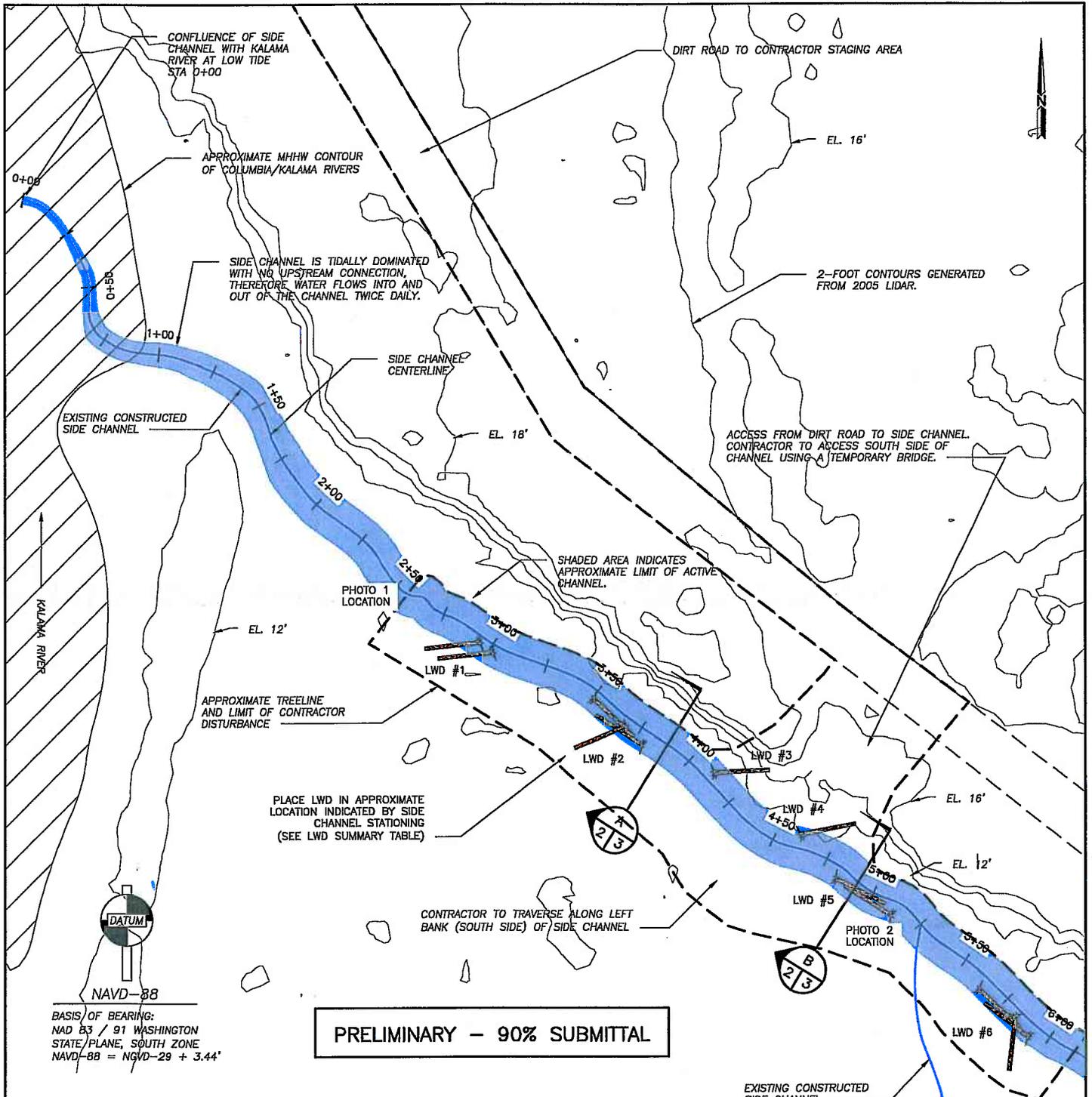
PROPOSED PROJECT:
MODROW TRAP MITIGATION

ADJACENT PROPERTY OWNER:

1. PORT OF KALAMA
- 2.

LAT/LONG: **46.038 N, 122.864 W**
 DATUM: **NAVD-88** 11/27/13
 SHEET **13** OF ~~19~~ **19** DATE: ~~11/27/13~~

IN: **KALAMA RIVER**
 NEAR/AT: **KALAMA**
 COUNTY: **COWLITZ**
 STATE: **WA**



PRELIMINARY - 90% SUBMITTAL

BASIS OF BEARING:
 NAD 83 / 91 WASHINGTON
 STATE/PLANE, SOUTH ZONE
 NAVD-88 = NGVD-29 + 3.44'

LWD SUMMARY TABLE						
ELEMENT	STATION AT LWD	LOG COUNT	LOG CONFIGURATION	ANCHOR COUNT	LONGITUDE	LATITUDE
LWD #1	2 + 95	2	PARALLEL	4	-122° 51.795'	46° 2.252'
LWD #2	3 + 75	3	CROSSING	6	-122° 51.778'	46° 2.247'
LWD #3	4 + 20	1	SINGLE	2	-122° 51.765'	46° 2.244'
LWD #4	4 + 75	1	SINGLE	2	-122° 51.756'	46° 2.241'
LWD #5	4 + 90	2	PARALLEL	4	-122° 51.752'	46° 2.236'
LWD #6	5 + 75	3	CROSSING	6	-122° 51.737'	46° 2.227'

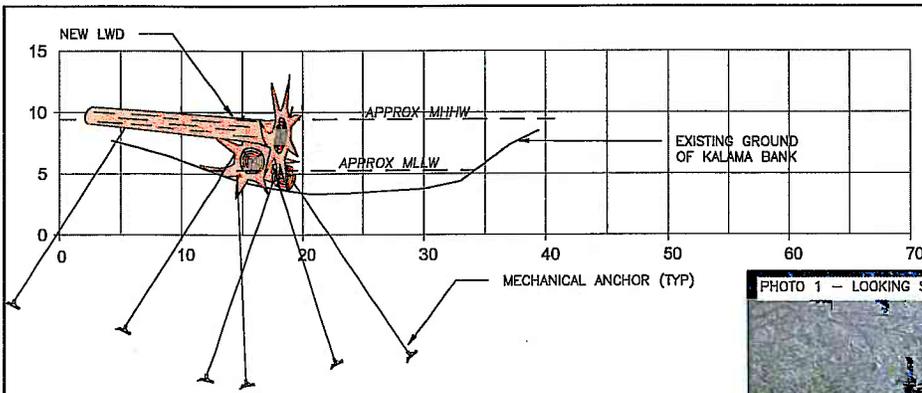
LWD STATION BASED ON ALIGNMENT BEGINNING AT CONFLUENCE OF SIDE CHANNEL AND KALAMA RIVER AT LOW TIDE (-122° 51.84', 46° 2.283').

LWD LOCATIONS
SCALE: 1" = 60'-0"

REFERENCE NUMBER: **NWS-2011-10052**
 APPLICANT NAME:
WASHINGTON DEPT. of FISH & WILDLIFE
 PROPOSED PROJECT:
MODROW TRAP MITIGATION
 LOCATION: 46.038 N, 122.864 W 11/27/13
 SHEET ~~X~~ 14 OF ~~XX~~ 19 DATE: ~~11/27/13~~

ENG. PROJECT NO. CZ:H28:12-2

In: Kalama River
 Near/At: Kalama
 County: Cowlitz
 State: WA



SECTION A
SCALE: 1" = 15'-0"



NAVD-88

BASIS OF BEARING:
NAD 83 / 91 WASHINGTON
STATE PLANE, SOUTH ZONE
NAVD-88 = NGVD-29 + 3.44'

GENERAL NOTES

- LOCATE ALL LWD STRUCTURES APPROXIMATELY WHERE SHOWN ON SHEET 2. ENGINEER IN THE FIELD TO PROVIDE GUIDANCE ON EXACT LOCATION.
- LOG PLACEMENT WILL REQUIRE NO FILL AND ONLY INCIDENTAL EXCAVATION TO SEAT THE LOGS.
- LOCATE LWD #1, #3, AND #4 SO THAT THE ROOTWAD IS RESTING ON THE CHANNEL BOTTOM. SEE SECTION B FOR APPROXIMATE PROFILE VIEW.
- LOCATE LWD #2 AND #6 SO THAT TWO LOGS ARE PARALLEL TO THE BANK TOE AND ONE LOG IS LAYING ON TOP, WITH ROOTWAD RESTING ON THE CHANNEL BOTTOM. SEE SECTION A FOR APPROXIMATE PROFILE VIEW.
- LOCATE LWD #5 SO THAT BOTH LOGS ARE LAYING WITHIN THE ACTIVE CHANNEL, PARALLEL TO THE BANK TOE.
- SIDE CHANNEL INVERT ELEV. BETWEEN LWD #1 AND LWD #6 IS APPROXIMATELY 3.5 FEET.

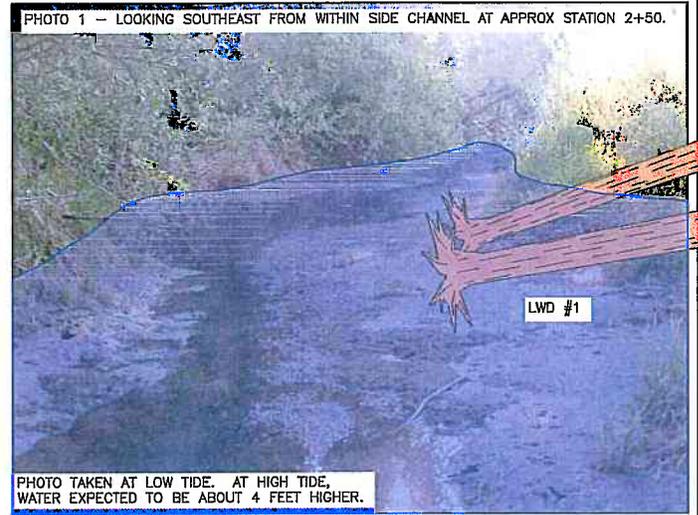
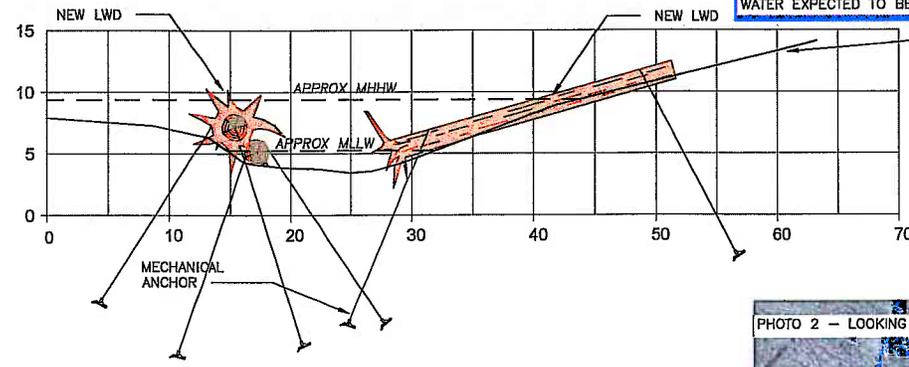


PHOTO TAKEN AT LOW TIDE. AT HIGH TIDE, WATER EXPECTED TO BE ABOUT 4 FEET HIGHER.



SECTION B
SCALE: 1" = 15'-0"

SHADING IN BOTH PHOTOS DEMONSTRATES APPROXIMATE MHHW LEVEL.

PRELIMINARY - 90% SUBMITTAL

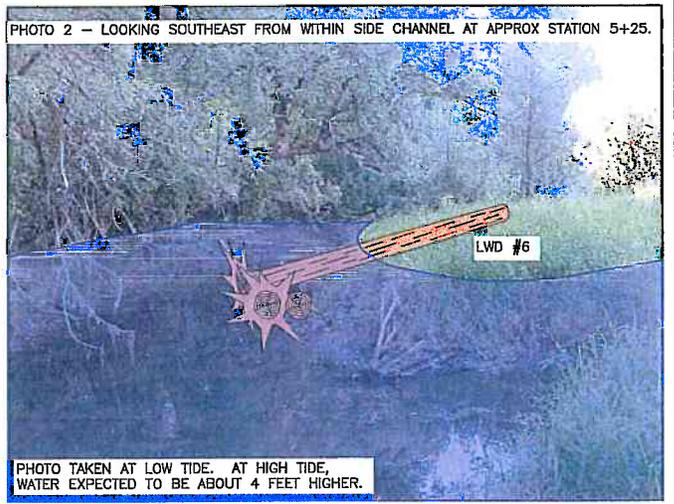


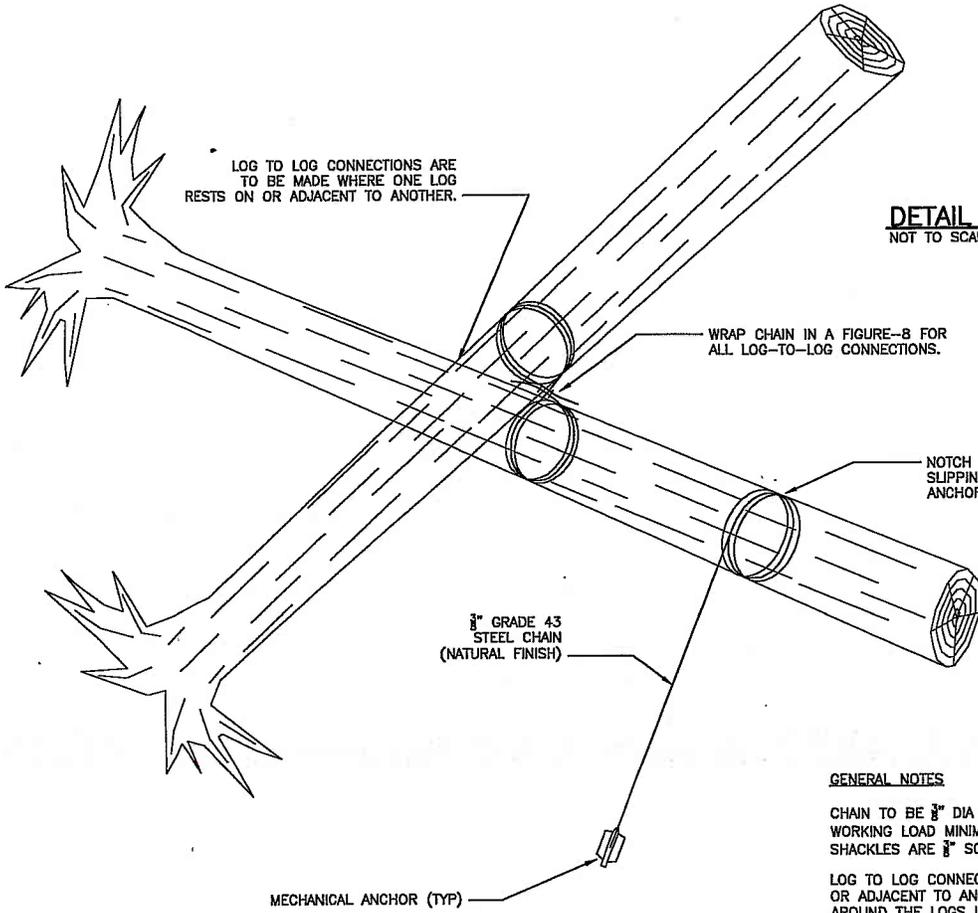
PHOTO TAKEN AT LOW TIDE. AT HIGH TIDE, WATER EXPECTED TO BE ABOUT 4 FEET HIGHER.

GENERAL NOTES

- EACH LOG 18" DBH MINIMUM (20" ± 2" DBH), ROOTWAD DIAMETER 5 FEET MINIMUM, AND LENGTH 20 FEET MINIMUM (22' ± 2'). LOGS TO BE ROT-RESISTANT SPECIES SUCH AS SITKA SPRUCE, DOUGLAS FIR OR CEDAR.
- APPROXIMATE MHHW IS 9.4' AND APPROXIMATE MLLW IS 5.3' WITHIN PROJECT AREA (VERTICAL DATUM NAVD-88). TIDE ELEVATIONS COMPUTED BY INTERPOLATING BETWEEN NOAA TIDE STATIONS AT SAINT HELENS, OR (9439201) AND LONGVIEW, WA (9440422) ON COLUMBIA RIVER.
- THE FEMA 100-YEAR WSEL AT THE MOUTH OF THE KALAMA RIVER IS 22.1' NAVD-88. THEREFORE ALL LWD WILL BE PLACED WITHIN THE 100-YEAR FLOODPLAIN (ZONE AE).

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Near/At: Kalama
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MODROW TRAP MITIGATION
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SHEET 15 OF 19 DATE: 11/27/13



DETAIL — LOG TO LOG CONNECTION

NOT TO SCALE

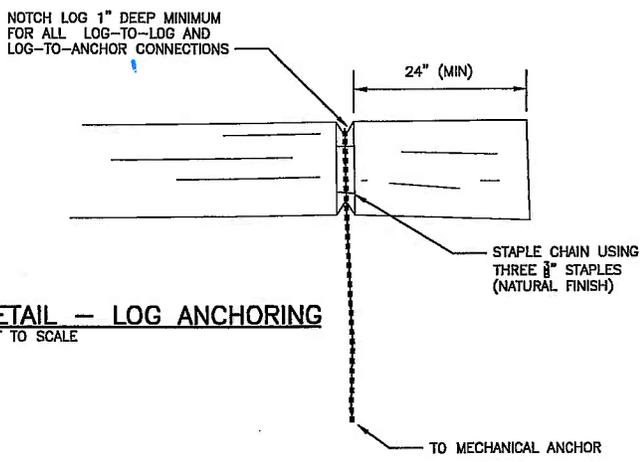
GENERAL NOTES

CHAIN TO BE 3/4" DIA GRADE 43 STEEL CHAIN (NATURAL FINISH) WITH 4 KIP WORKING LOAD MINIMUM. STAPLES TO BE 3/8" STAPLES (NATURAL FINISH). SHACKLES ARE 3/8" SCREW PIN ANCHOR SHACKLES (NATURAL FINISH).

LOG TO LOG CONNECTIONS ARE TO BE MADE WHERE ONE LOG RESTS ON OR ADJACENT TO ANOTHER (NO GAP BETWEEN LOGS). WRAP CHAIN AROUND THE LOGS IN A FIGURE-8 FASHION.

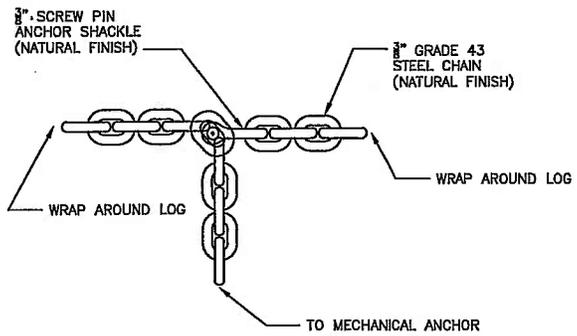
ANCHOR EACH LOG USING MECHANICAL ANCHORS (MANTA RAY MR-2 OR EQUIVALENT), EACH CAPABLE OF HOLDING 5-8 KIPS IN THE SOIL FOUND IN THE PROJECT AREA.

ATTACH TWO MECHANICAL ANCHORS TO EACH LOG.



DETAIL — LOG ANCHORING

NOT TO SCALE



DETAIL — CHAIN CONNECTION

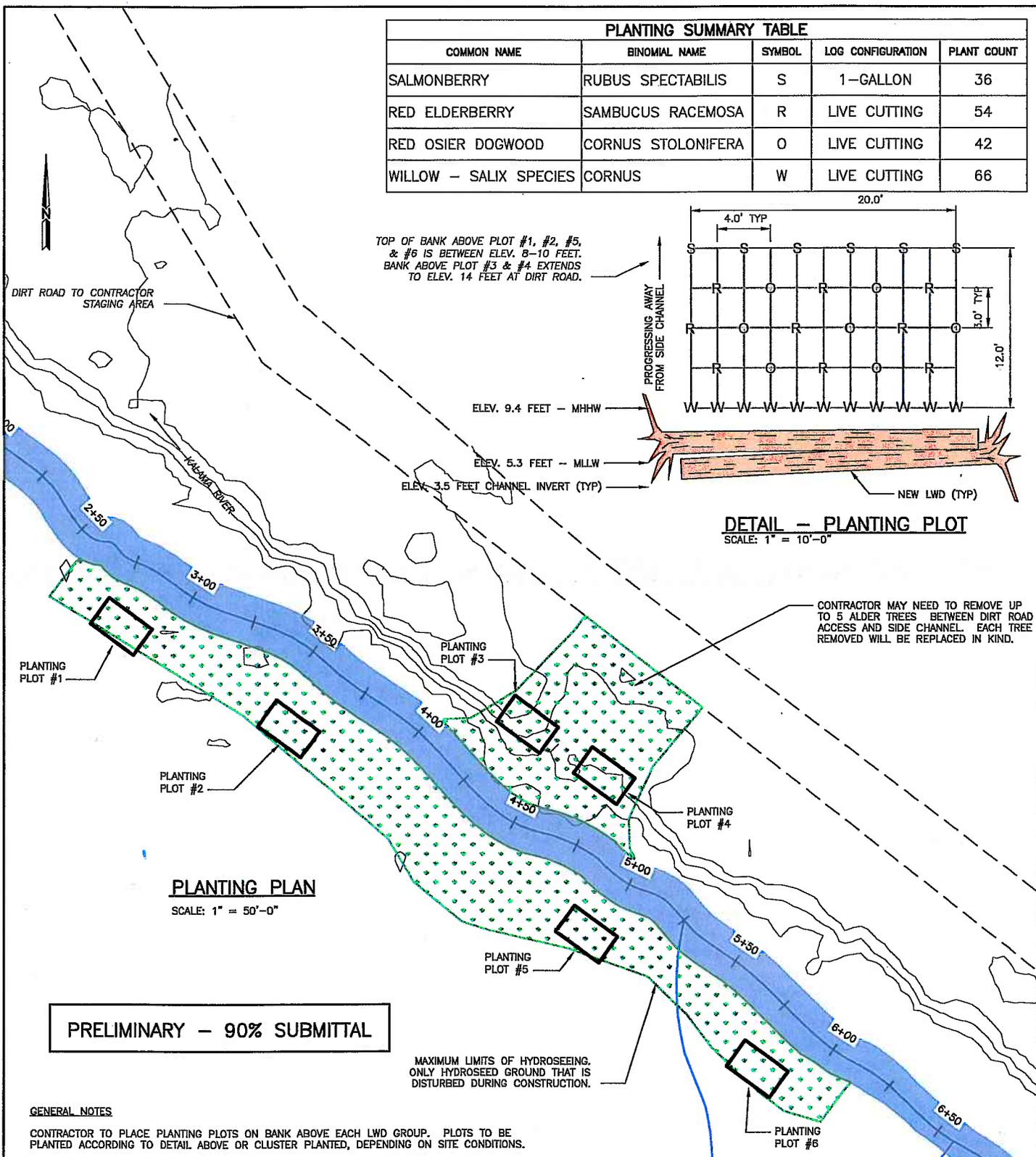
NOT TO SCALE

PRELIMINARY — 90% SUBMITTAL

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REFERENCE NUMBER: **NWS-2011-10052**
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SHEET **X** 16 OF **X** 19 DATE: ~~11/27/13~~

PLANTING SUMMARY TABLE				
COMMON NAME	BINOMIAL NAME	SYMBOL	LOG CONFIGURATION	PLANT COUNT
SALMONBERRY	RUBUS SPECTABILIS	S	1-GALLON	36
RED ELDERBERRY	SAMBUCUS RACEMOSA	R	LIVE CUTTING	54
RED OSIER DOGWOOD	CORNUS STOLONIFERA	O	LIVE CUTTING	42
WILLOW - SALIX SPECIES	CORNUS	W	LIVE CUTTING	66



PLANTING PLAN
SCALE: 1" = 50'-0"

DETAIL - PLANTING PLOT
SCALE: 1" = 10'-0"

PRELIMINARY - 90% SUBMITTAL

GENERAL NOTES

CONTRACTOR TO PLACE PLANTING PLOTS ON BANK ABOVE EACH LWD GROUP. PLOTS TO BE PLANTED ACCORDING TO DETAIL ABOVE OR CLUSTER PLANTED, DEPENDING ON SITE CONDITIONS.

PLANT ALL STOCK DURING THE DORMANT SEASON, NOVEMBER 1 THROUGH MARCH 31.

WITH THE EXCEPTION OF UP TO THE 5 SMALL ALDER TREES NOTED ABOVE, NO TREES SHOULD BE FELLED DURING CONSTRUCTION. CONTRACTOR TO REPLACE SHRUBS THAT ARE DESTROYED DURING CONSTRUCTION WITH SIMILAR SHRUB.

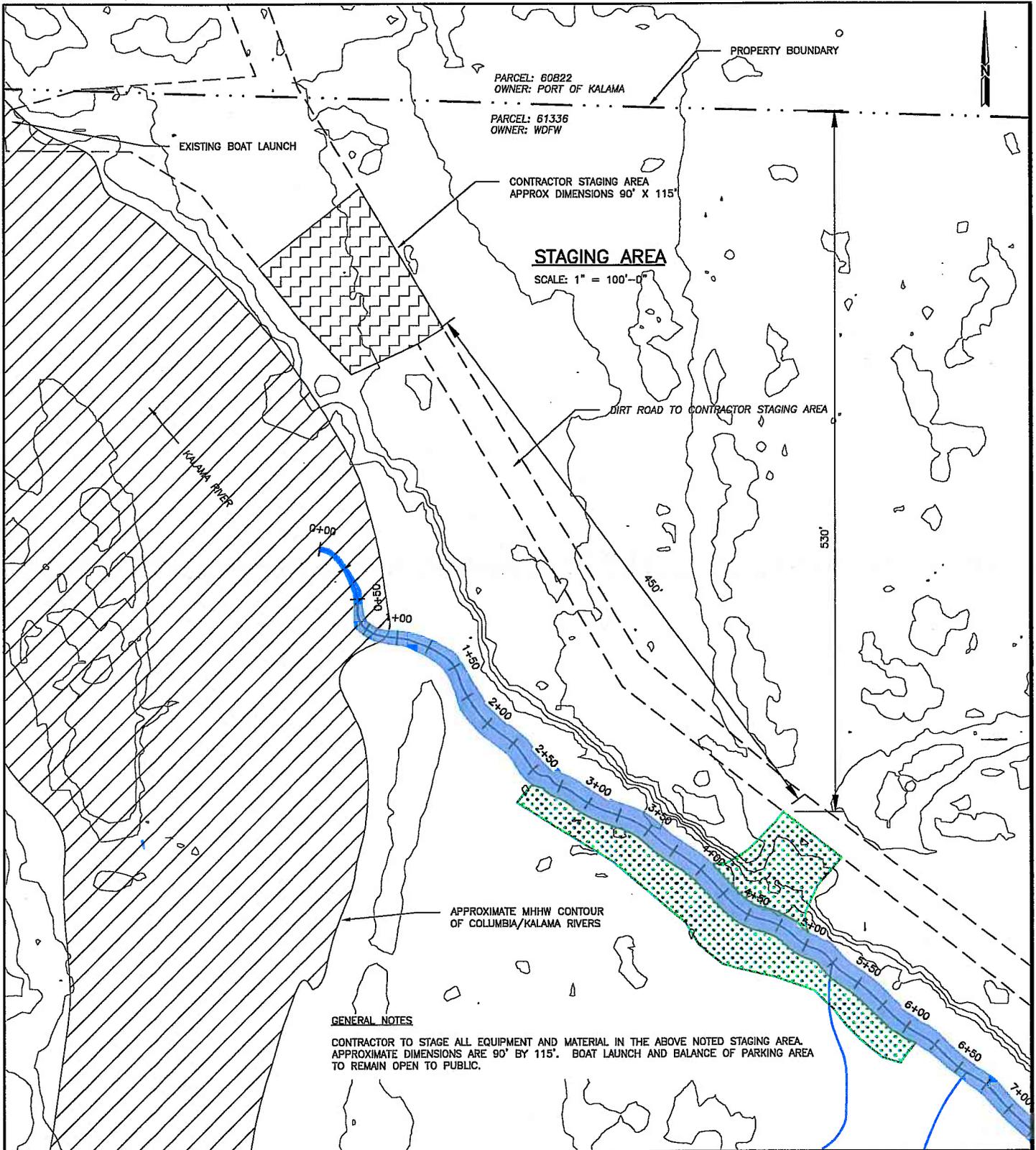
AFTER CONSTRUCTION, CONTRACTOR TO HYDROSEED THOSE AREAS WHERE GRASS WAS COMPROMISED. THE MAXIMUM EXTENT THAT COULD BE HYDROSEEDING IS NOTED WITH HATCHING (0.3 ACRES).

MAXIMUM LIMITS OF HYDROSEEDING. ONLY HYDROSEED GROUND THAT IS DISTURBED DURING CONSTRUCTION.

CONTRACTOR MAY NEED TO REMOVE UP TO 5 ALDER TREES BETWEEN DIRT ROAD ACCESS AND SIDE CHANNEL. EACH TREE REMOVED WILL BE REPLACED IN KIND.

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QUANTITY CALCULATION

TOTAL NUMBER OF LOGS TO BE PLACED IN SIDE CHANNEL = 12

MINIMUM LOG SIZE = 18 INCH X 20 FEET
MAXIMUM LOG SIZE = 22 INCH X 24 FEET

SQUARE AREA OF MINIMUM LOG = 30 SF
SQUARE AREA OF MAXIMUM LOG = 44 SF

SQUARE AREA FOR ALL 12 LOGS (ASSUMING MINIMUM SIZE) = 360 SF

TOTAL NUMBER OF PLANTING PLOTS = 6

PLANTING PLOT SIZE = 20 FEET X 12 FEET

SQUARE AREA OF A PLANTING PLOT = 240 SF

SQUARE AREA FOR ALL 6 PLANTING PLOTS = 1440 SF

SQUARE AREA OF ALL MITIGATION EFFORTS (LOGS & PLOTS) = 1800 SF

IMPACTS FROM MODROW TRAP RENOVATION = 645 SF

MITIGATION RATIO = 1800 / 645 = 2.8

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SHEET ~~7~~ 19 OF ~~XX~~ 19 DATE: ~~XX/XX/XX~~