US Army Corps of Engineers
Seattle District

WASHINGTON STATE DEPARTMENT OF ECOLOGY

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) 316-3893
ATTN: Mr. Ron Wilcox,
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: October 31, 2014
Expiration Date: November 30, 2014

Reference No.: NWS-2014-416
Name: BNSF Railway Company

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 September 2014.

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 and the Coastal Zone Management Act.

APPLICANT: BNSF Railway Company
Attention: Ms. Megan Reagan
2454 Occidental Avenue South
Seattle, Washington 98134-1451
Telephone: (206) 625-6413

AGENT: J.L. Patterson & Associates, Inc. - Environmental
Attention: Mr. Pierre Bordenave
P.O. Box 1724
Sandpoint, Idaho 83864
Telephone: (208) 263-9391

LOCATION: In wetlands, unnamed tributaries 2 (T2) and 3 (T3), and Schoolhouse Creek from BNSF Mile Post (MP) 105.7 (north end) to MP 110 (south end) at the City of Kalama, Washington.

WORK: Construct a 4.3 mile long third mainline track parallel and east of mainlines 1 and 2. The work would permanently fill 3.34 acres of wetlands with up to 45,000 cubic yards of structural fill material, and up to 11,000 cubic yards of material to construct 2,600 feet of retaining walls (at MP 109.1 to MP 108.5, and from MP 108.2 to MP 107.9). Additional in-water work includes extending five culverts at four locations: 1) MP 108.191, 8-foot extension on a 36-inch diameter pipe (unnamed tributary – T3); 2) MP 108.0, 15-foot extension on a 24-inch diameter pipe (Wetland E); 3) MP106.93, eight foot extension on a 36-inch diameter pipe (Wetland C); MP 105.965, two separate 48-inch diameter pipe extensions of 20 feet and 21 feet. The proposed project would also construct concrete crash walls for pedestrian overpass support and stairway protection at MP 107.6 and for Oak Street Overpass pier protection at MP 106.8.

NWS-2014-416, BNSF Railway Co.

PURPOSE: To expand the capacity of the BNSF Northwest Division, Seattle Subdivision, Line Segment 52, from MP 105.7 to MP 110.0 to reduce passenger and freight train delays.

ADDITIONAL INFORMATION: The project would allow for an increase in the number of intercity passenger trains and reduce travel time between Seattle and Portland to improve rail service as identified in the Pacific Northwest Intercity Passenger Rail Corridor. The project is funded through the American Recovery and Reinvestment Act of 2009. BNSF is partner to the Washington State Department of Transportation in the delivery of this Federal Rail Administration (FRA) High Speed Intercity Passenger Rail project.

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 with in-color drawings, go to the Seattle District's web page at http://www.nws.usace.army.mil/ and under the heading 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 wetland boundaries and location of ordinary high watermark 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: The applicant has provided a conceptual compensatory mitigation plan proposing to purchase credits from a wetland mitigation bank in the Lower Columbia River watershed.

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. The Federal Rail Administration (FRA), as the lead federal agency for this action, will consult with the NMFS and/or the USFWS as required under Section 7 of the ESA.

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. The FRA, as the lead federal agency for this action, will make a determination regarding EFH and consult with the National Marine Fisheries Services if necessary.

CULTURAL RESOURCES: The FRA, as the lead federal agency for this action, is responsible for compliance with Section 106 of the National Historic Preservation Act, and will consult with the State Historic Preservation Officer and Native American Tribes, as appropriate.

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, 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.

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.

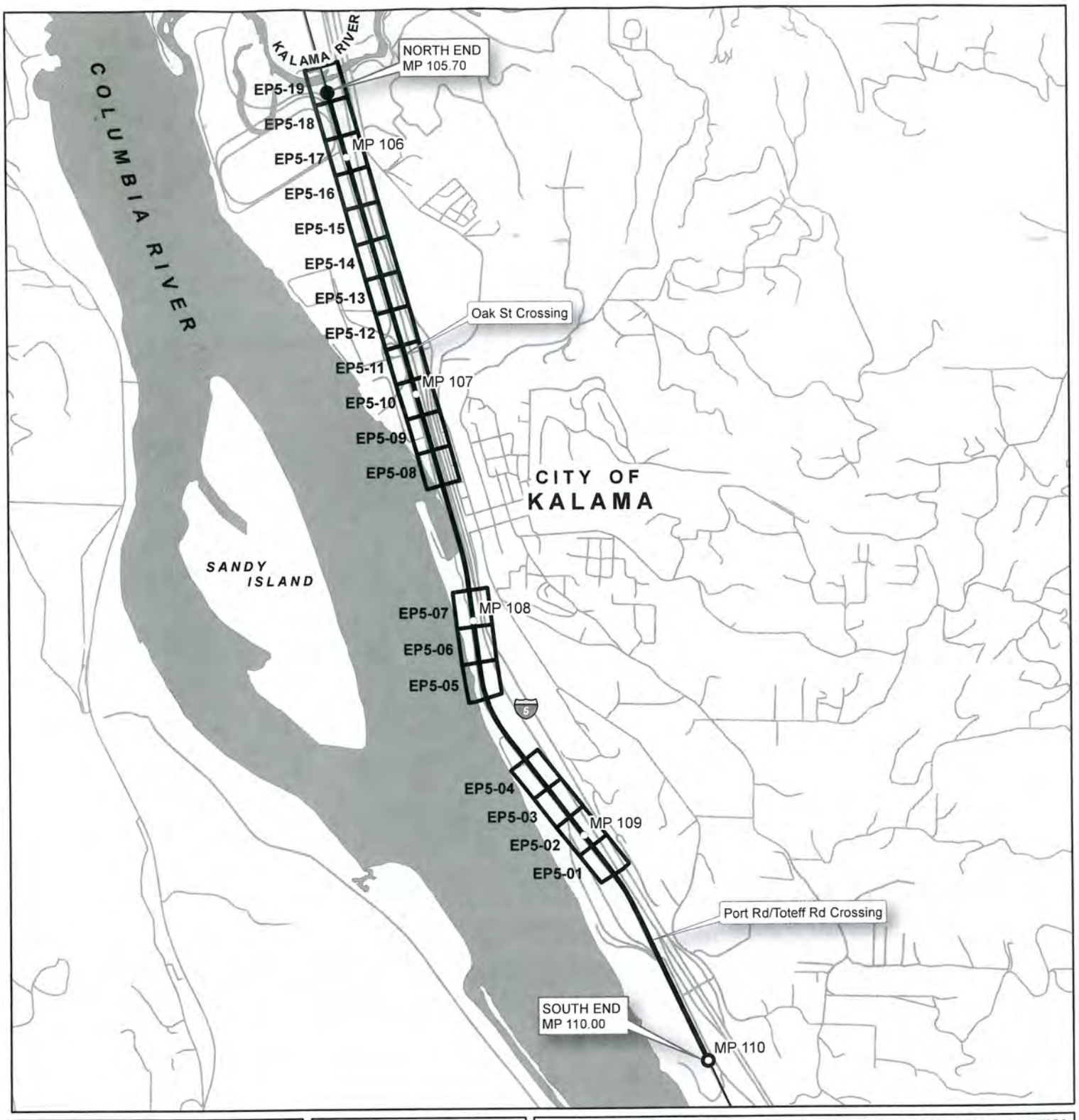
COMMENT AND REVIEW PERIOD: Conventional mail or e-mail comments on this public notice will be accepted and made part of the record and will be considered in determining whether it would be in the public interest to authorize this proposal. In order to be accepted, e-mail comments must originate from 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 ronald.j.wilcox@usace.army.mil. Conventional mail comments should be sent to: U.S. Army Corps of Engineers, Regulatory Branch, Attention: Ron Wilcox, 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 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: BNSF Railway Company, NWS-2014-416

Encl: Figures (31)



0 1,500 3,000 ft

1 inch = 3,000 feet

1:36,000

N

BNSF Milepost

Project Ends

Project Corridor

BNSF Track

trans

JARPA Sheet Extent

KMB TASK 5 JARPA PLAN SHEET LOCATION OVERVIEW

USACE REF NO.: NWS-2014-416

PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)

PROPONENTS: BNSF RAILWAY / WSDOT / FRA

BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 – MP 110.00

LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W

NORTH END: (MP 105.7): 46° 2'2.80"N, 122°51'30.04"W

SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W

WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK AND COLUMBIA RIVER

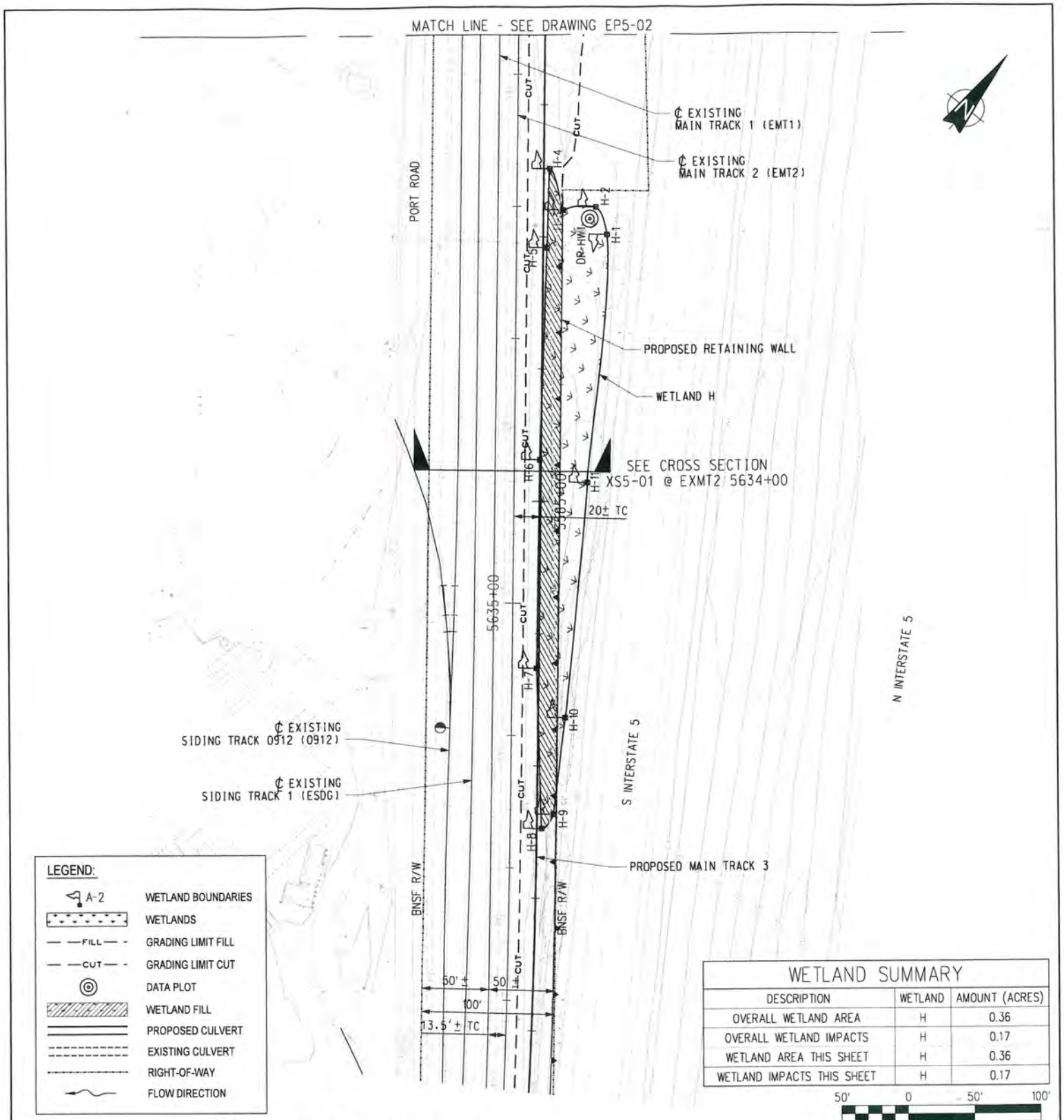
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON

DATE: SEPTEMBER 2014; REVISED AUGUST 2014

DATA SOURCES: BNSF (track & mileposts, J.L. Patterson (JARPA sheet extents), Washington Dept. of Transportation (streets), Oregon Department of Transportation (streets), National Hydrology Dataset (Columbia River), Natural Earth (state map),

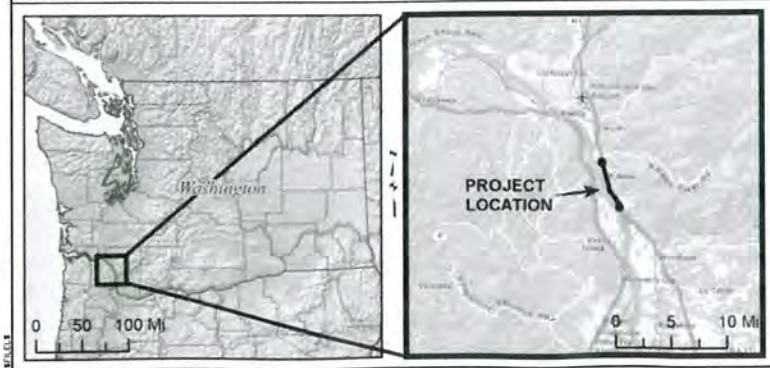
MAP PRODUCED BY: Ian David Crickmore, Cartographer | J.L. Patterson & Assoc. Inc. - Environmental

1/31



WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	H	0.36
OVERALL WETLAND IMPACTS	H	0.17
WETLAND AREA THIS SHEET	H	0.36
WETLAND IMPACTS THIS SHEET	H	0.17

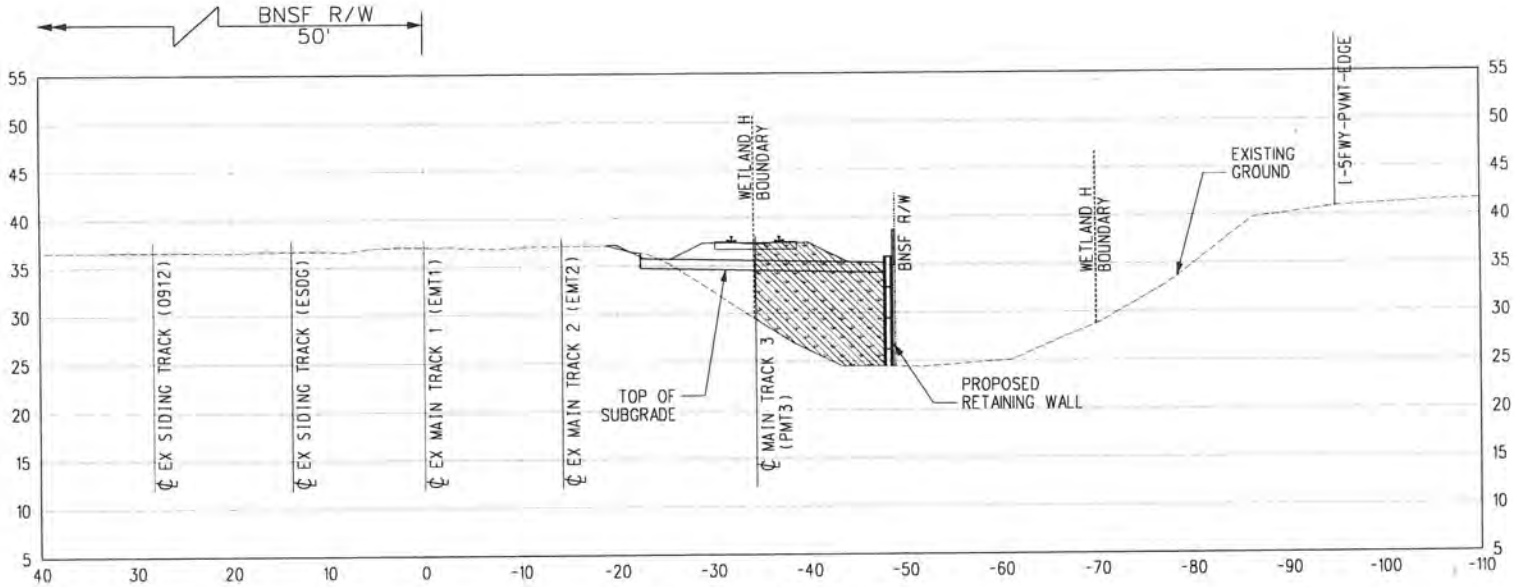
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 01

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

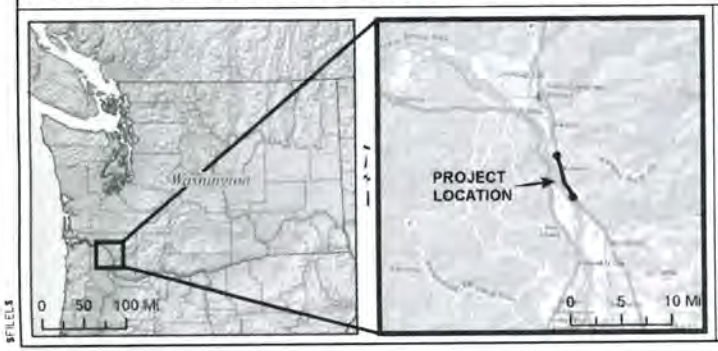
DRAWING NO.	SHEET NO.	SCALE
EP5-01	2/31	AS SHOWN



EXMT2 5634+00
(SEE PLAN VIEW DRAWING EP5-01)

10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

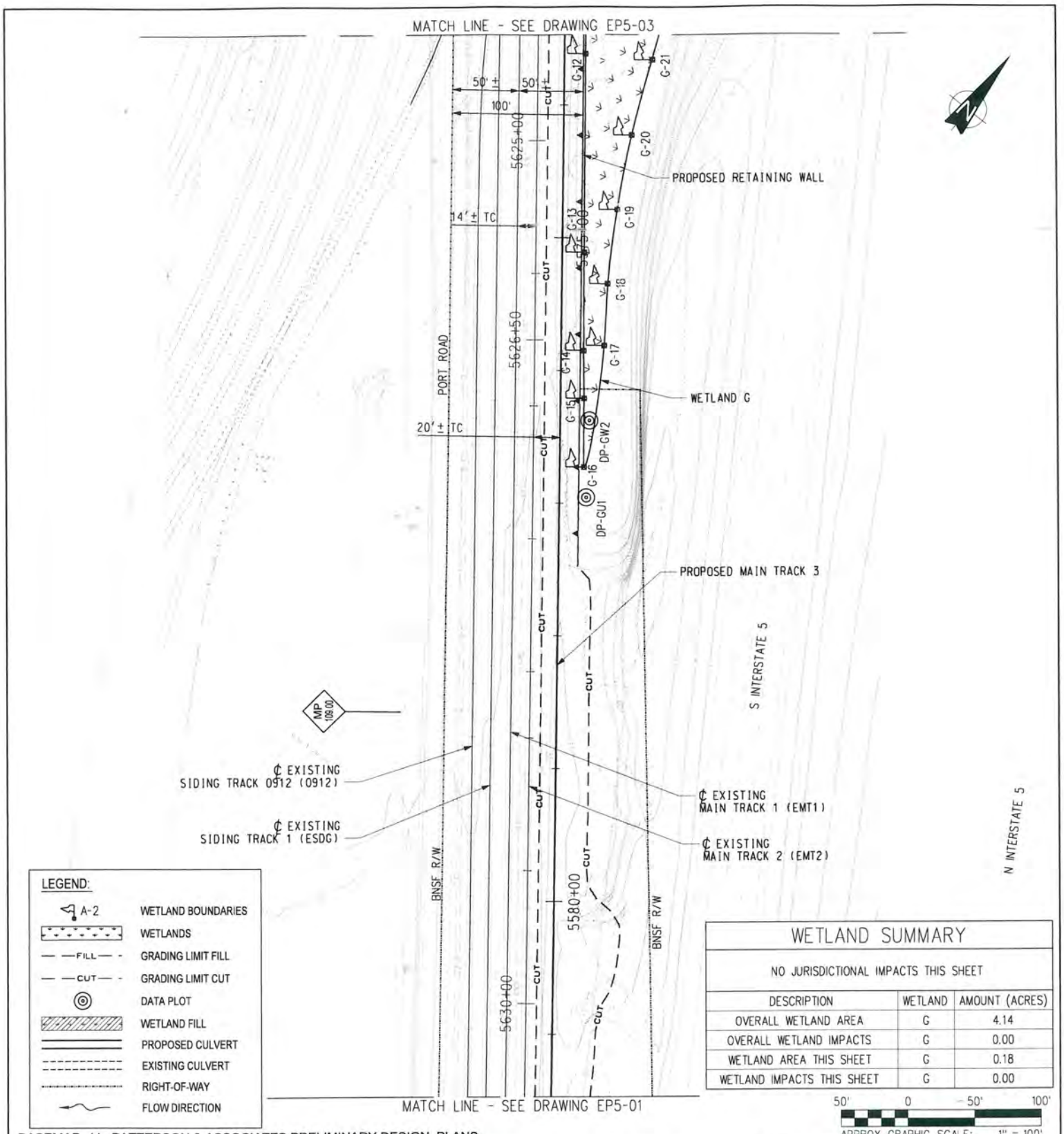
WETLAND IMPACT

PROPOSED WORK - TYPICAL WL H CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-01	3/31	AS SHOWN

$FILE$

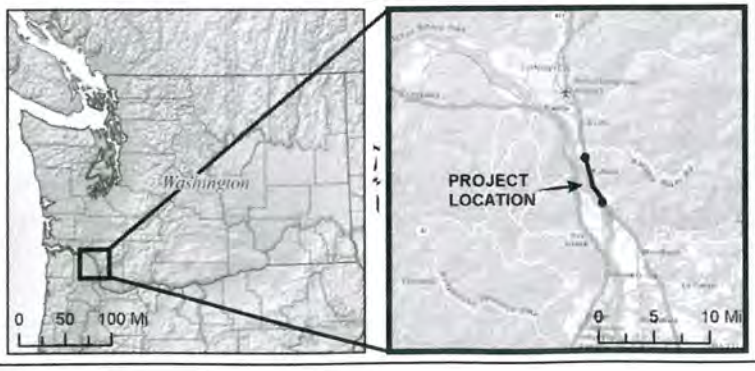


BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

WETLAND SUMMARY

NO JURISDICTIONAL IMPACTS THIS SHEET

DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	G	4.14
OVERALL WETLAND IMPACTS	G	0.00
WETLAND AREA THIS SHEET	G	0.18
WETLAND IMPACTS THIS SHEET	G	0.00

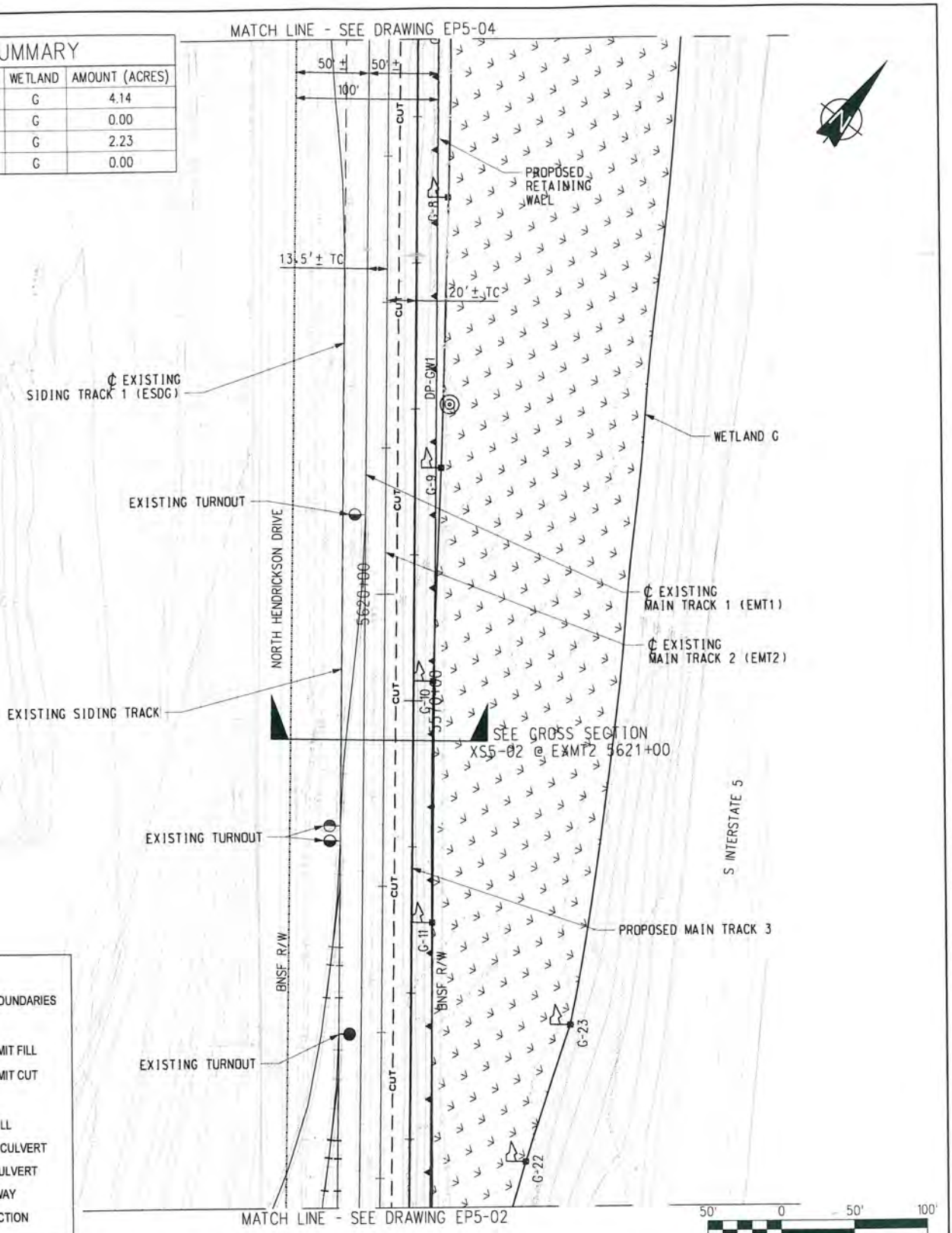


PROPOSED WORK - 02

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-02	4/31	AS SHOWN

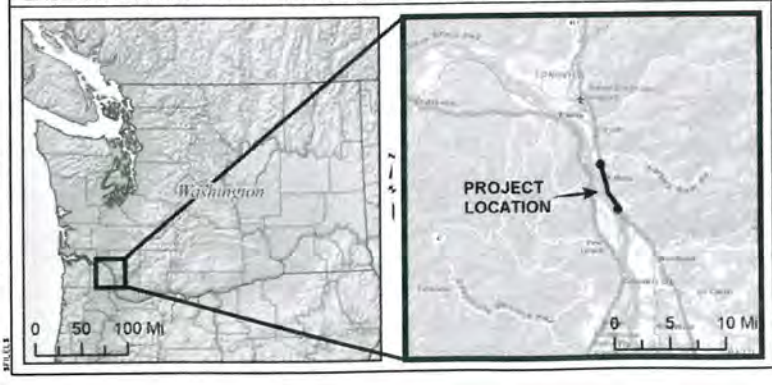
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	G	4.14
OVERALL WETLAND IMPACTS	G	0.00
WETLAND AREA THIS SHEET	G	2.23
WETLAND IMPACTS THIS SHEET	G	0.00



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

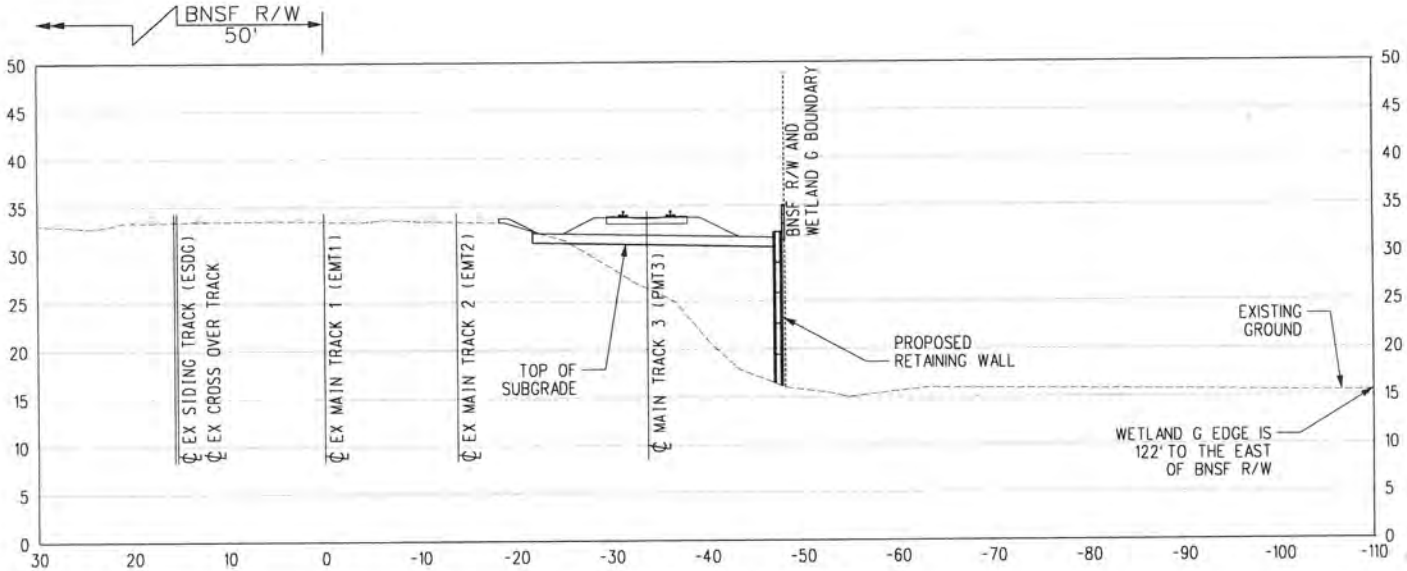
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 03

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-03	5/31	AS SHOWN.



EXMT2 5621+00
(SEE PLAN VIEW DRAWING EP5-03)

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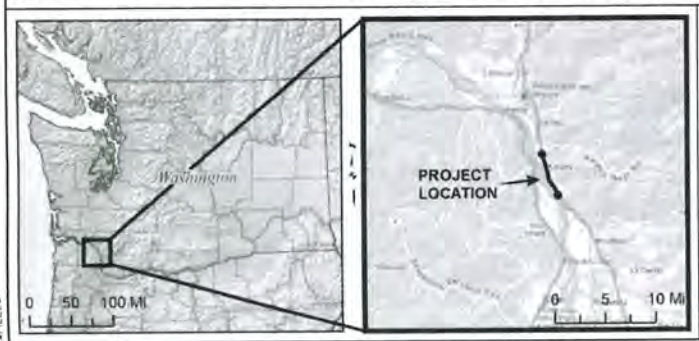
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



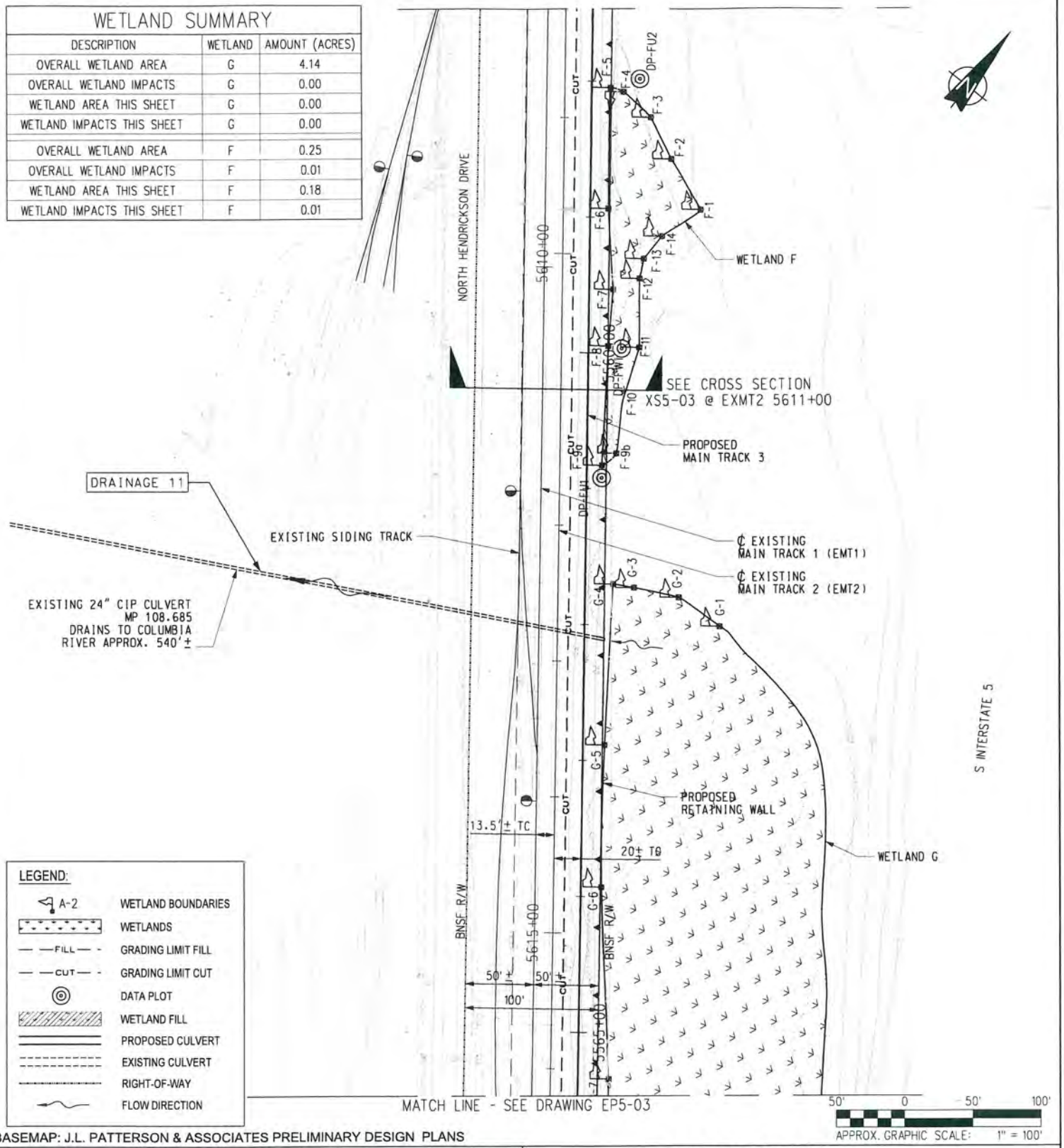
PROPOSED WORK - TYPICAL WL G CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-02	6/31	AS SHOWN

$FILE1$

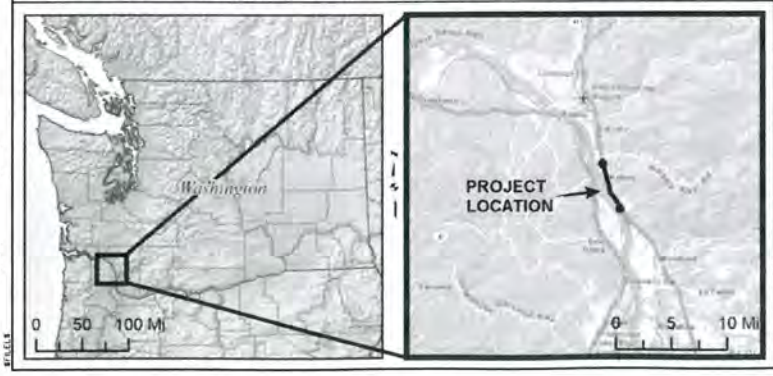
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	G	4.14
OVERALL WETLAND IMPACTS	G	0.00
WETLAND AREA THIS SHEET	G	0.00
WETLAND IMPACTS THIS SHEET	G	0.00
OVERALL WETLAND AREA	F	0.25
OVERALL WETLAND IMPACTS	F	0.01
WETLAND AREA THIS SHEET	F	0.18
WETLAND IMPACTS THIS SHEET	F	0.01



LEGEND:

A-2	WETLAND BOUNDARIES
	WETLANDS
FILL	GRADING LIMIT FILL
CUT	GRADING LIMIT CUT
	DATA PLOT
	WETLAND FILL
	PROPOSED CULVERT
	EXISTING CULVERT
	RIGHT-OF-WAY
	FLOW DIRECTION

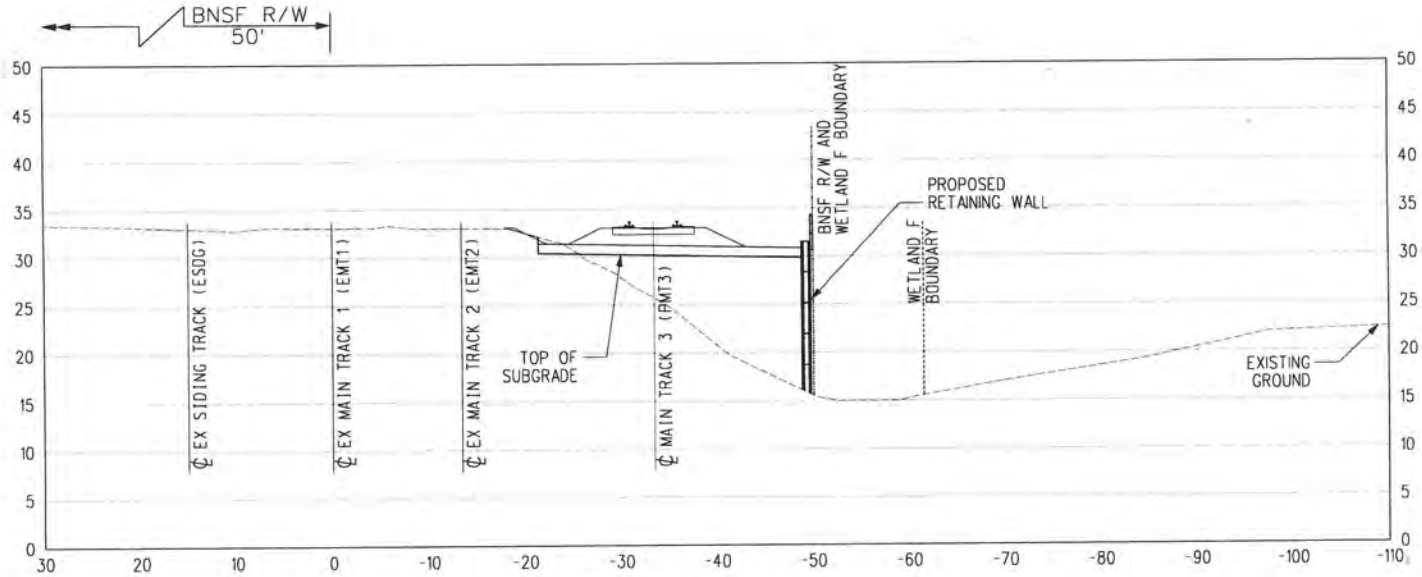
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 04

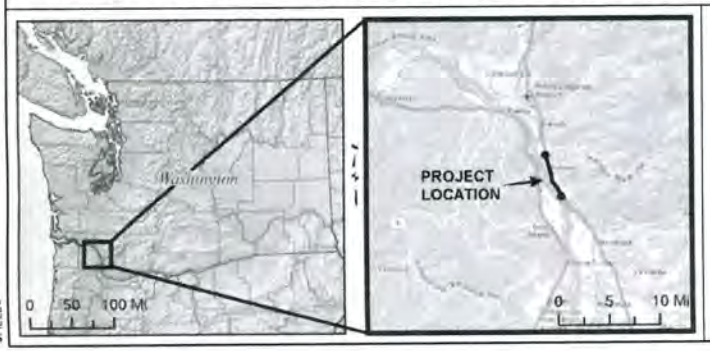
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-04	7/31	AS SHOWN



EXMT2 5611+00
(SEE PLAN VIEW DRAWING EP5-04)

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



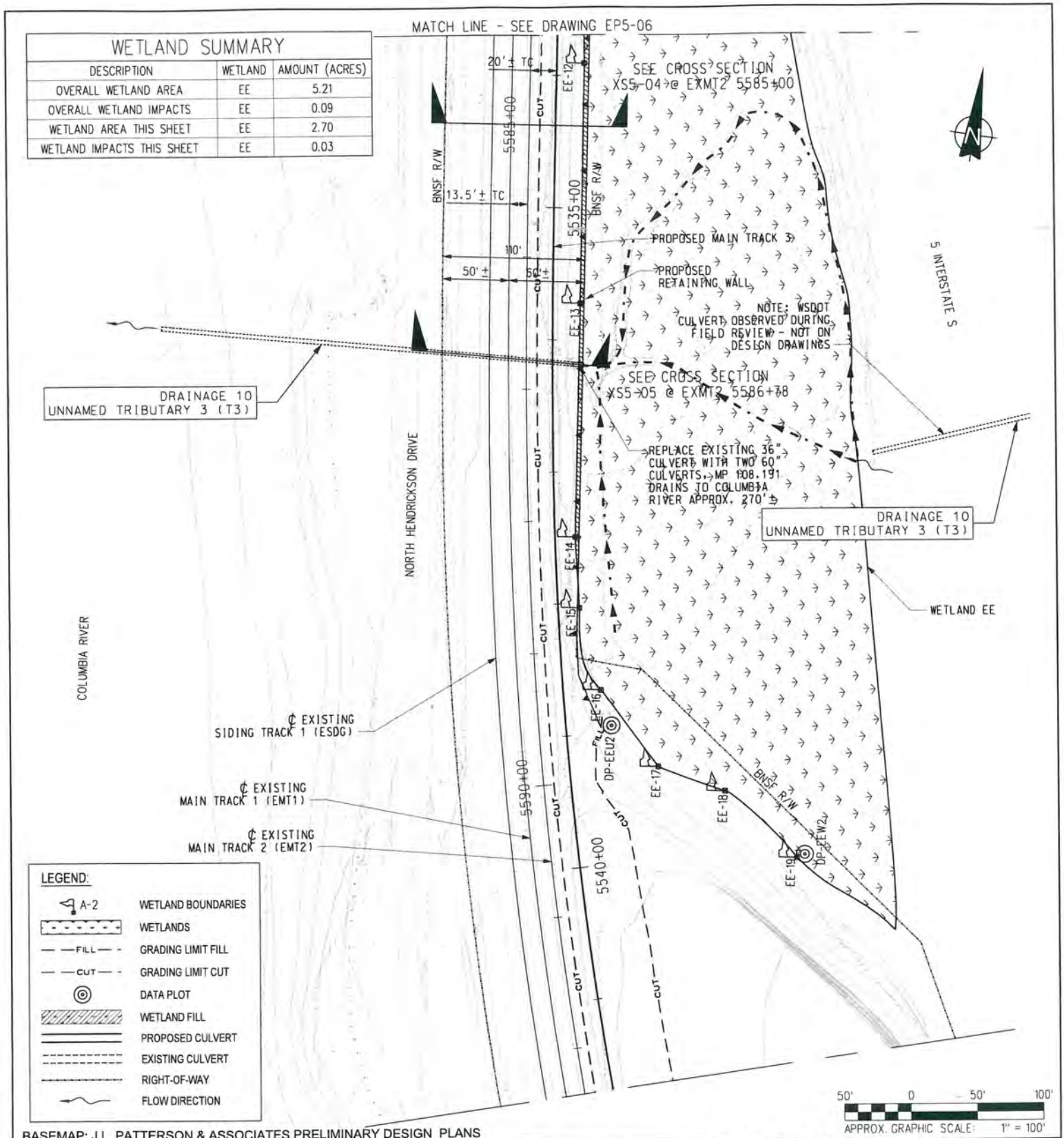
PROPOSED WORK - TYPICAL WL F CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB,
LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

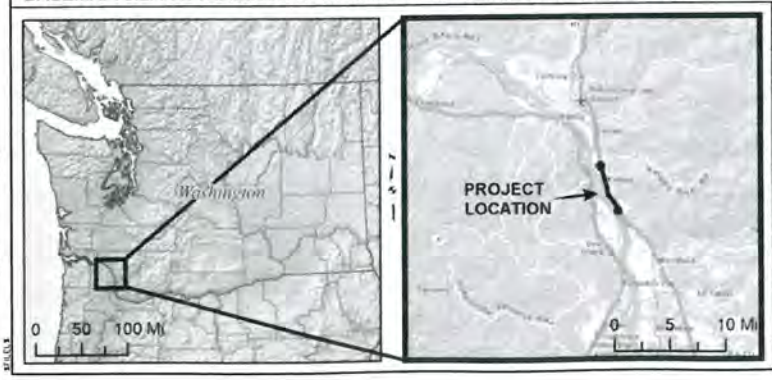
DRAWING NO.	SHEET NO.	SCALE
XS5-03	8/31	AS SHOWN

$FILE1$

WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	EE	5.21
OVERALL WETLAND IMPACTS	EE	0.09
WETLAND AREA THIS SHEET	EE	2.70
WETLAND IMPACTS THIS SHEET	EE	0.03



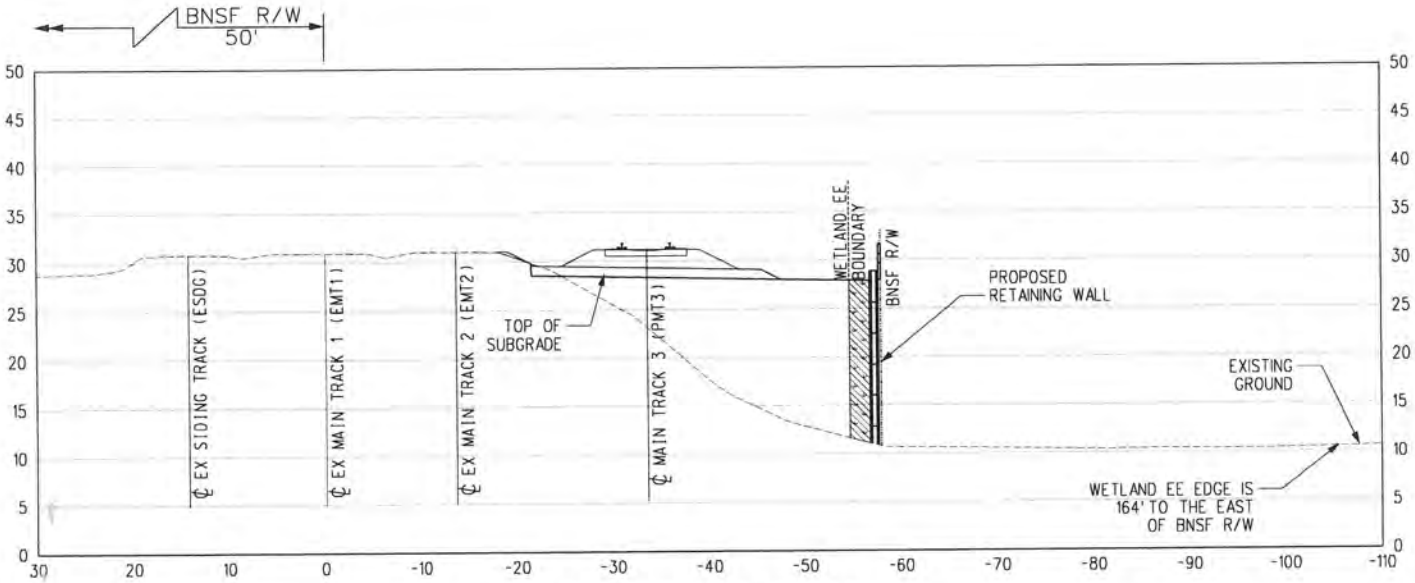
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 05

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

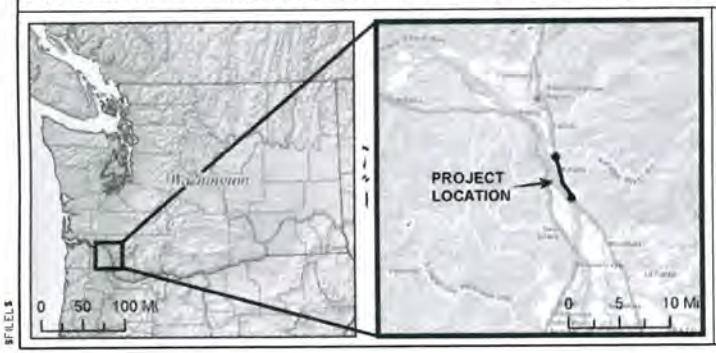
DRAWING NO.	SHEET NO.	SCALE
EP5-05	9/31	AS SHOWN



EXMT2 5585+00
(SEE PLAN VIEW DRAWING EP5-05)

10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

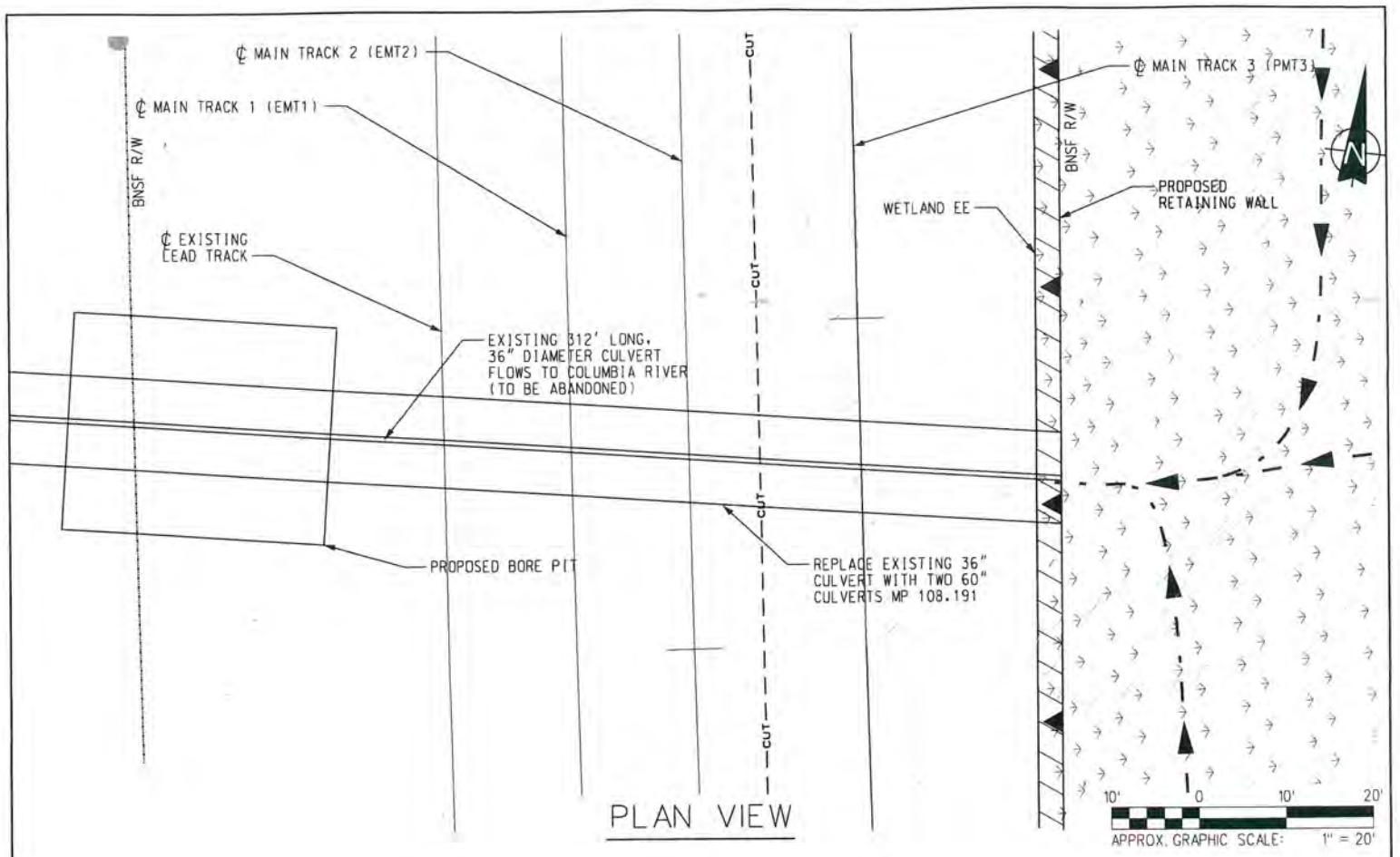
WETLAND IMPACT

PROPOSED WORK - TYPICAL WL EE CROSS SECTION

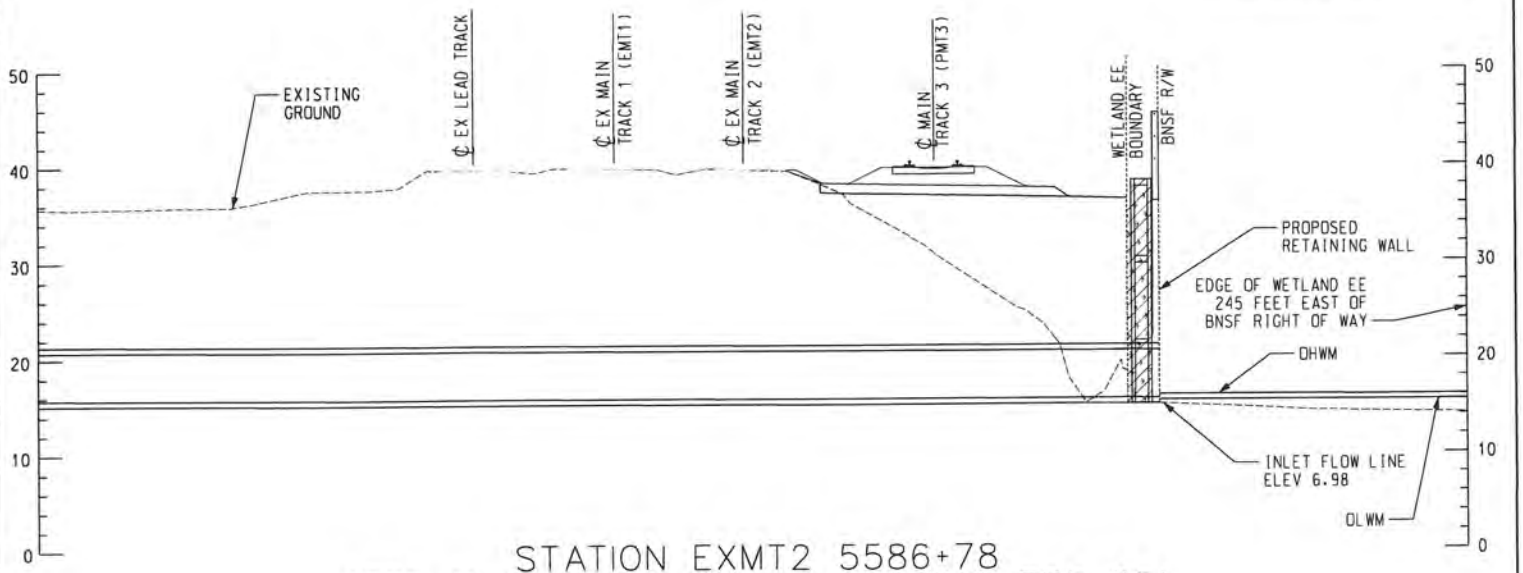
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-04	10/31	AS SHOWN

$FILE1$

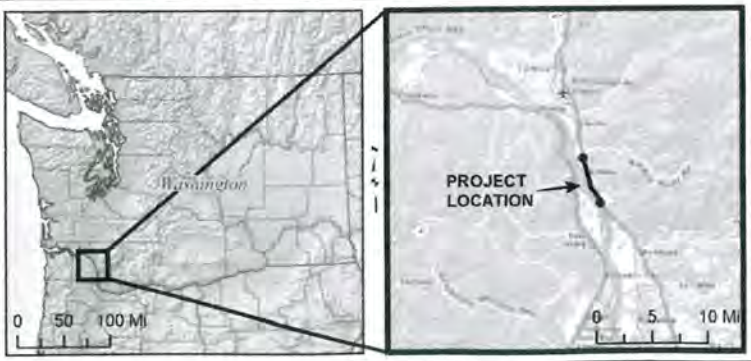


PLAN VIEW



STATION EXMT2 5586+78
(SEE PLAN VIEW DETAIL DRAWING EP5-05)
MP 108.19

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

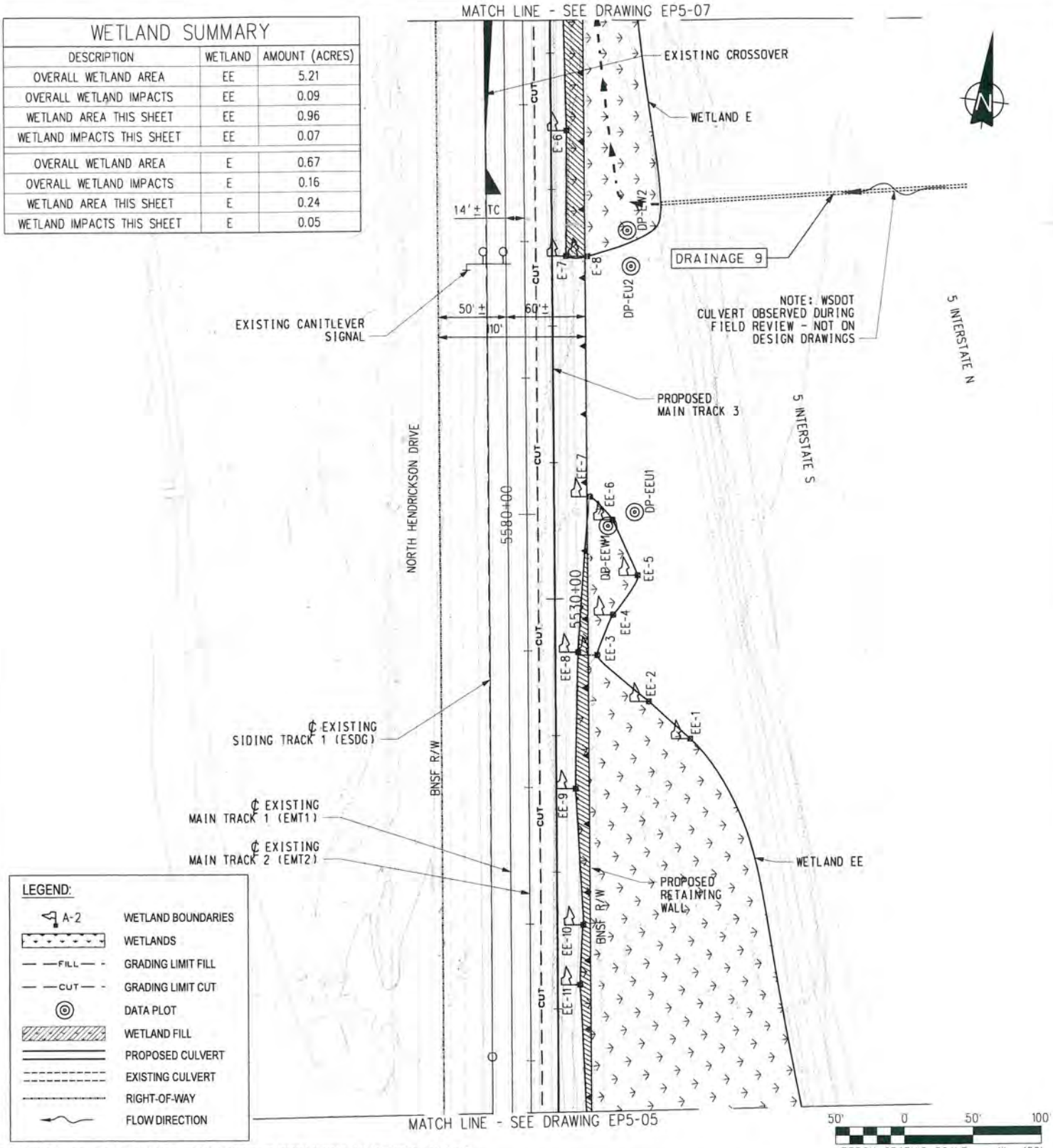


PROPOSED WORK - T3 CULVERT CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-05	11/31	AS SHOWN

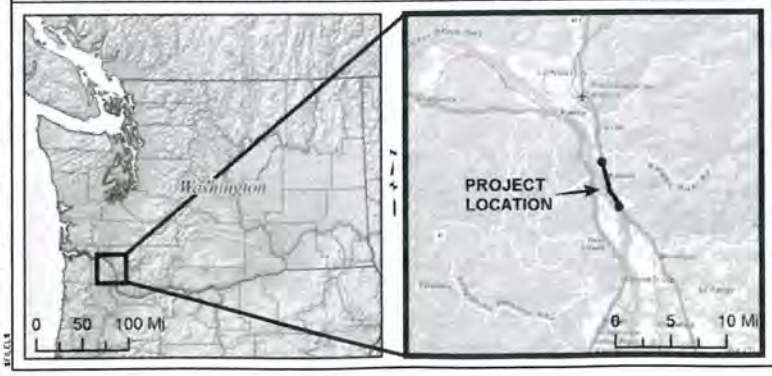
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	EE	5.21
OVERALL WETLAND IMPACTS	EE	0.09
WETLAND AREA THIS SHEET	EE	0.96
WETLAND IMPACTS THIS SHEET	EE	0.07
OVERALL WETLAND AREA	E	0.67
OVERALL WETLAND IMPACTS	E	0.16
WETLAND AREA THIS SHEET	E	0.24
WETLAND IMPACTS THIS SHEET	E	0.05



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

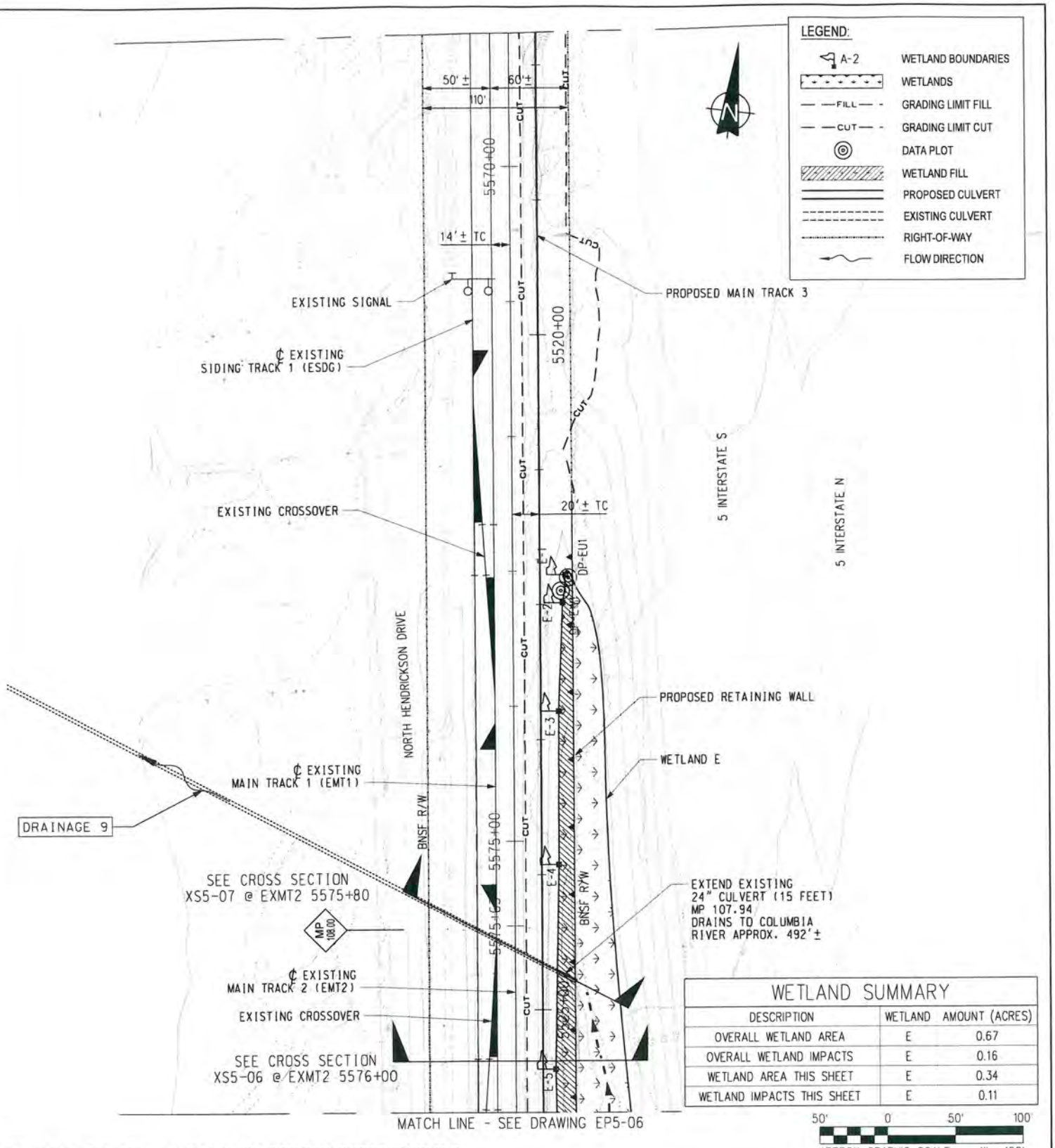
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 06

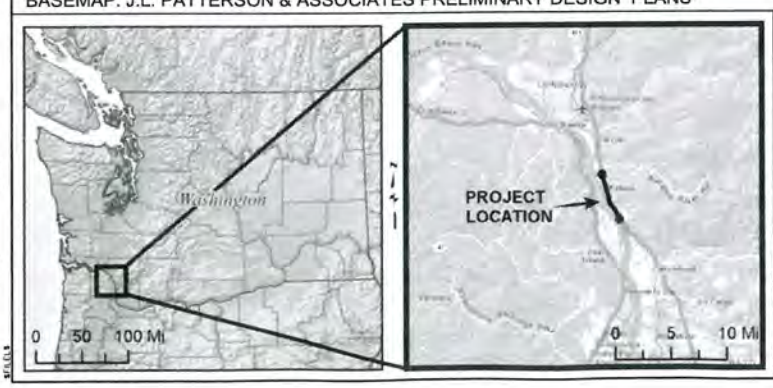
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-06	12/31	AS SHOWN



WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	E	0.67
OVERALL WETLAND IMPACTS	E	0.16
WETLAND AREA THIS SHEET	E	0.34
WETLAND IMPACTS THIS SHEET	E	0.11

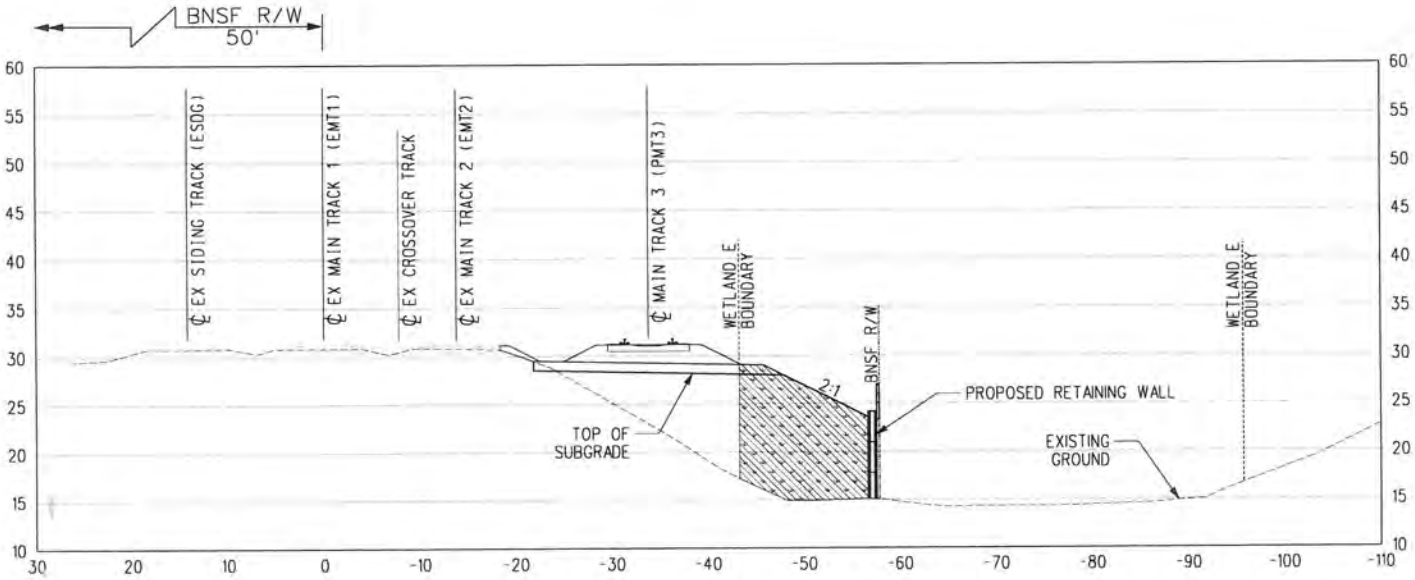
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 07

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

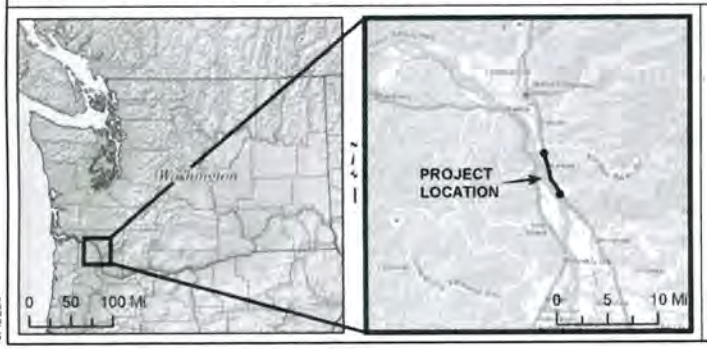
DRAWING NO.	SHEET NO.	SCALE
EP5-07	13/31	AS SHOWN



5576+00
(SEE PLAN VIEW DRAWING EP5-07)

10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

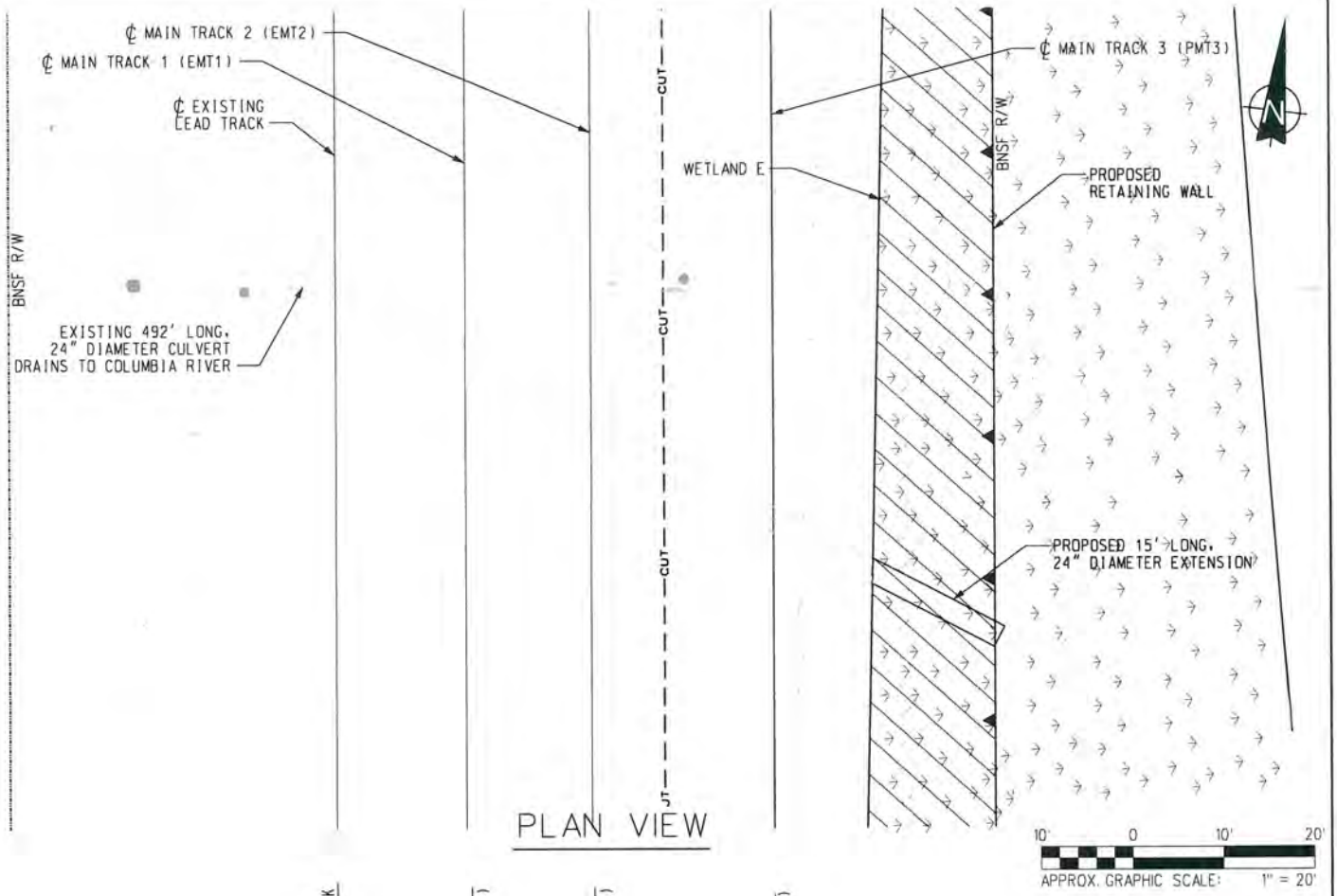
WETLAND IMPACT

PROPOSED WORK - TYPICAL WL E CROSS SECTION

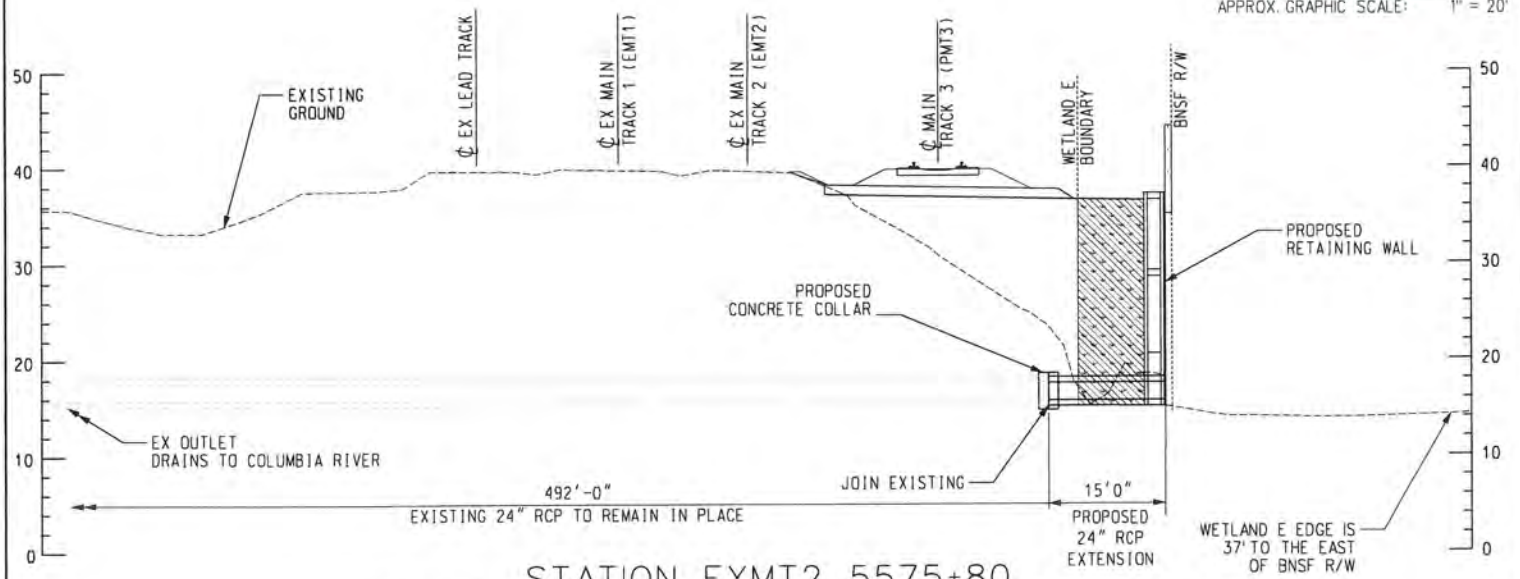
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB,
LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-06	14/31	AS SHOWN

SFILES



PLAN VIEW

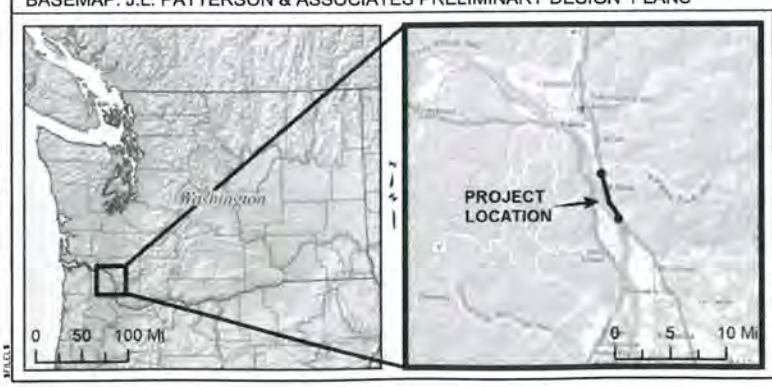


STATION EXMT2 5575+80
(SEE PLAN VIEW DETAIL DRAWING EP5-07)
MP 107.94

LEGEND

WETLAND IMPACT

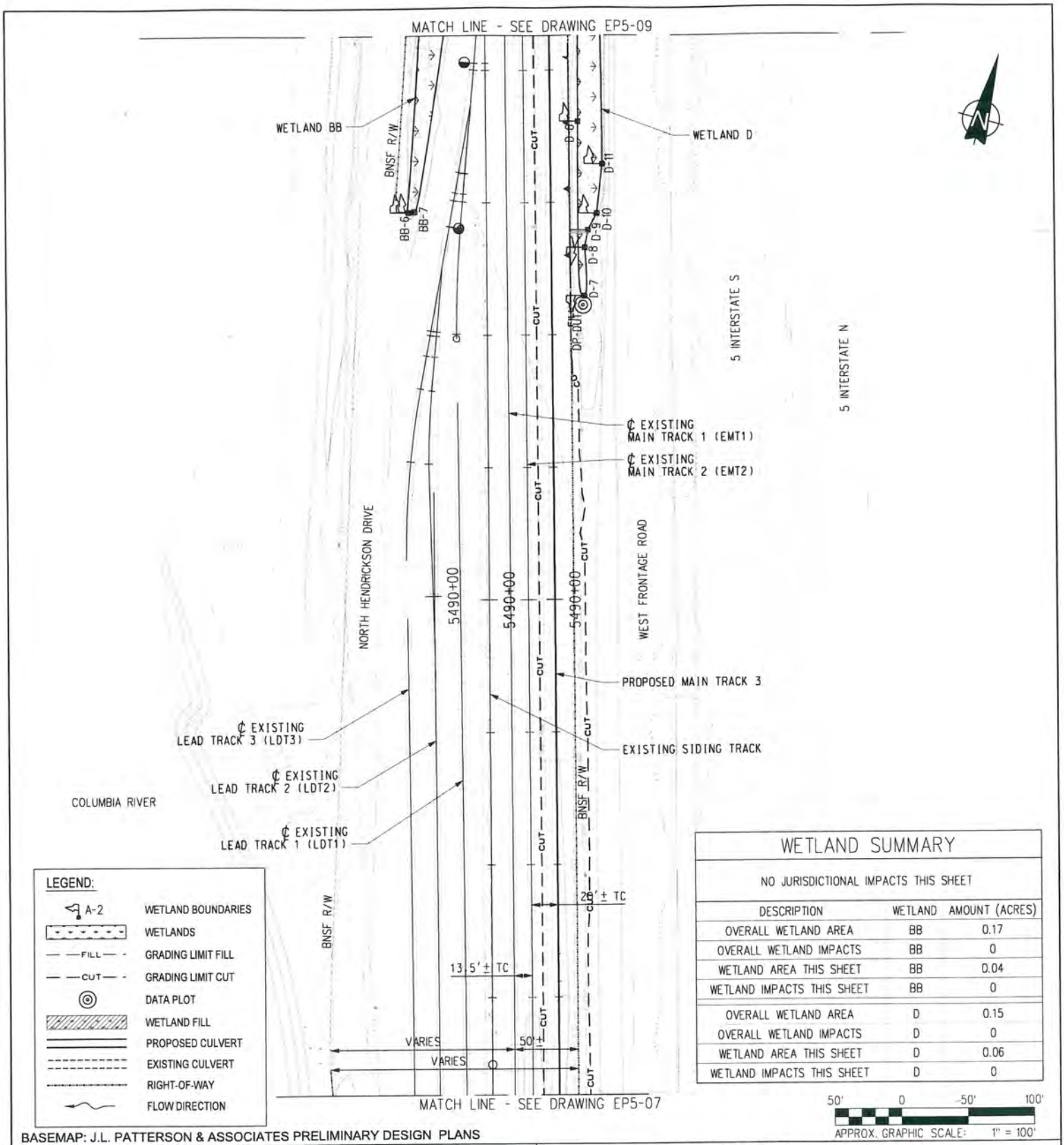
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - CULVERT CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-07	15/31	AS SHOWN

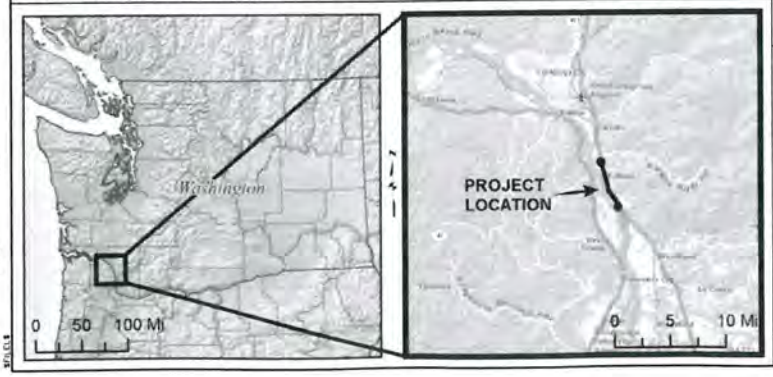


WETLAND SUMMARY

NO JURISDICTIONAL IMPACTS THIS SHEET

DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	BB	0.17
OVERALL WETLAND IMPACTS	BB	0
WETLAND AREA THIS SHEET	BB	0.04
WETLAND IMPACTS THIS SHEET	BB	0
OVERALL WETLAND AREA	D	0.15
OVERALL WETLAND IMPACTS	D	0
WETLAND AREA THIS SHEET	D	0.06
WETLAND IMPACTS THIS SHEET	D	0

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 08

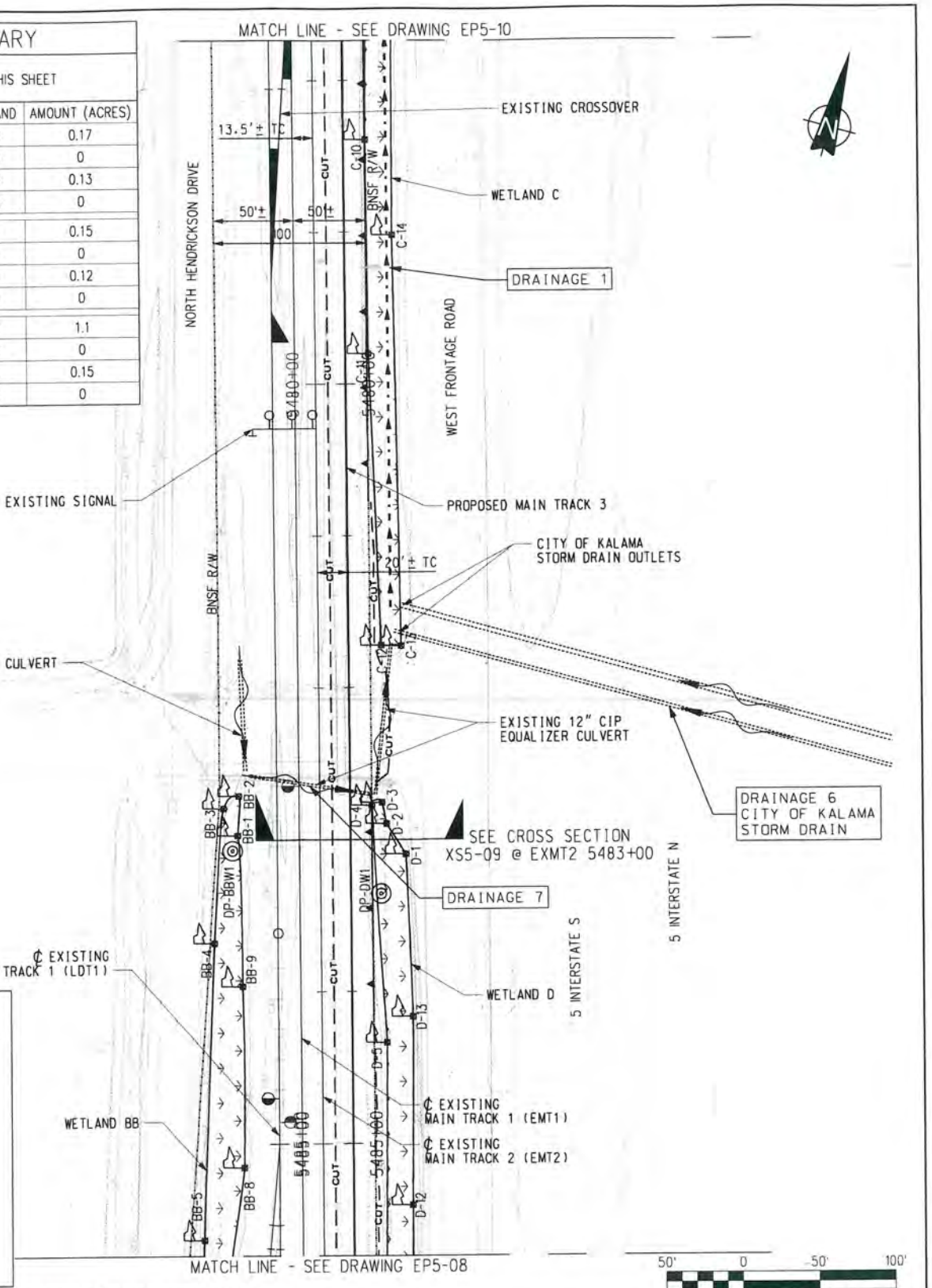
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-08	16/31	AS SHOWN

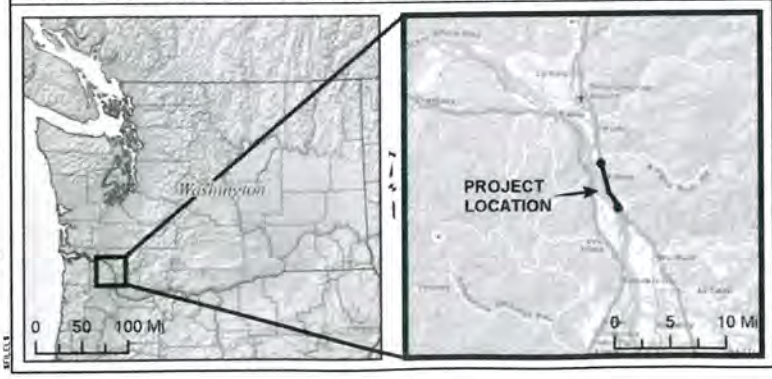
WETLAND SUMMARY

NO JURISDICTIONAL IMPACTS THIS SHEET

DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	BB	0.17
OVERALL WETLAND IMPACTS	BB	0
WETLAND AREA THIS SHEET	BB	0.13
WETLAND IMPACTS THIS SHEET	BB	0
OVERALL WETLAND AREA	D	0.15
OVERALL WETLAND IMPACTS	D	0
WETLAND AREA THIS SHEET	D	0.12
WETLAND IMPACTS THIS SHEET	D	0
OVERALL WETLAND AREA	C	1.1
OVERALL WETLAND IMPACTS	C	0
WETLAND AREA THIS SHEET	C	0.15
WETLAND IMPACTS THIS SHEET	C	0



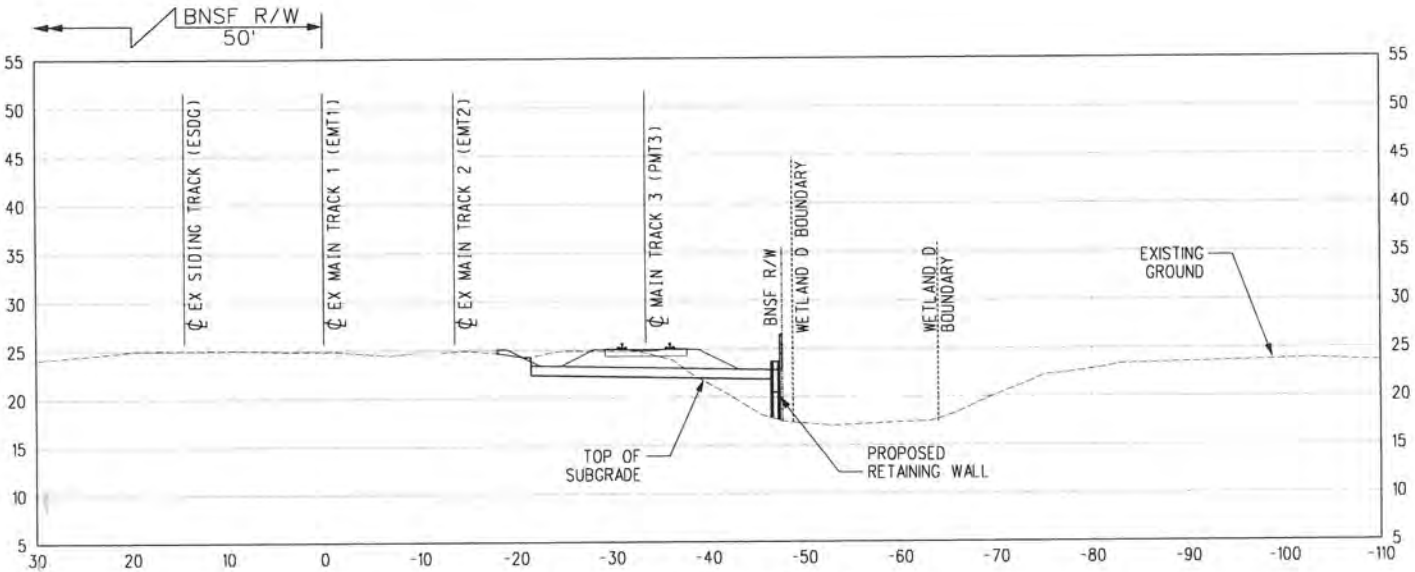
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 09

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

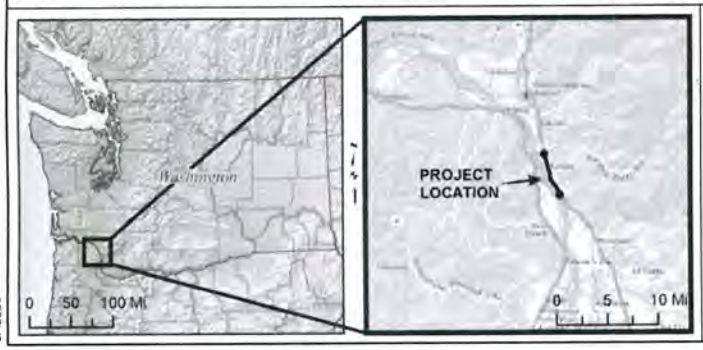
DRAWING NO.	SHEET NO.	SCALE
EP5-09	17/31	AS SHOWN



EXMT2 5483+00
(SEE PLAN VIEW DRAWING EP5-09)

10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

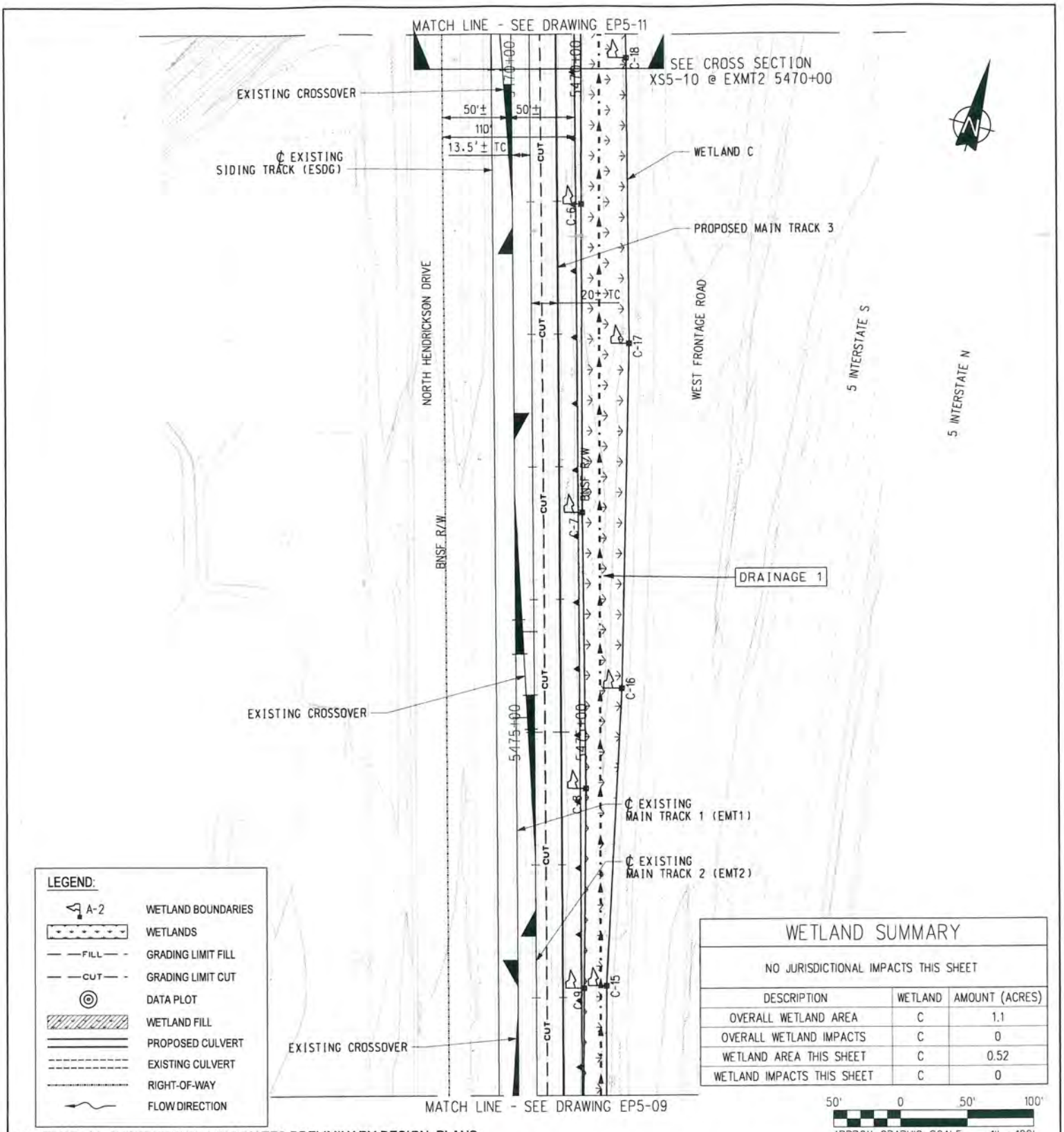
WETLAND IMPACT

PROPOSED WORK - TYPICAL WL D CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-08	18/31	AS SHOWN

$FILE$



LEGEND:

- A-2 — WETLAND BOUNDARIES
- WETLANDS
- FILL — GRADING LIMIT FILL
- CUT — GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

WETLAND SUMMARY

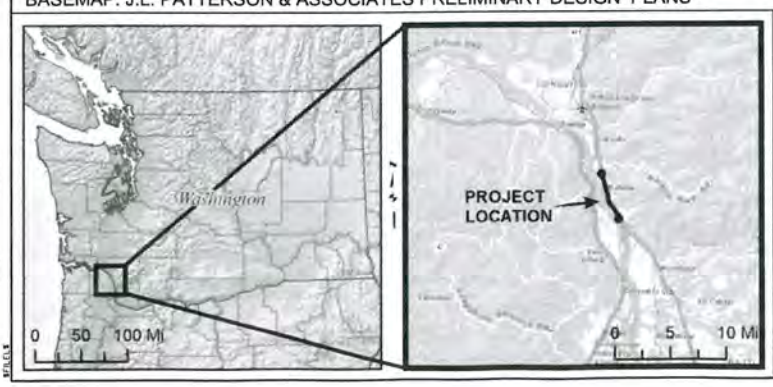
NO JURISDICTIONAL IMPACTS THIS SHEET

DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	C	1.1
OVERALL WETLAND IMPACTS	C	0
WETLAND AREA THIS SHEET	C	0.52
WETLAND IMPACTS THIS SHEET	C	0

50' 0 50' 100'

APPROX. GRAPHIC SCALE: 1" = 100'

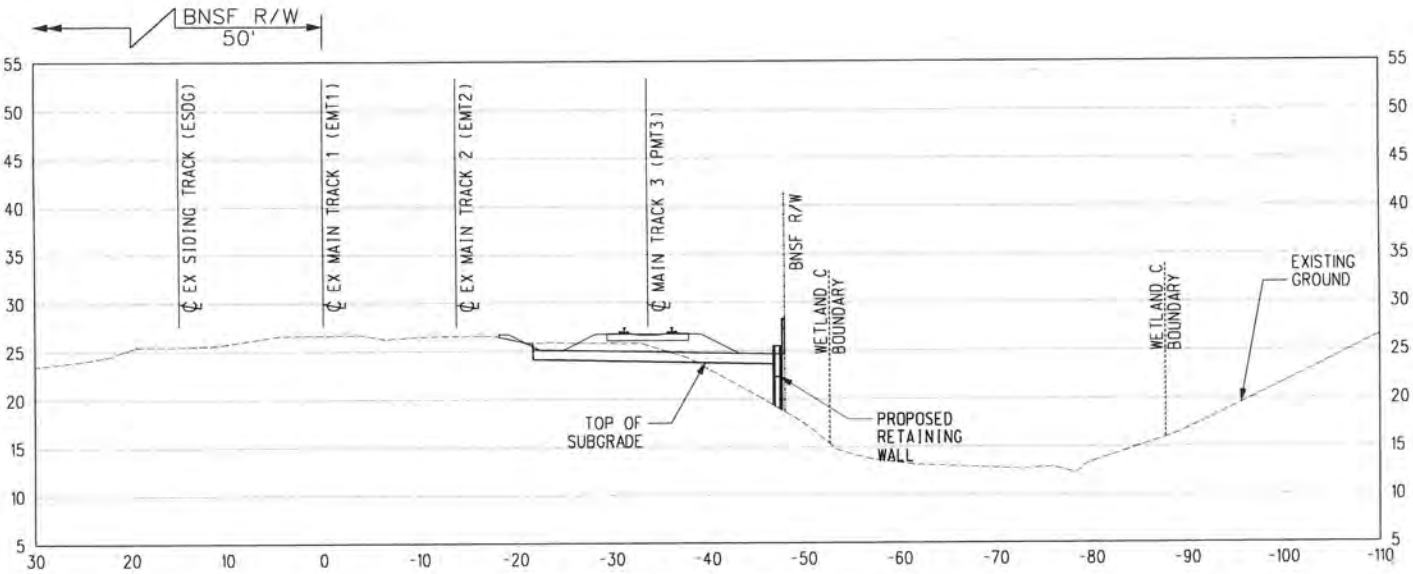
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 10

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

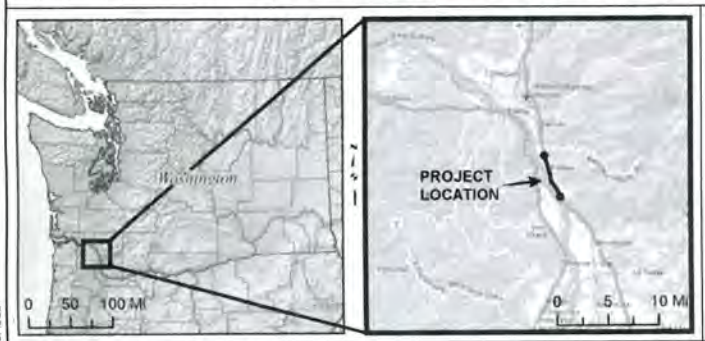
DRAWING NO.	SHEET NO.	SCALE
EP5-10	19/31	AS SHOWN



EXMT2 5470+00
(SEE PLAN VIEW DRAWING EP5-10)

10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

WETLAND IMPACT

PROPOSED WORK - TYPICAL WL C CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

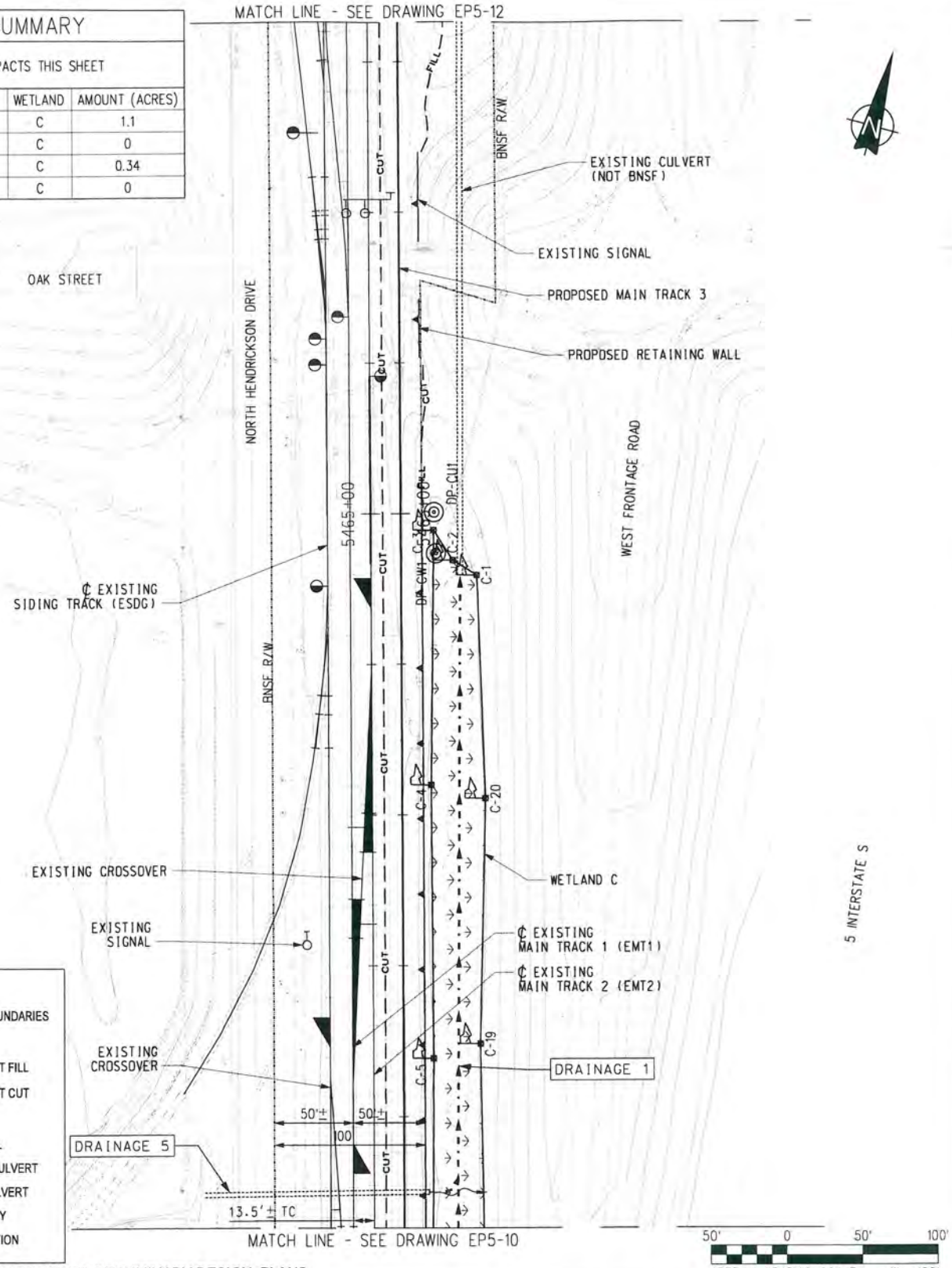
DRAWING NO.	SHEET NO.	SCALE
XS5-09	20/31	AS SHOWN

$FILE$

WETLAND SUMMARY

NO JURISDICTIONAL IMPACTS THIS SHEET

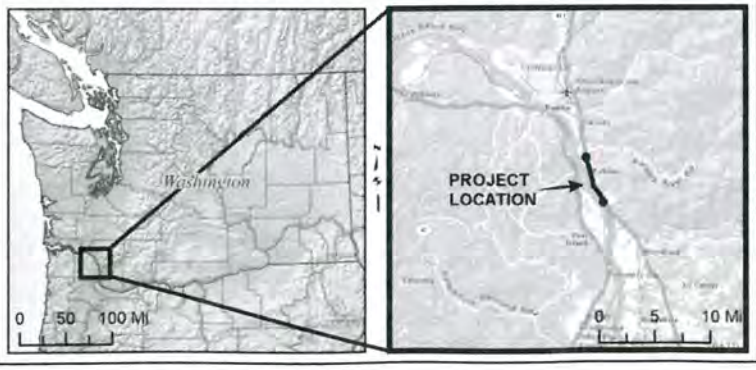
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	C	1.1
OVERALL WETLAND IMPACTS	C	0
WETLAND AREA THIS SHEET	C	0.34
WETLAND IMPACTS THIS SHEET	C	0



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

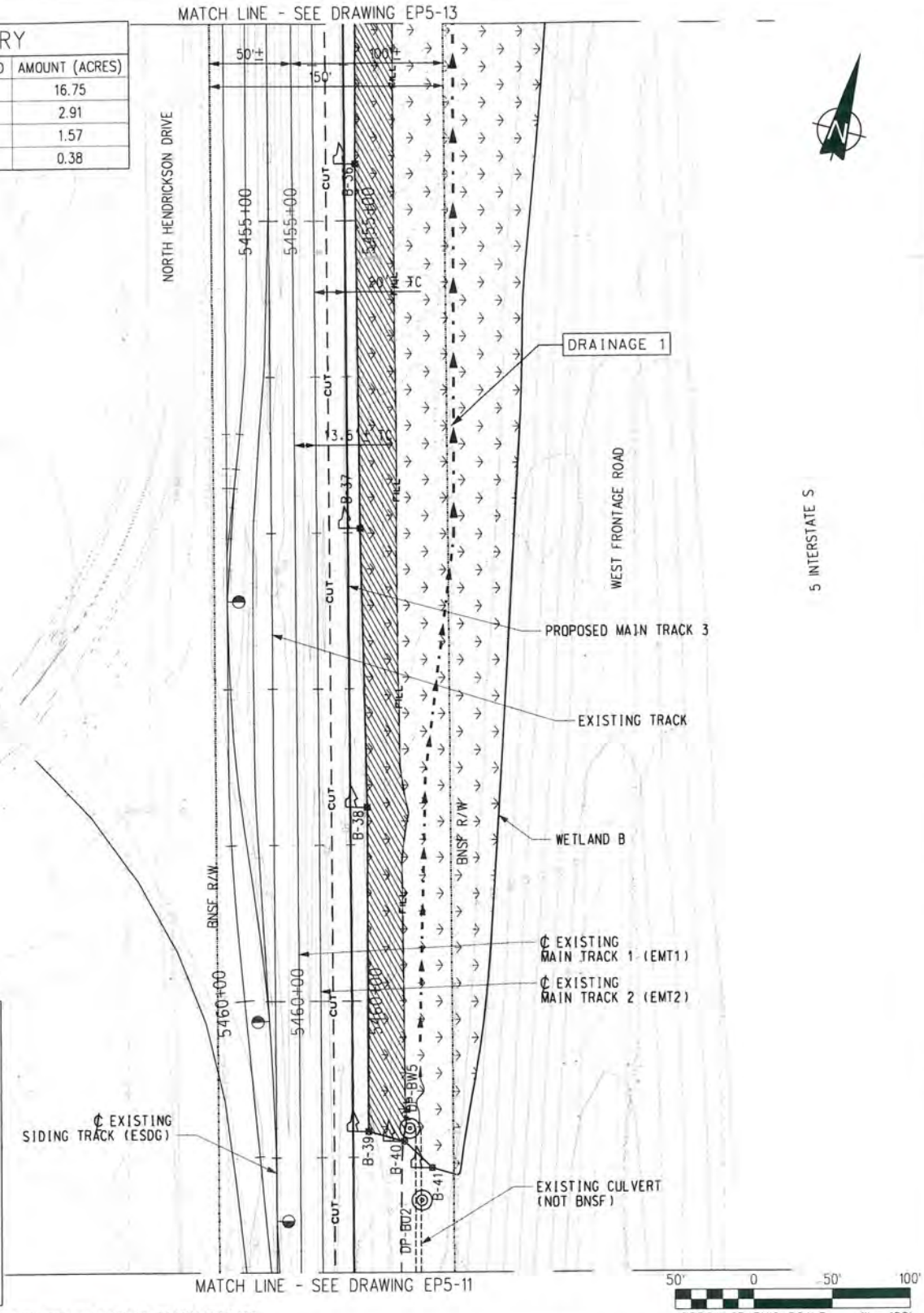


PROPOSED WORK - 11

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-11	21/31	AS SHOWN

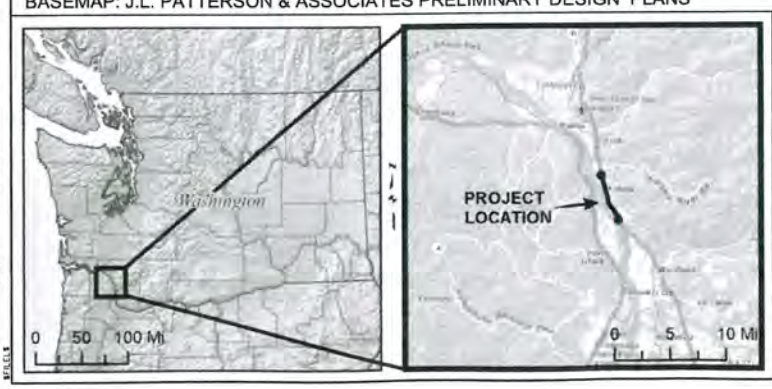
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	1.57
WETLAND IMPACTS THIS SHEET	B	0.38



LEGEND:

- A-2 — WETLAND BOUNDARIES
- WETLANDS
- FILL — GRADING LIMIT FILL
- CUT — GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

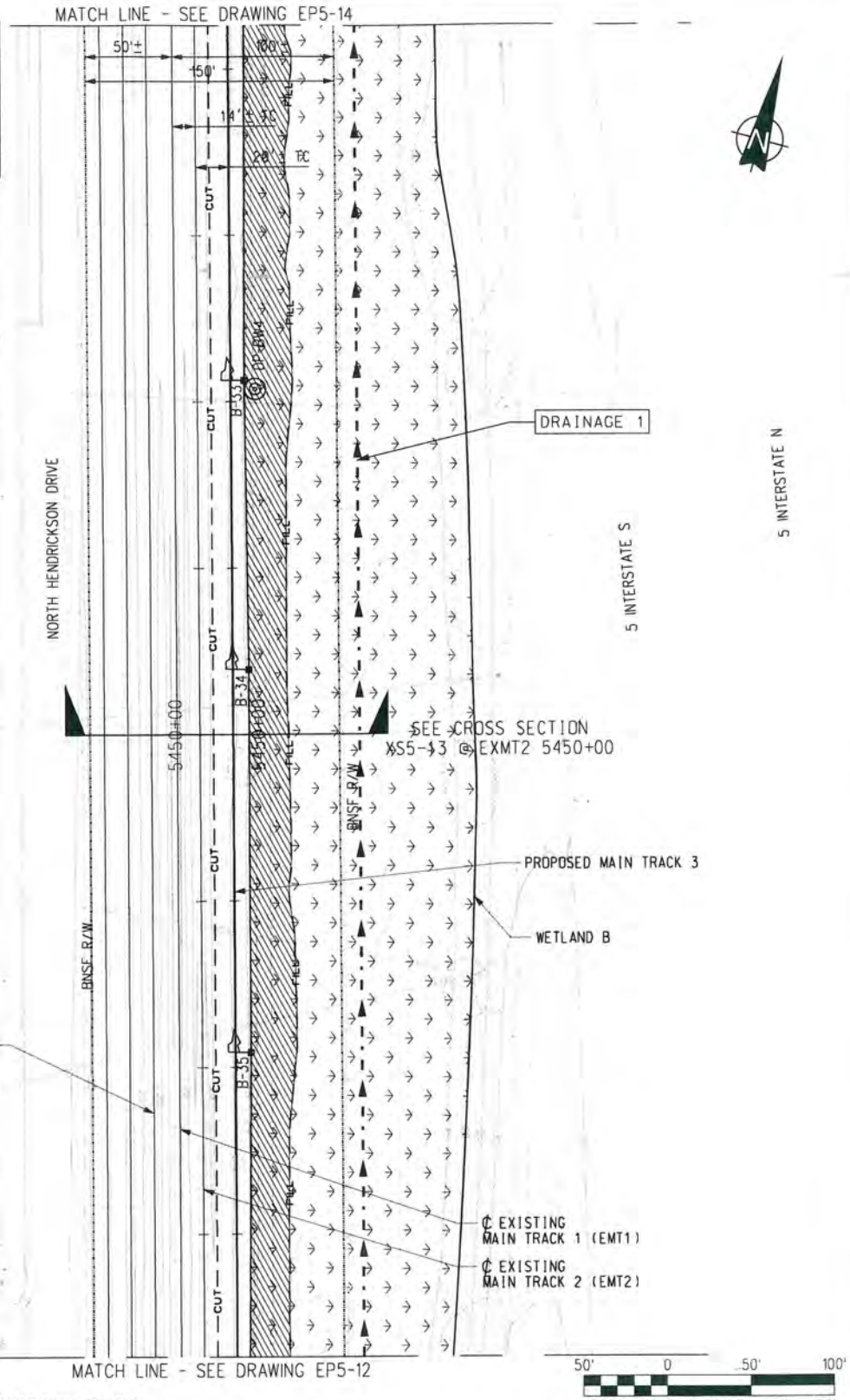


PROPOSED WORK - 12

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-12	22/31	AS SHOWN

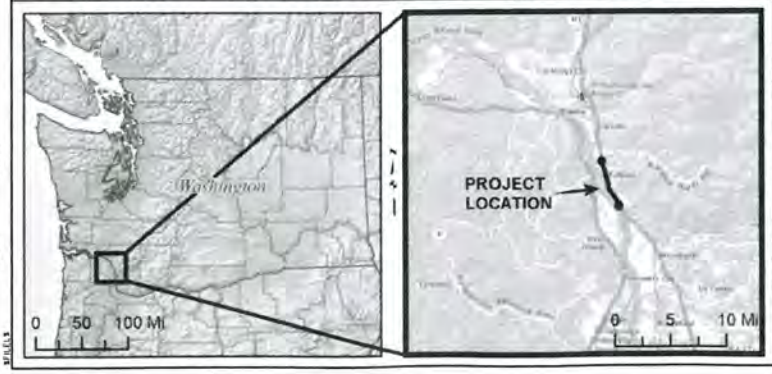
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	2.37
WETLAND IMPACTS THIS SHEET	B	0.46



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

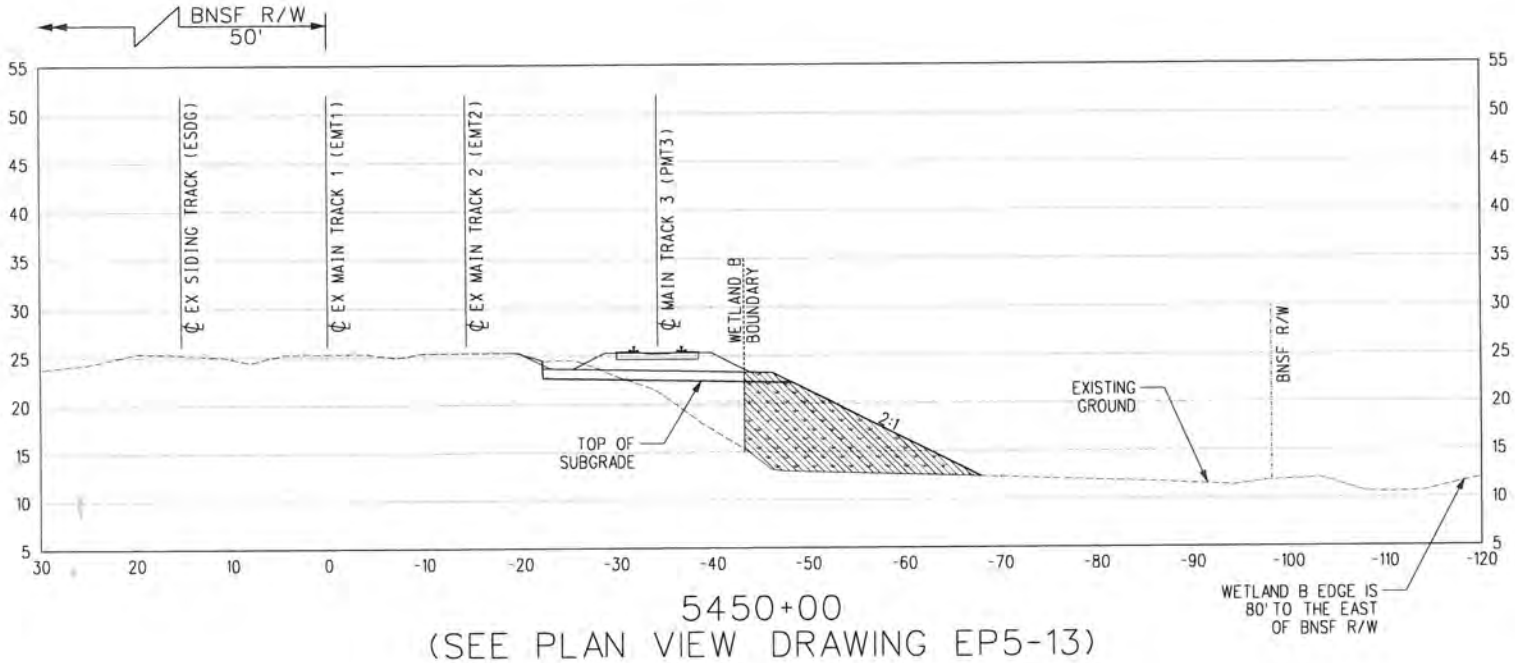
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 13

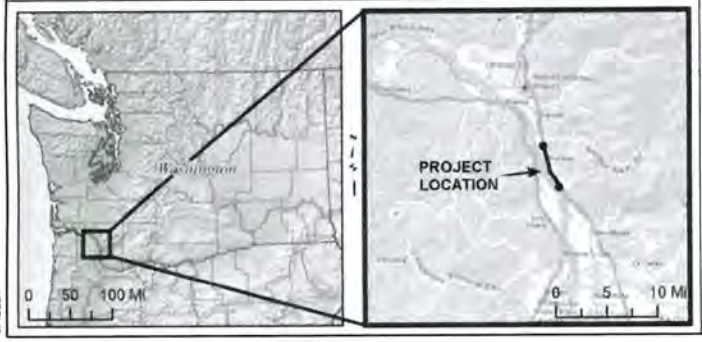
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-13	23/31	AS SHOWN



10' 0 10' 20'
APPROX. GRAPHIC SCALE: 1" = 20'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



LEGEND

WETLAND IMPACT

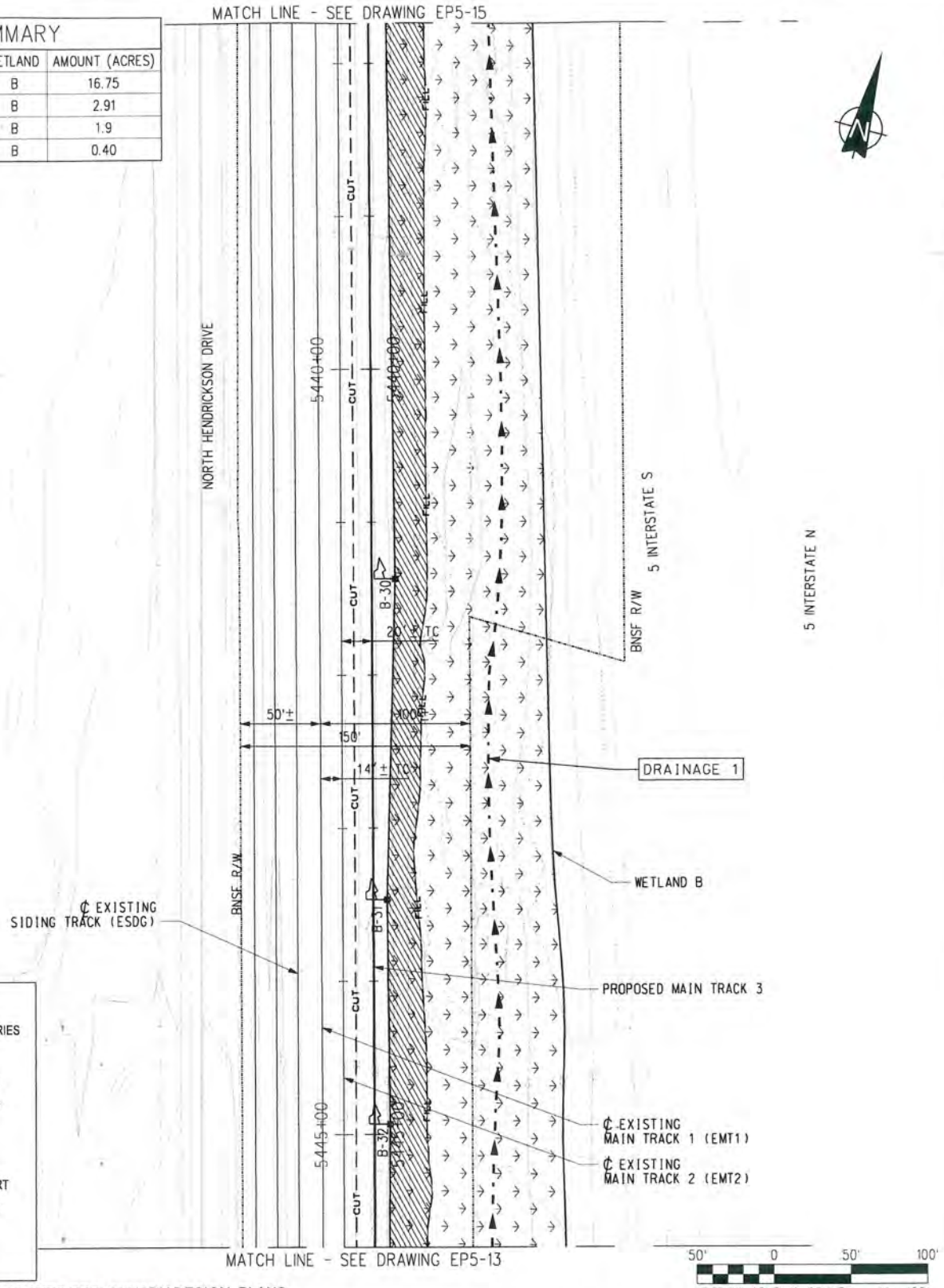
PROPOSED WORK - TYPICAL WL B CROSS SECTION

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF / WSDOT ARRA KELSO TO MARTIN'S BLUFF:TASK 5 NEW SIDING
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER & COLUMBIA RIVER
CITY: KALAMA **COUNTY:** COWLITZ **STATE:** WASHINGTON
DATE: SEPTEMBER 2013; REVISED AUGUST 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-11	24/31	AS SHOWN

$FILE$

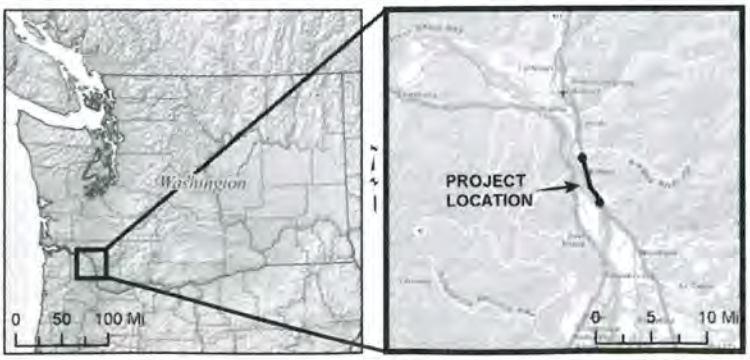
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	1.9
WETLAND IMPACTS THIS SHEET	B	0.40



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

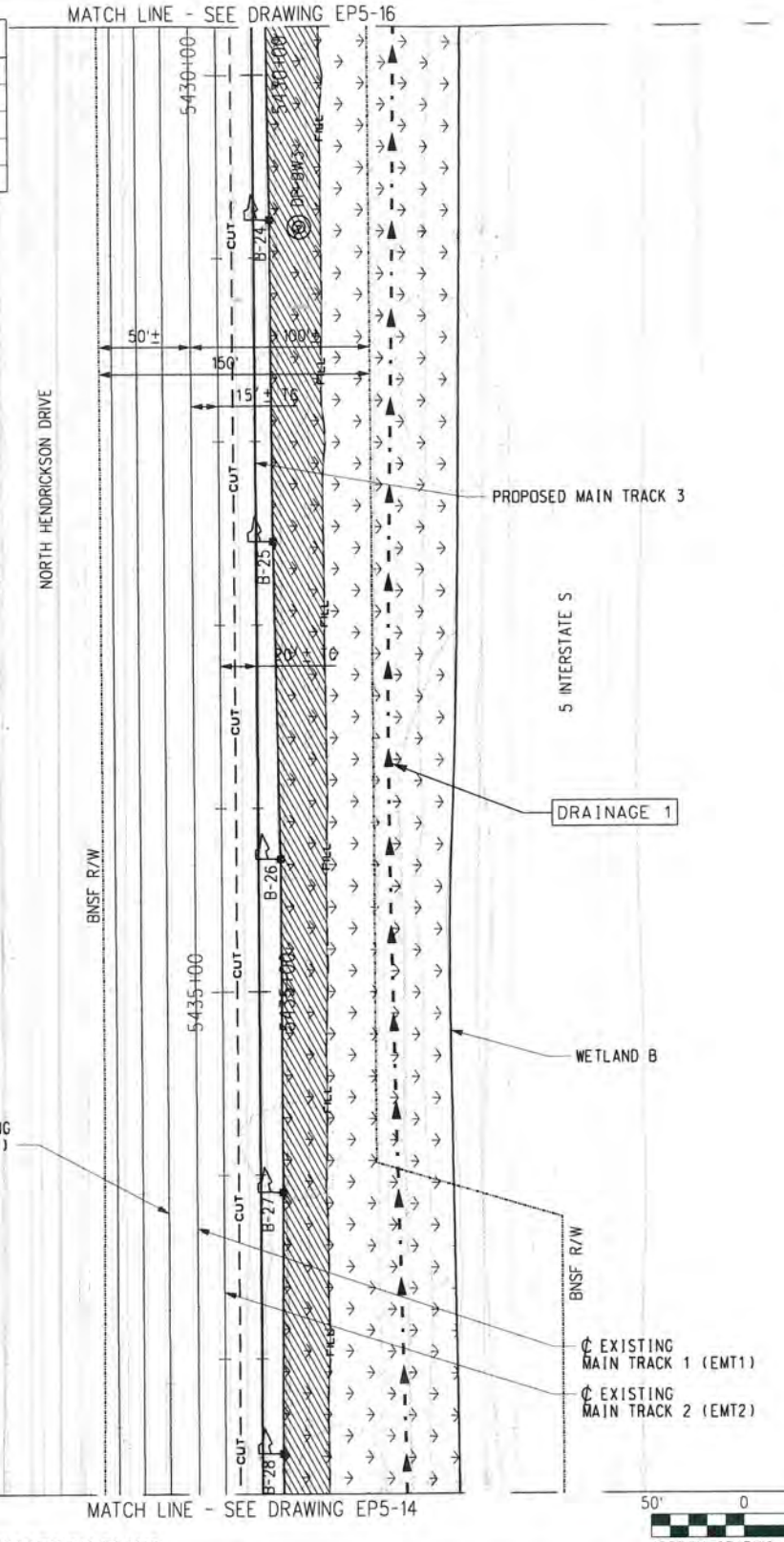


PROPOSED WORK - 14

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-14	25/31	AS SHOWN

WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	1.8
WETLAND IMPACTS THIS SHEET	B	0.48

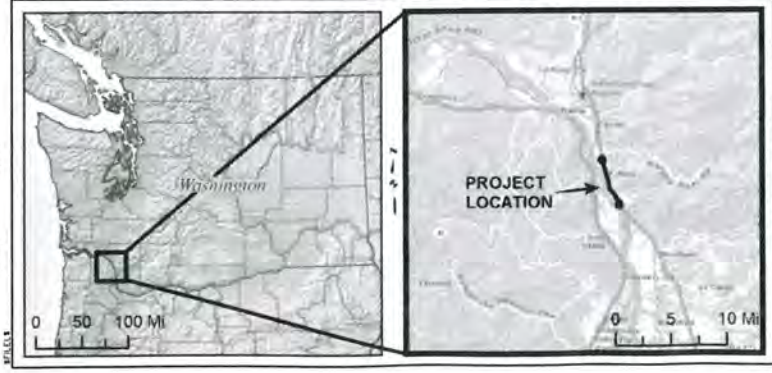


LEGEND:

- A-2 — WETLAND BOUNDARIES
- WETLANDS
- FILL — GRADING LIMIT FILL
- CUT — GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

50' 0 50' 100'
APPROX. GRAPHIC SCALE: 1" = 100'

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

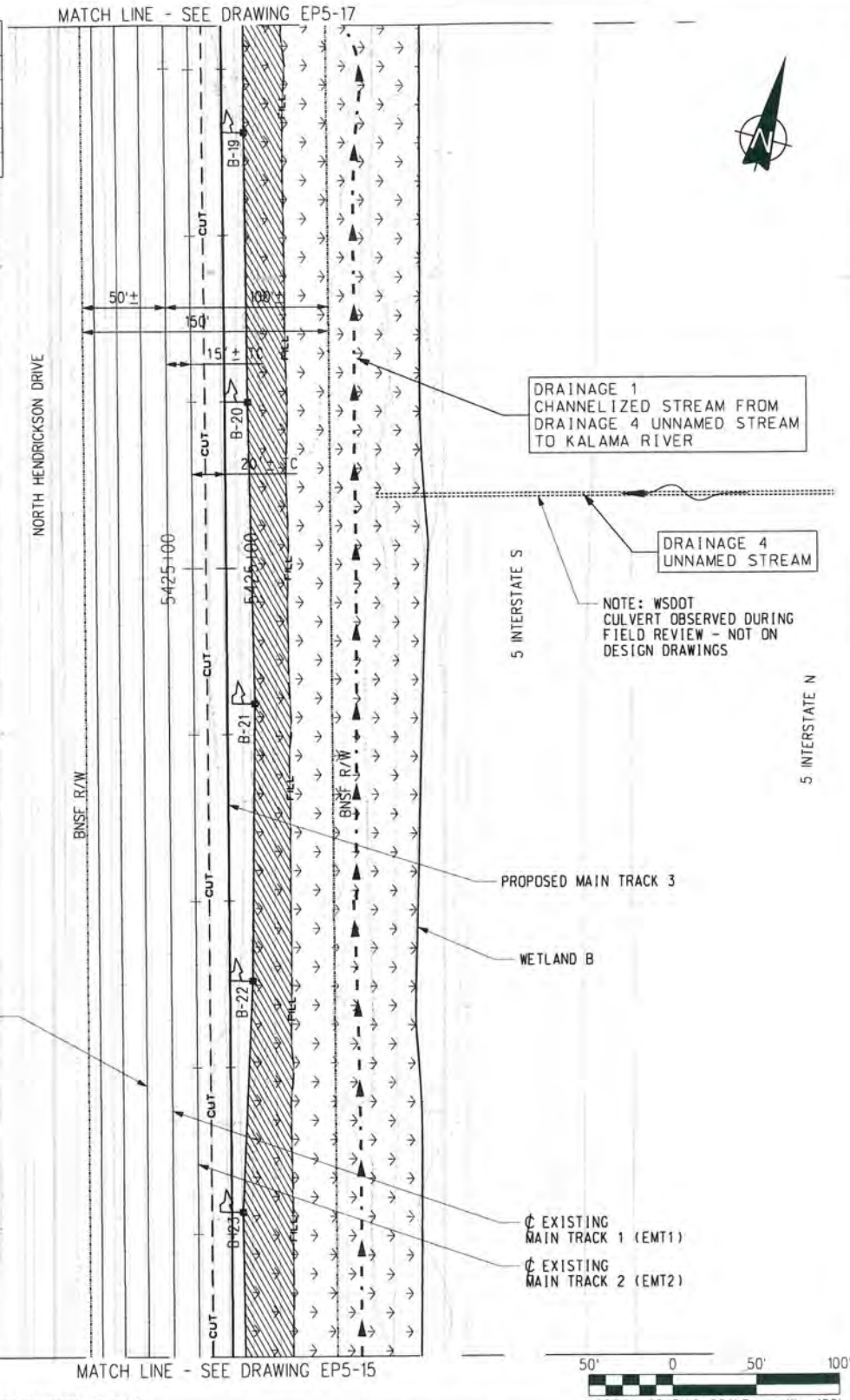


PROPOSED WORK - 15

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-15	26/31	AS SHOWN

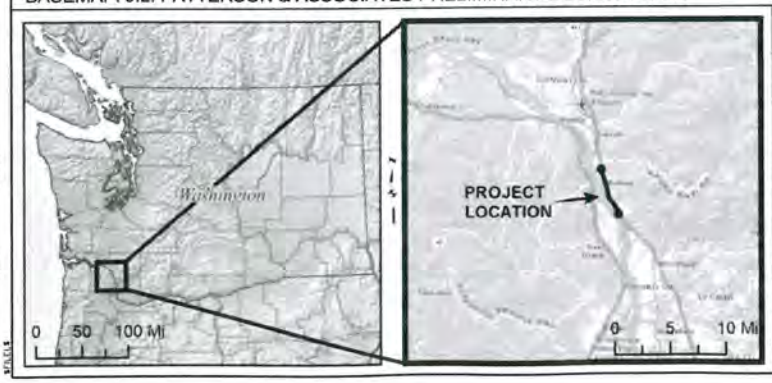
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	1.9
WETLAND IMPACTS THIS SHEET	B	0.44



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

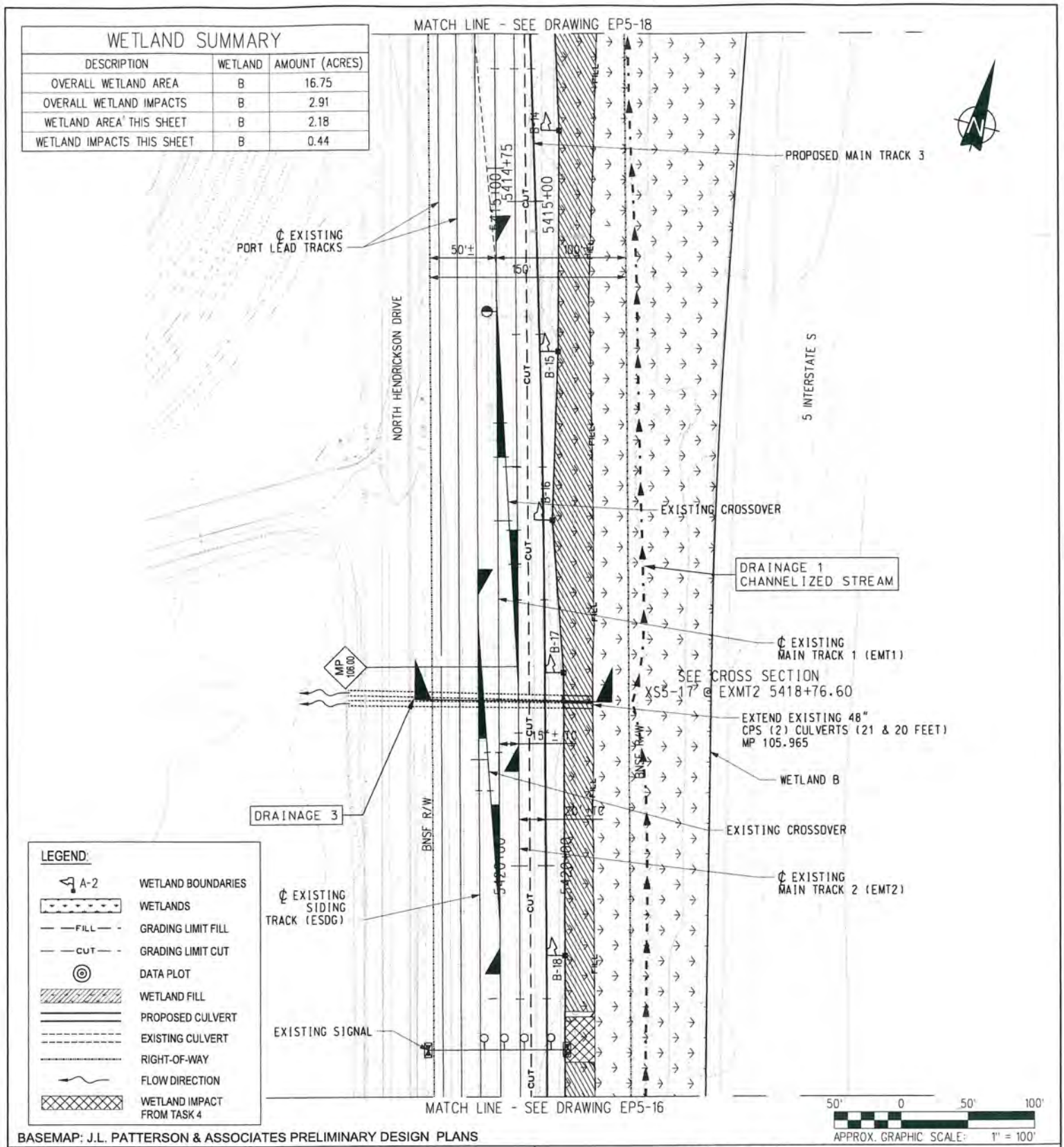


PROPOSED WORK - 16

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-16	27/31	AS SHOWN

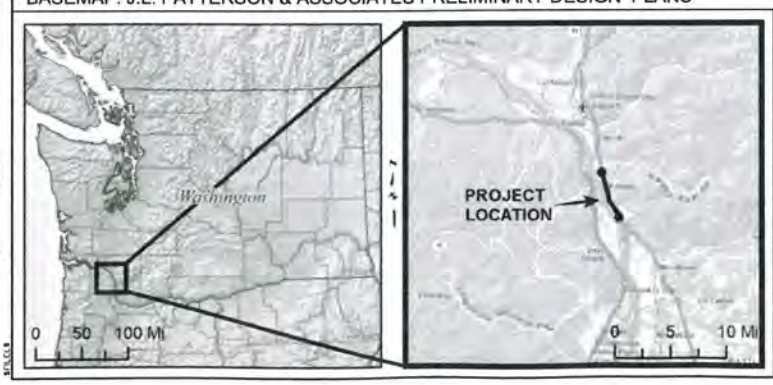
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	2.18
WETLAND IMPACTS THIS SHEET	B	0.44



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION
- WETLAND IMPACT FROM TASK 4

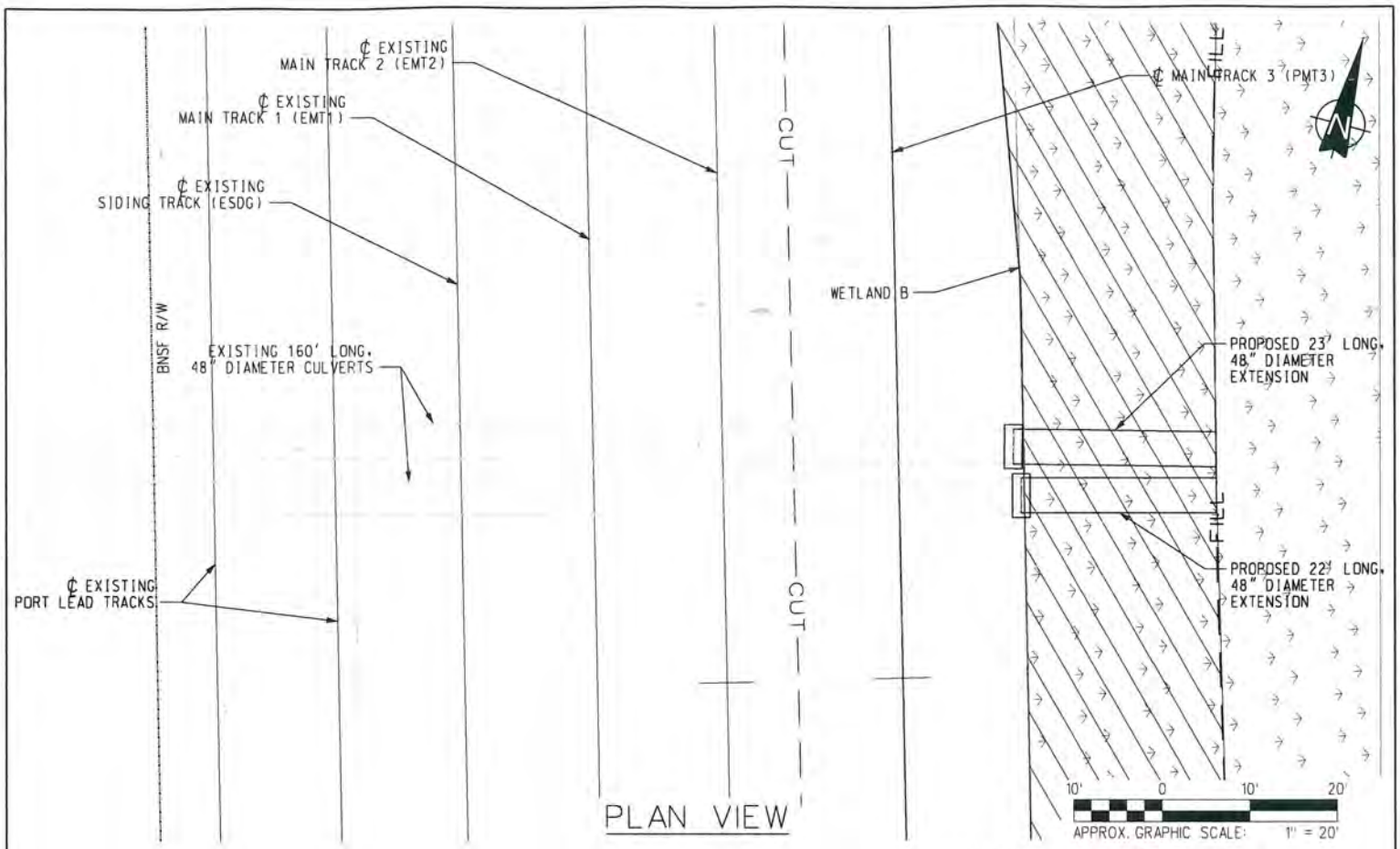
BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

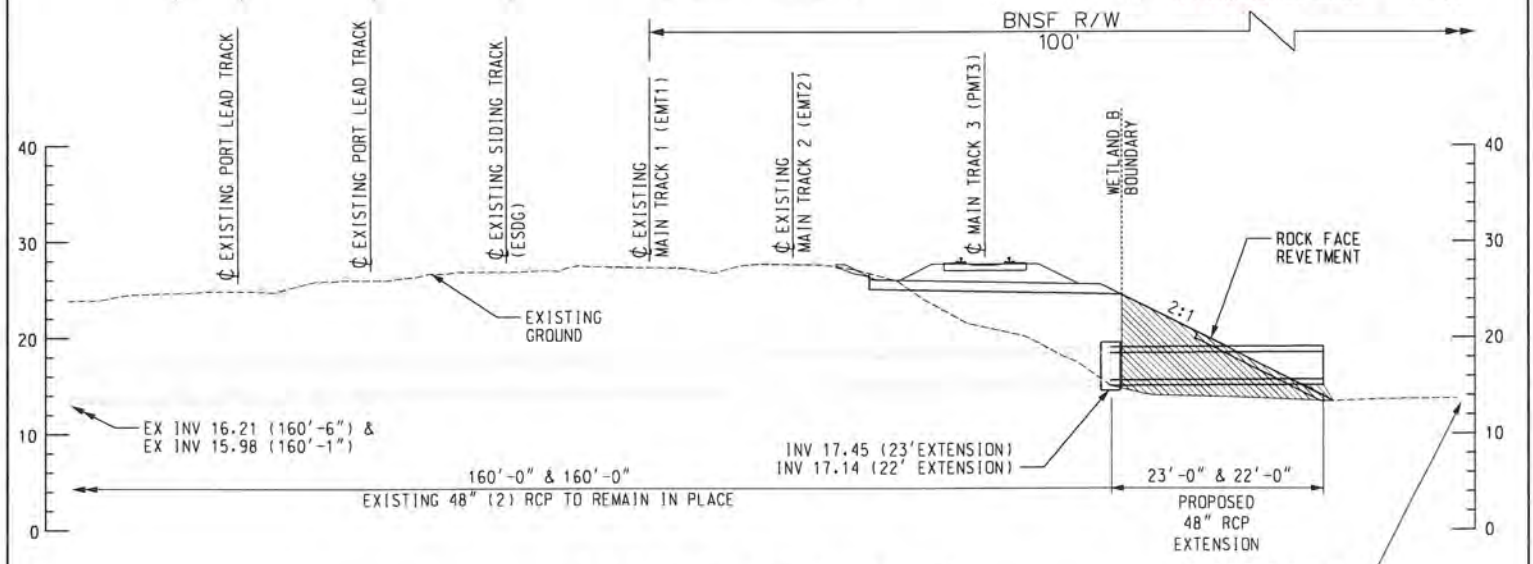


PROPOSED WORK - 17

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-17	28/31	AS SHOWN



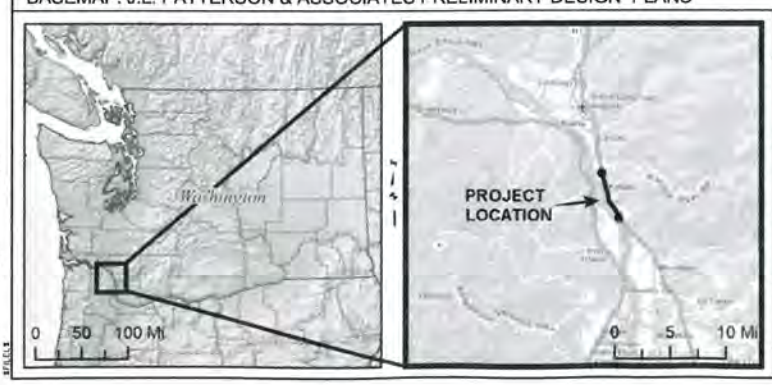


STATION 5418+76.60
(SEE PLAN VIEW DETAIL DRAWING EP5-17)
MP 105.96

LEGEND

WETLAND IMPACT

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

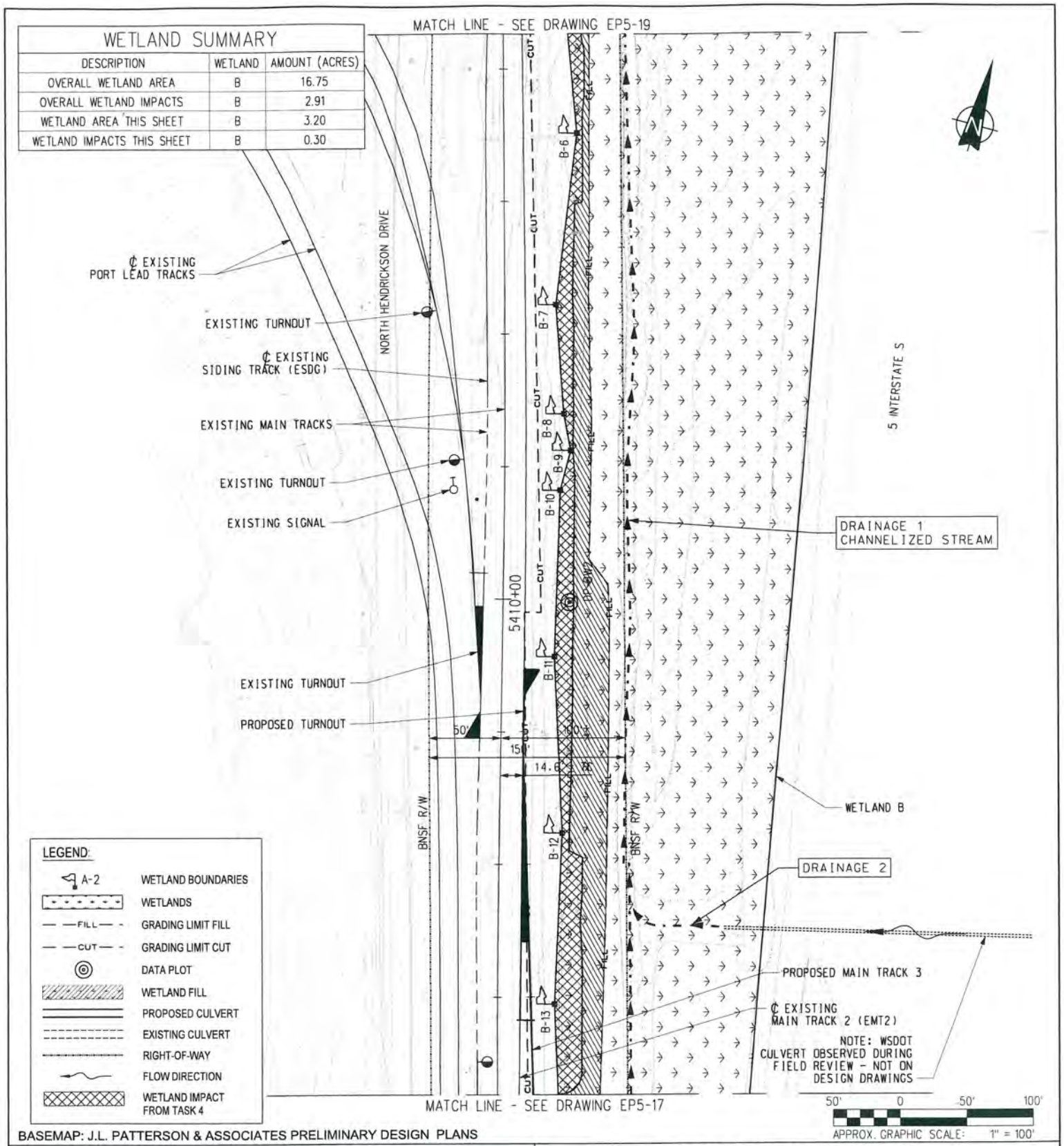


PROPOSED WORK - CULVERT CROSS SECTION

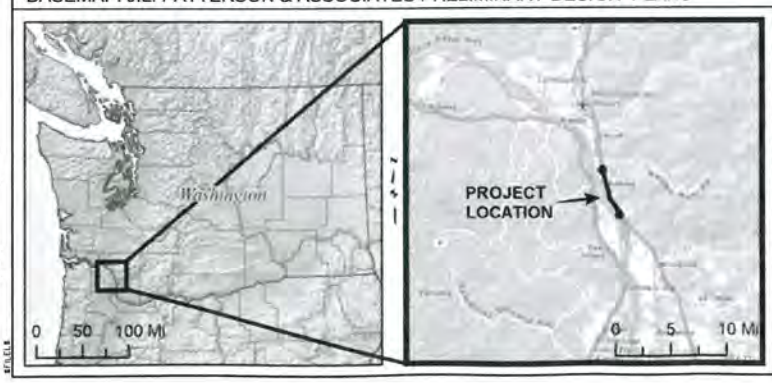
USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
XS5-12	29/30	AS SHOWN

WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	3.20
WETLAND IMPACTS THIS SHEET	B	0.30



BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS

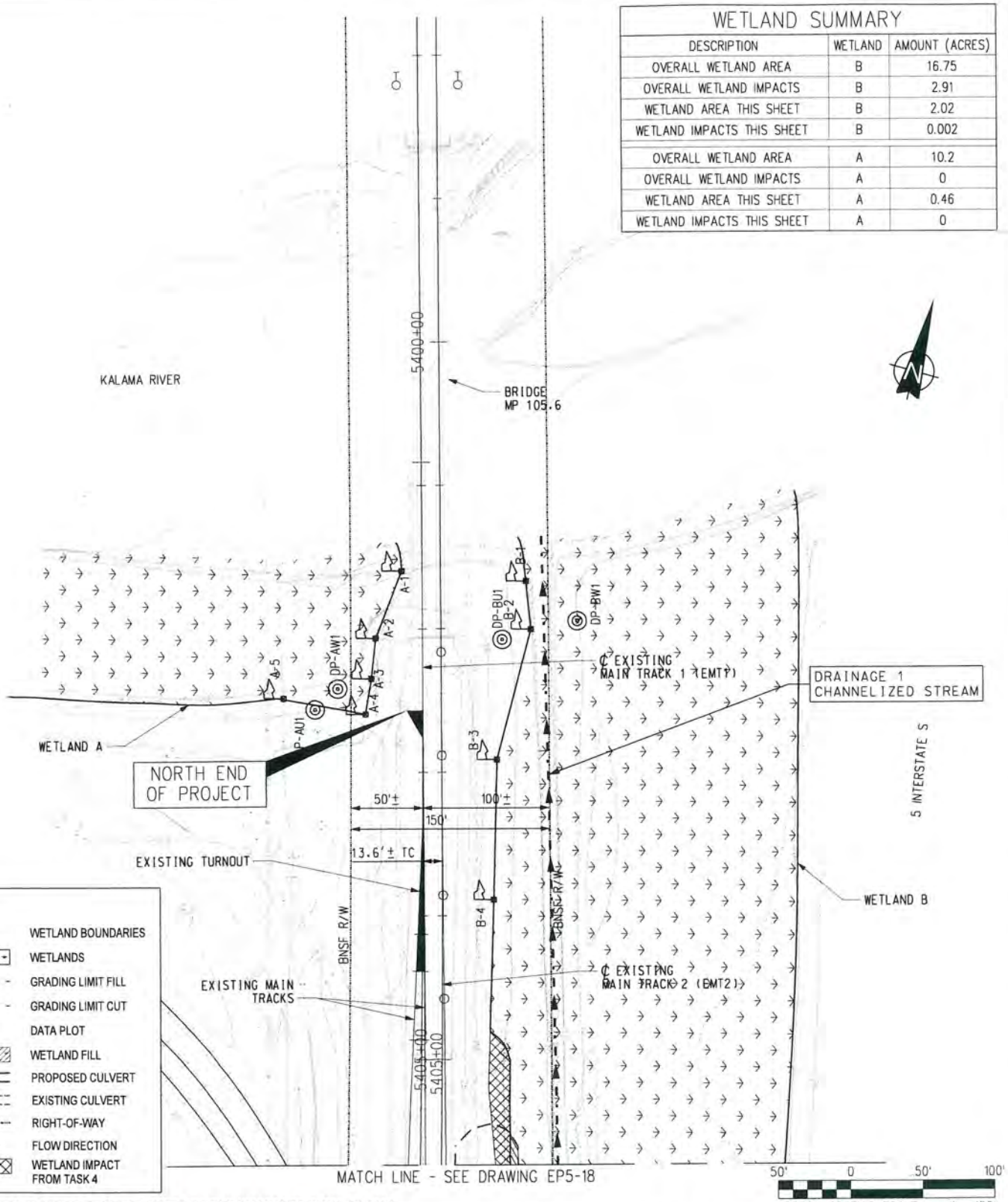


PROPOSED WORK - 18

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
SOUTH END (MP 110.00): 45°58'33.42"N, 122°49'24.75"W
WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-18	30/31	AS SHOWN

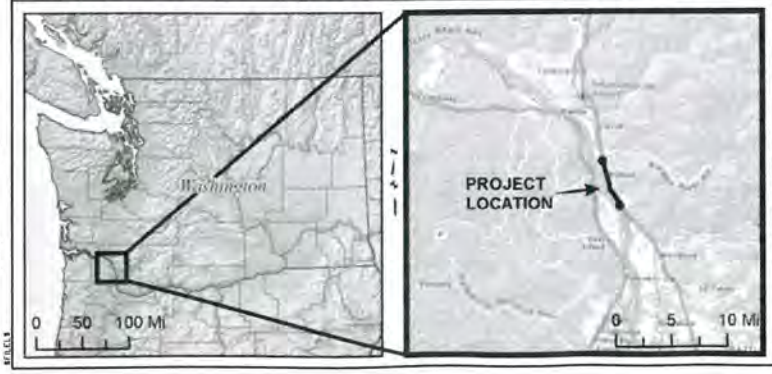
WETLAND SUMMARY		
DESCRIPTION	WETLAND	AMOUNT (ACRES)
OVERALL WETLAND AREA	B	16.75
OVERALL WETLAND IMPACTS	B	2.91
WETLAND AREA THIS SHEET	B	2.02
WETLAND IMPACTS THIS SHEET	B	0.002
OVERALL WETLAND AREA	A	10.2
OVERALL WETLAND IMPACTS	A	0
WETLAND AREA THIS SHEET	A	0.46
WETLAND IMPACTS THIS SHEET	A	0



LEGEND:

- A-2 WETLAND BOUNDARIES
- WETLANDS
- FILL GRADING LIMIT FILL
- CUT GRADING LIMIT CUT
- DATA PLOT
- WETLAND FILL
- PROPOSED CULVERT
- EXISTING CULVERT
- RIGHT-OF-WAY
- FLOW DIRECTION
- WETLAND IMPACT FROM TASK 4

BASEMAP: J.L. PATTERSON & ASSOCIATES PRELIMINARY DESIGN PLANS



PROPOSED WORK - 19

USACE REF. NO.: NWS-2014-416
PROJECT: BNSF TASK 5-INFRASTRUCTURE IMPROVEMENTS (KELSO TO MARTIN'S BLUFF-NEW SIDING)
PROPONENTS: BNSF RAILWAY / WSDOT / FRA
BNSF LOCATION: NORTHWEST DIVISION, SEATTLE SUB, LINE SEGMENT 52, MP 105.7 - MP 110.00
LEGAL: IN PORTIONS OF S6, 7, 18, 20, 37 & 44 T6N, R1W
NORTH END (MP 105.7): 46°02'2.80"N, 122°51'30.04"W
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WATERWAY: KALAMA RIVER, SCHOOLHOUSE CREEK & COLUMBIA RIVER **CITY:** KALAMA
COUNTY: COWLITZ **STATE:** WA **DATE:** SEPTEMBER 2013; REVISED AUG 2014

DRAWING NO.	SHEET NO.	SCALE
EP5-19	31/31	AS SHOWN