



1510 – B Third Street
Tillamook, Oregon 97141
www.tillamook.or.us
Building (503) 842-3407
Planning (503) 842-3408
Sanitation (503) 842-3409
FAX (503) 842-1819
Toll Free 1(800) 488-8280

Land of Cheese, Trees and Ocean Breeze

Floodway/Estuary/Floodplain Development Permit #851-21-000432-PLNG

*NOTICE TO MORTGAGEE, LIENHOLDER, VENDOR OR SELLER:
ORS 215 REQUIRES THAT IF YOU RECEIVE THIS NOTICE,
IT MUST BE PROMPTLY FORWARDED TO THE PURCHASER*

NOTICE OF ADMINISTRATIVE REVIEW

Date of Notice: February 4, 2022

Notice is hereby given that the Tillamook County Department of Community Development is considering the following:

#851-21-000432-PLNG: Review of a Floodway/Estuary/Floodplain Development Permit to perform maintenance activities (including placement of fill) on the levee separating the Nehalem Bay Wastewater Treatment Plant along the east bank of the Nehalem River. The project area is part of the Nehalem Bay Wastewater Agency property located in the Flood Hazard Overlay (FH) Zone, Farm (F-1) Zone and the Estuary Conservation 2 (EC 2) Zone. The subject property is located east of the City of Nehalem at 14855 Tideland Road and is designated as Tax Lot 380 in Section 27 of Township 3 North, Range 10 West of the Willamette Meridian, Tillamook County, Oregon. The applicant and property owner is Nehalem Bay Wastewater Agency.

Written comments received by the Department of Community Development prior to 4:00 p.m. on February 18, 2022, will be considered in rendering a decision. Comments should address the criteria upon which the Department must base its decision. A decision will be rendered no sooner than the next business day, February 22, 2022.

Notice of the application, a map of the subject area, and the applicable criteria are being mailed to all property owners within 750 feet of the exterior boundaries of the subject parcel for which the application has been made and other appropriate agencies at least 14 days prior to this Department rendering a decision on the request.

A copy of the application, along with a map of the request area and the applicable criteria for review are available for inspection on the Tillamook County Department of Community Development website: <https://www.co.tillamook.or.us/commdev/landuseapps> and is also available for inspection at the Department of Community Development office located at 1510-B Third Street, Tillamook, Oregon 97141.

If you have any questions about this application, please call the Department of Community Development at 503-842-3408 x 3317 or sabsher@co.tillamook.or.us

Sincerely,

A handwritten signature in blue ink that reads "Sarah Absher". The signature is fluid and cursive.

Sarah Absher, CFM, Director

Enc. Maps, Applicable Ordinance Criteria

REVIEW CRITERIA

TCLUO SECTION 3.510: FLOOD HAZARD OVERLAY ZONE

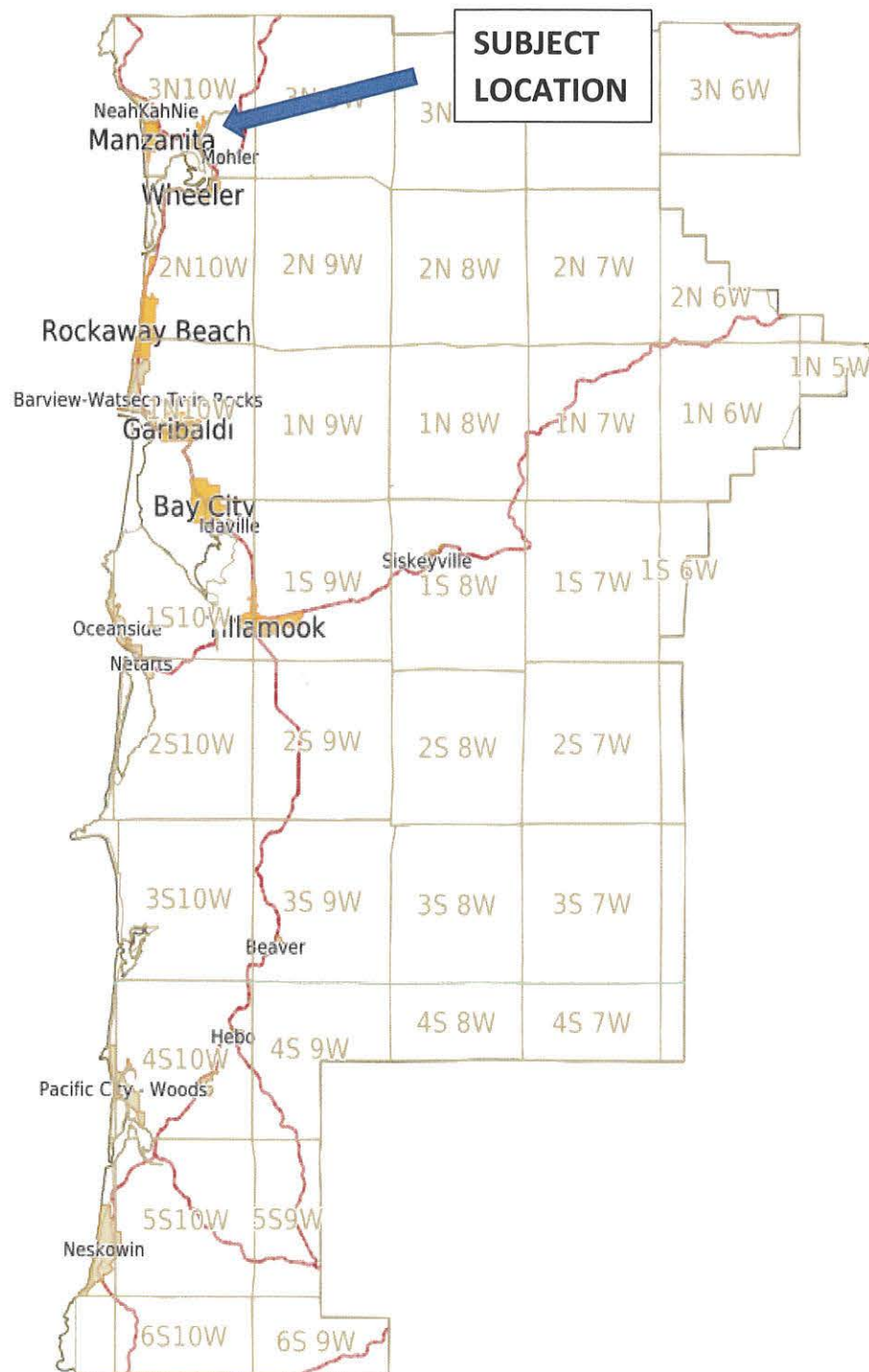
(14) DEVELOPMENT PERMIT PROCEDURES

(b) Development Permit Review Criteria

- (1) The fill is not within a Coastal High Hazard Area.
- (2) Fill placed within the Regulatory Floodway shall not result in any increase in flood levels during the occurrence of the base flood discharge.
- (3) The fill is necessary for an approved use on the property.
- (4) The fill is the minimum amount necessary to achieve the approved use.
- (5) No feasible alternative upland locations exist on the property.
- (6) The fill does not impede or alter drainage or the flow of floodwaters.
- (7) If the proposal is for a new critical facility, no feasible alternative site is available.

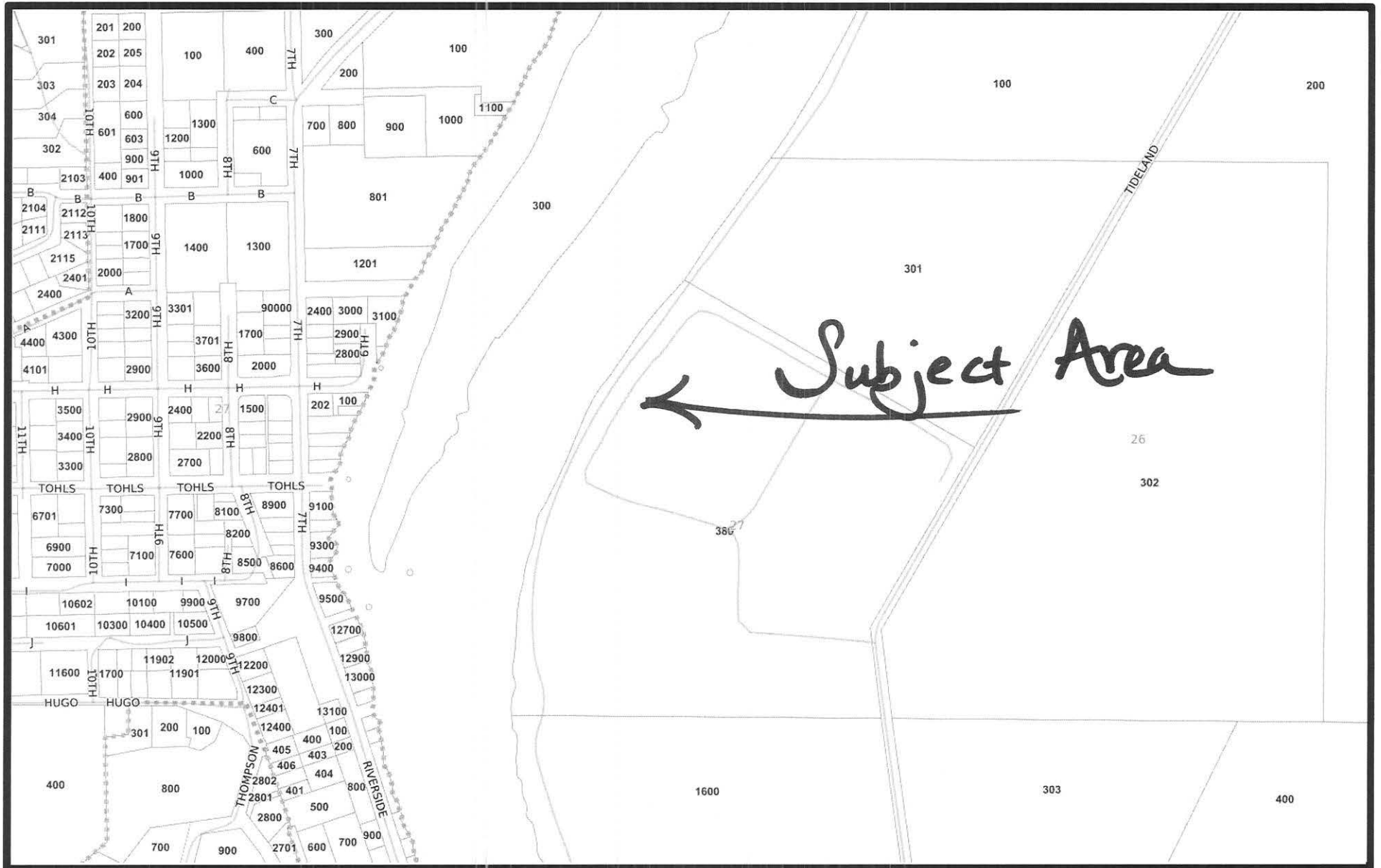
Conditions of approval may require that if the fill is found to not meet criterion (5), the fill shall be removed or, where reasonable and practical, appropriate mitigation measures shall be required of the property owner. Such measures shall be verified by a certified engineer or hydrologist that the mitigation measures will not result in a net rise in floodwaters and be in coordination with applicable state, federal and local agencies, including the Oregon Department of Fish and Wildlife.

VICINITY MAP

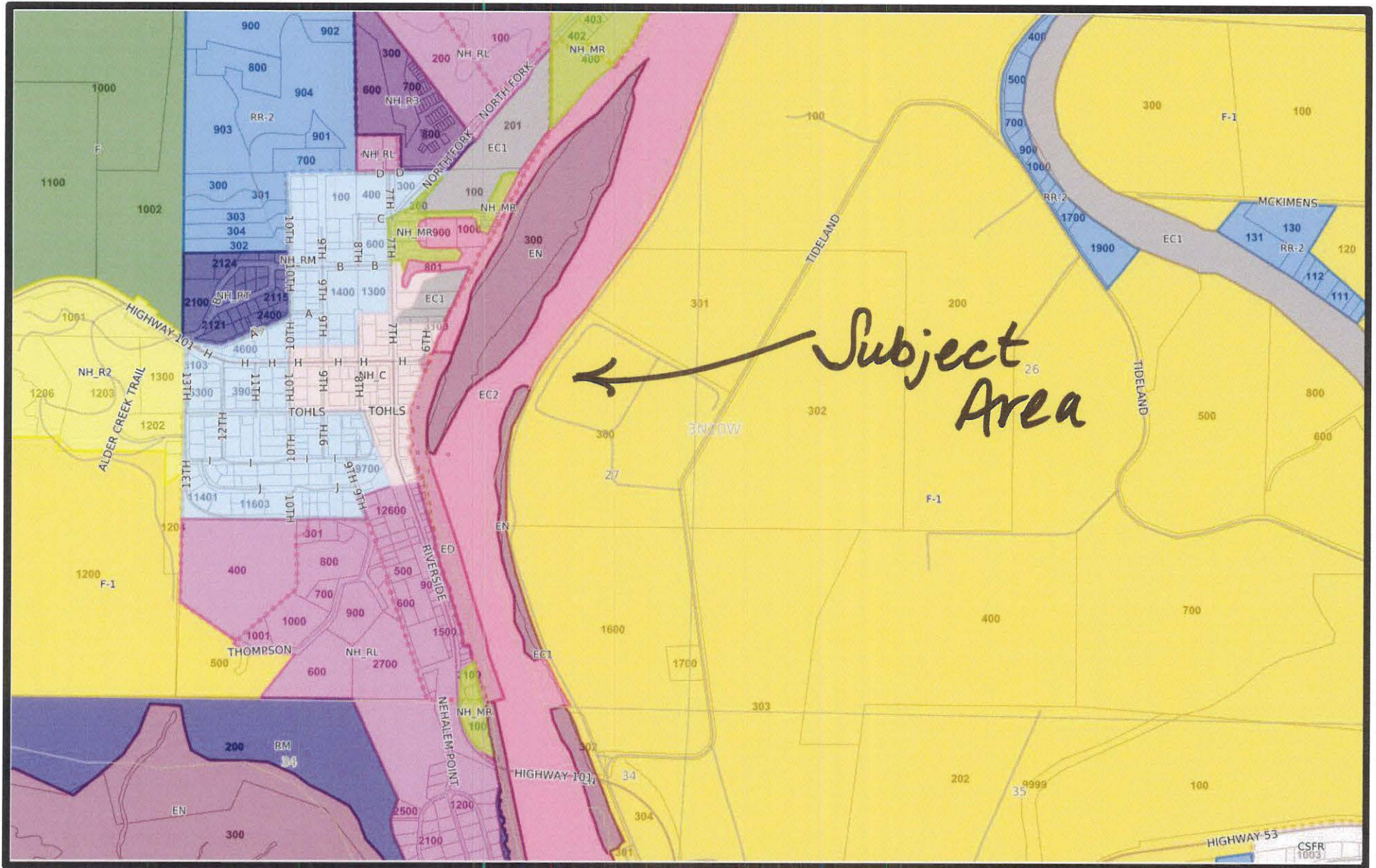


#851-21-000432-PLNG: NEHALEM BAY
WASTEWATER AGENCY

Map



Map





PLANNING APPLICATION

OFFICE USE ONLY	
Date Stamp	
<input type="checkbox"/> Approved <input type="checkbox"/> Denied	
Received by:	
Receipt #:	
Fees:	
Permit No: 851-____-____-PLNG	

Applicant (Check Box if Same as Property Owner)

Name: Nehalem Bay Wastewater Agency Phone: 503-368-5125
 Address: 14855 Tideland Road
 City: Nehalem State: OR Zip: 97131
 Email: nbwa2@nehalemtnet.net

Property Owner

Name: Nehalem Bay Wastewater Agency Phone: (503) 386-5125
 Address: PO Box 319
 City: Nehalem State: OR Zip: 97131
 Email: _____

Request: The purpose of this request is to obtain approval to perform maintenance activities on the levee separating the Nehalem Bay Wastewater Treatment Plant and the east bank of the Nehalem River within the Nehalem Bay Wastewater Agency property limits.

Type II

- Farm/Forest Review
- Conditional Use Review
- Variance
- Exception to Resource or Riparian Setback
- Nonconforming Review (Major or Minor)
- Development Permit Review for Estuary Development
- Non-farm dwelling in Farm Zone
- Foregone Grading Permit Review
- Neskowin Coastal Hazards Area

Type III

- Appeal of Director's Decision
- Extension of Time
- Detailed Hazard Report
- Conditional Use (As deemed by Director)
- Ordinance Amendment
- Map Amendment
- Goal Exception

Type IV

- Appeal of Planning Commission Decision
- Ordinance Amendment
- Large-Scale Zoning Map Amendment
- Plan and/or Code Text Amendment

Location:

Site Address: 14000 Tideland Rd

Map Number:	<u>3N</u>	<u>10W</u>	<u>27</u>	<u>380</u>
	Township	Range	Section	Tax Lot(s)

Clerk's Instrument #: _____

Authorization

This permit application does not assure permit approval. The applicant and/or property owner shall be responsible for obtaining any other necessary federal, state, and local permits. The applicant verifies that the information submitted is complete, accurate, and consistent with other information submitted with this application.

Property Owner Signature (Required)

Applicant Signature

12/1/21

12/1/21

Technical Memorandum

WEST Consultants, Inc.

2601 25th St. SE
Suite 450
Salem, OR 97302-1286
(503) 485 5490
(503) 485-5491 Fax
www.westconsultants.com

Name: Bruce Halverson
Date: 9 April 2021
From: Chris Bahner, P.E., D. WRE
Subject: Nehalem Bay Wastewater Agency, No-Rise Analysis and Certification



Introduction

Per your request, a FEMA “No-Rise” hydraulic analysis was conducted for the proposed streambank repairs located along the east bank of the Nehalem River within the Nehalem Bay Wastewater Agency property limits near the City of Nehalem in Tillamook County, Oregon. The property is located within a Special Flood Hazard Area (SFHA) of the Nehalem River floodplain in the left (east) overbank between FEMA lettered cross sections “C” and “D”. Further, portions of the streambank repairs will be made within the regulatory floodway. The effective base flood elevation is 13.7 ft at FEMA cross section “C” and 14.8 ft at FEMA cross section “D”. Both these elevations are referenced to the North American Vertical Datum of 1988 (NAVD88), and all elevations referenced in this memorandum will be based on this vertical datum. Figure 1 presents the study area and effective FEMA flood hazard mapping. All figures referenced in the text are found at the end of this memorandum.

As specified by Article 3, Section 2.03.510(9a) of the Tillamook County Code, new construction is prohibited within a regulatory floodway “unless certification is provided by a professional registered civil engineer demonstrating through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge.”

A hydraulic study was conducted in accordance with standard engineering practice for a FEMA No-Rise analysis which indicates that the proposed modifications will not result in an increase in water surface elevations during the base flood. This memorandum summarizes the analysis methodology and results.

Analysis Approach

The hydraulic study utilized the U.S. Army Corps of Engineers' (USACE) software HEC-RAS (Hydraulic Engineering Center – River Analysis System) version 5.0.7 (USACE 2019). The effective hydraulic modeling of this reach of the Nehalem River was conducted by WEST in November 2014.

Procedures set forth by FEMA Region 10 call for a multi-step analysis approach for evaluating a proposed project for No-Rise certification (FEMA 2013). The steps are as follows:

1. Current Effective Model: Obtain the effective model upon which the current effective base flood elevations and floodway extents is based. Effective models are archived by FEMA.
2. Duplicate Effective Model (DEM): Use the Current Effective Model input data to create a Duplicate Effective Model to ensure that the results recorded in the effective FIS can be reproduced within an acceptable tolerance.
3. Corrected Effective Model (CEM): The Duplicate Effective Model is then modified to correct any errors and incorporate the most recent topographic information.
4. Existing Conditions Model (ECM): The Corrected Effective Model is revised to reflect any modifications that have occurred within the floodplain since the date of the original analysis but prior to the proposed project. This model should be the best depiction of existing conditions.
5. Proposed Conditions Model (PCM): The Proposed Conditions Model is to reflect conditions following the completion of the project and will be compared with the Existing Conditions Model to determine the projects effects (if any). The direct comparison of water surface elevations between the results of these two models is the basis of a No-Rise analysis.

The effective model was developed by WEST Consultants, Inc. (WEST) for a Letter of Map Revision (LOMR), effective September 24, 2015. The model produced for the LOMR was used to perform the hydraulic analysis for this No-Rise.

Effective Model

Documentation accompanying the effective model indicates that it was produced using Geographic Information System (GIS) data available in the digital flood insurance map (DFIRM) for Tillamook County (FEMA) and topographic data available from the Oregon Department of Geologic and Mineral Industries (DOGAMI 2009). The model includes FEMA lettered cross sections A through J and 21 unlettered cross sections. Bathymetry at all cross sections except for the reach between River Mile (RM) 1.4 and RM 1.7 was based on NOAA data and manual adjustment to the thalweg elevations to match the FIS profiles. Bathymetry for all cross sections located between RM 1.4 and RM 1.7 was based on the bathymetric survey data obtained by WEST in March 2021. Discharges and downstream boundary conditions are based on published values in the effective Flood Insurance Study. The limits of floodway encroachments were extracted from the 'S_FLD_HAZ_LN' GIS data layer in the DFIRM. All remaining hydraulic parameters in the effective model (Manning's roughness, flow-paths, etc.) were estimated based on data listed in the FIS, publicly available aerial imagery, engineering judgement, and from observations I made during the field reconnaissance on March 1, 2021.

Duplicate Effective Model (DEM)

A Duplicate Effective Model (DEM) was created from a copy of the effective. Results from the DEM were compared with water surface elevations published in the floodway data table and on flood profiles in the FIS. The DEM results are within the minimum agreement tolerance of 0.1 feet, so it is considered sufficient for conducting a No-Rise analysis. Table 1 presents the comparison of DEM and FIS water surface elevations.

Corrected Effective Model (CEM)

The DEM was modified to create the Corrected Effective Model (CEM). The modifications consisted of adding four additional cross section at locations where the proposed streambank repairs will be made. Figure 2 shows the added cross sections. Results from the CEM were compared with the water surface elevations computed by the DEM. That comparison is presented in Table 2.

As seen in Table 2, the CEM water surface elevations for the reach represented by the additional cross sections are about 0.02 to 0.11 ft higher than the DEM water surface elevations, and the CEM water surface elevations for the river reach upstream of the additional cross section are about 0.05 to 0.15 ft lower than the DEM water surface elevations. The floodway surcharge (which is not shown in the table) is still less than that maximum 1 foot increase allowed by FEMA.

Table 1 - Duplicate Effective Model vs. Effective FIS

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		FIS Effective Model	DEM	Difference (DEM - FIS)	FIS Effective Model	DEM	Difference (FIS - DEM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.50	--	14.04	14.04	0.00	14.36	14.36	0.00
1.74	--	14.31	14.31	0.00	14.64	14.64	0.00
1.92	--	14.74	14.74	0.00	15.13	15.13	0.00
2.01	D	14.84	14.84	0.00	15.26	15.26	0.00
2.28	--	14.95	14.95	0.00	15.35	15.35	0.00
2.49	--	15.15	15.15	0.00	15.53	15.53	0.00
2.92	E	15.53	15.53	0.00	15.89	15.89	0.00
3.12	--	15.68	15.68	0.00	16.12	16.12	0.00
3.24	--	15.75	15.75	0.00	16.25	16.25	0.00
3.28	--	15.79	15.79	0.00	16.33	16.33	0.00
3.66	F	16.22	16.22	0.00	16.96	16.96	0.00
3.80	--	15.98	15.98	0.00	16.77	16.77	0.00
4.78	G	17.53	17.53	0.00	18.34	18.34	0.00
5.17	--	17.60	17.6	0.00	18.41	18.41	0.00
5.26	--	17.63	17.63	0.00	18.45	18.45	0.00
5.34	--	17.66	17.66	0.00	18.48	18.48	0.00
5.55	H	17.54	17.54	0.00	18.39	18.39	0.00
5.65	--	17.50	17.50	0.00	18.34	18.34	0.00
5.79	--	17.86	17.86	0.00	18.70	18.70	0.00
5.88	I	18.09	18.09	0.00	18.87	18.87	0.00
5.951	--	17.98	17.98	0.00	18.74	18.74	0.00
5.98	J	18.04	18.04	0.00	18.80	18.80	0.00

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile

Table 2 - Corrected Effective Model vs. Duplicate Effective Model

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		DEM	CEM	Difference (CEM - DEM)	DEM	CEM	Difference (CEM - DEM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.40*		13.95	14.06	0.11	14.27	14.38	0.11
1.50	--	14.04	14.11	0.07	14.36	14.43	0.07
1.59*		14.10	14.16	0.06	14.43	14.46	0.03
1.63*		14.18	14.26	0.08	14.51	14.53	0.02
1.69*		14.25	14.29	0.04	14.58	14.59	0.01
1.74	--	14.31	14.34	0.03	14.64	14.67	0.03
1.92	--	14.74	14.59	-0.15	15.13	15.01	-0.12
2.01	D	14.84	14.70	-0.14	15.26	15.13	-0.13
2.28	--	14.95	14.81	-0.14	15.35	15.23	-0.12
2.49	--	15.15	15.02	-0.13	15.53	15.42	-0.11
2.92	E	15.53	15.41	-0.12	15.89	15.78	-0.11
3.12	--	15.68	15.56	-0.12	16.12	16.01	-0.11
3.24	--	15.75	15.63	-0.12	16.25	16.14	-0.11
3.28	--	15.79	15.67	-0.12	16.33	16.22	-0.11
3.66	F	16.22	16.11	-0.11	16.96	16.86	-0.10
3.80	--	15.98	15.86	-0.12	16.77	16.67	-0.10
4.78	G	17.53	17.46	-0.07	18.34	18.28	-0.06
5.17	--	17.60	17.54	-0.06	18.41	18.35	-0.06
5.26	--	17.63	17.56	-0.07	18.45	18.39	-0.06
5.34	--	17.66	17.60	-0.06	18.48	18.42	-0.06
5.55	H	17.54	17.47	-0.07	18.39	18.32	-0.07
5.65	--	17.50	17.43	-0.07	18.34	18.28	-0.06
5.79	--	17.86	17.80	-0.06	18.70	18.65	-0.05
5.88	I	18.09	18.03	-0.06	18.87	18.82	-0.05
5.951	--	17.98	17.93	-0.05	18.74	18.69	-0.05
5.98	J	18.04	17.99	-0.05	18.80	18.75	-0.05

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile
 * Indicates new cross section

Existing Conditions Model (ECM)

No changes were made for the ECM, so the ECM is the same as the CEM.

Proposed Conditions Model (PCM)

The proposed conditions incorporate the rock fill materials that will be used to make the streambank repairs. These repairs will be made within six individual reaches along the east bank of the Nehalem River adjacent to the Nehalem Bay Wasteway Agency property. The reaches are shown in Figure 3, and cross sections of the proposed revetment repairs are shown in Figure 4. The PCM was created from the ECM by modifying the cross sections to reflect the proposed changes associated with the rock revetment repairs.

Analysis Results

Water surface elevations predicted by the ECM and PCM models were compared to determine if the proposed rock revetment repairs would result in a rise in water surface elevations for either the base flood or the floodway. Table 3 presents the computed water surface elevations for the ECM and PCM, and the calculated difference. As the table indicates, the proposed revetment repairs will not result in a rise in water surface elevations along the Nehalem River for either the base flood or the floodway. A FEMA No-Rise Certificate is provided in Figure 5. Supporting data, including the effective FEMA flood hazard mapping and modeling cross sections, are included in Appendix A.

If you have any questions, please feel free to contact me by phone at (503) 485-5490, or by email at cbahner@westconsultants.com.

Table 3 - Proposed Conditions vs. Existing Conditions

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		ECM	PCM	Difference (PCM - ECM)	ECM	PCM	Difference (PCM - ECM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.40*		14.06	14.06	0.00	14.38	14.38	0.00
1.50*	--	14.11	14.11	0.00	14.43	14.43	0.00
1.59*		14.16	14.16	0.00	14.46	14.46	0.00
1.63*		14.26	14.26	0.00	14.53	14.53	0.00
1.69*		14.29	14.29	0.00	14.59	14.59	0.00
1.74	--	14.34	14.34	0.00	14.67	14.67	0.00
1.92	--	14.59	14.59	0.00	15.01	15.01	0.00
2.01	D	14.70	14.70	0.00	15.13	15.13	0.00
2.28	--	14.81	14.81	0.00	15.23	15.23	0.00
2.49	--	15.02	15.02	0.00	15.42	15.42	0.00
2.92	E	15.41	15.41	0.00	15.78	15.78	0.00
3.12	--	15.56	15.56	0.00	16.01	16.01	0.00
3.24	--	15.63	15.63	0.00	16.14	16.14	0.00
3.28	--	15.67	15.67	0.00	16.22	16.22	0.00
3.66	F	16.11	16.11	0.00	16.86	16.86	0.00
3.80	--	15.86	15.86	0.00	16.67	16.67	0.00
4.78	G	17.46	17.46	0.00	18.28	18.28	0.00
5.17	--	17.54	17.54	0.00	18.35	18.35	0.00
5.26	--	17.56	17.56	0.00	18.39	18.39	0.00
5.34	--	17.6	17.60	0.00	18.42	18.42	0.00
5.55	H	17.47	17.47	0.00	18.32	18.32	0.00
5.65	--	17.43	17.43	0.00	18.28	18.28	0.00
5.79	--	17.80	17.80	0.00	18.65	18.65	0.00
5.88	I	18.03	18.03	0.00	18.82	18.82	0.00
5.951	--	17.93	17.93	0.00	18.69	18.69	0.00
5.98	J	17.99	17.99	0.00	18.75	18.75	0.00

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile
 * Indicates cross sections modified per proposed revetment repairs

References

U.S. Army Corps of Engineers, Hydrologic Engineering Center; HEC-RAS, River Analysis System, Software Version 5.0.7; March 2019

U.S. Department of Homeland Security, Federal Emergency Management Agency; Flood Insurance Study for Tillamook County, OR and Incorporated Areas, 41057C002A, Vol. 1 and 2; Effective September 28, 2018

U.S. Department of Homeland Security, Federal Emergency Management Agency; Letter of Map Revision, Case No. 14-10-1695P; Effective September 24, 2015

U.S. Department of Homeland Security, Federal Emergency Management Agency, Region X; Procedures for “No-Rise” Certification for Proposed Developments in the Regulatory Floodway; October 2013

Oregon Department of Geology and Mineral Industries; Light Detection and Ranging (LiDAR) data; OLC North Coast 2020; Published August 2009

Figures

Figure 1 - Study Area with Effective FEMA Flood Hazard Mapping

Figure 2 - Cross Sections Added for CEM

Figure 3 – Proposed Revetment Repair Reaches

Figure 4 – Proposed Revetment Cross Sections

Figure 5 – FEMA No-Rise Certificate

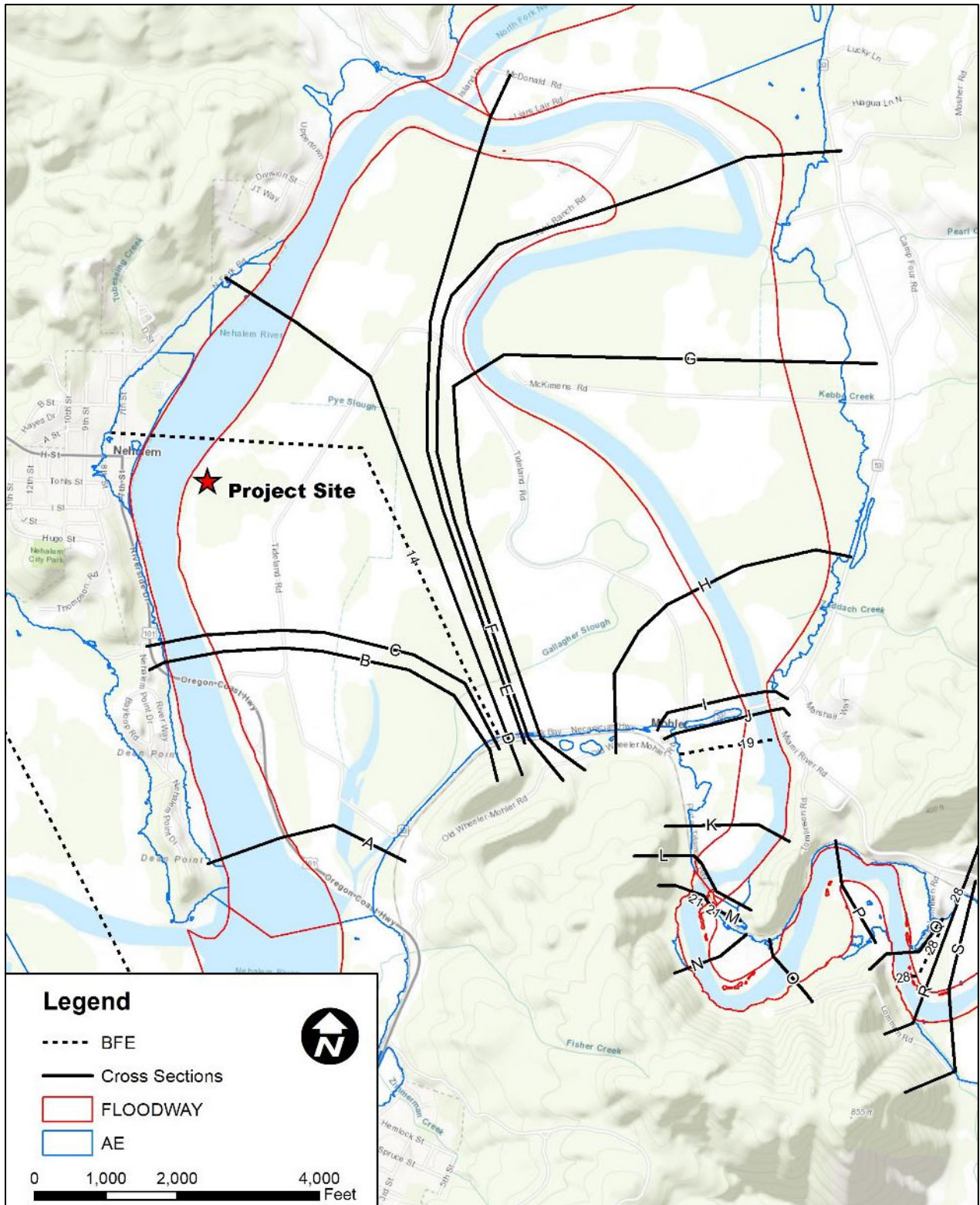


Figure 1 - Study Area with Effective FEMA Flood Hazard Mapping

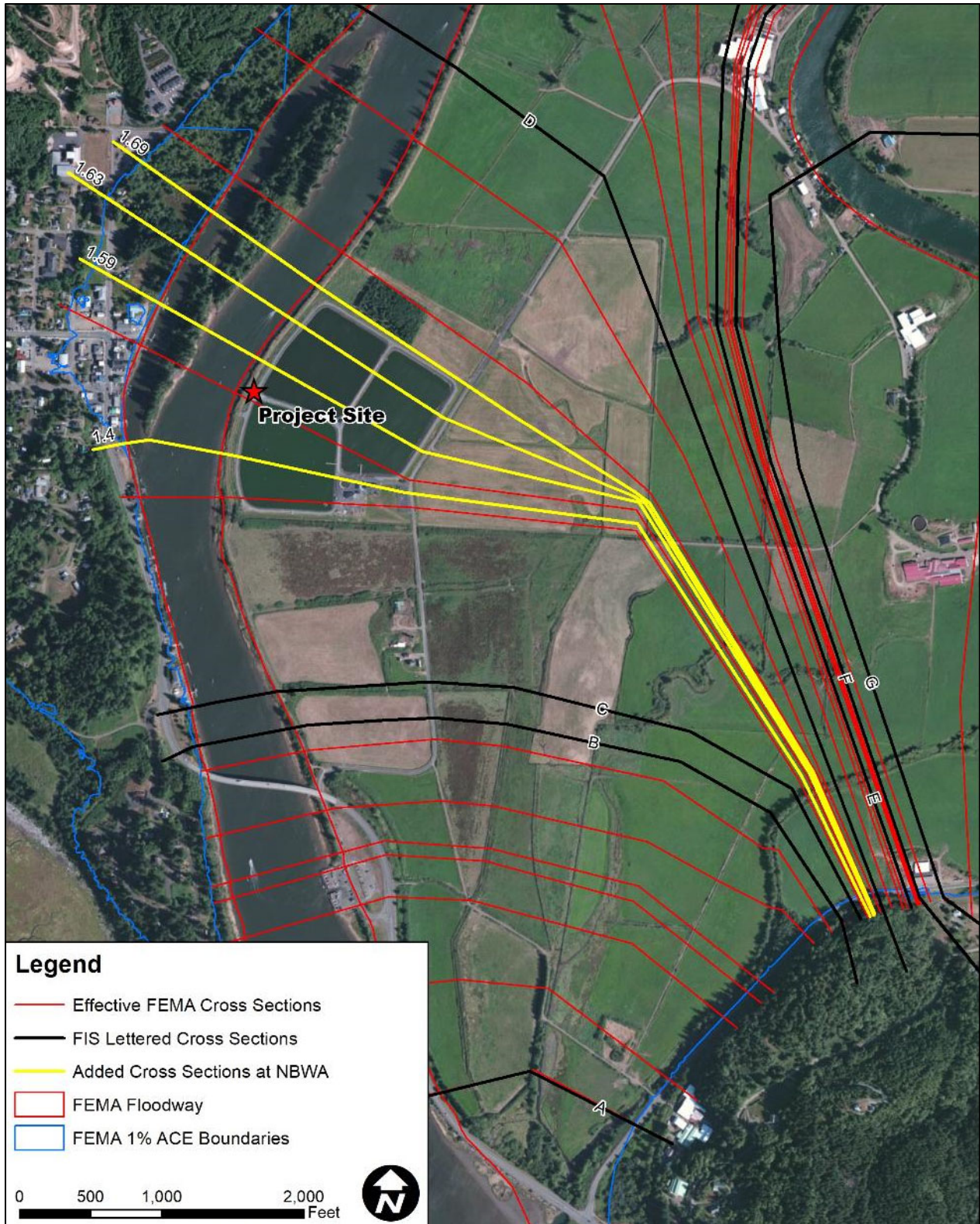


Figure 2 - Cross Sections Added for CEM

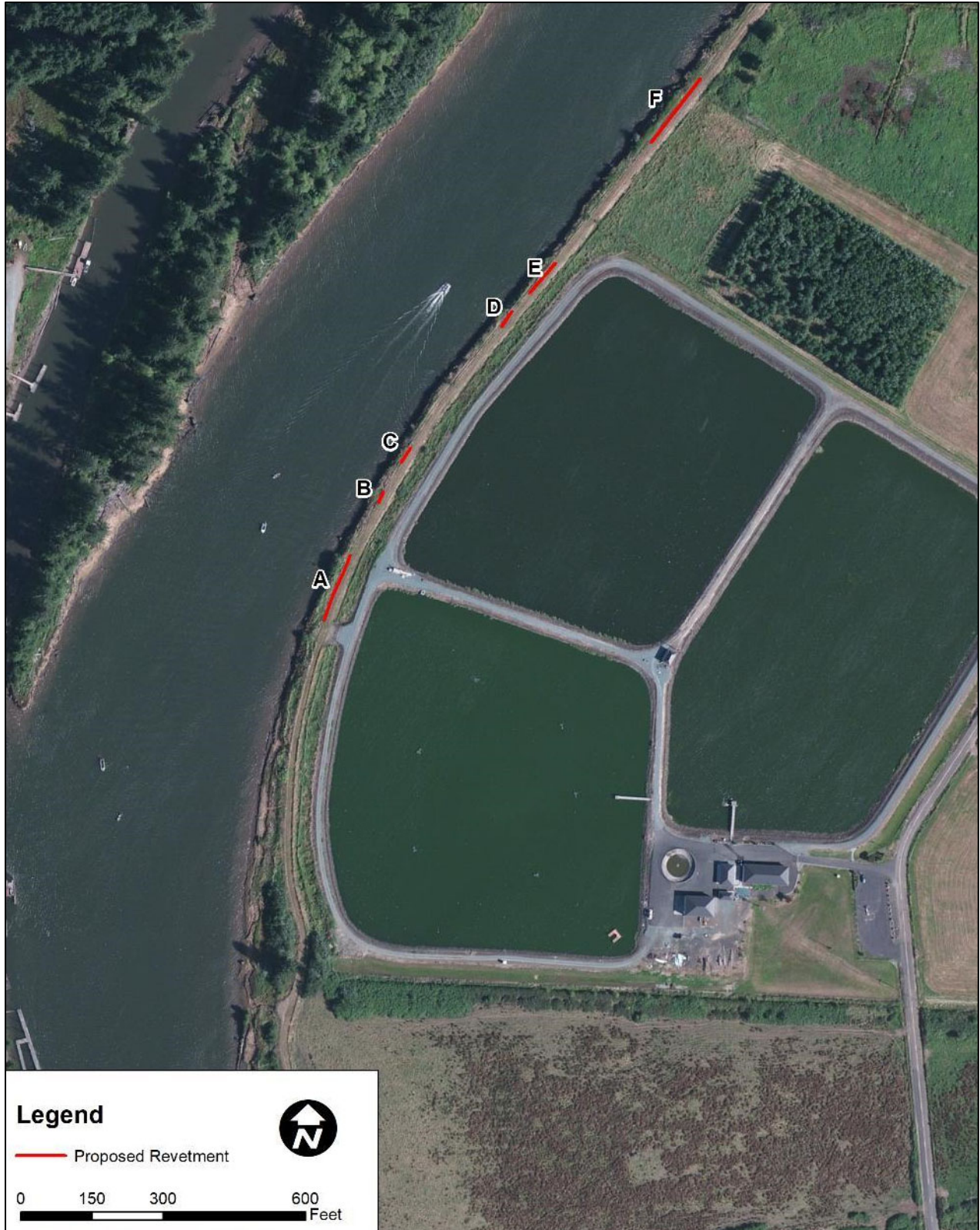


Figure 3 – Proposed Revetment Repair Reaches

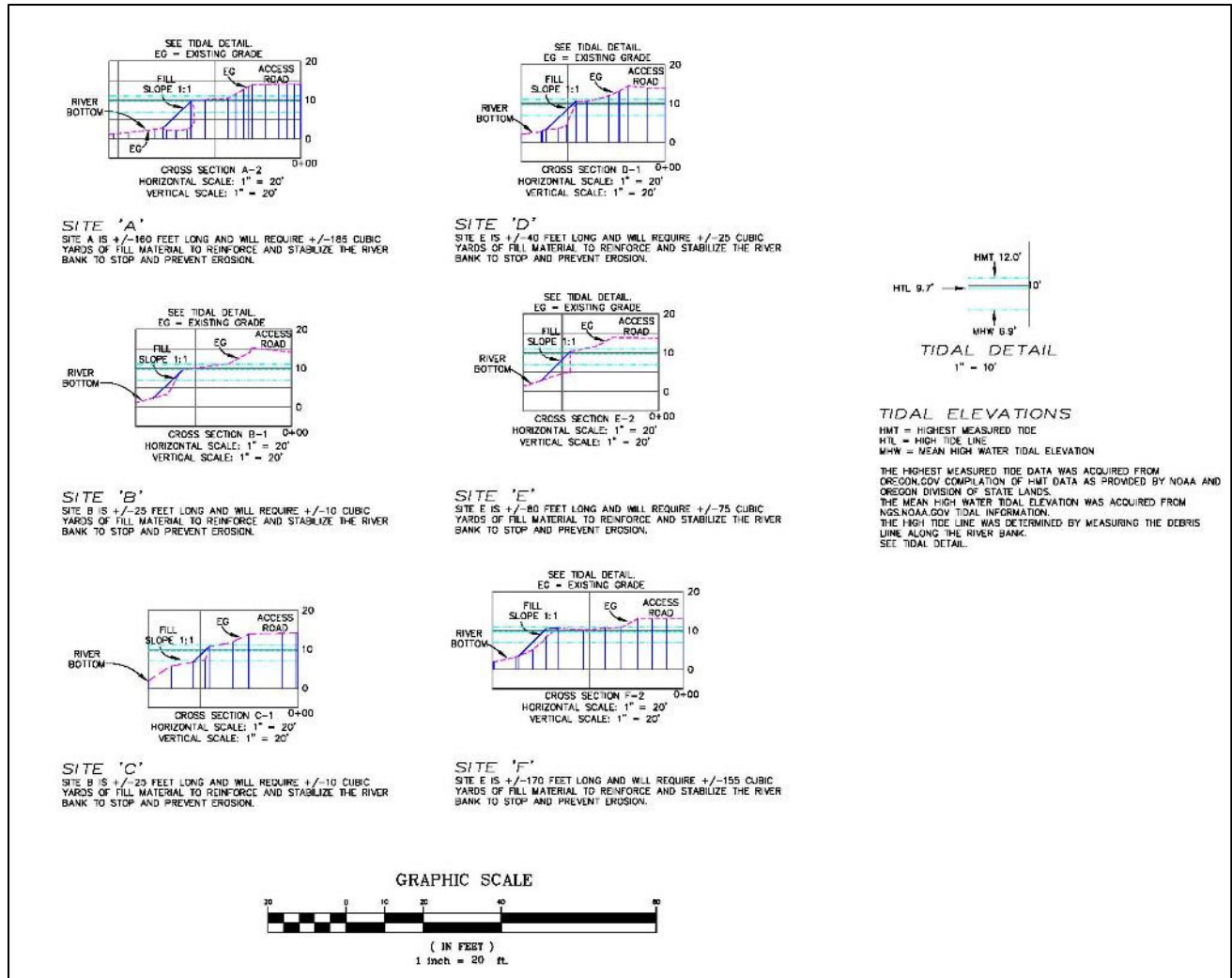


Figure 4 – Proposed Revetment Cross Sections

ENGINEERING "NO-RISE" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the State of Oregon.

It is to further certify that the attached technical data supports the fact that the proposed Nehalem Bay Wastewater Agency revetment repair project will
(Name of Development)

not impact the 100-year flood elevations, floodway elevations and floodway widths for the Nehalem River at published sections
(Name of Stream)

in the Flood Insurance Study for Tillamook County & Incorporated Areas (41057C0209F and 207F),
(Name of Community)

dated September 28, 2018 and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Attached are the following documents that support my findings:

Technical Memorandum by WEST Consultants, Inc. dated April 9, 2021.

(Date) April 9, 2021

(Signature) *Chris Bahner*

(Title) Project Manager

WEST Consultants, Inc.
2601 25th Street
Suite 450
Salem, OR 97302

(Address)

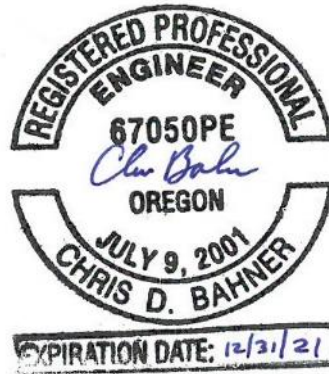


Figure 5 – FEMA No-Rise Certificate

Appendix A

Effective FIRM Panel

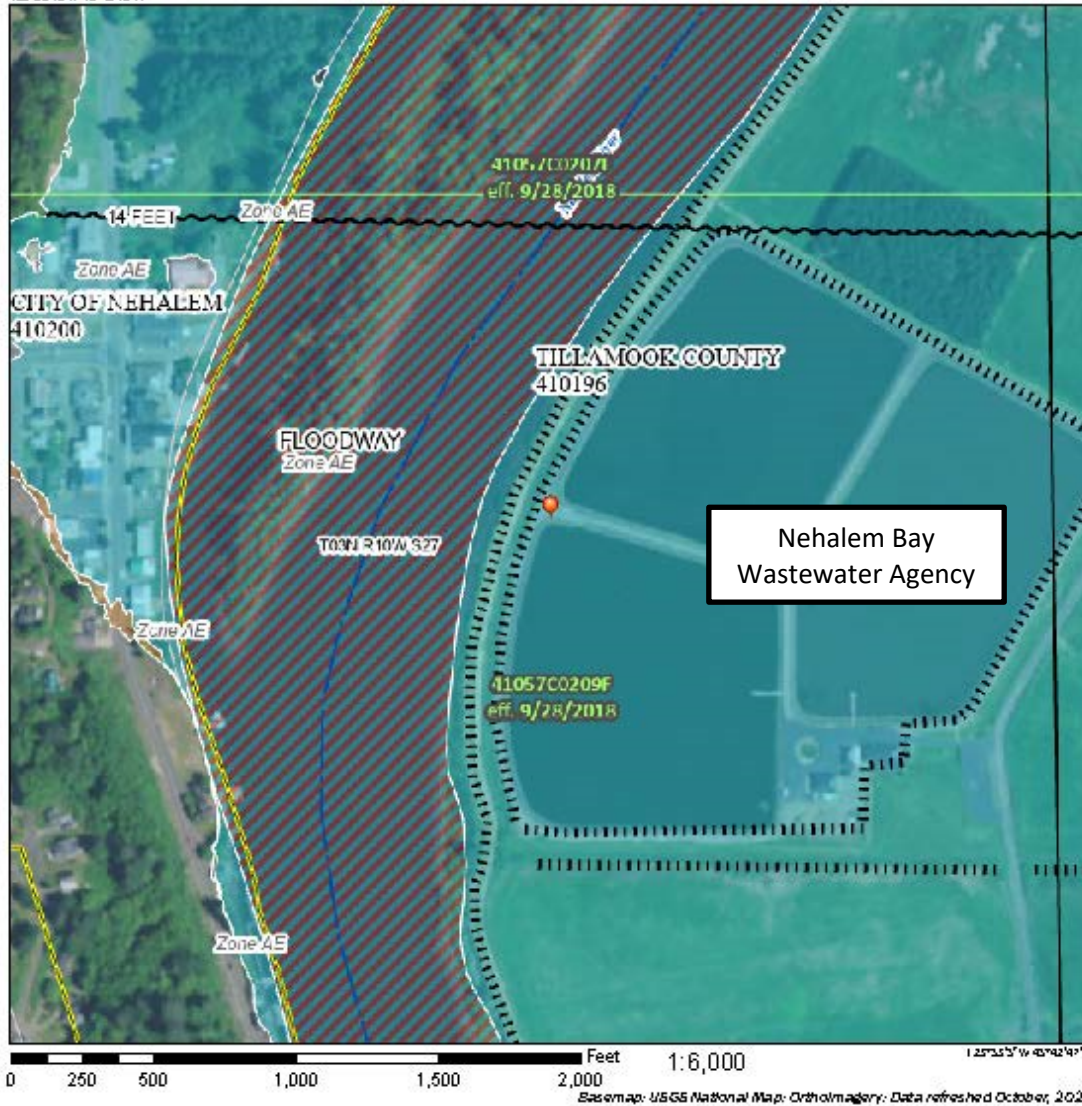
Effective Floodway Data Table

HEC-RAS Cross Section Plots, Existing and Proposed Conditions

National Flood Hazard Layer FIRMette



125°55'27"W 43°42'12"N



Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, AE2
		With BFE or Depth Zone AE, AO, AO/VC, AF
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with average depth less than one foot, or with drainage areas of less than one square mile. Zone X
		Future Conditions 1% Annual Chance Flood Hazard. Zone X
		Area with Reduced Flood Risk due to Levee. See Note 3. Zone X
		Area with Flood Risk due to Levee. Zone O
OTHER AREAS		Area of Minimal Flood Hazard. Zone I
		Effective 10 MRS
		Area of Unincorporated Flood Hazard. Zone O
GENERAL STRUCTURES		Chimney, Culvert, or Storm Sewer
		Levee, Dike, or Roadwall
OTHER FEATURES		Cross Sections with 1% Annual Chance Water Surface Elevation
		Casual Transferec
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Casual Transferec Baseline
		Profile Baseline
		Hydrographic Feature
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped
		The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards.

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was updated on 4/7/2021 at 5:53 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map corner data, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unincorporated areas cannot be used for regulatory purposes.

Effective FEMA FIRM Panel

LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,360	1,045	15,503	4.8	13.1	13.1	13.5	0.4
B	5,178	675	13,824	5.2	13.6	13.6	14.0	0.4
C	5,455	617	13,139	5.5	13.7	13.7	14.0	0.3
D	10,617	740	14,543	4.9	14.8	14.8	15.3	0.5
E	15,349	570	9,568	6.5	15.5	15.5	15.9	0.4
F	19,086	2,480	20,374	6.0	16.2	16.2	17.0	0.8
G	25,158	4,388	41,742	3.8	17.5	17.5	18.4	0.9
H	29,642	1,813	12,272	8.1	17.5	17.5	18.4	0.9
I	31,318	349	6,529	9.0	18.0	18.0	18.8	0.8
J	31,608	270	6,183	9.6	18.0	18.0	18.8	0.8
K	33,368	734	9,487	8.7	20.3	20.3	20.7	0.4
L	34,492	670	9,877	7.1	20.8	20.8	21.7	0.9
M	34,620	346	7,700	7.7	20.8	20.8	21.7	0.9
N	35,660	326	7,069	8.3	23.8	23.8	24.3	0.5
O	37,350	491	11,908	4.9	25.9	25.9	26.4	0.5
P	39,090	532	10,916	5.4	26.6	26.6	27.1	0.5
Q	40,680	236	6,670	8.8	27.4	27.4	27.9	0.5
R	41,490	455	10,047	5.8	28.8	28.8	29.4	0.6
S	41,890	435	9,623	5.9	29.0	29.0	29.6	0.6
T	42,830	285	6,434	8.8	29.5	29.5	30.3	0.8
U	43,210	378	8,062	7.1	30.7	30.7	31.2	0.5
V	45,790	370	7,391	7.7	32.4	32.4	32.9	0.5
W	47,330	593	8,370	6.7	32.9	32.9	33.7	0.8
X	48,885	631	12,388	4.5	33.7	33.7	34.7	1.0

¹Feet above confluence with Nehalem Bay

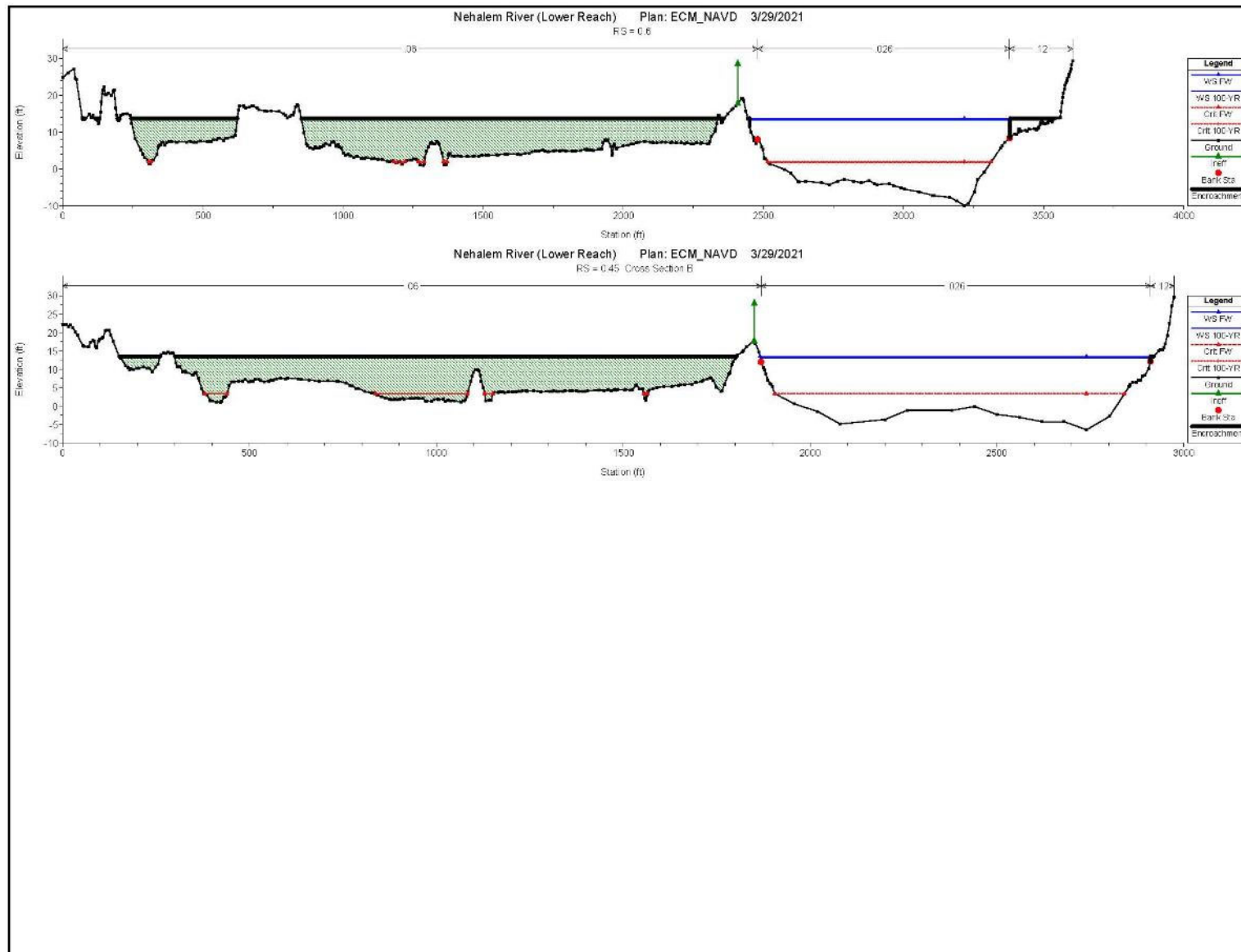
TABLE 24

**FEDERAL EMERGENCY MANAGEMENT AGENCY
TILLAMOOK COUNTY, OREGON
AND INCORPORATED AREAS**

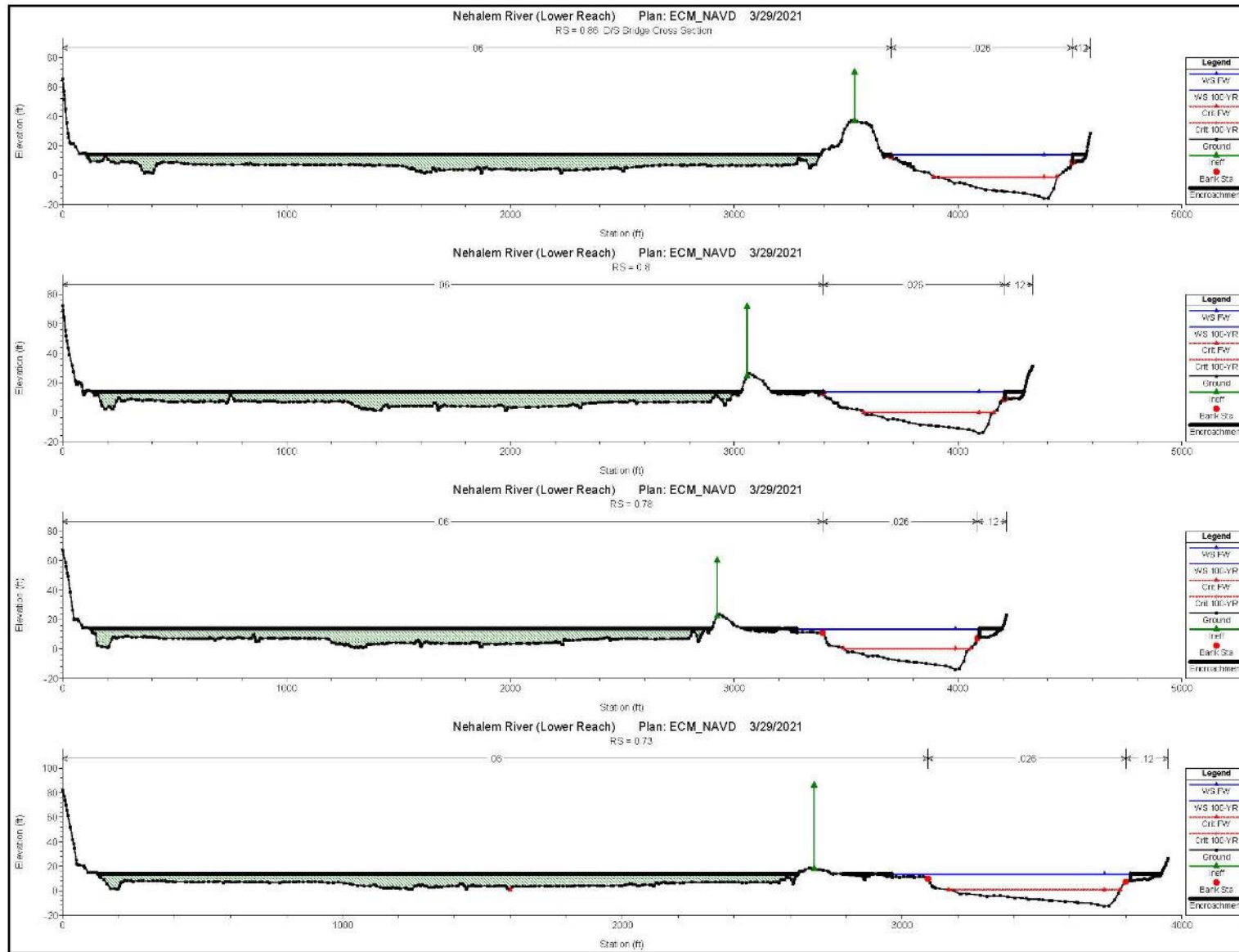
FLOODWAY DATA

FLOODING SOURCE: NEHALEM RIVER

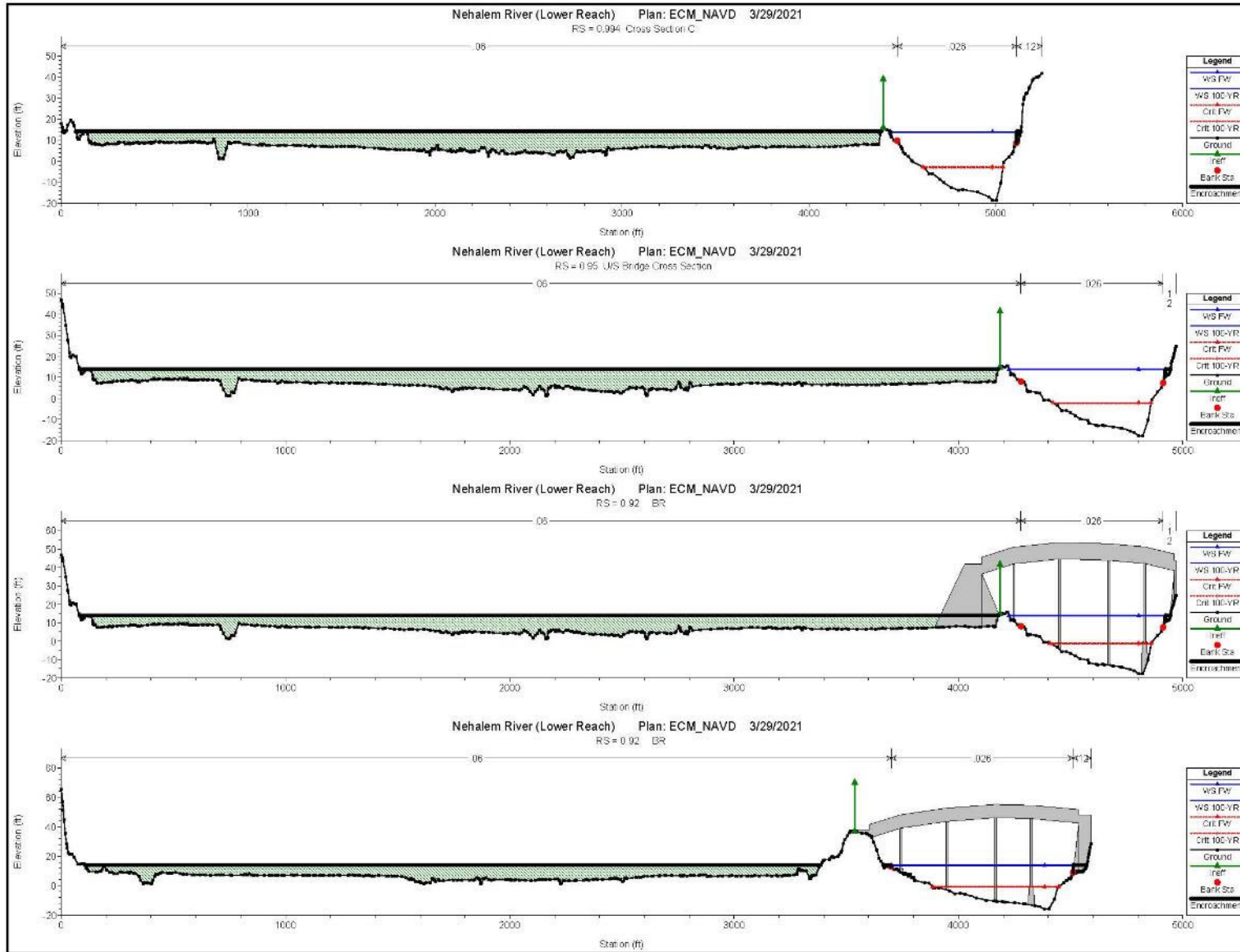
HEC-RAS Cross Section Plots – Existing Conditions



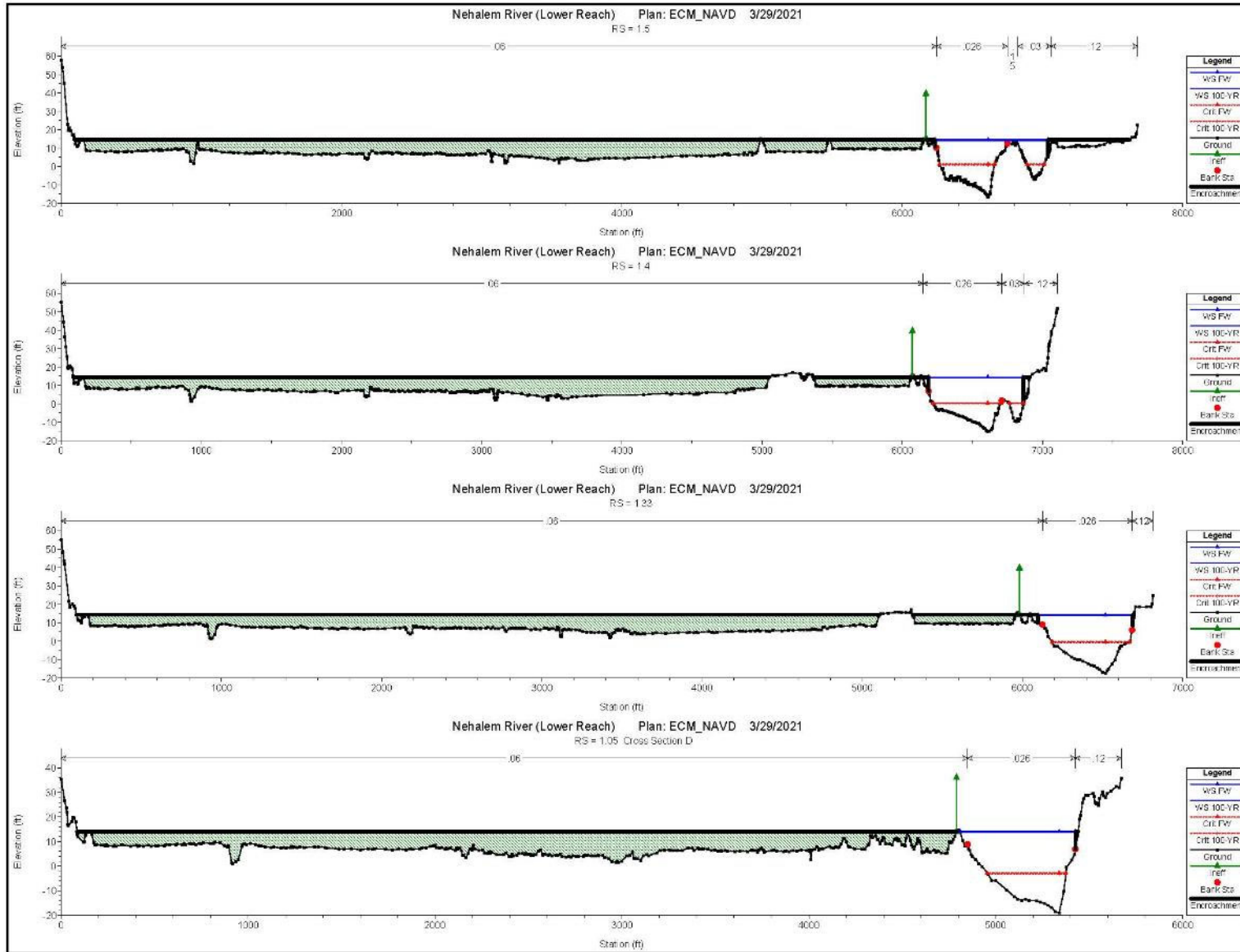
HEC-RAS Cross Section Plots – Existing Conditions



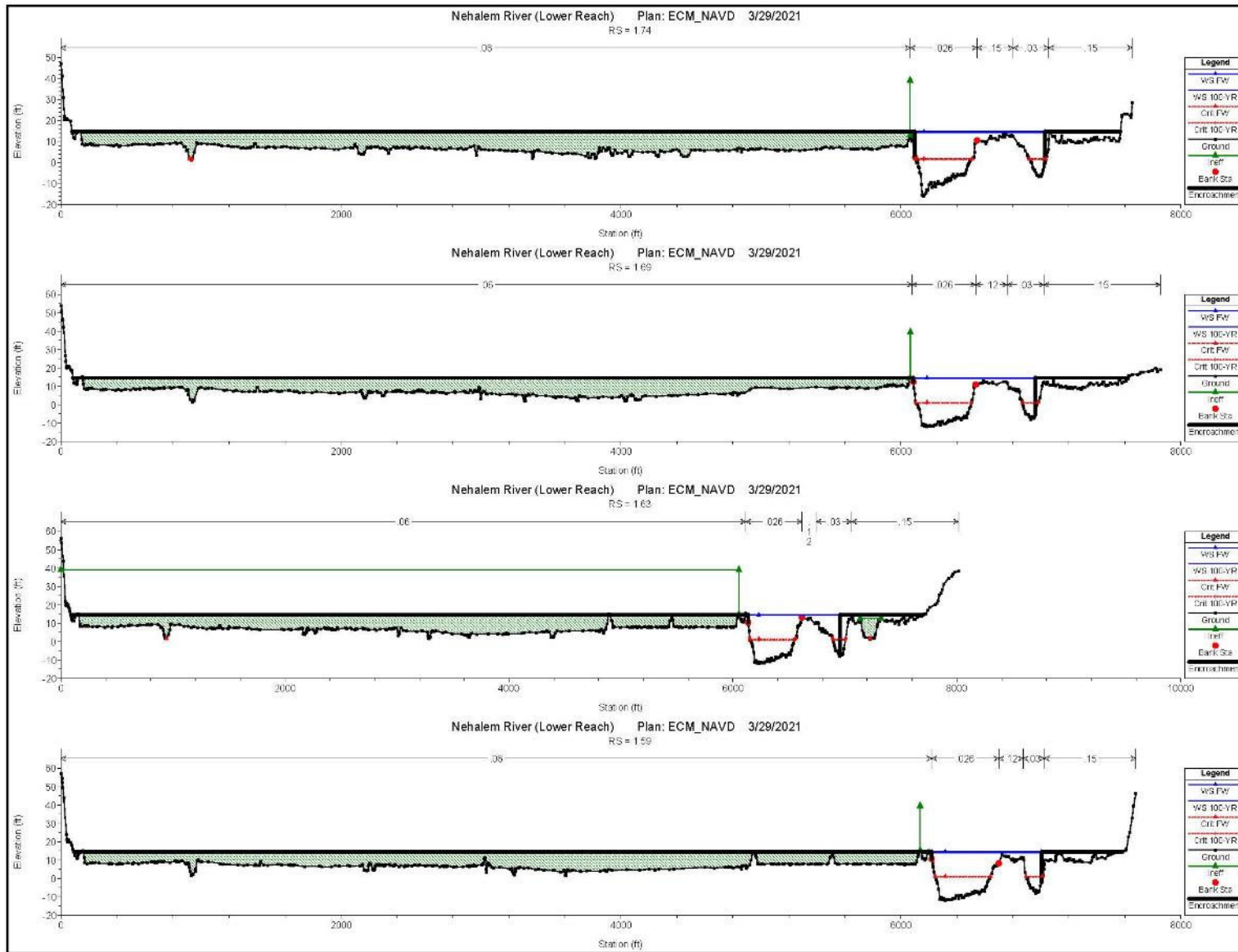
HEC-RAS Cross Section Plots – Existing Conditions



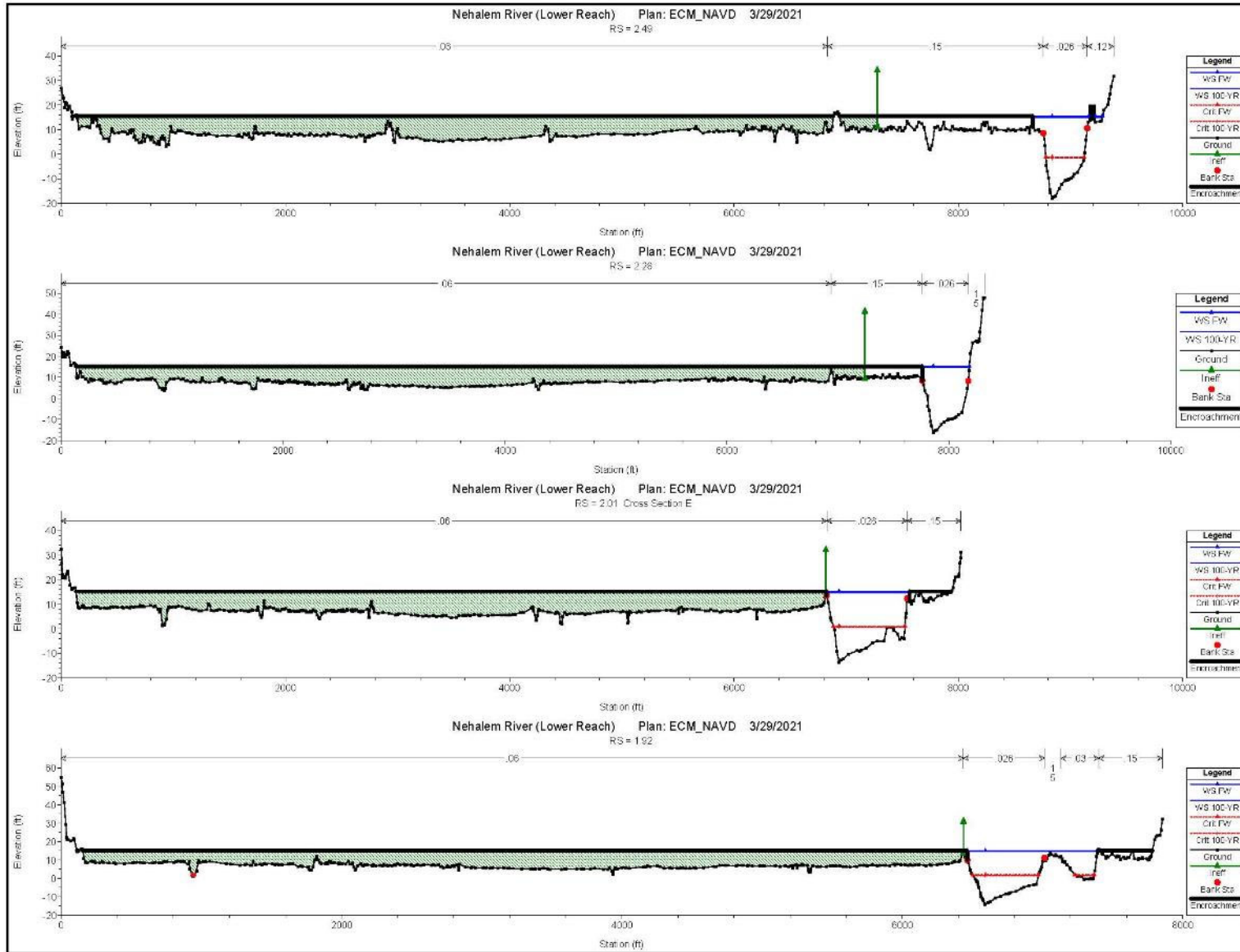
HEC-RAS Cross Section Plots – Existing Conditions



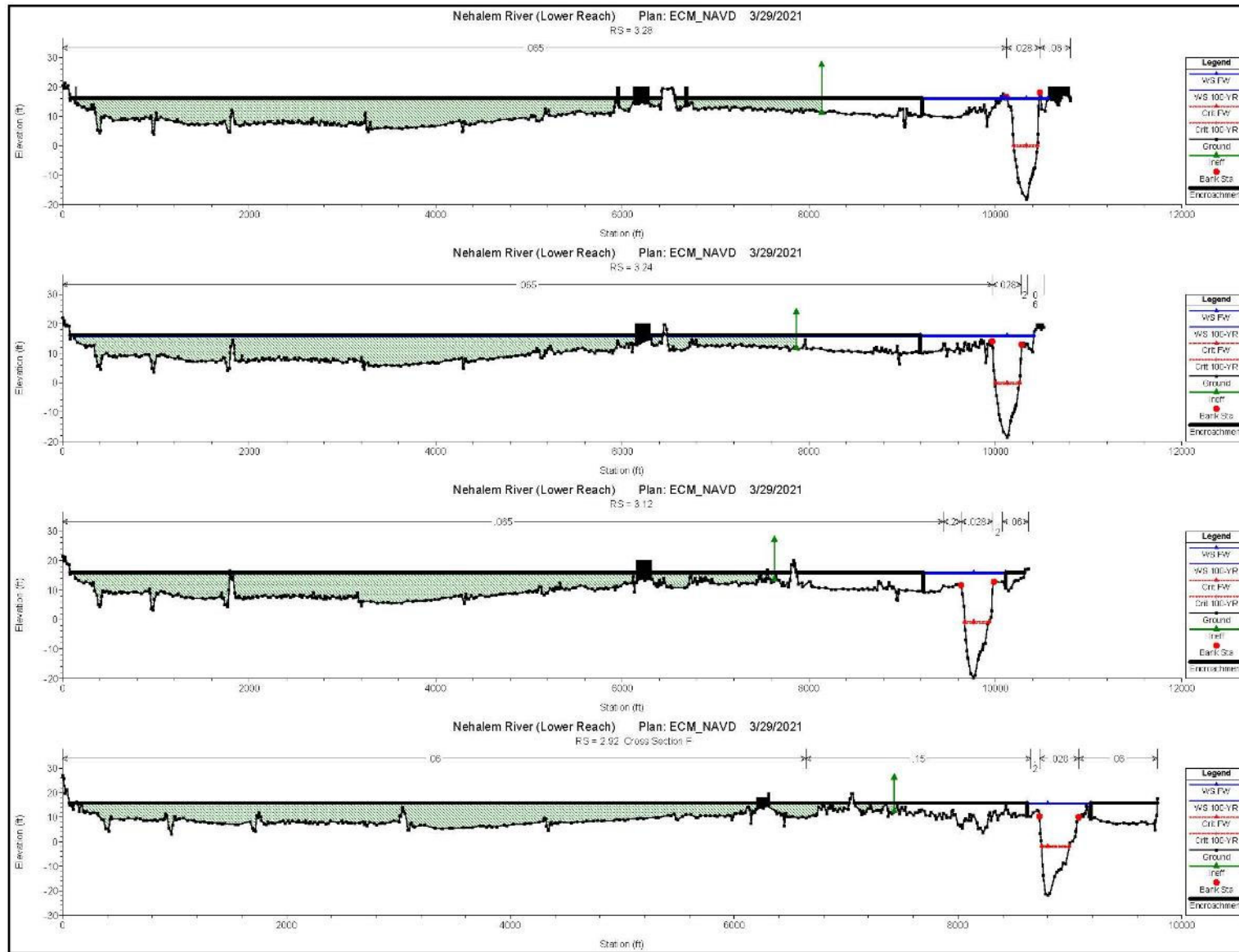
HEC-RAS Cross Section Plots – Existing Conditions



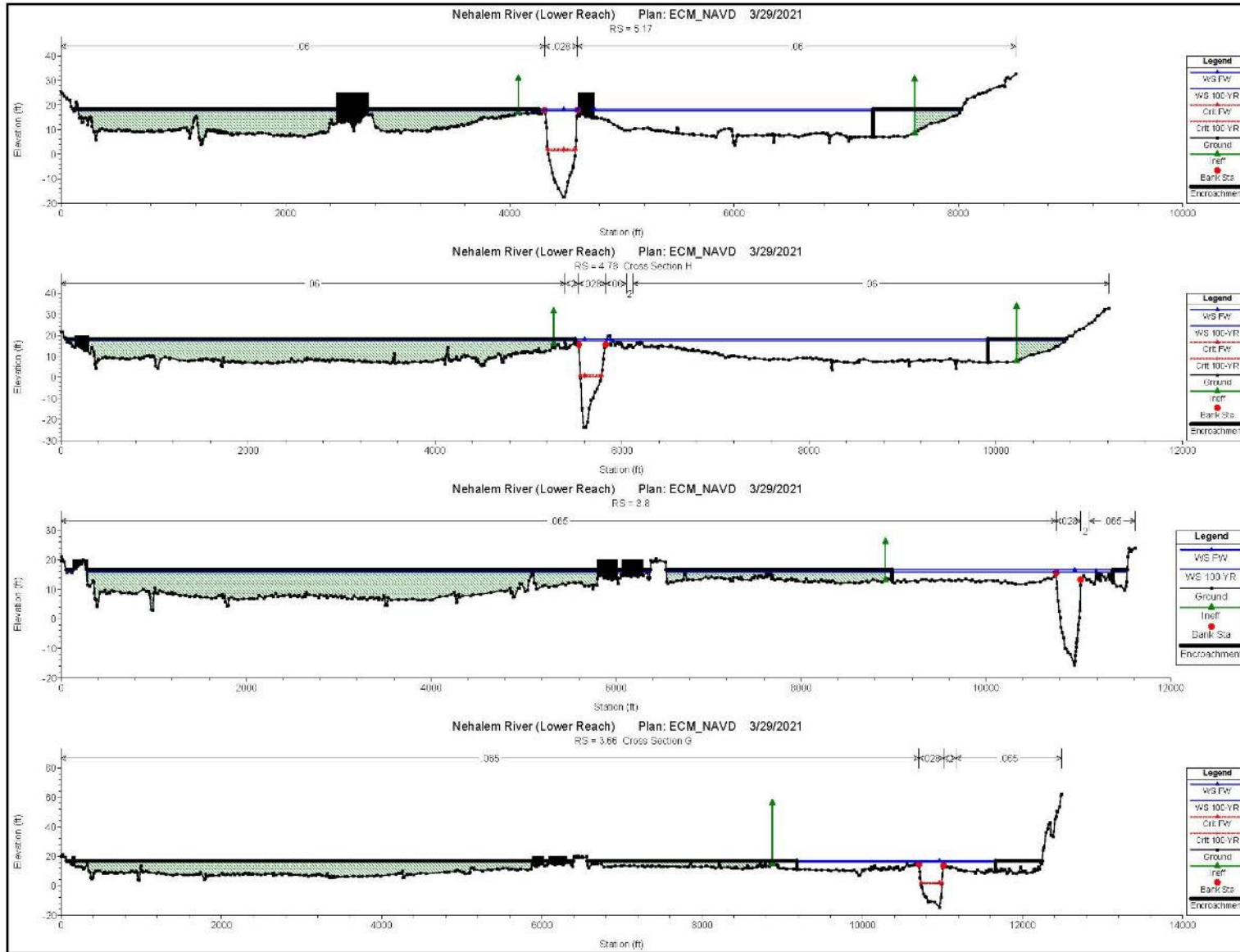
HEC-RAS Cross Section Plots – Existing Conditions



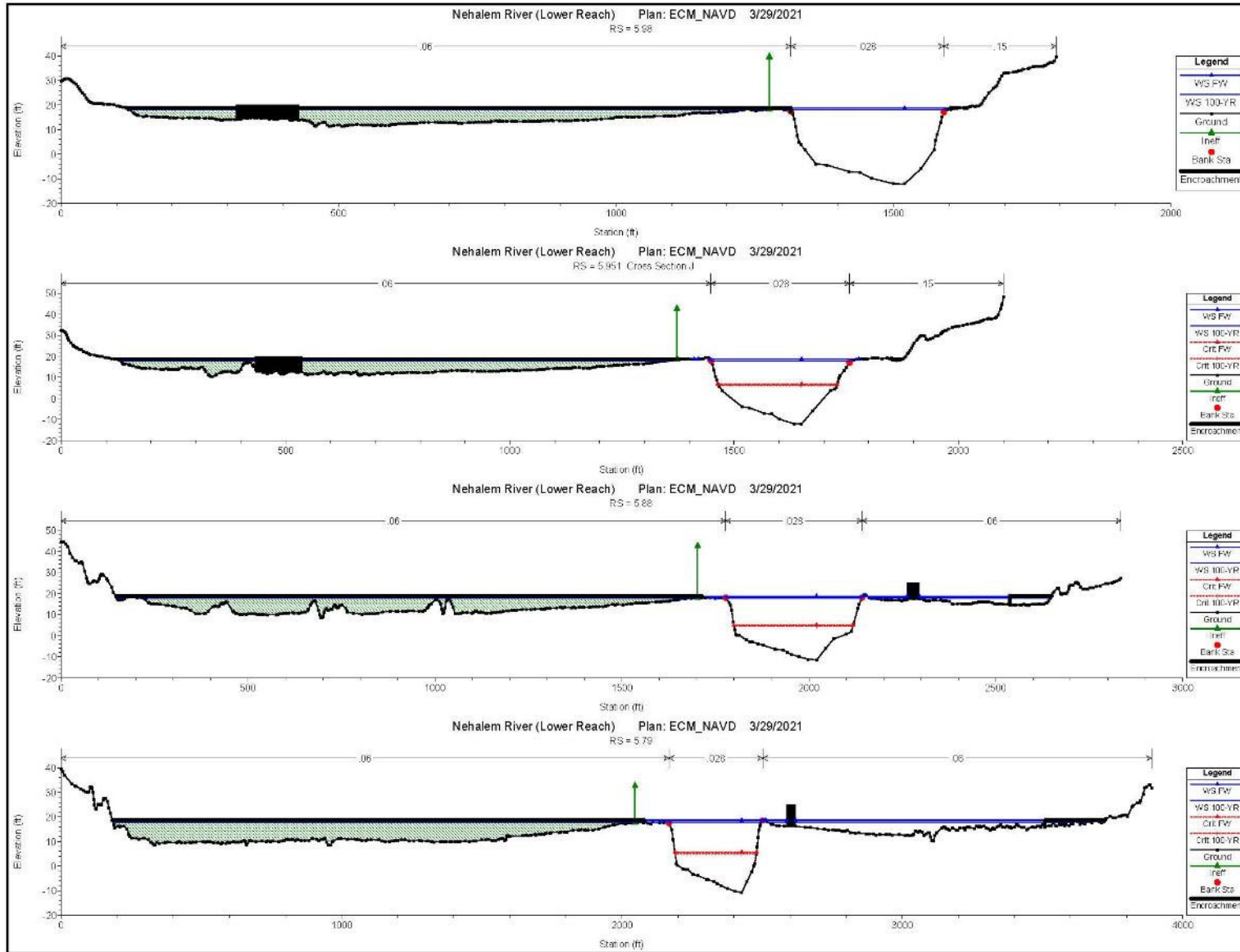
HEC-RAS Cross Section Plots – Existing Conditions



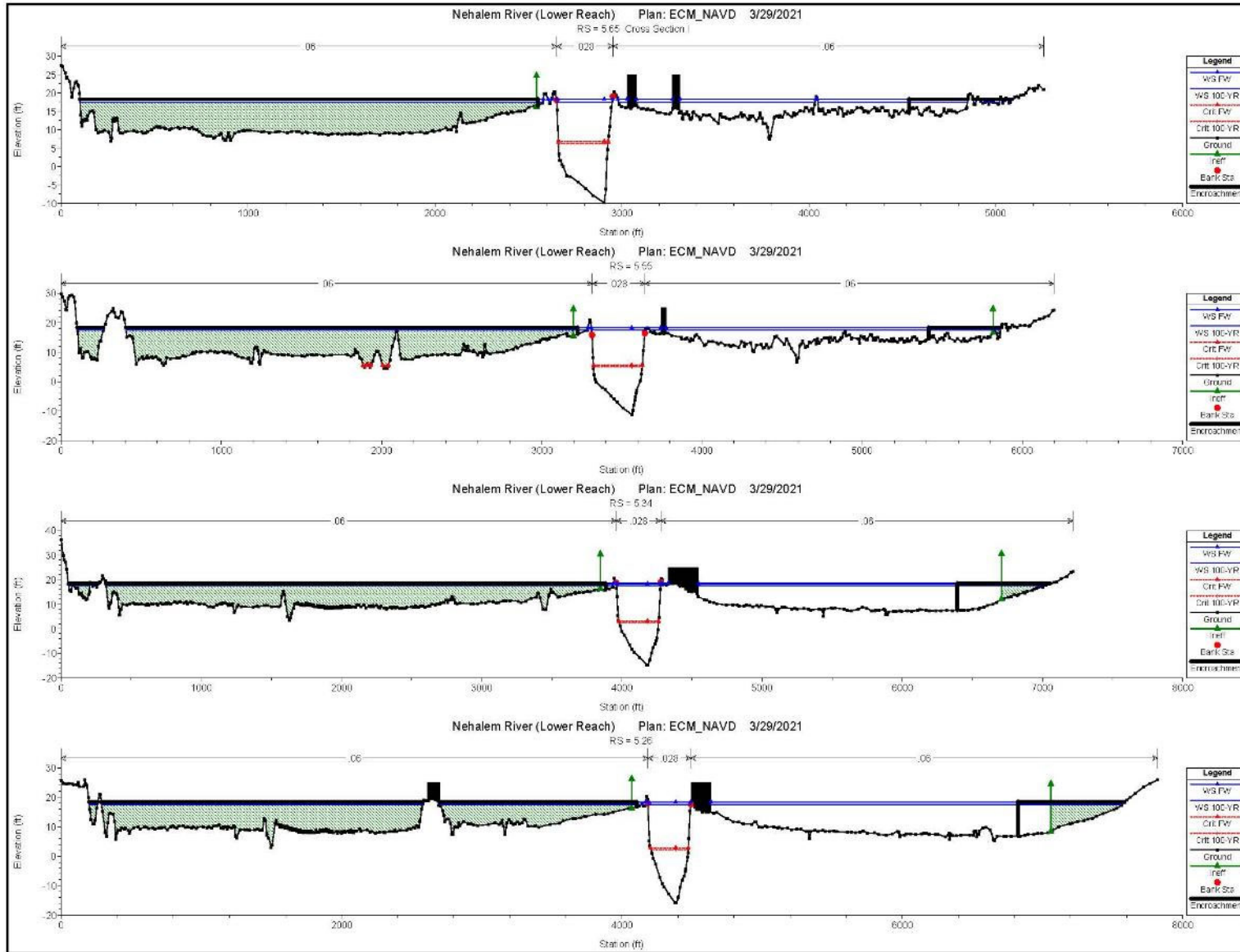
HEC-RAS Cross Section Plots – Existing Conditions



HEC-RAS Cross Section Plots – Existing Conditions





HEC-RAS Cross Section Plots – Existing Conditions



Joint Permit Application

This is a joint application, and must be sent to both agencies, who administer separate permit programs. Alternative forms of permit applications may be acceptable; contact the Corps and DSL for more information.

Date Stamp

 U.S. Army Corps of Engineers Portland District	 Oregon Department of State Lands
Corps Action ID Number	DSL Number

(1) TYPE OF PERMIT(S) IF KNOWN (check all that apply)

Corps: Individual Nationwide No.: _____ Regional General 13 Other _____

DSL: Individual General Permit No State Permit Required Waiver

(2) APPLICANT AND LANDOWNER CONTACT INFORMATION

	Applicant	Property Owner (if different)	Authorized Agent (if applicable) <input type="checkbox"/> Consultant <input type="checkbox"/> Contractor
Name (Required)	Jack Thayer	Nehalem Bay	
Business Name	Sunset Drainage District	Wastewater Agency (NBWA)	
Mailing Address 1	14855 Tideland Rd	PO Box 219	
Mailing Address 2			
City, State, Zip	Nehalem, OR 97131	Nehalem, OR 97131	
Business Phone	503-368-6908	503-368-5125	
Cell Phone	503801-6761		
Fax		503-368-7211	
Email	j.thayer@icloud.com		

(3) PROJECT INFORMATION

A. Provide the project location.

Project Name Sunset Drainage Levee Maintenance		<u>Latitude & Longitude*</u> 45.7172, -123.8896	
Project Address / Location 14000 Tideland Rd	City (nearest) Nehalem	County Tillamook	
Township	Range	Section	Quarter / Quarter
3N	10	27	380
Tax Lot			
Brief Directions to the Site: Highway 101 to Tideland Rd. Northerly on Tideland Rd for 0.8 miles to NBWA gate.			
B. What types of waterbodies or wetlands are present in your project area? (Check all that apply.)			
<input checked="" type="checkbox"/> River / Stream	<input type="checkbox"/> Non-Tidal Wetland	<input type="checkbox"/> Lake / Reservoir / Pond	
<input type="checkbox"/> Estuary or Tidal Wetland	<input type="checkbox"/> Other	<input type="checkbox"/> Pacific Ocean	
Waterbody or Wetland Name** Nehalem River	River Mile 7.0	<u>6th Field HUC Name</u>	<u>6th Field HUC (12 digits)</u>

* In decimal format (e.g., 44.9399, -123.0283)
 ** If there is no official name for the wetland or waterbody, create a unique name (such as "Wetland 1" or "Tributary A").

January 20, 2018

C. Indicate the project category. (Check all that apply.)

<input type="checkbox"/> Commercial Development	<input type="checkbox"/> Industrial Development	<input type="checkbox"/> Residential Development
<input type="checkbox"/> Institutional Development	<input type="checkbox"/> Agricultural	<input type="checkbox"/> Recreational
<input type="checkbox"/> Transportation	<input type="checkbox"/> Restoration	<input type="checkbox"/> Bridge
<input type="checkbox"/> Dredging	<input type="checkbox"/> Utility lines	<input type="checkbox"/> Survey or Sampling
<input type="checkbox"/> In- or Over-Water Structure	<input type="checkbox"/> Maintenance	<input type="checkbox"/> Other:

(4) PROJECT DESCRIPTION

A. Summarize the overall project including work in areas both in and outside of waters or wetlands.

Rock will be machine placed along the river bank to halt and prevent erosion of the levee along the East river bank of the Nehalem River. Rock will range in size from 6" to 18".

B. Describe work within waters and wetlands. Placement of rock as described above will take place below the ordinary high water line, but little to no work will take place within the water i.e high tide.

C. Construction Methods. Describe how the removal and/or fill activities will be accomplished to minimize impacts to waters and wetlands.

To prevent in water work as much as possible, the lower elevation rock will be placed at or around low tide.

(4) PROJECT DESCRIPTION (continued)

D. Describe source of fill material and disposal locations if known

We do not anticipate the removal of materials from this site. The fill material will be 6" to 18" rock/boulders supplied by Mohler Sand and Gravel (local supplier).

E. Construction timeline.

What is the estimated project start date?

Summer 2019

2021 BAA

What is the estimated project completion date?

September 15, 2019

2021 BAA

Is any of the work underway or already complete?
If yes, please describe.

Yes No

F. Removal Volumes and Dimensions (if more than 7 impact sites, include a summary table as an attachment)

Wetland / Waterbody Name *	Removal Dimensions					Duration of Impact**	Material***
	Length (ft.)	Width (ft.)	Depth (ft.)	Area (sq.ft. or ac.)	Volume (c.y.)		

G. Total Removal Volumes and Dimensions

Total Removal to Wetlands and Other Waters	Length (ft.)	Area (sq. ft or ac.)	Volume (c.y.)
Total Removal to Wetlands			
Total Removal Below Ordinary High Water			
Total Removal Below <u>Highest Measured Tide</u>			
Total Removal Below <u>High Tide Line</u>			
Total Removal Below <u>Mean High Water Tidal Elevation</u>			

H. Fill Volumes and Dimensions (if more than 7 impact sites, include a summary table as an attachment)

Wetland / Waterbody Name*	Fill Dimensions					Duration of Impact**	Material***
	Length (ft.)	Width (ft.)	Depth (ft.)	Area (sq. ft. or ac.)	Volume (c.y.)		
Site A	160	12	Varies	1,920 sq. ft.	185	Permanent	Rock/Boulders
Site B	25	8	Varies	200 sq. ft.	10	Permanent	Rock/Boulders
Site C	25	7	Varies	175 sq. ft.	10	Permanent	Rock/Boulders
Site D	40	8	Varies	320 sq. ft.	25	Permanent	Rock/Boulders
Site E	80	10	Varies	800 sq. ft.	75	Permanent	Rock/Boulders
Site F	170	12	Varies	2,040 sq. ft.	155	Permanent	Rock/Boulders

(4) PROJECT DESCRIPTION (CONTINUED)

I. Total Fill Volumes and Dimensions

Total Fill to Wetlands and Other Waters	Length (ft.)	Area (sq. ft or ac.)	Volume (c.y.)
Total Fill to Wetlands			
Total Fill Below Ordinary High Water			
Total Fill Below <u>Highest Measured Tide</u>	500	5,455 sq. ft.	460
Total Fill Below <u>High Tide Line</u>	500	5,455 sq. ft.	460
Total Fill Below <u>Mean High Water Tidal Elevation</u>	500	5,455 sq. ft.	380

*If there is no official name for the wetland or waterbody, create a unique name (such as "Wetland 1" or "Tributary A").
**Indicate the days, months or years the fill or removal will remain. Enter "permanent" if applicable. For DSL, permanent removal or fill is defined as being in place for 24 months or longer.
*** Example: soil, gravel, wood, concrete, pilings, rock etc.

(5) PROJECT PURPOSE AND NEED

Provide a statement of the purpose and need for the overall project.

This project is needed to halt and prevent future erosion along the levee and East river bank of the Nehalem River. Areas of erosion into the toe of the levee are endangering adjacent roads, farms, homes and the sewer treatment plant.

(6) DESCRIPTION OF RESOURCES IN PROJECT AREA

A. Describe the existing physical and biological characteristics of each wetland or waterbody. Reference the wetland and waters delineation report if one is available. Include the list of items provided in the instructions.

B. Describe the existing navigation, fishing and recreational use of the waterbody or wetland.

River is used by boaters, fisherman, kayakers, etc year round.

(7) PROJECT SPECIFIC CRITERIA AND ALTERNATIVES ANALYSIS

Describe project-specific criteria necessary to achieve the project purpose. Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterbody or wetland.*

No alternative sites exist as the project is needed to repair portions of the existing levee.

(8) ADDITIONAL INFORMATION

Are there state or federally listed species on the project site? Yes No Unknown

Is the project site within designated or proposed critical habitat? Yes No Unknown

Is the project site within a national Wild and Scenic River ? Yes No Unknown

Is the project site within a State Scenic Waterway? Yes No Unknown

Is the project site within the 100-year floodplain? Yes No Unknown

If yes to any of the above, explain in Block 6 and describe measures to minimize adverse effects to these resources in Block 7.

Is the project site within the Territorial Sea Plan (TSP) Area? Yes No Unknown

If yes, attach TSP review as a separate document for DSL.

Is the project site within a designated Marine Reserve? Yes No Unknown

If yes, certain additional DSL restrictions will apply.

Will the overall project involve ground disturbance of one acre or more? Yes No Unknown

If yes, you may need a 1200-C permit from the Oregon Department of Environmental Quality (DEQ).

Is the fill or dredged material a carrier of contaminants from on-site or off- site spills? Yes No Unknown

Has the fill or dredged material been physically and/or chemically tested? Yes No Unknown

If yes, explain in Block 6 and provide references to any physical/chemical testing report(s).

Has a cultural resource (archaeological) survey been performed on the project area? Yes No Unknown

If yes, provide a copy of the survey with this application to the Corps only. Do not describe any resources in this document.

Will the project result in new impervious surfaces or the redevelopment of existing surfaces? Yes No

If yes, the Applicant must submit a post-construction stormwater management plan to DEQ's 401 WQC program for review and approval, see <http://www.deq.state.or.us/wq/sec401cert/docs/stormwaterGuidelines.pdf>

* Not required by the Corps for a complete application, but is necessary for individual permits before a permit decision can be rendered.

Identify any other federal agency that is funding, authorizing or implementing the project.

Agency Name	Contact Name	Phone Number	Most Recent Date of Contact
-------------	--------------	--------------	-----------------------------

List other certificates or approvals/denials required or received from other federal, state or local agencies for work described in this application. For example, certain activities that require a Corps permit also require **401 Water Quality Certification (WQC)** from Oregon Department of Environmental Quality (DEQ). For DEQ, please note that all projects that qualify for a Nationwide 401 WQC will be invoiced a fee. Projects that do not qualify for the Nationwide certification will be invoiced based on project complexity. See <http://www.oregon.gov/deq/wq/wqpermits/Pages/Section-401-Fees.aspx>

Agency	Certificate/ approval / denial description	Date Applied
--------	--	--------------

Other DSL and/or Corps Actions Associated with this Site (Check all that apply.)

Work proposed on or over lands owned by or leased from the Corps (may require authorization pursuant to 33 USC 408).

State owned waterway DSL Waterway Lease # _____

Other Corps or DSL Permits Corps # _____ DSL # _____

Violation for Unauthorized Activity Corps # _____ DSL # _____

Wetland and Waters Delineation Corps # _____ DSL # _____

Submit the entire delineation report to the Corps; submit only the concurrence letter (if complete) and approved maps to DSL. If not previously submitted to DSL, send under a separate cover letter

(9) IMPACTS, RESTORATION/REHABILITATION, AND COMPENSATORY MITIGATION

A. Describe unavoidable environmental impacts that are likely to result from the proposed project. Include permanent, temporary, direct, and indirect impacts.

B. For temporary removal or fill or disturbance of vegetation in waterbodies, wetlands or riparian (i.e., streamside) areas, discuss how the site will be restored after construction to include the timeline for restoration.

Reseed levee and riverbank where needed immediately upon completion. Maintain emergency access for Nehalem Bay Wastewater Agency.

Compensatory Mitigation**C. Proposed mitigation approach. Check all that apply:**

- Permittee-responsible Onsite Mitigation
 Permittee-responsible Offsite mitigation
 Mitigation Bank or in-lieu fee program
 Payment to Provide (not approved for use with Corps permits)

D. Provide a brief description of mitigation approach and the rationale for choosing that approach. If you believe mitigation should not be required, explain why.**Mitigation Bank / In-Lieu Fee Information:**

Name of mitigation bank or in-lieu fee project:

Type of credits to be purchased:

If you are proposing permittee-responsible mitigation, have you prepared a compensatory mitigation plan?

- Yes. Submit the plan with this application and complete the remainder of this section.
 No. A mitigation plan will need to be submitted (for DSL, this plan is required for a complete application).

Mitigation Location Information (Fill out only if permittee-responsible mitigation is proposed)

Mitigation Site Name/Legal Description	Mitigation Site Address	Tax Lot #	
County	City	Latitude & Longitude (in DD.DDDD format)	
Township	Range	Section	Quarter/Quarter

(10) ADJACENT PROPERTY OWNERS FOR PROJECT AND MITIGATION SITE

<input type="checkbox"/> Pre-printed mailing labels of adjacent property owners attached	Project Site Adjacent Property Owners	Mitigation Site Adjacent Property Owners
--	--	---

Contact Name
Address 1
Address 2
City, ST ZIP Code

John & Sandra Esplin
 33555 Hwy 53
 Nehalem, OR 97131

Contact Name
Address 1
Address 2
City, ST ZIP Code

Greengold Dairy, LLC
 35026 Seppa Ln
 Astoria, OR 97103

Contact Name
Address 1
Address 2
City, ST ZIP Code

**(11) CITY/COUNTY PLANNING DEPARTMENT LAND USE AFFIDAVIT
(TO BE COMPLETED BY LOCAL PLANNING OFFICIAL)**


I have reviewed the project described in this application and have determined that:

- This project is not regulated by the comprehensive plan and land use regulations
- This project is consistent with the comprehensive plan and land use regulations
- This project is consistent with the comprehensive plan and land use regulations with the following:
 - Conditional Use Approval
 - Development Permit
 - Other Permit (explain in comment section below)

This project is not currently consistent with the comprehensive plan and land use regulations. To be consistent requires:

- Plan Amendment
- Zone Change
- Other Approval or Review (explain in comment section below)

An application or variance request has has not been filed for approvals required above

Local planning official name (print)	Title	City / County
SARAH ABSHER CFM	Director	Tillamook
Signature		Date
		April 23, 2021
Comments:		
Estuary Floodway Development Permit required as per TCLUD Sections 3.102, 3.108, 3.120, 3.140 and Section 3.510. No-rise analysis required for floodway. Application has not been made.		

(12) COASTAL ZONE CERTIFICATION

If the proposed activity described in your permit application is within the [Oregon coastal zone](#), the following certification is required before your application can be processed. The signed statement will be forwarded to the Oregon Department of Land Conservation and Development (DLCD) for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program and consistency reviews of federally permitted projects, contact DLCD at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050 or click [here](#).

CERTIFICATION STATEMENT

I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.

Print /Type Applicant Name	Title
Applicant Signature	Date

**(11) CITY/COUNTY PLANNING DEPARTMENT LAND USE AFFIDAVIT
(TO BE COMPLETED BY LOCAL PLANNING OFFICIAL)**

I have reviewed the project described in this application and have determined that:

- This project is not regulated by the comprehensive plan and land use regulations
- This project is consistent with the comprehensive plan and land use regulations
- This project is consistent with the comprehensive plan and land use regulations with the following:
 - Conditional Use Approval
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 - Other Permit (explain in comment section below)
- This project is not currently consistent with the comprehensive plan and land use regulations. To be consistent requires:
 - Plan Amendment
 - Zone Change
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An application or variance request has has not been filed for approvals required above

Local planning official name (print)	Title	City / County
Signature		Date
Comments:		

(12) COASTAL ZONE CERTIFICATION

If the proposed activity described in your permit application is within the [Oregon coastal zone](#), the following certification is required before your application can be processed. The signed statement will be forwarded to the Oregon Department of Land Conservation and Development (DLCD) for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program and consistency reviews of federally permitted projects, contact DLCD at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050 or click [here](#).

CERTIFICATION STATEMENT

I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.

Print /Type Applicant Name	Title
Applicant Signature	Date

(13) SIGNATURES

Application is hereby made for the activities described herein. I certify that I am familiar with the information contained in the application, and, to the best of my knowledge and belief, this information is true, complete and accurate. I further certify that I possess the authority to undertake the proposed activities. By signing this application I consent to allow Corps or DSL staff to enter into the above-described property to inspect the project location and to determine compliance with an authorization, if granted. I hereby authorize the person identified in the authorized agent block below to act in my behalf as my agent in the processing of this application and to furnish supplemental information in support of this permit application. I understand that the granting of other permits by local, county, state or federal agencies does not release me from the requirement of obtaining the permits requested before commencing the project. I understand that payment of the required state processing fee does not guarantee permit issuance. To be considered complete, the fee must accompany the application to DSL. The fee is not required for submittal of an application to the Corps.

Fee Amount Enclosed \$

Applicant Signature (required) must match the name in Block 2

Print Name Jack Thayer Title President, Sunset Drainage District

Signature  Date 4-23-21

Authorized Agent Signature

Print Name Title

Signature Date

Landowner Signature(s)*

Landowner of the Project Site (if different from applicant)

Print Name Bruce Halverson Title Manager, Nehalem Bay Wastewater Agency

Signature  Date 4/23/21

Landowner of the Mitigation Site (if different from applicant)

Print Name Title

Signature Date

Department of State Lands, Property Manager (to be completed by DSL)

If the project is located on state-owned submerged and submersible lands, DSL staff will obtain a signature from the Land Management Division of DSL. A signature by DSL for activities proposed on state-owned submerged/submersible lands only grants the applicant consent to apply for a removal-fill permit. A signature for activities on state-owned submerged and submersible lands grants no other authority, express or implied and a separate proprietary authorization may be required.

Print Name Title

Signature Date

* Not required by the Corps.

(14) ATTACHMENTS

- Drawings
 - Location map with roads identified
 - U.S.G.S topographic map
 - Tax lot map
 - Site plan(s)
 - Cross section drawing(s)
 - Recent aerial photo
 - Project photos
 - Erosion and Pollution Control Plan(s), if applicable
 - DSL/Corps Wetland Concurrence letter and map, if approved and applicable
- Pre-printed labels for adjacent property owners (Required if more than 5)
- Incumbency Certificate** if applicant is a partnership or corporation
- Restoration plan or rehabilitation plan for temporary impacts
- Mitigation plan
- Wetland functional assessment and/or stream functional assessment
- Alternatives analysis
- Biological assessment (if requested by Corps project manager during pre-application coordination.)
- Stormwater management plan (may be required by the Corps or DEQ)
- Other:
 -
 -

Send Completed form to:

U.S. Army Corps of Engineers

ATTN: CENWP-OD-GP
PO Box 2946
Portland, OR 97208-2946
Phone: 503-808-4373
portlandpermits@usace.army.mil

OR

U.S. Army Corps of Engineers

ATTN: CENWP-OD-GE
211 E. 7th AVE, Suite 105
Eugene, OR 97401-2722
Phone: 541-465-6868
portlandpermits@usace.army.mil

Counties:

Baker, Clackamas,
Clatsop, Columbia,
Gilliam, Grant, Hood
River, Lincoln, Malheur,
Morrow, Multnomah, Polk,
Sherman, Tillamook,
Umatilla, Union, Wallowa,
Wasco, Washington,
Wheeler, Yamhill

Counties:

Benton, Coos, Crook,
Curry, Deschutes,
Douglas, Jackson,
Jefferson, Josephine,
Harney, Klamath, Lake,
Lane, Linn, Marion

Send Completed form to:

DSL - West of the Cascades:

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
Phone: 503-986-5200

OR

DSL - East of the Cascades:

Department of State Lands
1645 NE Forbes Road, Suite 112
Bend, Oregon 97701
Phone: 541-388-6112

Send all Fees to:

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279

Pay by Credit Card Online:

<https://apps.oregon.gov/dsl/EPS/>

INSTRUCTIONS FOR PREPARING THE JOINT APPLICATION

This is a joint application and must be sent to both agencies, who administer separate permit processes. For more complete instructions, contact the Corps and/or DSL or refer to online resources:

- [DSL's Removal-Fill Guide](#); or,
- The Corps Regulatory website: <http://www.nwp.usace.army.mil/Missions/Regulatory.aspx>

General Instructions and Tips

- Provide the information in the appropriate blocks of the application form. If you need more space, provide a summary in the space provided and attach additional detail as an appendix to the application. Each appendix or attachment must reference which application block number it pertains to.
- Not all items on the application form will apply to all projects.
- Electronic submittal of applications and supporting material is preferred by the Corps. If hard copies are submitted to the Corps, the submittal must be on 8 ½ x 11-inch paper and reproducible in black and white. Currently DSL does not accept electronic submittals. DSL will accept color figures and 11 X 17. Use either all double sided or all single sided paper. Do not use staples or dividers.

For complex projects or for those that may have more than minimal impacts, additional information may be necessary to complete the evaluation and make a permit decision. Alternative forms of permit applications may be acceptable; contact the Corps and DSL for more information.

Section 1. If known, indicate the type of permit/authorization applying for.

Section 2. Applicant and Landowner Contact information

Applicant: The applicant is the responsible party. If the applicant is an agency, business entity or other organization, indicate the name of the organization and a person that has the authority to sign the application. If applicant is a partnership or corporation, applicant name must match the Incumbency Certificate, and business name as listed on OR Secretary of State business registry. Applicant must not be "doing business as" or has an "assumed business name." In such cases the applicant must be an individual.

Applicant Contact Name: If applicant is a business, provide contact name for an individual representing the business.

Authorized Agent: An authorized agent is someone who has permission from the applicant to represent their interests and supply information to the agencies. An agent can be a consultant, an attorney, builder, contractor, or any other person or organization. An authorized agent is optional.

Landowner: Provide landowner information if different from the applicant. DSL requires the landowner's signature, unless the project qualifies as a linear project, e.g. road, pipeline, utility.

Section 3. Project Information

Provide location information. Latitude and longitude must be reported in decimal format and can be found by zooming in to your respective project location and reading off the coordinates displayed on the bottom of the map.

Provide information on wetlands and waterbodies within the project area. Indicate the category of activities that make up your project. For projects with multiple locations, provide latitude and longitude for each location. For linear projects, provide the latitude and longitude for the start and end points.

Section 4. Project Description

A. Overall Description: Provide a description of the overall project, including:

- All associated work with the project both outside and within waters or wetlands.
- Total ground disturbance for all associated work (i.e., area and volume of ground disturbance).
- Total area of impervious surfaces created or modified by the project, if applicable.

B. Work within Waters and Wetlands: Provide a description of the proposed work within waters and wetlands, including:

- Each removal or fill activity proposed in waters or wetlands, as well as any construction or maintenance of in- water or over-water structures.
- The number and dimensions of in-water or over-water structures (i.e., pilings, floating docks) proposed within waters or wetlands.

C. Construction Methods: Describe how the removal and/or fill activities will be accomplished including the following:

- Construction methods, equipment to be used, access and staging areas, etc.
- Measures you will use during construction to minimize impacts to the waterbody or wetland. Examples may include isolating work areas, controlling construction access, site specific erosion and sediment control methods, site specific best management practices, and using specialized equipment or materials. Attach work area isolation and/or erosion and pollution control plans, if applicable.

D. Fill Material and Disposal: Provide a description of fill material and procedure for disposal of removed material, including:

- The source(s) of fill materials (if known).
- Locations for disposal area(s) for dredged material, if applicable. If dredged material is to be discharged on an upland site, identify the site and the steps to be taken (if necessary) to prevent runoff from the dredged material back into jurisdictional waters. If using an upland disposal area that is not a Department of Environmental Quality (DEQ) -regulated landfill, a [Solid Waste Letter of Authorization](#) or a [Beneficial Use Determination](#) from DEQ may be required.

E. Construction Timing: Provide the proposed start and completion date for the project. Describe project work that is already complete, if applicable.

F. – I. Summary of removal and fill activities: Summarize the dimensions, volume and type/composition of material being placed or removed in each waterbody or wetland. Describe each impact on a separate row. For instance, if two culverts are being removed from Clear Creek, use two rows. Add extra rows if needed, or include an attachment.

The DSL and the Corps use different elevations for determining whether an activity in tidal waters is regulated by the State's Removal-Fill law, the Clean Water Act, and/or the Rivers and Harbors Act. DSL regulates activities below the highest measured tide. The Clean Water Act applies below the high tide line. The Rivers and Harbors Act applies below the mean high water.

If jurisdictional limits are not the same for each agency, prepare a table for each agency stating impacts within that agency's jurisdiction.

Section 5. Project Purpose and Need

Explain the purpose and need for the project. Also include a brief description of any related activities needed to accomplish the project objectives.

The following items are required by DSL, as applicable:

- If the removal-fill would satisfy a public need and the applicant is a public body, include any pertinent findings regarding public need and benefit.
- If the project involves fill in the estuary for a non-water dependent use, explain how the project is for public use and/or satisfies a public need.
- If the project is located within a [marine reserve or marine protected area](#), explain how the project is needed to study, monitor, evaluate, enforce or protect the designated area.

Section 6. Description of Resources in Project Area

Territorial Sea: For activities in the [Territorial Sea](#) (mean lower low water seaward 3 nautical miles), provide a separate evaluation of the resources and effects determination.

For each wetland, include:

- Whether the wetland is freshwater or tidal, and the [Cowardin class](#) and [Hydrogeomorphic \(HGM\) class](#).
- Source of hydrology and direction of flow (if any).
- Dominant plant species by layer (herb, shrub, tree).
- A functional assessment of the wetland to be impacted (for impacts greater than 0.2 acre or any amount in estuarine waters), DSL requires use of [ORWAP](#) or [HGM](#), should be attached as a separate document.
- Identify any vernal pools, bogs, fens, mature forested wetland, seasonal mudflats, or native wet prairies in or near the project area.
- Include relevant summary information from the wetland delineation report if available. Provide a copy of the wetland delineation report to **the Corps**, if not previously provided to Corps. If a delineation report has not been previously submitted to DSL, then submit to DSL under a separate cover.
- Describe existing uses, including fish and wildlife use (type, abundance, period of use, significance of site).

For rivers, streams, other waterbodies, lakes and ponds, include a description of, as applicable:

- Streamflow regime (e.g., perennial year-round flow, intermittent seasonal flow, ephemeral event-driven flow). If flow is ephemeral, provide [streamflow assessment](#) data sheet or other information that supports your determination.
- Field indicators used to identify the Ordinary High Water Mark (OHWM).
- Channel and bank conditions.
- Type and condition of riparian (streamside) vegetation.
- Channel morphology (structure and shape).
- Stream substrate.
- Assessment of the functional attributes including hydrologic, geomorphic, biological and chemical and nutrient related functions.
- Fish and wildlife (type, abundance, period of use, significance of site).

Section 7. Project Specific Criteria and Alternative Analysis

Provide an explanation describing how impacts to waters and wetlands are being avoided and minimized on the project site. For DSL, the alternatives analysis must include:

- Project-specific criteria that are needed to accomplish the stated project purpose.
- A range of alternative sites and designs that were considered with less impact.
- An evaluation of each alternative site and design against the project criteria and a reason for why the alternative was not chosen.
- If the project involves fill in an estuary for a non-water dependent use, a description of Alternative non- estuarine sites must be included.

The level of rigor required in this analysis should be commensurate with the level of impact proposed. Please note that additional information regarding alternatives may be necessary for Corps Individual Permits to comply with the Clean Water Act Section 404(b)(1) Guidelines. Please check with your local Corps contact early in the planning process to determine what level of analysis is required. An alternative analysis is not required for a complete application by the Corps; however, it may be required before a permit decision can be rendered.

Section 8. Additional Information

Any additional information you provide helps the reviewer(s) understand your project and the other approvals or reviews that may be required.

Section 9. Impacts, Restoration/Rehabilitation, and Compensatory Mitigation

A. Description of Impacts: Clearly identify the permanent, temporary, direct and indirect impacts. Provide a written analysis of potential changes the project may make to the hydrologic characteristics of the affected wetlands or waterbodies, and an explanation of measures taken to avoid or minimize any adverse effects of those changes, such as: impeding, restricting or increasing flows; relocating or redirecting flow; and potential flooding or erosion downstream of the project. Provide a table summarizing permanent and temporary impacts by HGM and Cowardin Classifications

B. Site Restoration/Rehabilitation: For temporary disturbance of soils and/or vegetation in waterbodies, wetlands or riparian (streamside) areas, discuss how you will restore the site after construction. This may include the following:

- Grading plans to restore pre-existing elevations.
- Planting plans and species list (native species only) to replace vegetation in riparian or wetland areas.
- Maintenance and monitoring plans to document restoration to wetland condition and/or vegetation establishment.
- Associated erosion control for site stabilization.

C.-D. Compensatory Mitigation. Describe your proposed compensatory mitigation approach, or explain why you believe compensatory mitigation is not required. If proposing permittee-responsible mitigation for permanent impact to wetlands, see OAR 141-085-0705 and 33 CFR 332.4(c) for plan requirements. For permanent impact to waters other than wetlands, see OAR 141-085-0765 and 33 CFR 332.4(c) for plan requirements.

For activities involving discharges of dredged or fill material into waters of the United States, the Corps requires the application to include a statement describing how impacts to waters of the United States are to be avoided and minimized. The application must also include either a statement describing how impacts to waters of the United States are to be compensated for or a

statement explaining why compensatory mitigation should not be required for the proposed impacts.

Section 10. Adjacent Property Owners for Project and Mitigation Site(s)

Names and addresses for properties that are adjacent to the project site and permittee responsible mitigation site (if applicable), are required. "Adjacent" means those properties that share or touch upon a common property line or are across the street or stream. If more than 5, attach pre-printed labels. A list of property owners may be obtained by contacting the county tax assessor's office.

Section 11. City/County Planning Department Land Use Affidavit

This section is required to demonstrate land use compatibility for removal fill permits and water quality certifications. Provide this form to your local planning official for them to complete and sign.

Section 12. Coastal Zone Certification

Your signature for this statement is **required** for projects within the coastal zone (generally, west of the summit of the Coast Range).

Section 13. Signatures

The application **must** be signed by the responsible party as identified in section 1. DSL also requires the landowner's signature. Linear Facilities, e.g. road, pipeline, utility, do not require landowner signature.

Section 14: Attachments

Project Drawings. A complete application must include a location map, site plan, and cross-section drawings. DSL also requires a recent aerial photo. All drawings should be clear, legible, and to scale. For the Corps, drawings must be on 8.5 by 11-inch paper and must be in black and white or clearly reproducible in black and white. DSL will accept color and 11 x 17, but all figures must be clear when reproduced in black and white. While illustrations need not be professionally prepared, they should be clear, accurate, and contain all necessary information, as follows:

Location maps (with project boundaries, including staging and construction access, scale bar and north arrow on all):

- Location map with roads identified
- U.S.G.S. Topographic map
- Tax lot map

Site plan(s), including:

- Entire project site and activity areas, which includes staging and construction access areas
- Existing and proposed contours
- Stormwater outfalls and other features
- Location of ordinary high water, wetland boundaries or other jurisdictional boundaries.
Clearly identify temporary, permanent, direct and indirect impact areas within waterbodies or wetlands
- Scale bar and north arrow
- Location of staging areas and construction access
- Location of cross section(s), as applicable
- Location of mitigation area, if applicable

Cross section drawing(s), including:

- Existing and proposed elevations
- Clearly identification temporary, permanent, direct and indirect impact areas within waterbodies or wetlands
- Ordinary high water and/or wetland boundary or other jurisdictional boundaries
- Scale bar (horizontal and vertical scale)

Recent Aerial photo

- 1:200, or if not available for your site, highest resolution possible

DSL Wetland Concurrence (map and letter only)

Do NOT submit the following items to DSL (unless specifically requested by DSL for your project):

- Wetland delineation report
- Biological assessment
- Cultural/archeological reports
- Stormwater calculations
- Geotechnical reports
- Marketing reports
- Contract agreements
- Applications for other agencies such as local land use applications
- Contractor/construction specifications
- Other extraneous drawings and information

ENGINEERING "NO-RISE" CERTIFICATION

This is to certify that I am a duly qualified engineer licensed to practice in the State of Oregon.

It is to further certify that the attached technical data supports the fact that the proposed Nehalem Bay Wastewater Agency revetment repair project will
(Name of Development)

not impact the 100-year flood elevations, floodway elevations and floodway widths for the Nehalem River at published sections
(Name of Stream)

in the Flood Insurance Study for Tillamook County & Incorporated Areas (41057C0209F and 207F),
(Name of Community)

dated September 28, 2018 and will not impact the 100-year flood elevations, floodway elevations, and floodway widths at unpublished cross-sections in the vicinity of the proposed development.

Attached are the following documents that support my findings:

Technical Memorandum by WEST Consultants, Inc. dated April 9, 2021.

(Date) April 9, 2021

(Signature) Chris Bahner

(Title) Project Manager

WEST Consultants, Inc.
2601 25th Street
Suite 450
Salem, OR 97302

(Address)



Figure 5 – FEMA No-Rise Certificate

Technical Memorandum

WEST Consultants, Inc.

2601 25th St. SE
Suite 450
Salem, OR 97302-1286
(503) 485 5490
(503) 485-5491 Fax
www.westconsultants.com

Name: Bruce Halverson
Date: 9 April 2021
From: Chris Bahner, P.E., D. WRE
Subject: Nehalem Bay Wastewater Agency, No-Rise Analysis and Certification



Introduction

Per your request, a FEMA "No-Rise" hydraulic analysis was conducted for the proposed streambank repairs located along the east bank of the Nehalem River within the Nehalem Bay Wastewater Agency property limits near the City of Nehalem in Tillamook County, Oregon. The property is located within a Special Flood Hazard Area (SFHA) of the Nehalem River floodplain in the left (east) overbank between FEMA lettered cross sections "C" and "D". Further, portions of the streambank repairs will be made within the regulatory floodway. The effective base flood elevation is 13.7 ft at FEMA cross section "C" and 14.8 ft at FEMA cross section "D". Both these elevations are referenced to the North American Vertical Datum of 1988 (NAVD88), and all elevations referenced in this memorandum will be based on this vertical datum. Figure 1 presents the study area and effective FEMA flood hazard mapping. All figures referenced in the text are found at the end of this memorandum.

As specified by Article 3, Section 2.03.510(9a) of the Tillamook County Code, new construction is prohibited within a regulatory floodway "unless certification is provided by a professional registered civil engineer demonstrating through hydrologic and hydraulic analysis performed in accordance with standard engineering practice that such encroachment shall not result in any increase in flood levels during the occurrence of the base flood discharge."

A hydraulic study was conducted in accordance with standard engineering practice for a FEMA No-Rise analysis which indicates that the proposed modifications will not result in an increase in water surface elevations during the base flood. This memorandum summarizes the analysis methodology and results.

Analysis Approach

The hydraulic study utilized the U.S. Army Corps of Engineers' (USACE) software HEC-RAS (Hydraulic Engineering Center – River Analysis System) version 5.0.7 (USACE 2019). The effective hydraulic modeling of this reach of the Nehalem River was conducted by WEST in November 2014.

Procedures set forth by FEMA Region 10 call for a multi-step analysis approach for evaluating a proposed project for No-Rise certification (FEMA 2013). The steps are as follows:

1. **Current Effective Model:** Obtain the effective model upon which the current effective base flood elevations and floodway extents is based. Effective models are archived by FEMA.
2. **Duplicate Effective Model (DEM):** Use the Current Effective Model input data to create a Duplicate Effective Model to ensure that the results recorded in the effective FIS can be reproduced within an acceptable tolerance.
3. **Corrected Effective Model (CEM):** The Duplicate Effective Model is then modified to correct any errors and incorporate the most recent topographic information.
4. **Existing Conditions Model (ECM):** The Corrected Effective Model is revised to reflect any modifications that have occurred within the floodplain since the date of the original analysis but prior to the proposed project. This model should be the best depiction of existing conditions.
5. **Proposed Conditions Model (PCM):** The Proposed Conditions Model is to reflect conditions following the completion of the project and will be compared with the Existing Conditions Model to determine the projects effects (if any). The direct comparison of water surface elevations between the results of these two models is the basis of a No-Rise analysis.

The effective model was developed by WEST Consultants, Inc. (WEST) for a Letter of Map Revision (LOMR), effective September 24, 2015. The model produced for the LOMR was used to perform the hydraulic analysis for this No-Rise.

Effective Model

Documentation accompanying the effective model indicates that it was produced using Geographic Information System (GIS) data available in the digital flood insurance map (DFIRM) for Tillamook County (FEMA) and topographic data available from the Oregon Department of Geologic and Mineral Industries (DOGAMI 2009). The model includes FEMA lettered cross sections A through J and 21 unlettered cross sections. Bathymetry at all cross sections except for the reach between River Mile (RM) 1.4 and RM 1.7 was based on NOAA data and manual adjustment to the thalweg elevations to match the FIS profiles. Bathymetry for all cross sections located between RM 1.4 and RM 1.7 was based on the bathymetric survey data obtained by WEST in March 2021. Discharges and downstream boundary conditions are based on published values in the effective Flood Insurance Study. The limits of floodway encroachments were extracted from the 'S_FLD_HAZ_LN' GIS data layer in the DFIRM. All remaining hydraulic parameters in the effective model (Manning's roughness, flow-paths, etc.) were estimated based on data listed in the FIS, publicly available aerial imagery, engineering judgement, and from observations I made during the field reconnaissance on March 1, 2021.

Duplicate Effective Model (DEM)

A Duplicate Effective Model (DEM) was created from a copy of the effective. Results from the DEM were compared with water surface elevations published in the floodway data table and on flood profiles in the FIS. The DEM results are within the minimum agreement tolerance of 0.1 feet, so it is considered sufficient for conducting a No-Rise analysis. Table 1 presents the comparison of DEM and FIS water surface elevations.

Corrected Effective Model (CEM)

The DEM was modified to create the Corrected Effective Model (CEM). The modifications consisted of adding four additional cross section at locations where the proposed streambank repairs will be made. Figure 2 shows the added cross sections. Results from the CEM were compared with the water surface elevations computed by the DEM. That comparison is presented in Table 2.

As seen in Table 2, the CEM water surface elevations for the reach represented by the additional cross sections are about 0.02 to 0.11 ft higher than the DEM water surface elevations, and the CEM water surface elevations for the river reach upstream of the additional cross section are about 0.05 to 0.15 ft lower than the DEM water surface elevations. The floodway surcharge (which is not shown in the table) is still less than that maximum 1 foot increase allowed by FEMA.

Table 1 - Duplicate Effective Model vs. Effective FIS

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		FIS Effective Model	DEM	Difference (DEM - FIS)	FIS Effective Model	DEM	Difference (FIS - DEM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.50	--	14.04	14.04	0.00	14.36	14.36	0.00
1.74	--	14.31	14.31	0.00	14.64	14.64	0.00
1.92	--	14.74	14.74	0.00	15.13	15.13	0.00
2.01	D	14.84	14.84	0.00	15.26	15.26	0.00
2.28	--	14.95	14.95	0.00	15.35	15.35	0.00
2.49	--	15.15	15.15	0.00	15.53	15.53	0.00
2.92	E	15.53	15.53	0.00	15.89	15.89	0.00
3.12	--	15.68	15.68	0.00	16.12	16.12	0.00
3.24	--	15.75	15.75	0.00	16.25	16.25	0.00
3.28	--	15.79	15.79	0.00	16.33	16.33	0.00
3.66	F	16.22	16.22	0.00	16.96	16.96	0.00
3.80	--	15.98	15.98	0.00	16.77	16.77	0.00
4.78	G	17.53	17.53	0.00	18.34	18.34	0.00
5.17	--	17.60	17.6	0.00	18.41	18.41	0.00
5.26	--	17.63	17.63	0.00	18.45	18.45	0.00
5.34	--	17.66	17.66	0.00	18.48	18.48	0.00
5.55	H	17.54	17.54	0.00	18.39	18.39	0.00
5.65	--	17.50	17.50	0.00	18.34	18.34	0.00
5.79	--	17.86	17.86	0.00	18.70	18.70	0.00
5.88	I	18.09	18.09	0.00	18.87	18.87	0.00
5.951	--	17.98	17.98	0.00	18.74	18.74	0.00
5.98	J	18.04	18.04	0.00	18.80	18.80	0.00

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile

Table 2 - Corrected Effective Model vs. Duplicate Effective Model

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		DEM	CEM	Difference (CEM - DEM)	DEM	CEM	Difference (CEM - DEM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.40*		13.95	14.06	0.11	14.27	14.38	0.11
1.50	--	14.04	14.11	0.07	14.36	14.43	0.07
1.59*		14.10	14.16	0.06	14.43	14.46	0.03
1.63*		14.18	14.26	0.08	14.51	14.53	0.02
1.69*		14.25	14.29	0.04	14.58	14.59	0.01
1.74	--	14.31	14.34	0.03	14.64	14.67	0.03
1.92	--	14.74	14.59	-0.15	15.13	15.01	-0.12
2.01	D	14.84	14.70	-0.14	15.26	15.13	-0.13
2.28	--	14.95	14.81	-0.14	15.35	15.23	-0.12
2.49	--	15.15	15.02	-0.13	15.53	15.42	-0.11
2.92	E	15.53	15.41	-0.12	15.89	15.78	-0.11
3.12	--	15.68	15.56	-0.12	16.12	16.01	-0.11
3.24	--	15.75	15.63	-0.12	16.25	16.14	-0.11
3.28	--	15.79	15.67	-0.12	16.33	16.22	-0.11
3.66	F	16.22	16.11	-0.11	16.96	16.86	-0.10
3.80	--	15.98	15.86	-0.12	16.77	16.67	-0.10
4.78	G	17.53	17.46	-0.07	18.34	18.28	-0.06
5.17	--	17.60	17.54	-0.06	18.41	18.35	-0.06
5.26	--	17.63	17.56	-0.07	18.45	18.39	-0.06
5.34	--	17.66	17.60	-0.06	18.48	18.42	-0.06
5.55	H	17.54	17.47	-0.07	18.39	18.32	-0.07
5.65	--	17.50	17.43	-0.07	18.34	18.28	-0.06
5.79	--	17.86	17.80	-0.06	18.70	18.65	-0.05
5.88	I	18.09	18.03	-0.06	18.87	18.82	-0.05
5.951	--	17.98	17.93	-0.05	18.74	18.69	-0.05
5.98	J	18.04	17.99	-0.05	18.80	18.75	-0.05

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile
 * Indicates new cross section

Existing Conditions Model (ECM)

No changes were made for the ECM, so the ECM is the same as the CEM.

Proposed Conditions Model (PCM)

The proposed conditions incorporate the rock fill materials that will be used to make the streambank repairs. These repairs will be made within six individual reaches along the east bank of the Nehalem River adjacent to the Nehalem Bay Wasteway Agency property. The reaches are shown in Figure 3, and cross sections of the proposed revetment repairs are shown in Figure 4. The PCM was created from the ECM by modifying the cross sections to reflect the proposed changes associated with the rock revetment repairs.

Analysis Results

Water surface elevations predicted by the ECM and PCM models were compared to determine if the proposed rock revetment repairs would result in a rise in water surface elevations for either the base flood or the floodway. Table 3 presents the computed water surface elevations for the ECM and PCM, and the calculated difference. As the table indicates, the proposed revetment repairs will not result in a rise in water surface elevations along the Nehalem River for either the base flood or the floodway. A FEMA No-Rise Certificate is provided in Figure 5. Supporting data, including the effective FEMA flood hazard mapping and modeling cross sections, are included in Appendix A.

If you have any questions, please feel free to contact me by phone at (503) 485-5490, or by email at cbahner@westconsultants.com.

Table 3 - Proposed Conditions vs. Existing Conditions

River Station (RM) and FEMA XS Letter		Regulatory Water Surface Elevation (ft)			With Floodway Water Surface Elevation (ft)		
		ECM	PCM	Difference (PCM - ECM)	ECM	PCM	Difference (PCM - ECM)
0.45	A	13.11	13.11	0.00	13.45	13.45	0.00
0.60	--	13.32	13.32	0.00	13.61	13.61	0.00
0.73	--	13.36	13.36	0.00	13.65	13.65	0.00
0.78	--	13.40	13.40	0.00	13.70	13.70	0.00
0.80	--	13.50	13.50	0.00	13.80	13.80	0.00
0.86	--	13.55	13.55	0.00	13.86	13.86	0.00
0.95	--	13.63	13.63	0.00	13.94	13.94	0.00
0.994	B	13.68	13.68	0.00	14.00	14.00	0.00
1.05	C	13.70	13.70	0.00	14.01	14.01	0.00
1.33	--	13.88	13.88	0.00	14.20	14.20	0.00
1.40*		14.06	14.06	0.00	14.38	14.38	0.00
1.50*	--	14.11	14.11	0.00	14.43	14.43	0.00
1.59*		14.16	14.16	0.00	14.46	14.46	0.00
1.63*		14.26	14.26	0.00	14.53	14.53	0.00
1.69*		14.29	14.29	0.00	14.59	14.59	0.00
1.74	--	14.34	14.34	0.00	14.67	14.67	0.00
1.92	--	14.59	14.59	0.00	15.01	15.01	0.00
2.01	D	14.70	14.70	0.00	15.13	15.13	0.00
2.28	--	14.81	14.81	0.00	15.23	15.23	0.00
2.49	--	15.02	15.02	0.00	15.42	15.42	0.00
2.92	E	15.41	15.41	0.00	15.78	15.78	0.00
3.12	--	15.56	15.56	0.00	16.01	16.01	0.00
3.24	--	15.63	15.63	0.00	16.14	16.14	0.00
3.28	--	15.67	15.67	0.00	16.22	16.22	0.00
3.66	F	16.11	16.11	0.00	16.86	16.86	0.00
3.80	--	15.86	15.86	0.00	16.67	16.67	0.00
4.78	G	17.46	17.46	0.00	18.28	18.28	0.00
5.17	--	17.54	17.54	0.00	18.35	18.35	0.00
5.26	--	17.56	17.56	0.00	18.39	18.39	0.00
5.34	--	17.6	17.60	0.00	18.42	18.42	0.00
5.55	H	17.47	17.47	0.00	18.32	18.32	0.00
5.65	--	17.43	17.43	0.00	18.28	18.28	0.00
5.79	--	17.80	17.80	0.00	18.65	18.65	0.00
5.88	I	18.03	18.03	0.00	18.82	18.82	0.00
5.951	--	17.93	17.93	0.00	18.69	18.69	0.00
5.98	J	17.99	17.99	0.00	18.75	18.75	0.00

Notes: --- Indicates unlettered FEMA cross section; estimated from FIS flood profile
 * Indicates cross sections modified per proposed revetment repairs

References

U.S. Army Corps of Engineers, Hydrologic Engineering Center; HEC-RAS, River Analysis System, Software Version 5.0.7; March 2019

U.S. Department of Homeland Security, Federal Emergency Management Agency; Flood Insurance Study for Tillamook County, OR and Incorporated Areas, 41057C002A, Vol. 1 and 2; Effective September 28, 2018

U.S. Department of Homeland Security, Federal Emergency Management Agency; Letter of Map Revision, Case No. 14-10-1695P; Effective September 24, 2015

U.S. Department of Homeland Security, Federal Emergency Management Agency, Region X; Procedures for "No-Rise" Certification for Proposed Developments in the Regulatory Floodway; October 2013

Oregon Department of Geology and Mineral Industries; Light Detection and Ranging (LiDAR) data; OLC North Coast 2020; Published August 2009

Figures

Figure 1 - Study Area with Effective FEMA Flood Hazard Mapping

Figure 2 - Cross Sections Added for CEM

Figure 3 – Proposed Revetment Repair Reaches

Figure 4 – Proposed Revetment Cross Sections

Figure 5 – FEMA No-Rise Certificate

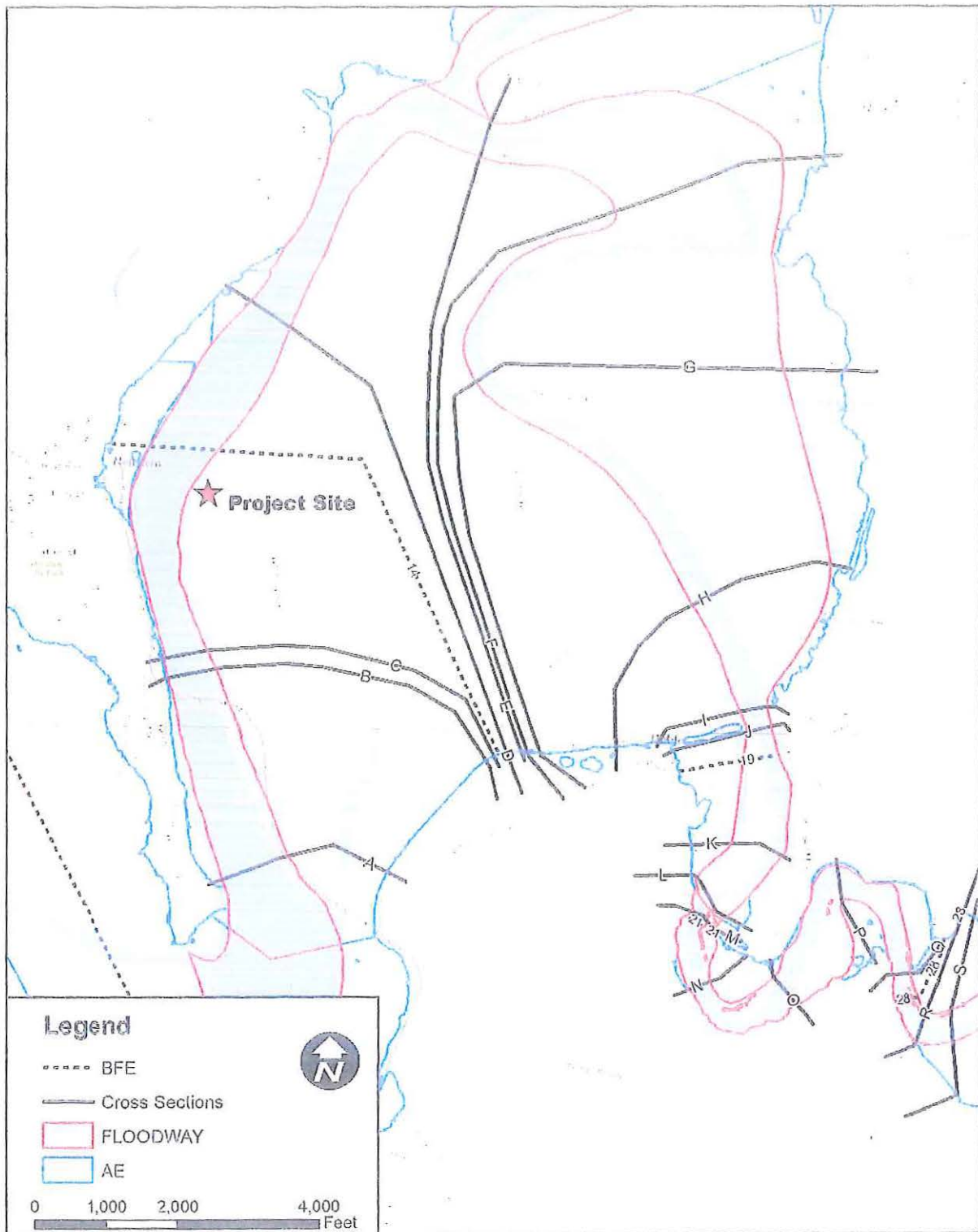


Figure 1 - Study Area with Effective FEMA Flood Hazard Mapping

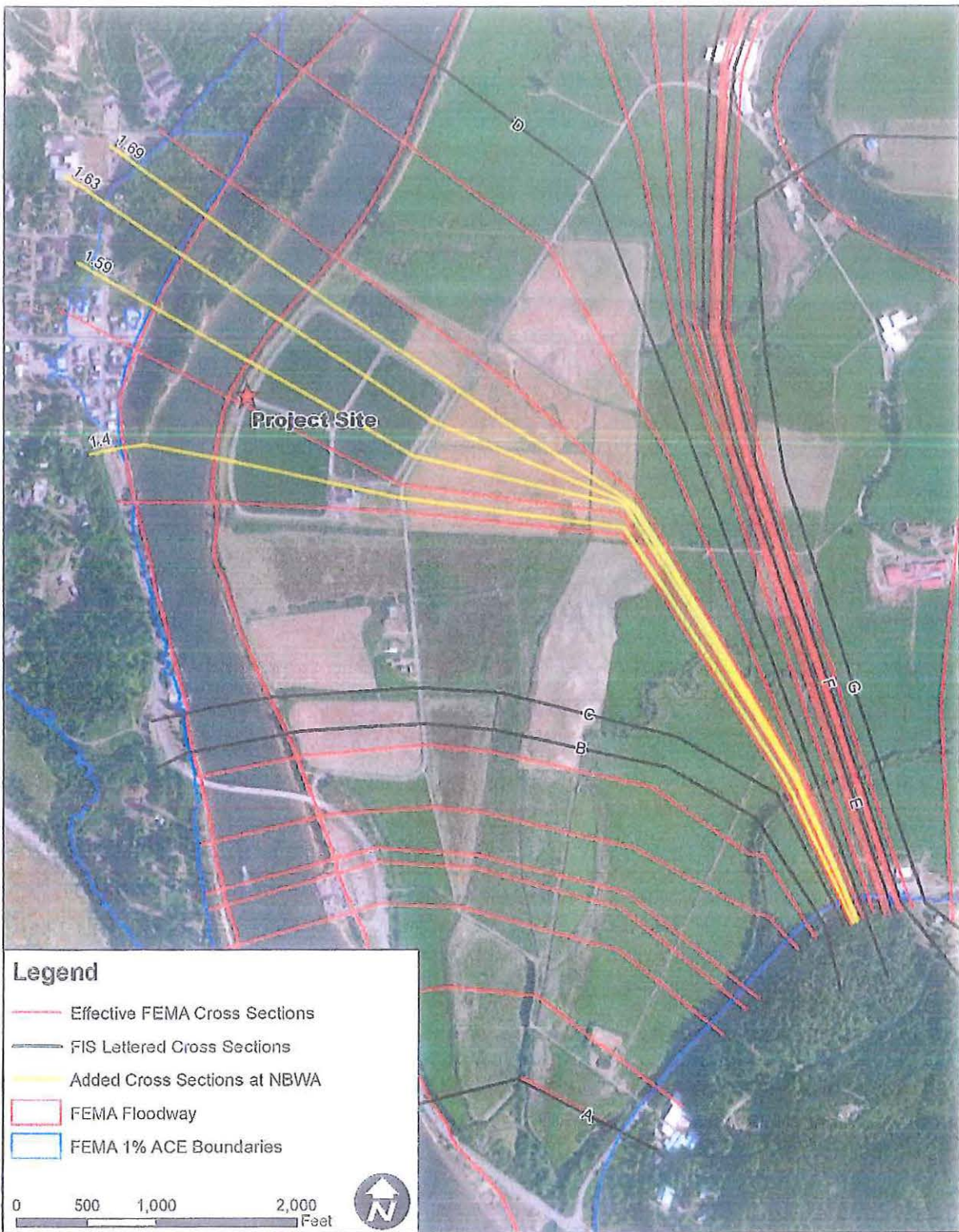


Figure 2 - Cross Sections Added for CEM

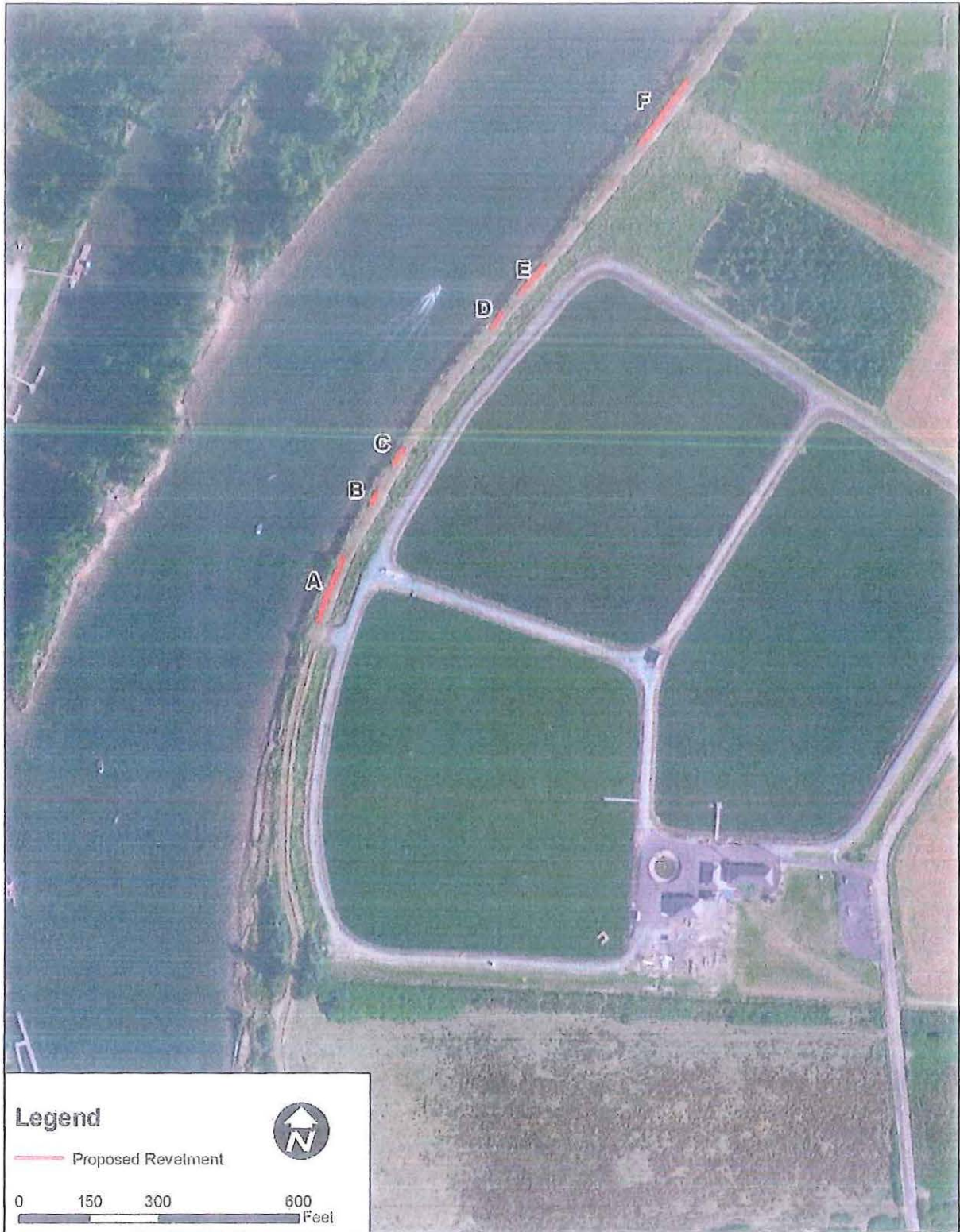


Figure 3 – Proposed Revetment Repair Reaches

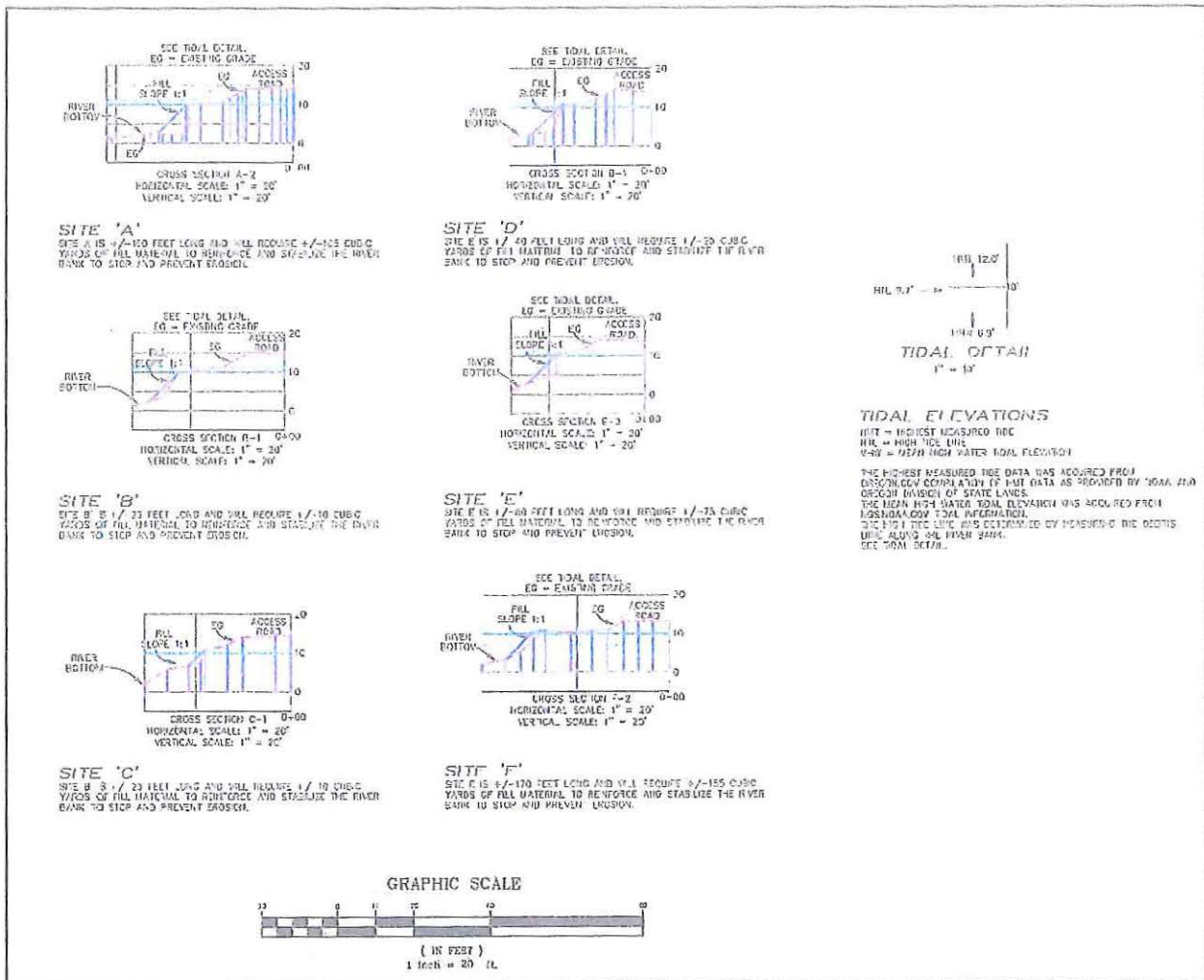


Figure 4 – Proposed Revetment Cross Sections

Appendix A

Effective FIRM Panel

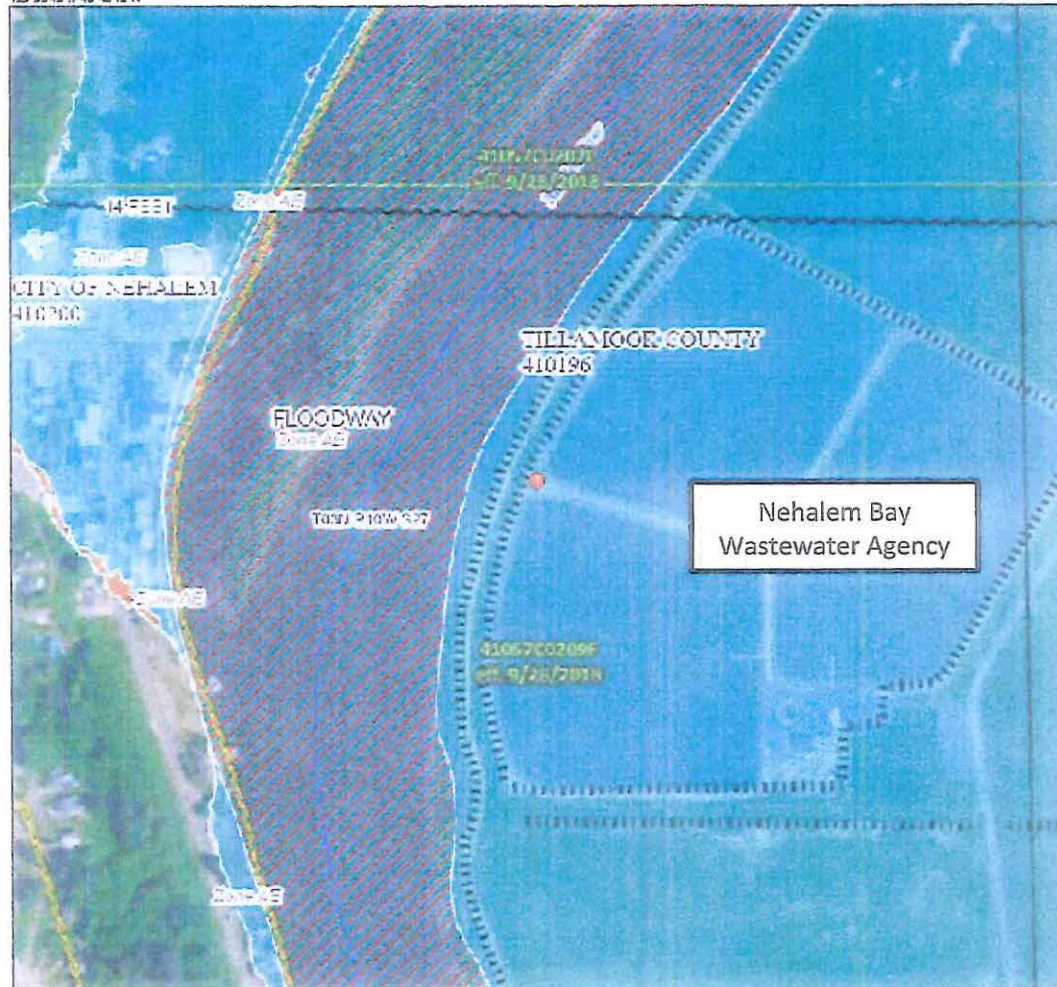
Effective Floodway Data Table

HEC-RAS Cross Section Plots, Existing and Proposed Conditions

National Flood Hazard Layer FIRMette



125052429 43752127N



0 250 500 1,000 1,500 2,000 Feet 1:6,000
 Source: USGS National Map Digitalimagery Data refreshed October, 2020

Legend

- SPECIAL FLOOD HAZARD AREAS**
 - 100-year Flood Hazard (100)
 - 500-year Flood Hazard (500)
 - Regulatory Floodway
 - 0.2% Annual Chance Flood Hazard, Area of 1% Annual Chance Flood with average depth less than one foot with vertical areas of less than one square foot per 1,000
 - Severe Conditions 1% Annual Chance Flood Hazard (1%)
 - Area with Reduced Flood Hazard to Lower Sea Level (1%)
 - Area with Flood Hazard to be avoided
 - OTHER AREAS OF FLOOD HAZARD**
 - Area of Minimal Flood Hazard (100)
 - Effective 100
 - Area of Unintentional Flood Hazard (100)
 - GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Retention Wall
 - OTHER FEATURES**
 - Cross Section with 100-Year Chance
 - Water Surface Elevation
 - Coastal Transition
 - 100-Year Flood Hazard (100)
 - Line of Shore
 - 100-Year Boundary
 - Coastal Transition Boundary
 - Profile Boundary
 - Hydrographic Features
 - MAP PANELS**
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- The pin displays the credits for the data and user representation of the data for the map panel.

This map is compiled with FEMA's data for the use of digital flood maps (DFM) and is not a traditional map. The accuracy shown on this map with FEMA's data is not guaranteed.

The map panel information is not a substitute for the authoritative NFHL web services provided by FEMA. This map was updated on 4/7/2022 to 2022 data. Any changes or information subsequent to this update are not shown. The NFHL data is updated information by change or become superseded by new data releases.

This map panel is not to be used if the user is aware of the following conditions: the map panel is not a substitute for the authoritative NFHL web services provided by FEMA. This map was updated on 4/7/2022 to 2022 data. Any changes or information subsequent to this update are not shown. The NFHL data is updated information by change or become superseded by new data releases.

Effective FEMA FIRM Panel

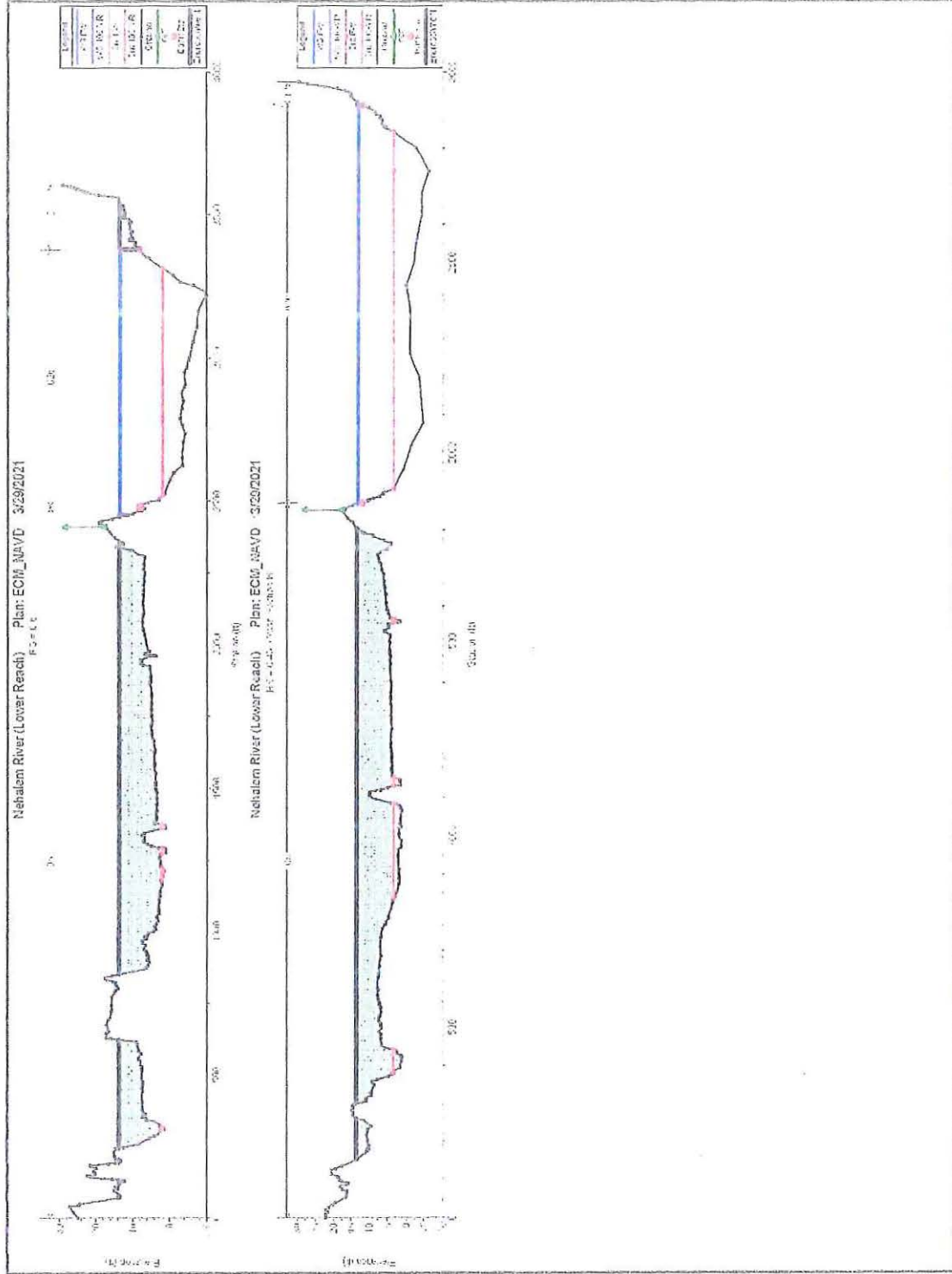
LOCATION		FLOODWAY			1% ANNUAL CHANCE FLOOD WATER SURFACE ELEVATION (FEET NAVD88)			
CROSS SECTION	DISTANCE ¹	WIDTH (FEET)	SECTION AREA (SQ. FEET)	MEAN VELOCITY (FEET/SEC)	REGULATORY	WITHOUT FLOODWAY	WITH FLOODWAY	INCREASE
A	2,360	1,045	15,503	4.8	13.1	13.1	13.5	0.4
B	5,172	675	13,924	5.2	13.6	13.6	14.0	0.4
C	5,455	617	13,139	5.5	13.7	13.7	14.0	0.3
D	10,617	740	14,543	4.9	14.8	14.8	15.3	0.5
E	15,349	570	9,568	6.5	15.5	15.5	15.9	0.4
F	19,036	2,430	20,374	6.0	16.2	16.2	17.0	0.8
G	25,153	4,388	41,742	3.8	17.5	17.5	18.4	0.9
H	29,642	1,813	12,272	8.1	17.5	17.5	18.4	0.9
I	31,319	349	6,529	9.0	18.0	18.0	18.8	0.8
J	31,608	270	6,183	9.6	18.0	18.0	18.8	0.8
K	33,338	734	9,487	8.7	20.3	20.3	20.7	0.4
L	34,492	670	9,877	7.1	20.8	20.8	21.7	0.9
M	34,620	346	7,700	7.7	20.8	20.8	21.7	0.9
N	35,660	326	7,069	8.9	23.8	23.8	24.3	0.5
O	37,350	491	11,908	4.9	25.9	25.9	26.4	0.5
P	39,030	532	10,916	5.4	26.6	26.6	27.1	0.5
Q	40,680	296	6,670	8.8	27.4	27.4	27.9	0.5
R	41,490	455	10,047	5.8	28.8	28.8	29.4	0.6
S	41,890	435	9,623	5.9	29.0	29.0	29.6	0.6
T	42,830	285	6,434	8.8	29.5	29.5	30.3	0.8
U	43,210	375	6,062	7.1	30.7	30.7	31.2	0.5
V	45,790	370	7,391	7.7	32.4	32.4	32.9	0.5
W	47,330	593	8,370	6.7	32.9	32.9	33.7	0.8
X	48,885	631	12,986	4.5	33.7	33.7	34.7	1.0

¹Feet above confluence with Nehalem Bay

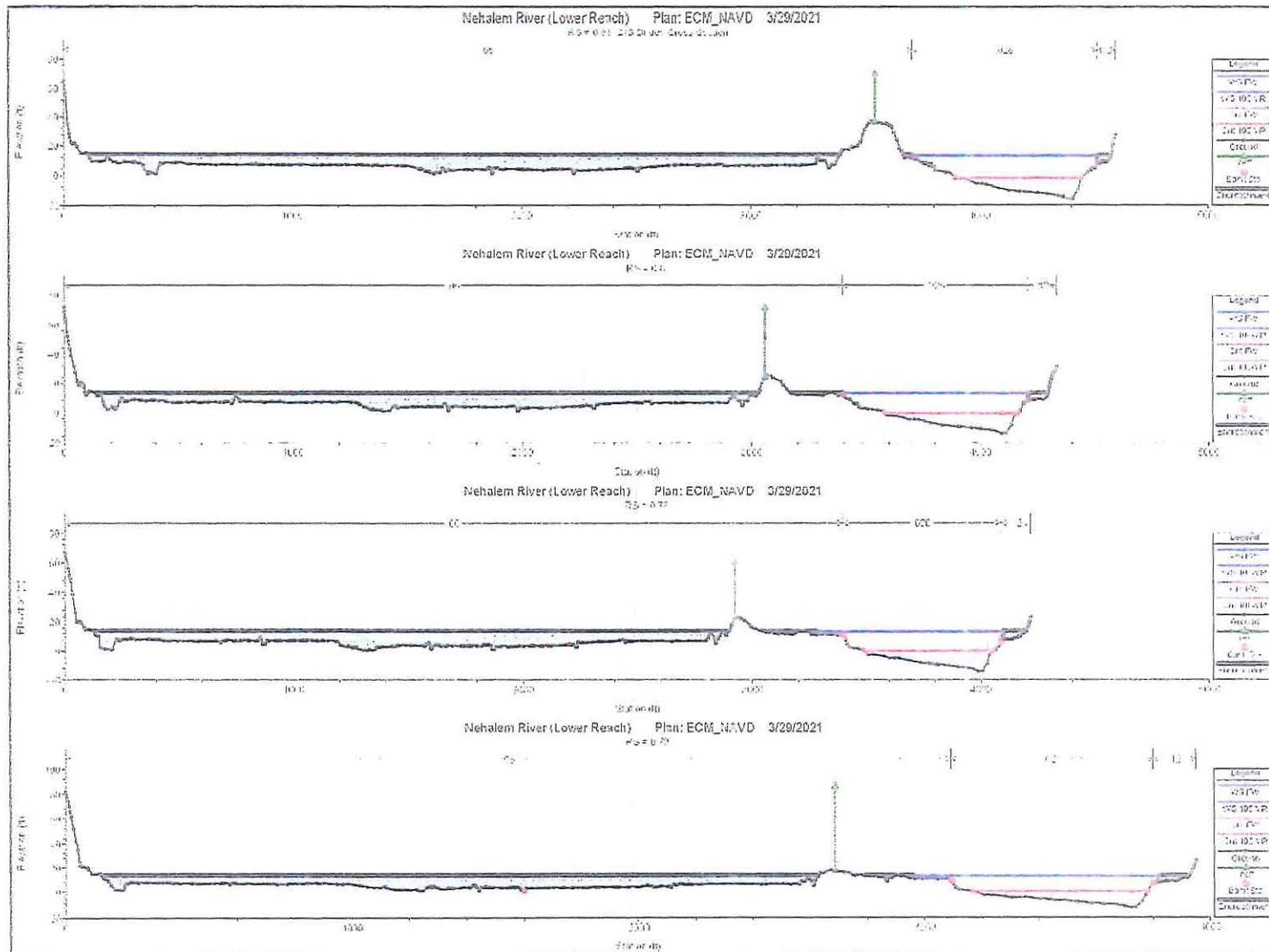
TABLE 3A	FEDERAL EMERGENCY MANAGEMENT AGENCY TILLAMOOK COUNTY, OREGON AND INCORPORATED AREAS	FLOODWAY DATA
		FLOODING SOURCE: NEHALEM RIVER

Effective FEMA Floodway Data Table

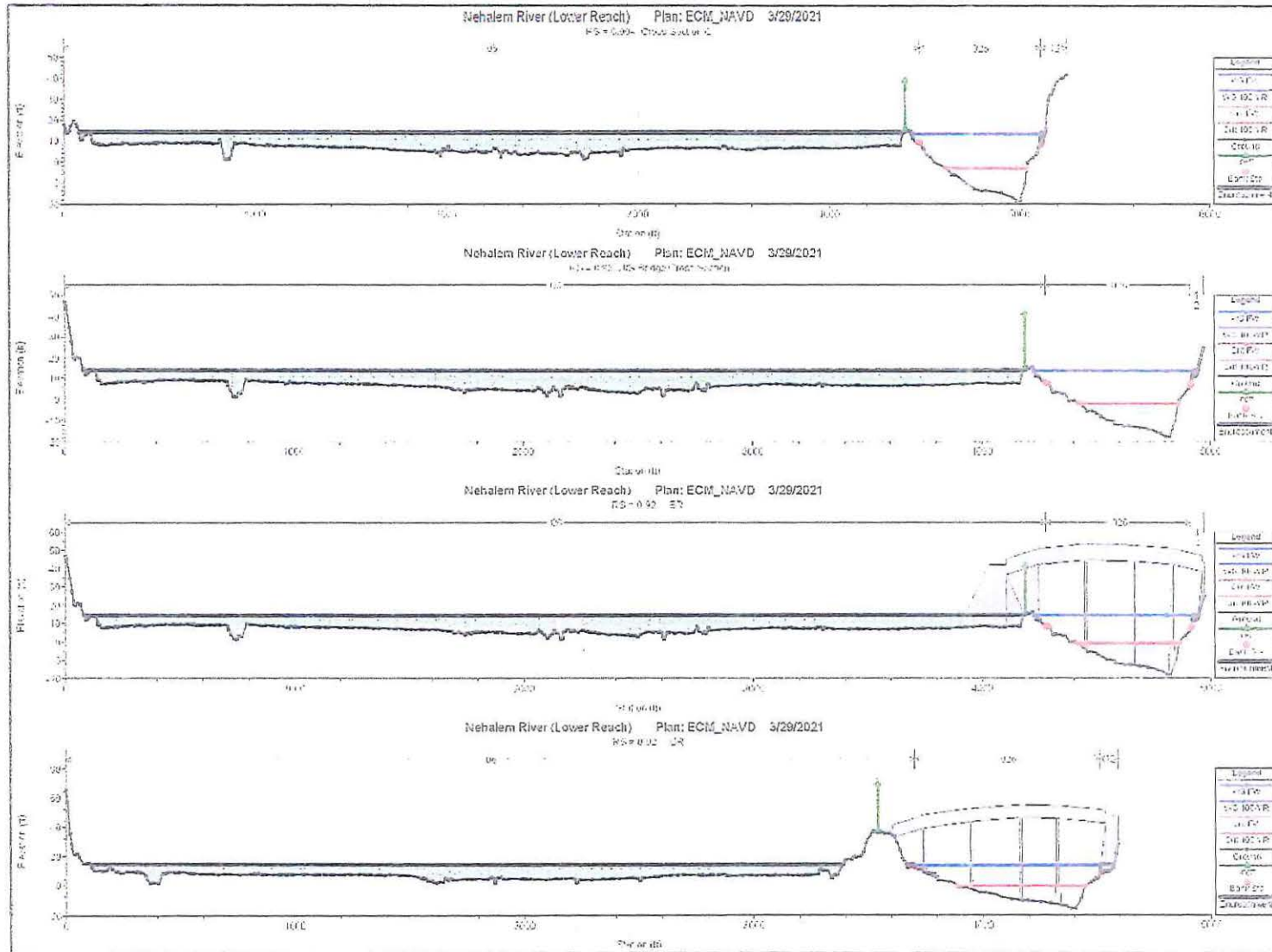
HEC-RAS Cross Section Plots – Existing Conditions



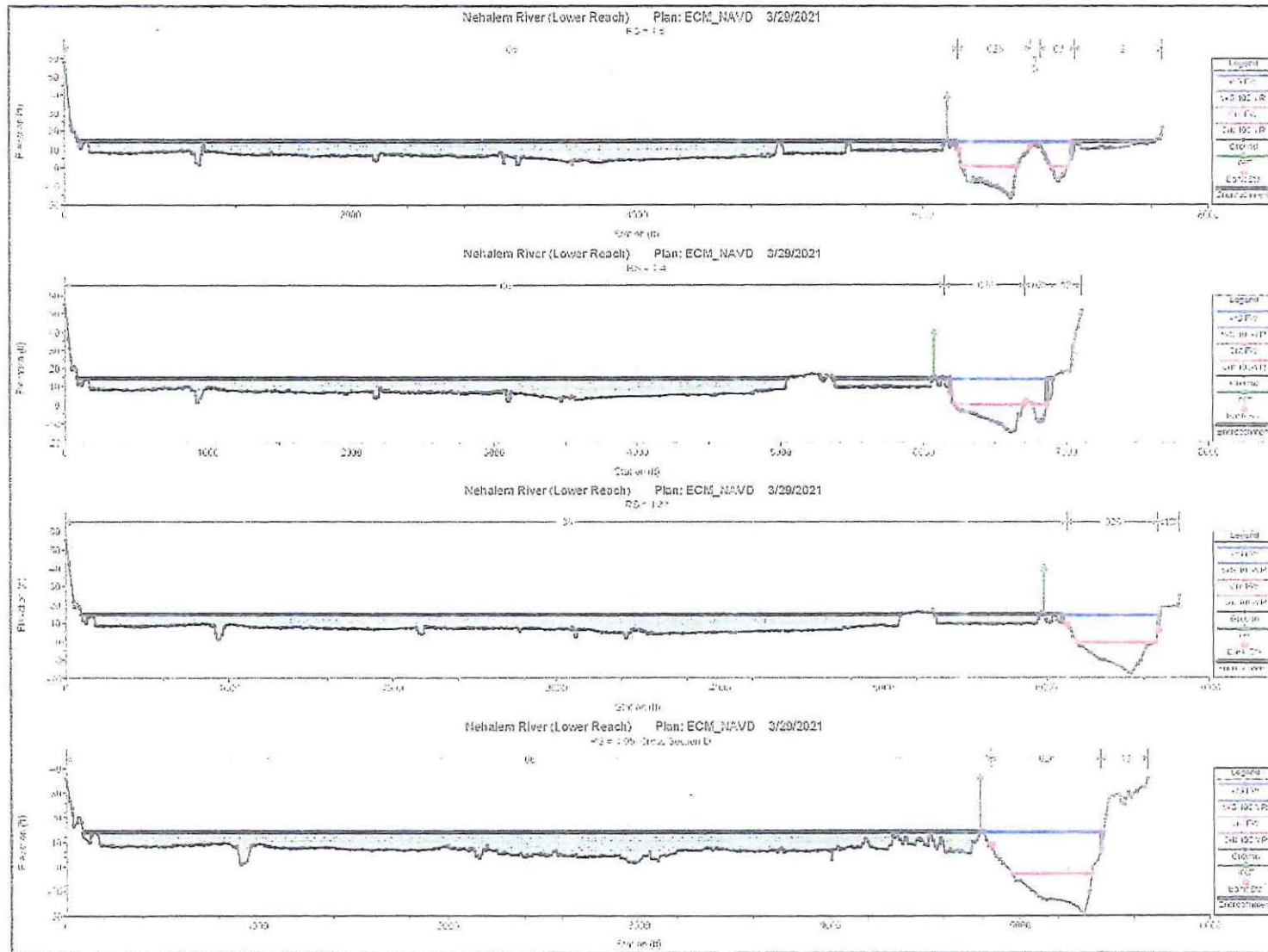
HEC-RAS Cross Section Plots – Existing Conditions



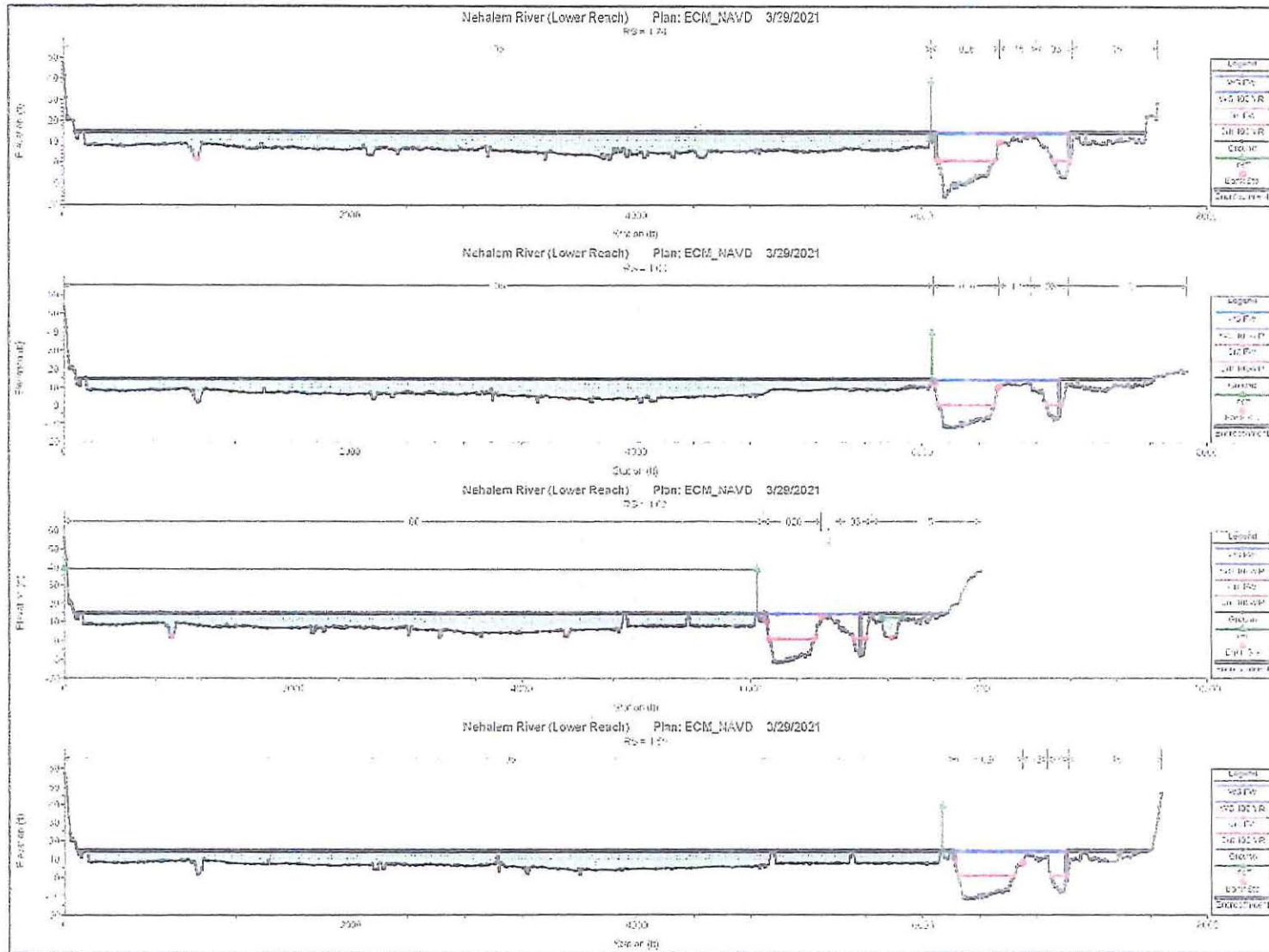
HEC-RAS Cross Section Plots – Existing Conditions



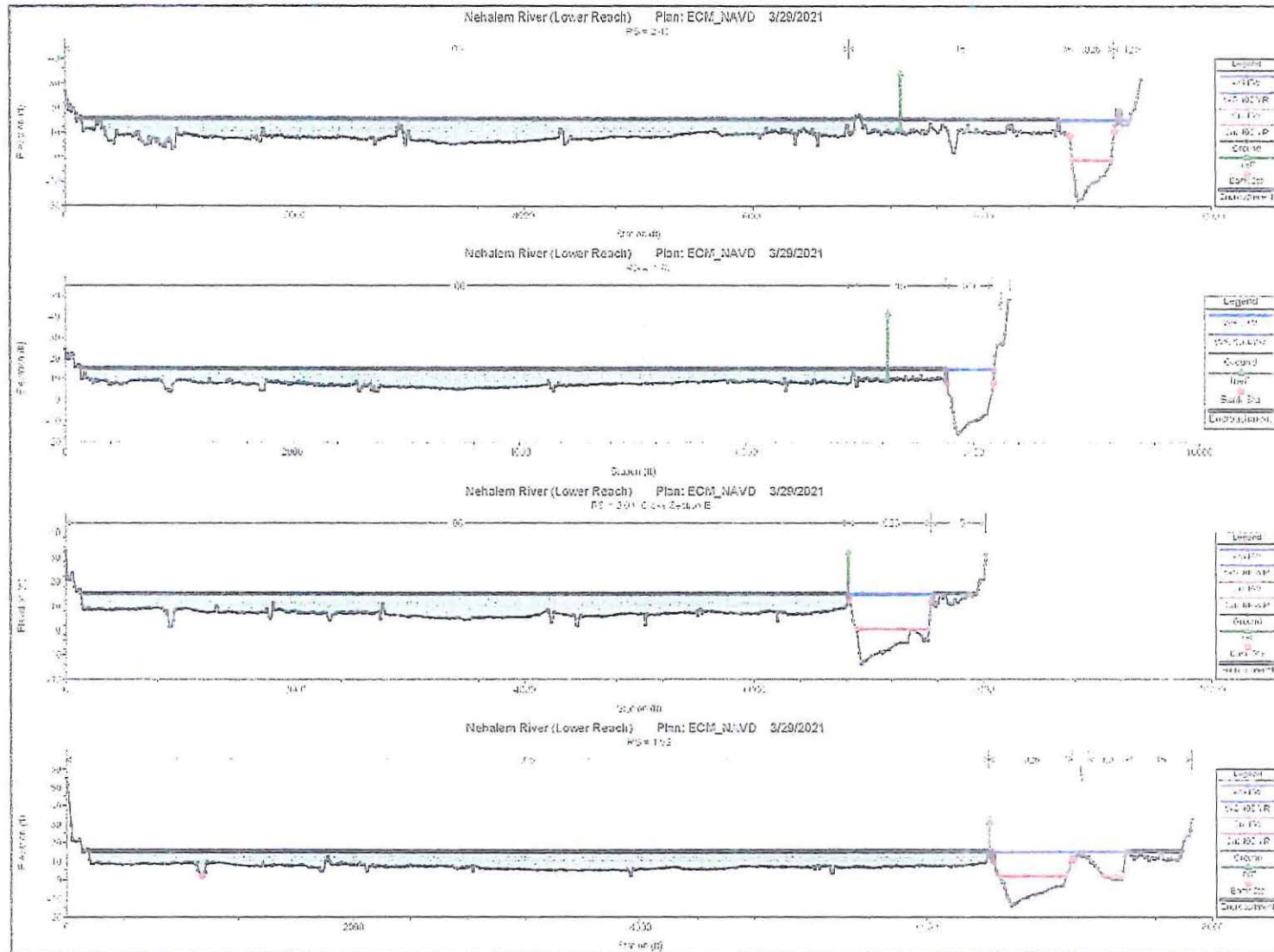
HEC-RAS Cross Section Plots – Existing Conditions



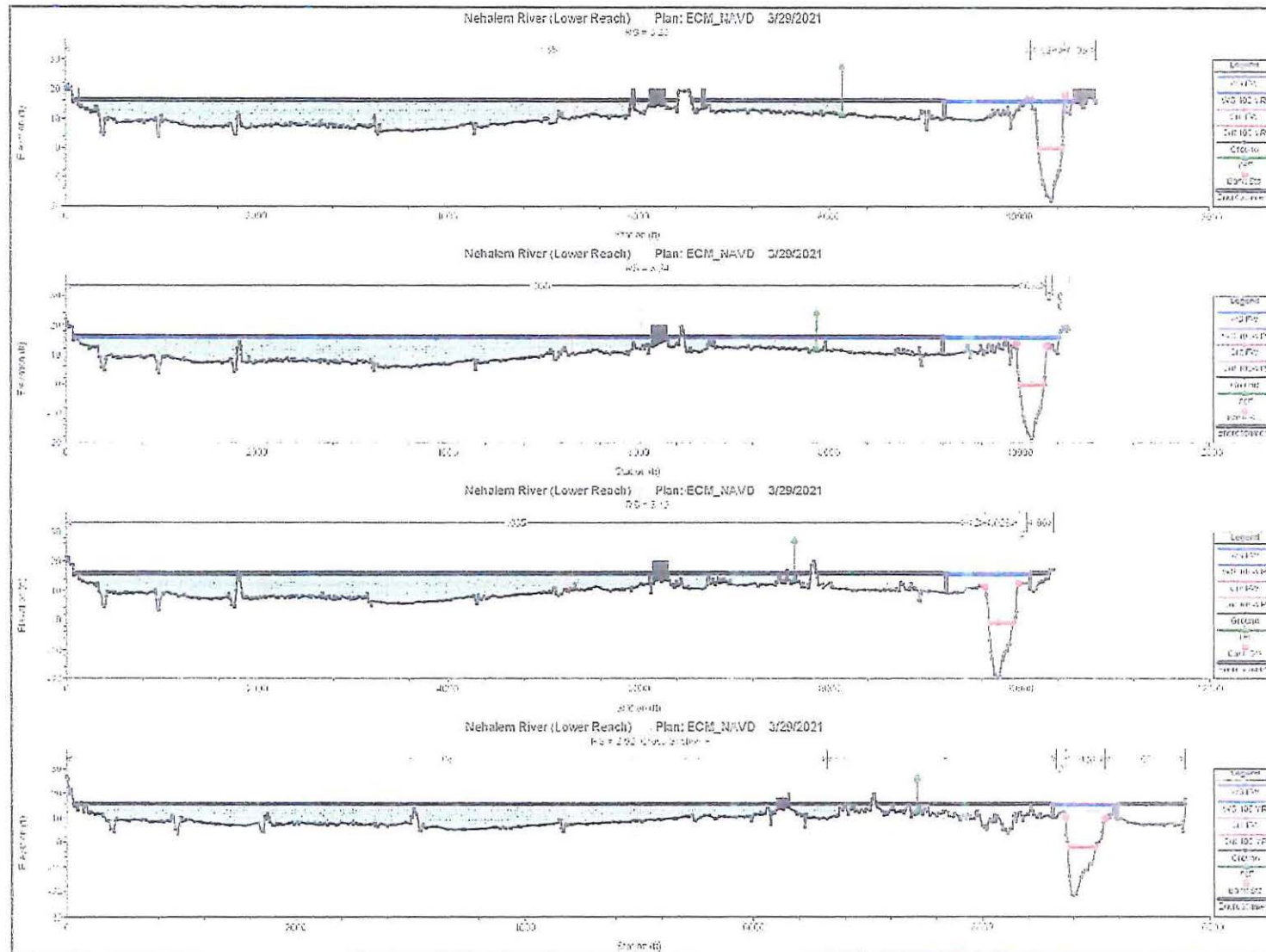
HEC-RAS Cross Section Plots – Existing Conditions



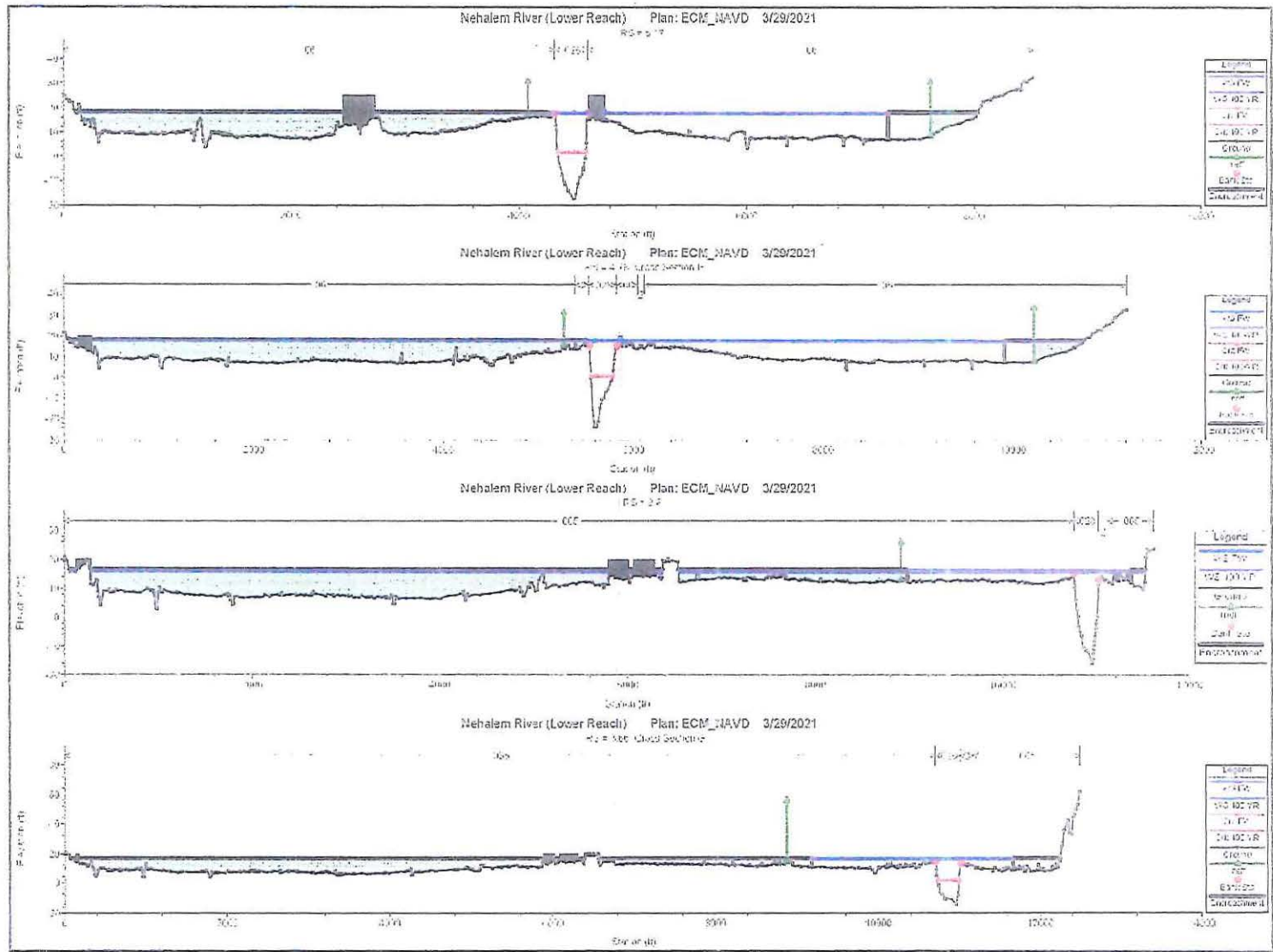
HEC-RAS Cross Section Plots – Existing Conditions



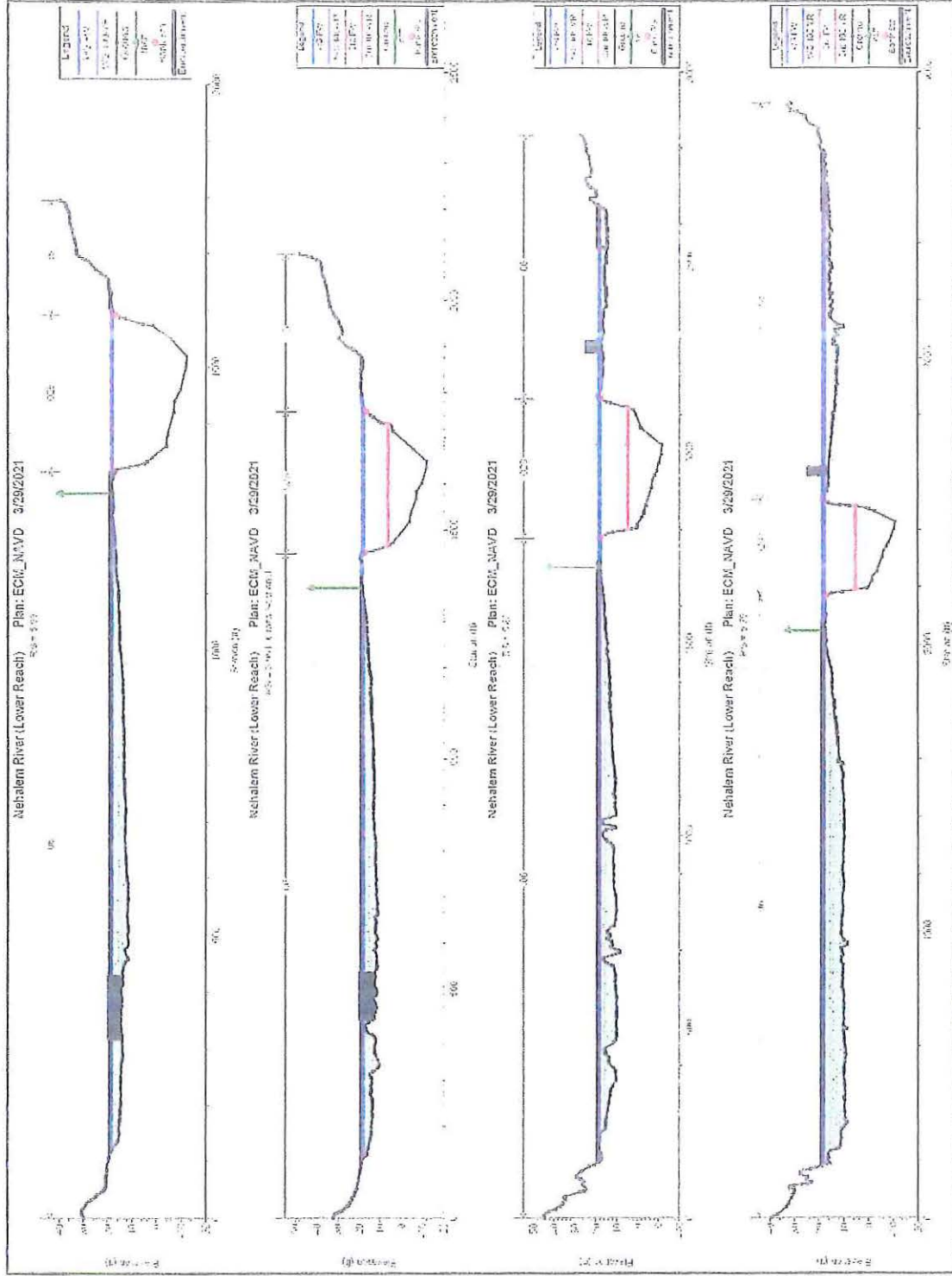
HEC-RAS Cross Section Plots – Existing Conditions



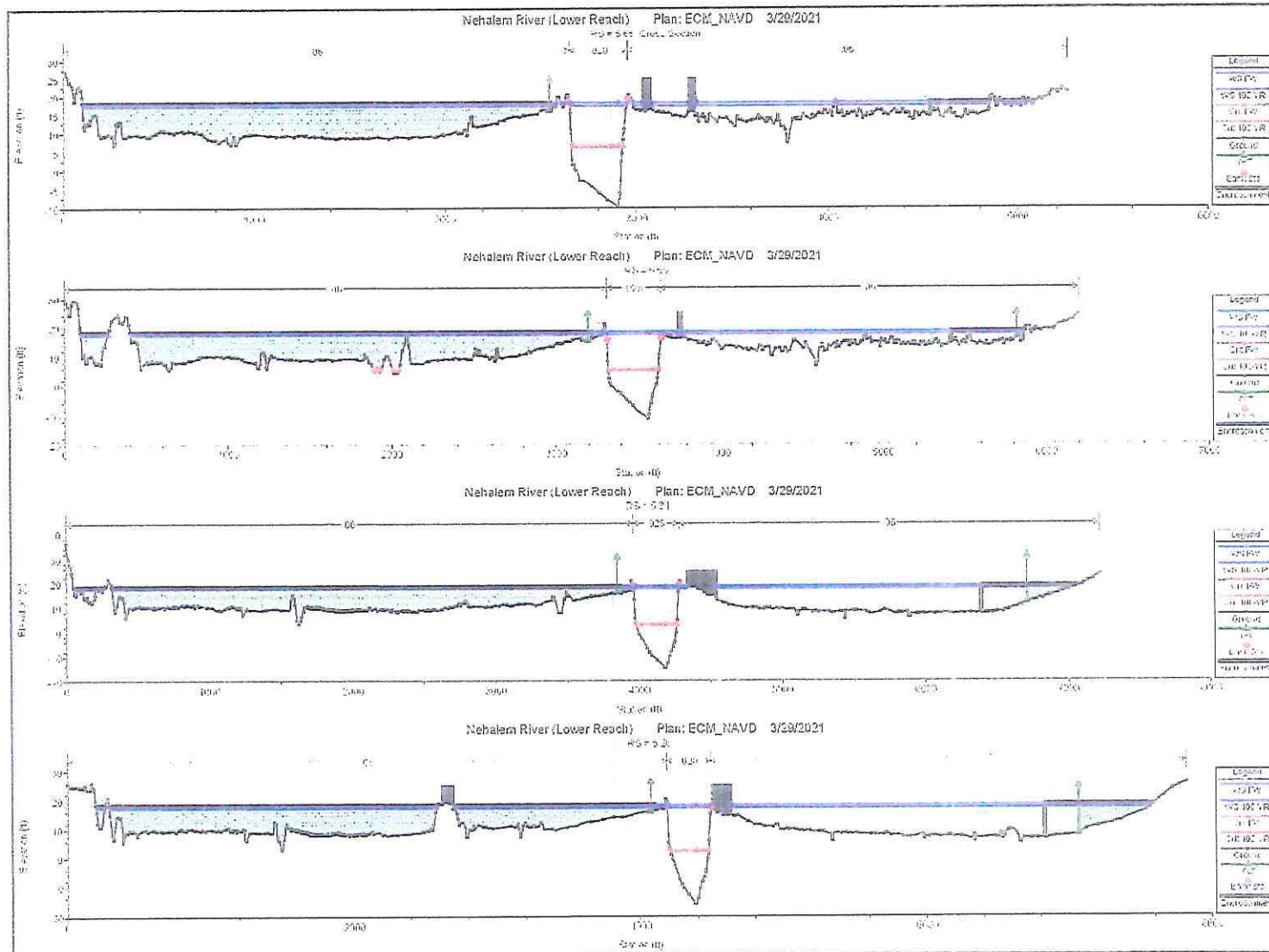
HEC-RAS Cross Section Plots – Existing Conditions



HEC-RAS Cross Section Plots – Existing Conditions



HEC-RAS Cross Section Plots – Existing Conditions



NOTES

THIS MAP DOES NOT CONSTITUTE A BOUNDARY SURVEY OF THE SUBJECT PROPERTY. THE PURPOSE OF THIS MAP IS TO SHOW THE LOCATION OF THE PROPOSED FILL/RIP RAP PLACEMENT FOR SHORELINE STABILIZATION.
THE COORDINATES ON THIS MAP ARE BASED UPON NAD 83 OREGON STATE PLANE COORDINATES, OREGON NORTH ZONE.
THE ELEVATIONS ON THIS MAP ARE NAVD 88, BASED ON NGS MONUMENT 711 AT THE INTERSECTION OF OREGON STATE HIGHWAY #53 AND OREGON COAST HIGHWAY #101.
TO ADJUST FROM NAVD 88 TO MEAN LOWER LOW WATER, SUBTRACT 0.41' FROM ELEVATIONS SHOWN HEREON.



SHEET 1 OF 5
PERMIT SKETCHES FOR:
SUNSET DRAINAGE

VICINITY MAP

WEST 1/2, SECTION 27, T3N, R10W, W.M.
TILLAMOOK COUNTY
MAY 14, 2019

**ONION PEAK
DESIGN**

PO BOX 326
NEHALEM, OR 97131
(503) 368-6102
FAX (503) 368-6102

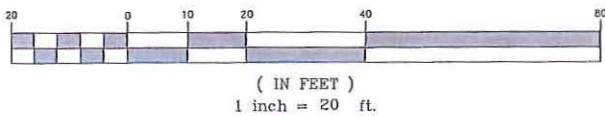
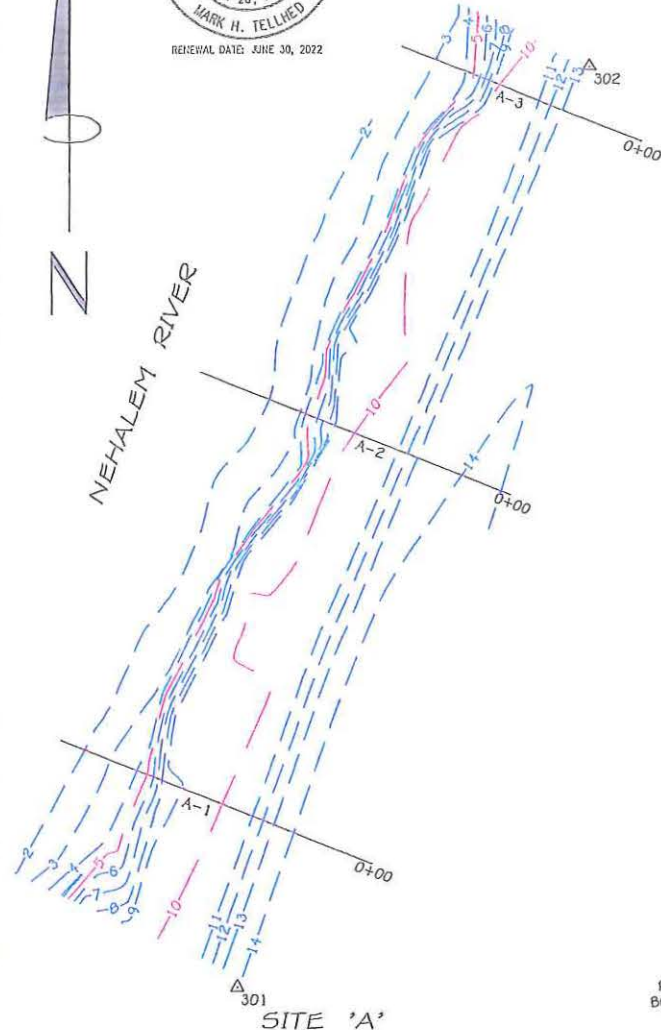
"SUNSET" #A2019
SUNSET1903-T.DWG

SITE 'A'

SITE A IS +/-160 FEET LONG AND WILL REQUIRE +/-105 CUBIC YARDS OF FILL MATERIAL TO REINFORCE AND STABILIZE THE RIVER BANK TO STOP AND PREVENT EROSION.

SITE DEFINITION

POINT#	NORTHING	EASTING	ELEVATION
301	765428.83	7336328.10	15.37'
302	765580.07	7336387.91	14.61'

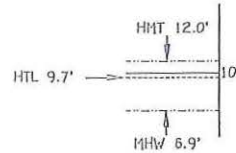


TIDAL ELEVATIONS

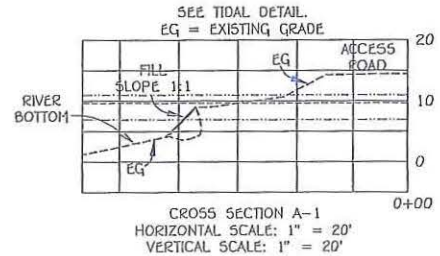
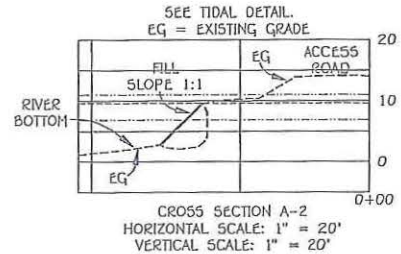
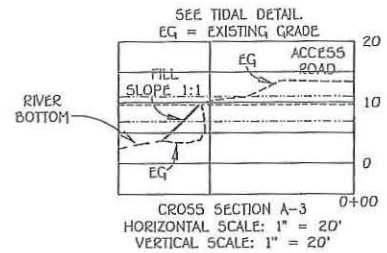
HMT = HIGHEST MEASURED TIDE
HTL = HIGH TIDE LINE
MHW = MEAN HIGH WATER TIDAL ELEVATION

THE HIGHEST MEASURED TIDE DATA WAS ACQUIRED FROM OREGON.GOV COMPILATION OF HMT DATA AS PROVIDED BY NOAA AND OREGON DIVISION OF STATE LANDS.

THE MEAN HIGH WATER TIDAL ELEVATION WAS ACQUIRED FROM NGS.NOAA.GOV TIDAL INFORMATION. THE HIGH TIDE LINE WAS DETERMINED BY MEASURING THE DEBRIS LINE ALONG THE RIVER BANK. SEE TIDAL DETAIL.



TIDAL DETAIL
1" = 10'



**ONION PEAK
DESIGN**

PO BOX 326
NEHALEM, OR 97131
(503) 368-6102
FAX (503) 368-6102

"SUNSET" #A2019
SUNSET1903-T.DWG

SHEET 2 OF 5
PERMIT SKETCHES FOR:

SUNSET DRAINAGE

SITE A
CROSS SECTION &
CALCULATIONS

WEST 1/2, SECTION 27, T3N, R10W, W.M.
TILLAMOOK COUNTY
MAY 14, 2019

SITE 'D'

SITE E IS +/-40 FEET LONG AND WILL REQUIRE +/-25 CUBIC YARDS OF FILL MATERIAL TO REINFORCE AND STABILIZE THE RIVER BANK TO STOP AND PREVENT EROSION.

SITE 'E'

SITE E IS +/-80 FEET LONG AND WILL REQUIRE +/-75 CUBIC YARDS OF FILL MATERIAL TO REINFORCE AND STABILIZE THE RIVER BANK TO STOP AND PREVENT EROSION.

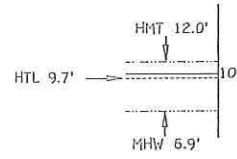
TIDAL ELEVATIONS

HMT = HIGHEST MEASURED TIDE
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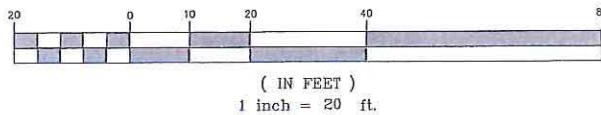
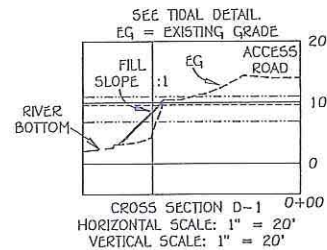
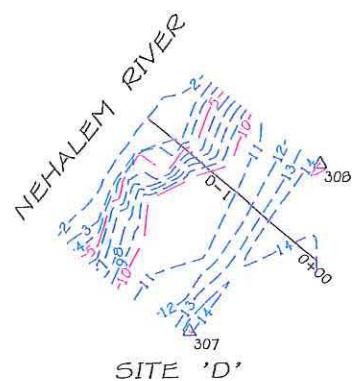
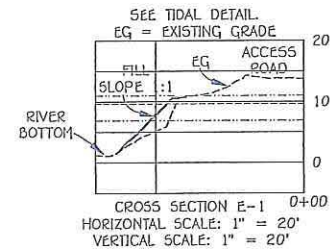
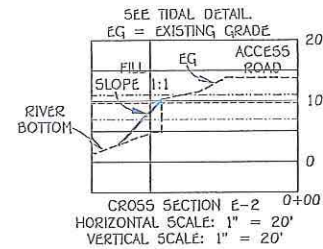
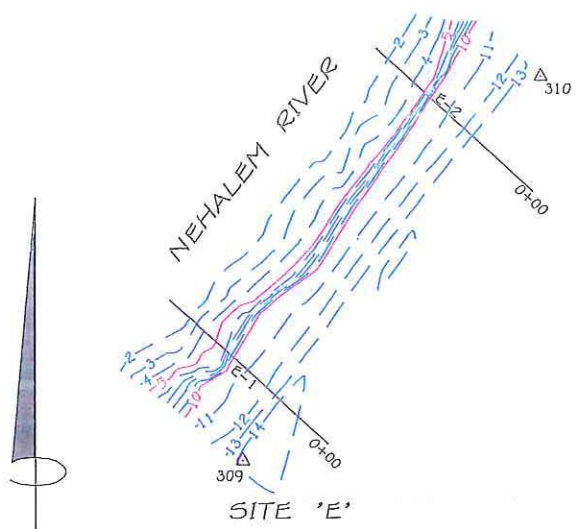
THE HIGHEST MEASURED TIDE DATA WAS ACQUIRED FROM OREGON.GOV COMPILATION OF HMT DATA AS PROVIDED BY NOAA AND OREGON DIVISION OF STATE LANDS. THE MEAN HIGH WATER TIDAL ELEVATION WAS ACQUIRED FROM NGS.NOAA.GOV TIDAL INFORMATION. THE HIGH TIDE LINE WAS DETERMINED BY MEASURING THE DEBRIS LINE ALONG THE RIVER BANK. SEE TIDAL DETAIL.

SITE DEFINITION

POINT#	NORTHING	EASTING	ELEVATION
307	766063.50	7336708.09	14.76'
308	766090.86	7336730.47	15.13'
309	766132.34	7336764.82	14.90'
310	766195.35	7336815.66	15.15'



TIDAL DETAIL
1" = 10'



SHEET 4 OF 5
PERMIT SKETCHES FOR:
SUNSET DRAINAGE

SITES D & E
CROSS SECTIONS &
CALCULATIONS

WEST 1/2, SECTION 27, T3N, R10W, W.M.
TILLAMOOK COUNTY
MAY 14, 2019

**ONION PEAK
DESIGN**
PO BOX 326
NEHALEM, OR 97131
(503) 368-6102
FAX (503) 368-6102

"SUNSET" #A2019
SUNSET1903-T.DWG

SITE 'F'

SITE F IS +/-170 FEET LONG AND WILL REQUIRE +/-155 CUBIC YARDS OF FILL MATERIAL TO REINFORCE AND STABILIZE THE RIVER BANK TO STOP AND PREVENT EROSION.

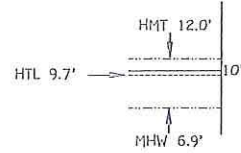
SITE DEFINITION

POINT#	NORTHING	EASTING	ELEVATION
315	766447.37	7337020.20	14.60'
316	766561.33	7337126.40	14.18'

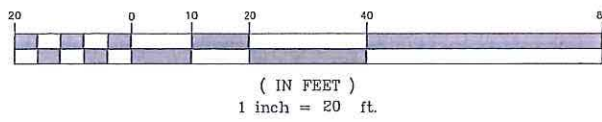
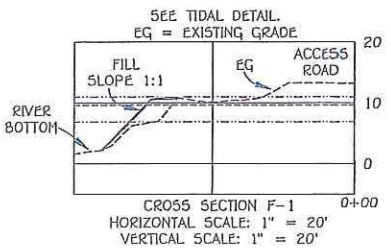
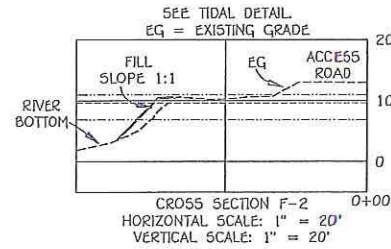
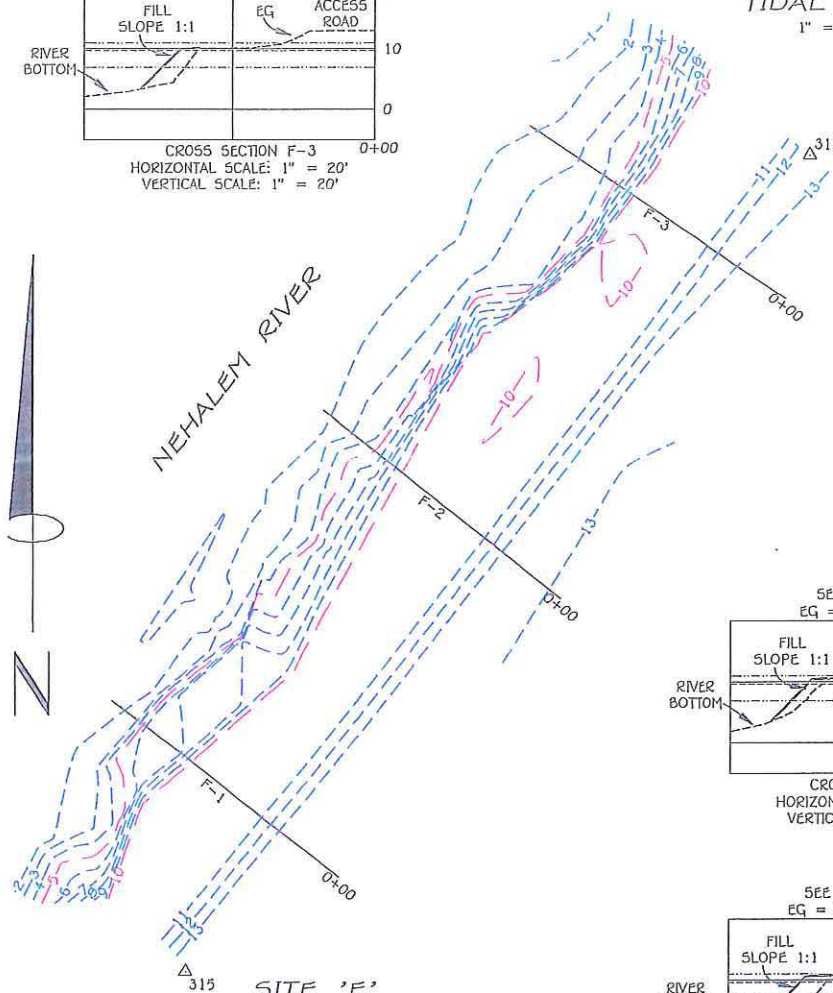
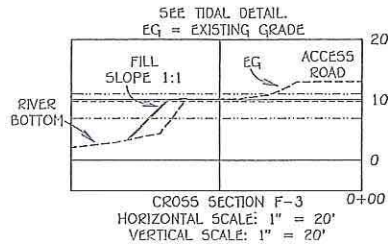
TIDAL ELEVATIONS

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 SEE TIDAL DETAIL.



TIDAL DETAIL
 1" = 10'



SHEET 5 OF 5
 PERMIT SKETCHES FOR:
SUNSET DRAINAGE
 SITE F
 CROSS SECTION &
 CALCULATIONS
 WEST 1/2, SECTION 27, T3N, R10W, W.M.
 TILLAMOOK COUNTY
 MAY 14, 2019

**ONION PEAK
 DESIGN**
 PO BOX 326
 NEHALEM, OR 97131
 (503) 368-6102
 FAX (503) 368-6102

"SUNSET" #A2019
 SUNSET1903-T.DWG