

# Port of Kalama, New Approach to Maintenance Dredging

*Vladimir Shepsis, Coast @ Harbor Engineering, Inc.*

*John Dawson, Coast @ Harbor Engineering, Inc.*

*Mark Wilson, Port of Kalama*

*Tabitha Reeder, Port of Kalama*

*October 24, 2013*



**COAST & HARBOR  
ENGINEERING**



COLUMBIA RIVER

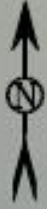


Port of Kalama	Yearly Maintenance Dredging Volumes
TEMCO (Harvest State)	160,000 cy per year
North Port	10,000-20,000 cy per 2-5 years
Kalama Export	50,000 cy per 10-15 years
Marina	5,000 cy per 10-25 years





# Upland Disposal



Approach to the Problem, initiated in 2012:

- Optimize (reduce) volume of maintenance dredging
- Implement open water placement of dredged material

DISPOSAL SITE

TEMCO BERTH



As you know, we finally received our US Army Corps of Engineers Section 10/404 permit to continue maintenance dredging into 2013.

**10/5//2013**

The permit authorizes maintenance dredging from August through December, and increases our total dredge quantity from 630,000 cy to 2.1 million cy, and also approves flow lane placement in Oregon and Washington, as well as beach nourishment and upland disposal. We received all federal, state, and local permits within 8 months of submittal. This was no small feat, as it generally takes 1-2 years to acquire dredging permits, and I want to commend you on your work on our maintenance dredging project.

A special thanks to Vladimir Shepsis and his team from Coast and Harbor for their leadership on the project including engineering and working closely with the Corps navigation group. I want to recognize Sally Fisher and her team for their excellent work on the sediment sampling and analysis and preparation of permit documents, and coordination with the Corps and PSET. I also want to thank Brian Carrico for his work on the SEPA and shorelines.

Great work team!

Thanks all.

Tabitha Reeder  
Environmental Manager  
Port of Kalama  
380 W. Marine Drive  
Kalama, WA 98625

[www.portofkalama.com](http://www.portofkalama.com)

360-673-2325 voice

360-673-5017 fax



**COAST & HARBOR  
ENGINEERING**

As you know, we finally received our US Army Corps of Engineers Section 10/404 permit to continue maintenance dredging into 2013.

**10/5//2013** The permit authorizes maintenance dredging from August through December, and increases our total dredge quantity from 630,000 cy to 2.1 million cy, and also approves flow lane placement in Oregon and Washington, as well as beach nourishment and upland disposal. We received all federal, state, and local permits within 8 months of submittal. This was no small feat, as it generally takes 1-2 years to acquire dredging permits, and I want to commend you on your work on our maintenance dredging project.

A special thanks to Vladimir Shepsis and his team from Coast and Harbor for their leadership on the project including engineering and working closely with the Corps navigation group. I want to recognize Sally Fisher and her team for their excellent work on the sediment sampling and analysis and preparation of permit documents, and coordination with the Corps and PSET. I also want to thank Brian Carrico for his work on the SEPA and shorelines.

Great work team!

Thanks all.

Tabitha Reeder  
Environmental Manager  
Port of Kalama  
380 W. Marine Drive  
Kalama, WA 98625

[www.portofkalama.com](http://www.portofkalama.com)

360-673-2325 voice

360-673-5017 fax



**COAST & HARBOR  
ENGINEERING**

As you know, we finally received our US Army Corps of Engineers Section 10/404 permit to continue maintenance dredging into 2013.

10/5//2013

The permit authorizes maintenance dredging from August through December, and increases our total dredge quantity from 630,000 cy to 2.1 million cy, and also approves flow lane placement in Oregon and Washington, as well as beach nourishment and upland disposal. We received all federal, state, and local permits within 8 months of submittal. This was no small feat, as it generally takes 1-2 years to acquire dredging permits, and I want to commend you on your work on our maintenance dredging project.

A special thanks to Vladimir Shepsis and his team from Coast and Harbor for their leadership on the project including engineering and working closely with the Corps navigation group. I want to recognize Sally Fisher and her team for their excellent work on the sediment sampling and analysis and preparation of permit documents, and coordination with the Corps and PSET. I also want to thank Brian Carrico for his work on the SEPA and shorelines.

Great work team!

Thanks all.

Tabitha Reeder  
Environmental Manager  
Port of Kalama  
380 W. Marine Drive  
Kalama, WA 98625

[www.portofkalama.com](http://www.portofkalama.com)

360-673-2325 voice

360-673-5017 fax



**COAST & HARBOR  
ENGINEERING**



As you know, we finally received our US Army Corps of Engineers Section 10/404 permit to continue maintenance dredging into 2013.

10/5//2013

The permit authorizes maintenance dredging from August through December, and increases our total dredge quantity from 630,000 cy to 2.1 million cy, and also approves flow lane placement in Oregon and Washington, as well as beach nourishment and upland disposal. We received all federal, state, and local permits within 8 months of submittal. This was no small feat, as it generally takes 1-2 years to acquire dredging permits, and I want to commend you on your work on our maintenance dredging project.

A special thanks to Vladimir Shepsis and his team from Coast and Harbor for their leadership on the project including engineering and working closely with the Corps navigation group. I want to recognize Sally Fisher and her team for their excellent work on the sediment sampling and analysis and preparation of permit documents, and coordination with the Corps and PSET. I also want to thank Brian Carrico for his work on the SEPA and shorelines.

Great work team!

Thanks all.

Tabitha Reeder  
Environmental Manager  
Port of Kalama  
380 W. Marine Drive  
Kalama, WA 98625

[www.portofkalama.com](http://www.portofkalama.com)

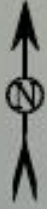
360-673-2325 voice

360-673-5017 fax



**COAST & HARBOR  
ENGINEERING**

# Upland Disposal



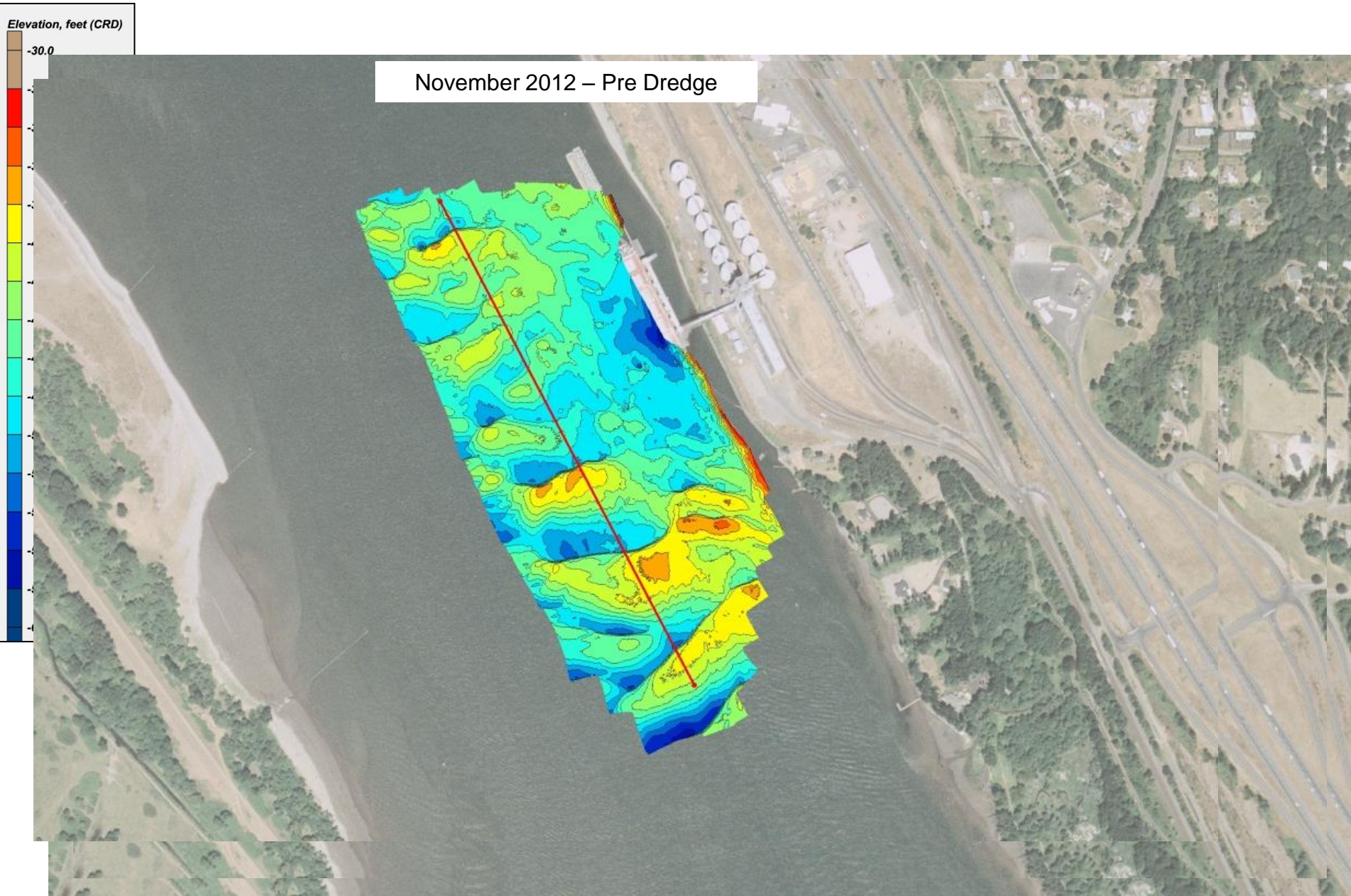
Approach to the Problem, initiated in 2012:

- Optimize (reduce) volume of maintenance dredging
- Implement open water placement of dredged material

DISPOSAL SITE

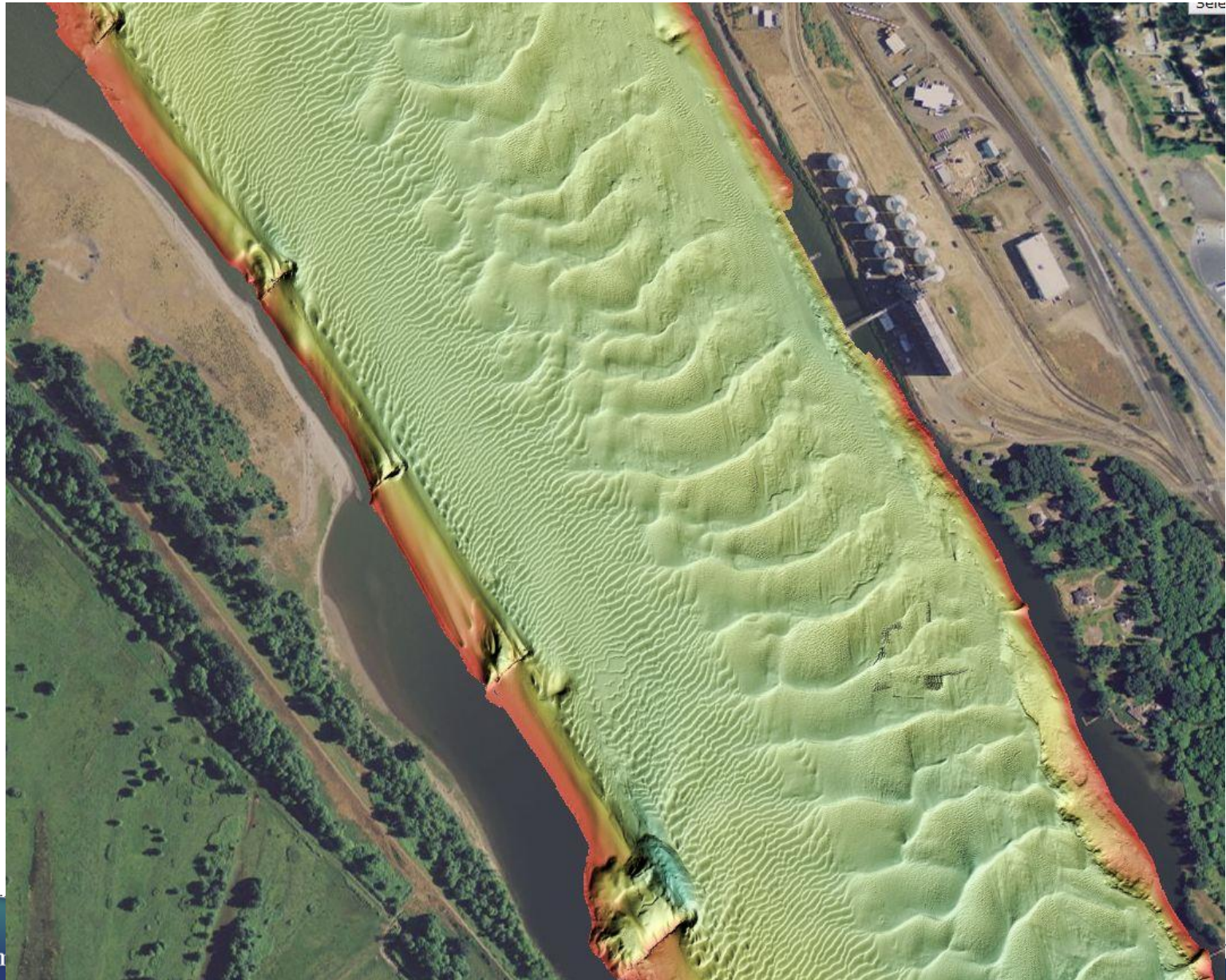
TEMCO BERTH





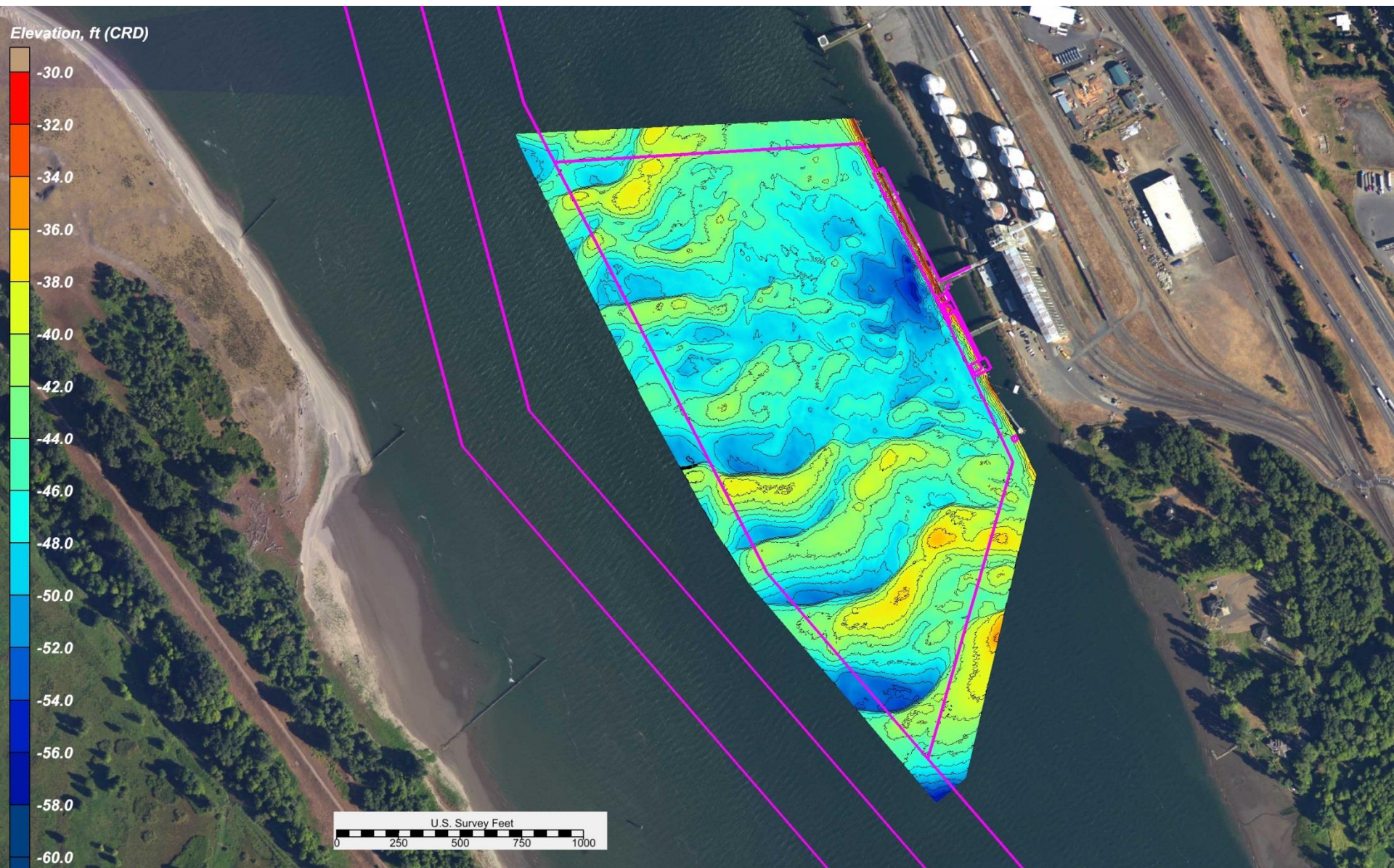


# Columbia River Bottom



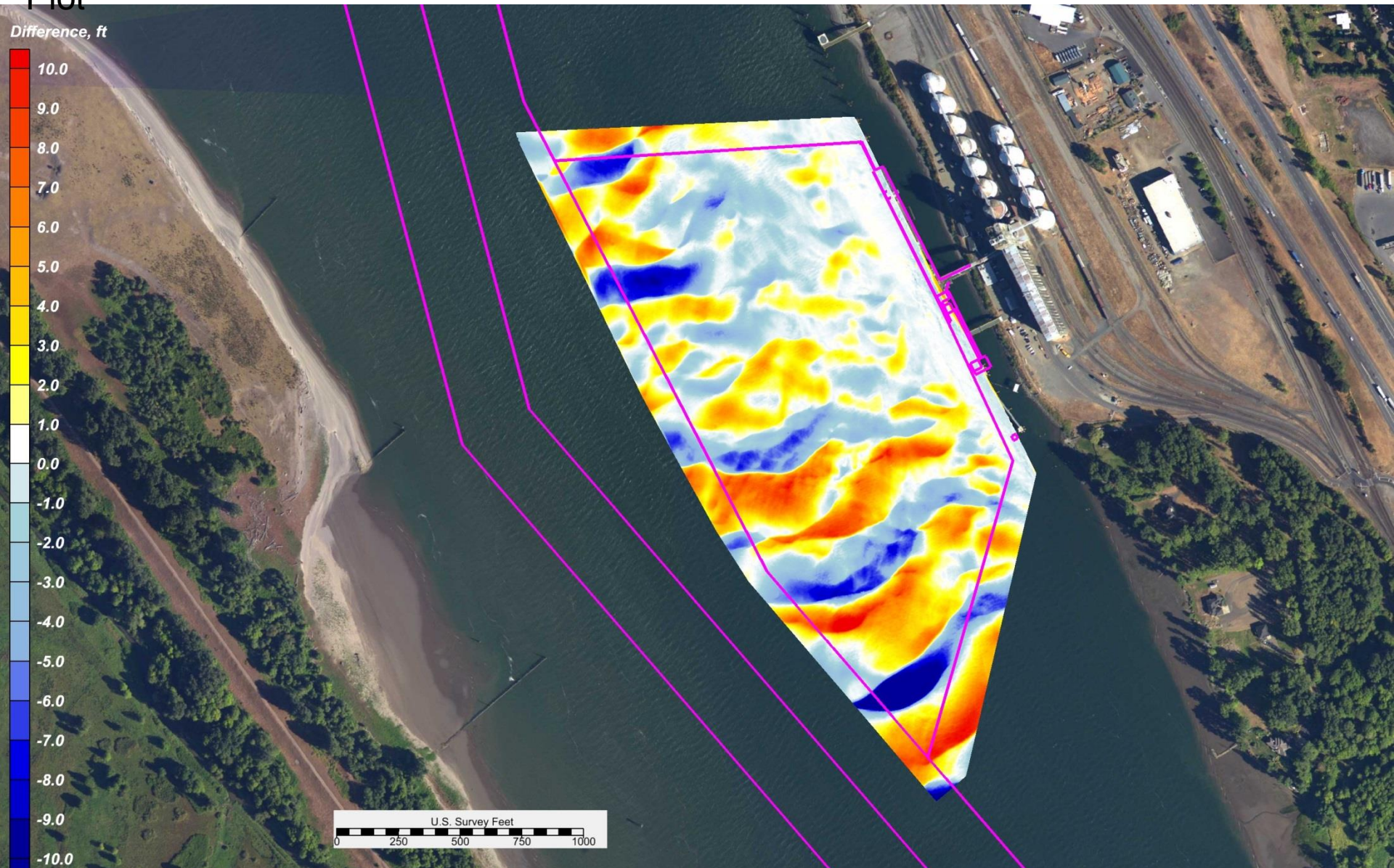


# TEMCO Berth – July 10, 2013 Condition Survey



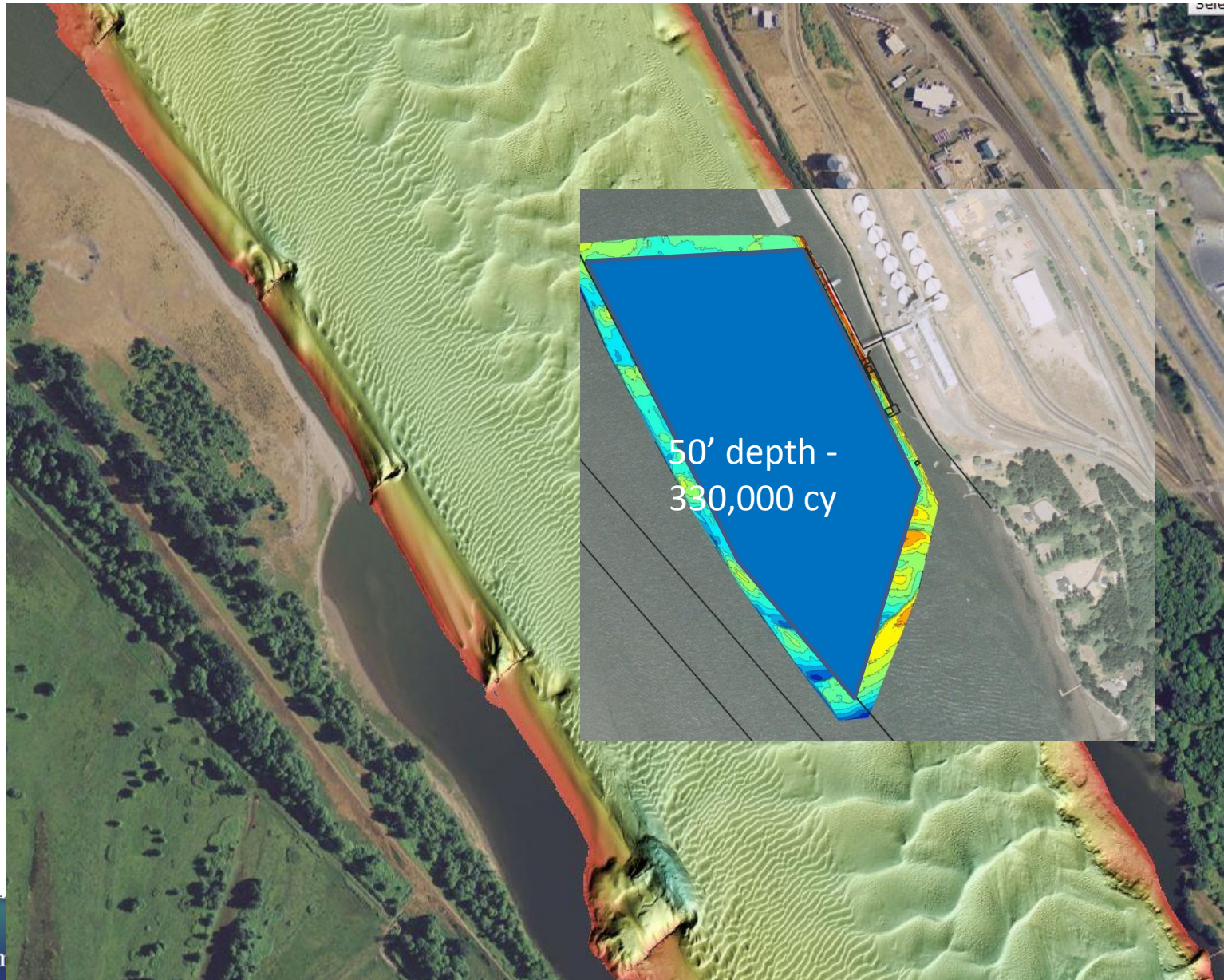


# TEMCO Berth – January 3, 2013 Post-dredge Survey to July 10, 2013 Difference Plot

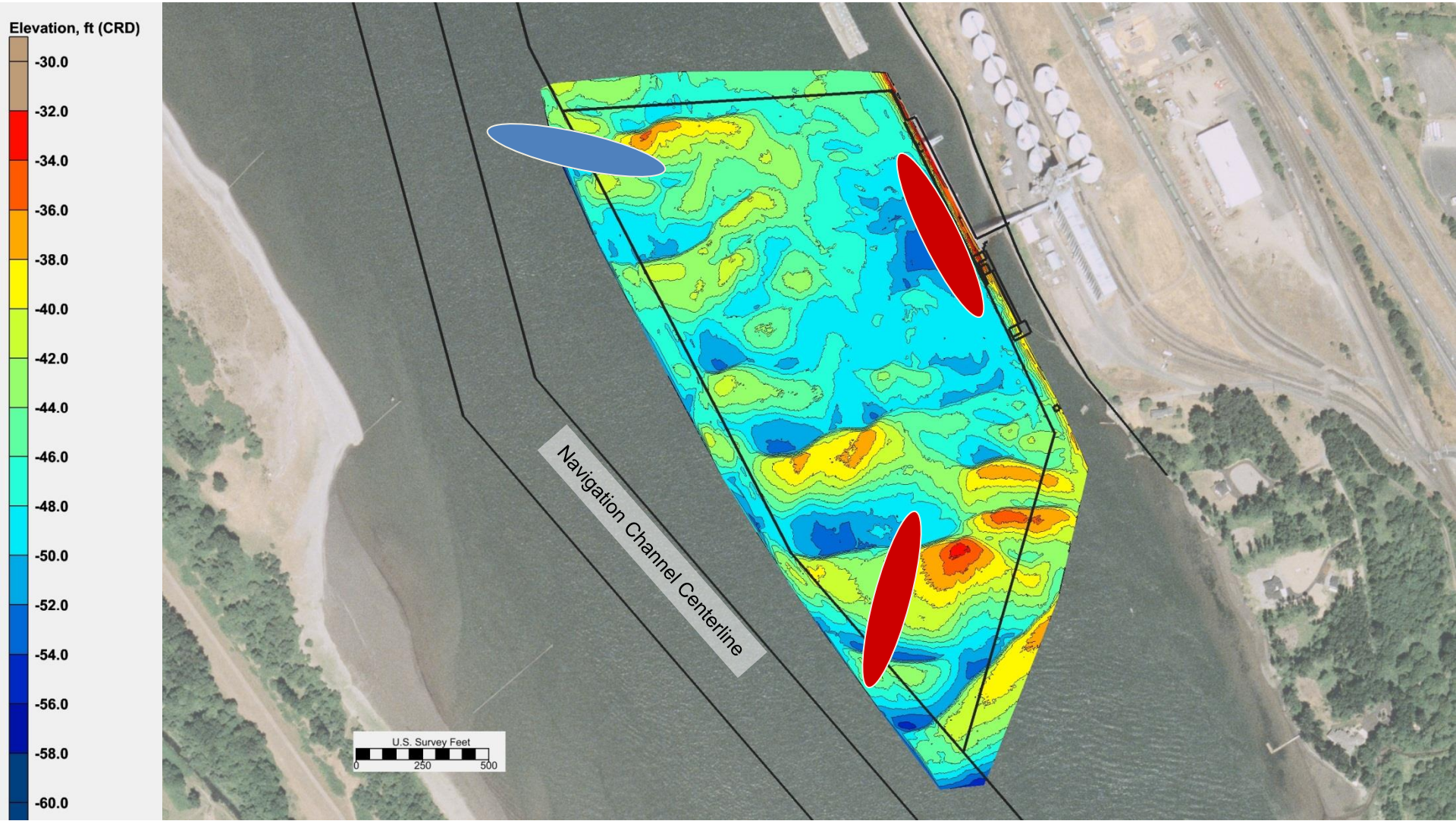




# Sand Waves in the Port Area







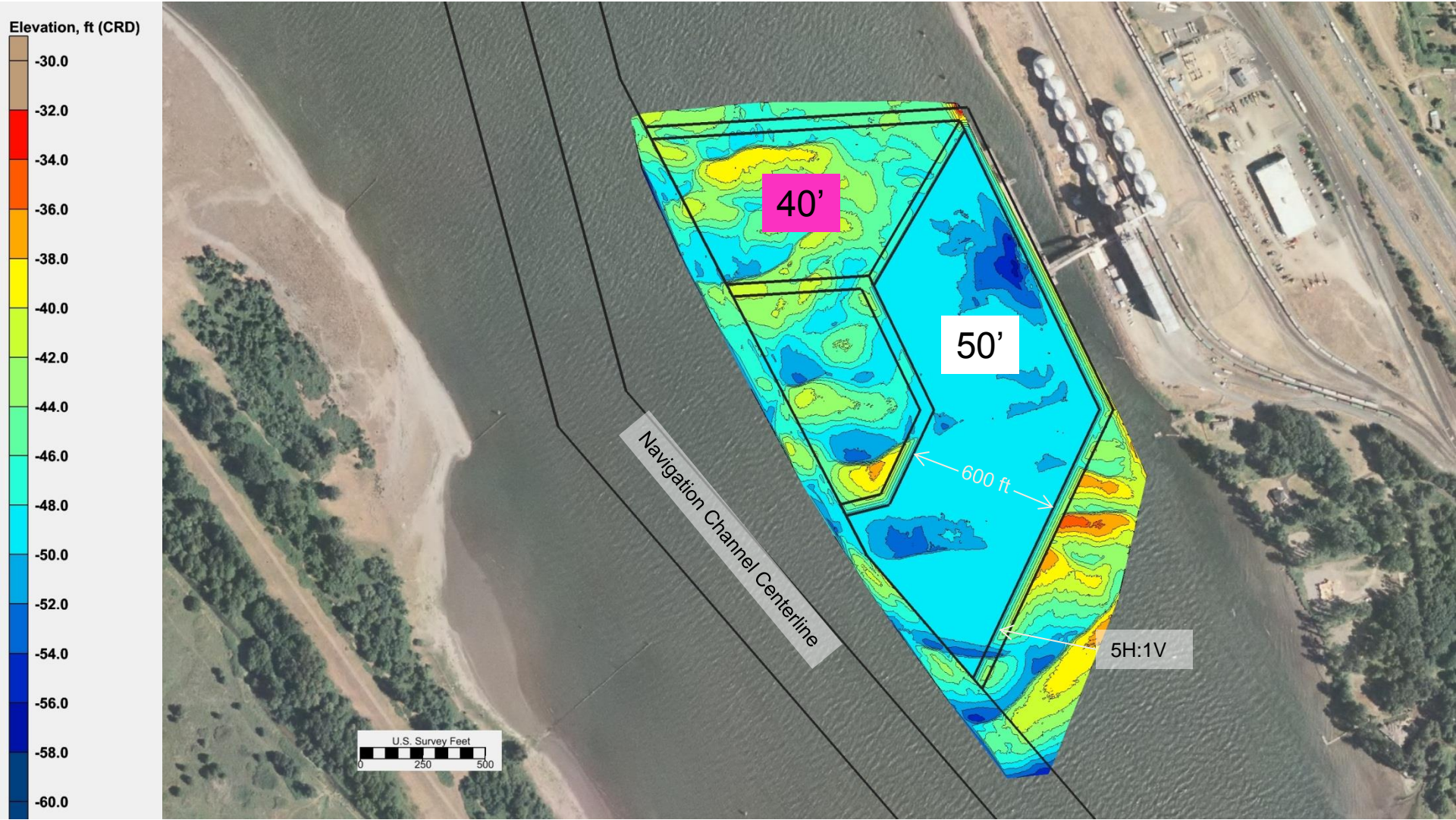
Based upon March and August 2012 Bathymetric condition surveys completed by Northwest Hydro Inc.



**COAST & HARBOR  
ENGINEERING**



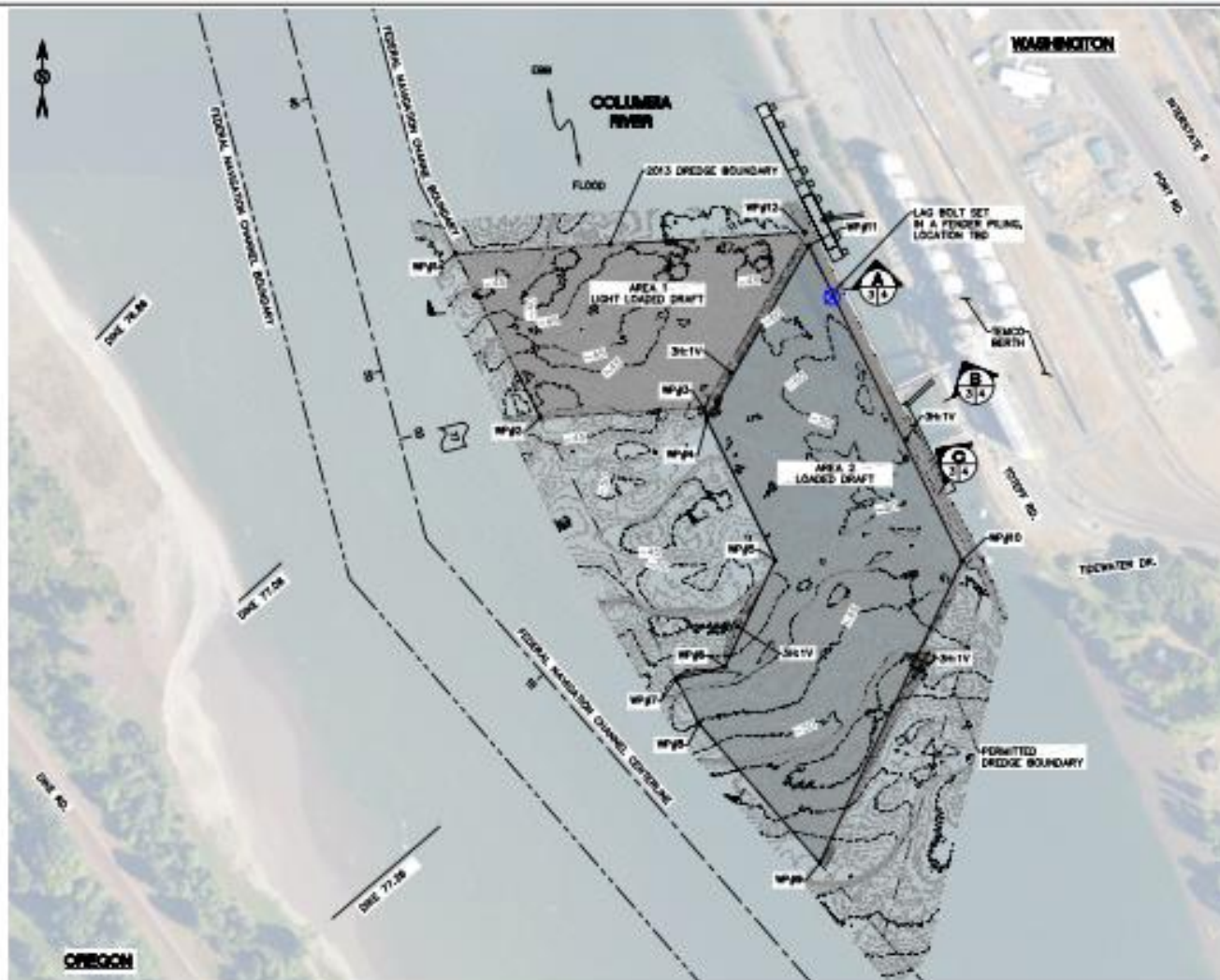
# Optimization (reduction) of Maintenance Dredging (130,830 CY)



Based upon August 2012 Bathymetric condition surveys completed by Northwest Hydro Inc.



# Maintenance Dredging Volume = 130,830 CY



## LEGEND

- DREDGE AREA 1, LIGHT LOADED DRAFT, TO  $-36.0 \pm 2.0'$
- DREDGE AREA 2, LOADED DRAFT, TO  $-48.0 \pm 2.0'$
- SIDE SLOPE DREDGING
- PERMITTED DREDGE AREA
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- FEDERAL NAVIGATION CHANNEL CENTERLINE
- 2013 DREDGE BOUNDARY
- RIVER MILE

## WORKING POINTS

POINT ID	NORTHING	EASTING
WP-1	244536.92	1044365.98
WP-2	244536.97	1044365.77
WP-3	244537.18	1044364.39
WP-4	244536.96	1044364.91
WP-5	244536.99	1044371.89
WP-6	244537.72	1044364.01
WP-7	244536.78	1044368.34
WP-8	244537.89	1044368.93
WP-9	244537.67	1044378.21
WP-10	244537.28	1044370.27
WP-11	244537.69	1044368.63
WP-12	244537.13	1044363.08

## GENERAL NOTES

- HYDROGRAPHIC DATA COLLECTED BY NORTHWEST HYDRO INC. ON JULY 10, 2013. EXISTING BATHYMETRY AS SHOWN BY CONTOURS IS REPRESENTATIVE OF CONDITIONS AT TIME OF SURVEY.
- VERTICAL DATUM: COLUMBIA RIVER DATUM (CRD).
  - CONTOURS ARE IN FEET AND INDICATE DEPTHS BELOW C.R.D.
  - TEMPORARY BENCH MARK (TBM) IS A LAG BOLT SET IN A FENDER PILING TOWARDS THE DOWNSTREAM END OF THE TERMINAL. (CRD ELEVATION = 13.1 FEET)
- HORIZONTAL DATUM: WSPS, NAD83, FEET

## CONSTRUCTION NOTES

- DO NOT DISTURB EXISTING STRUCTURES, NAVIGATION AIDS OR MOORING FACILITIES.
- DREDGING WORK SHALL NOT EXTEND OUTSIDE OF SPECIFIED AREAS NOR BEYOND SPECIFIED PROPERTY BOUNDARIES.
- THE 2013 DREDGE AREA IS REDUCED IN AREA RELATIVE TO THE PERMITTED DREDGE BOUNDARY.

## SITE PLAN

0 200 400  
SCALE IN FEET

DESIGNED BY	JL	DATE	8/15/13
ENTERED BY	JH	DATE	
CHECKED BY	VS	DATE	
PROJECT ENGINEER	JL	DATE	
PROJECT MANAGER	VS	DATE	



PORT OF KALAMA  
TEMCO BERTH MAINTENANCE DREDGING

DREDGING PLAN

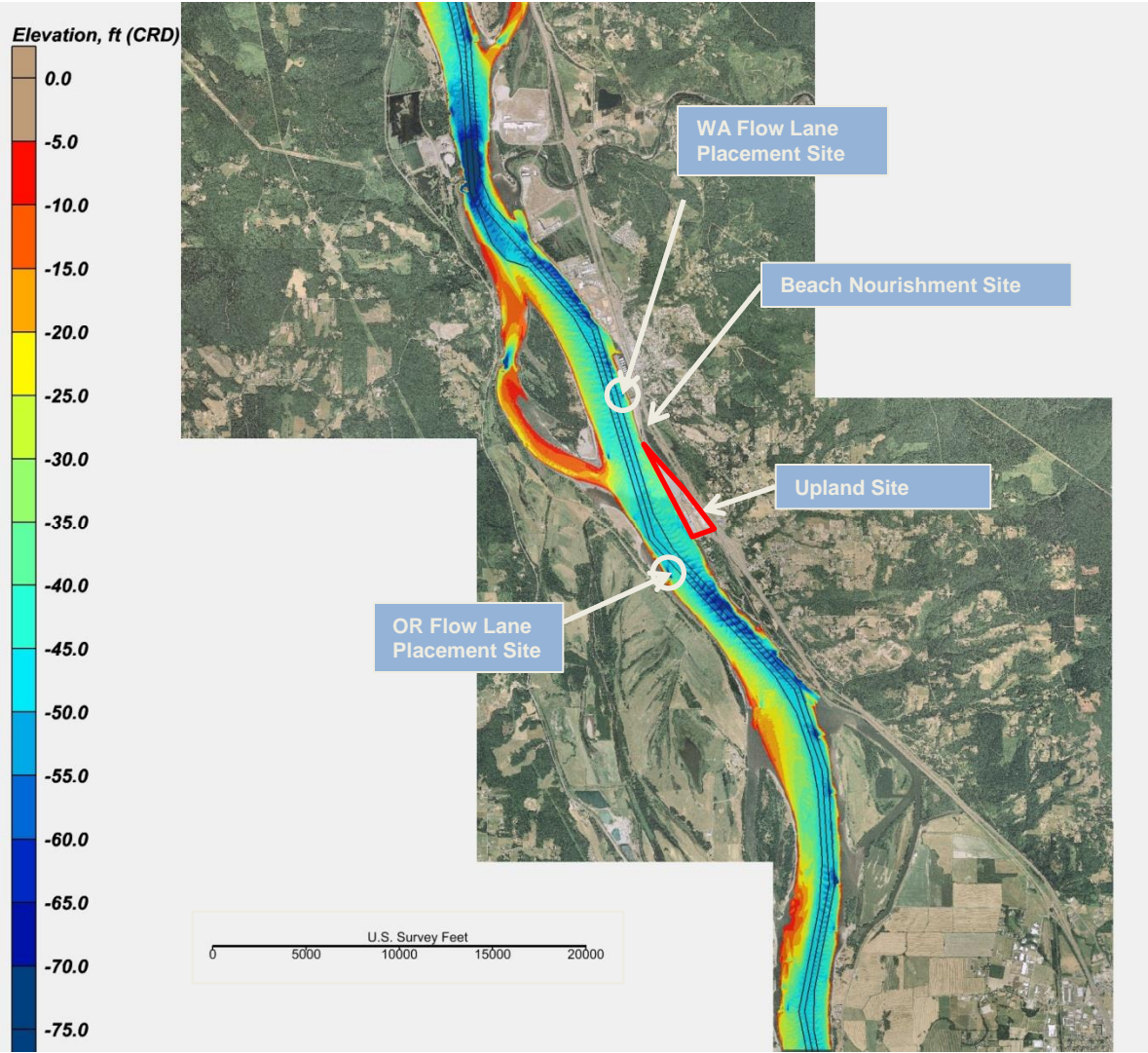
ENGINEERING



REVISION  
3  
OF  
7  
SHEETS



# Dredged Sediment Open Water Placement Sites



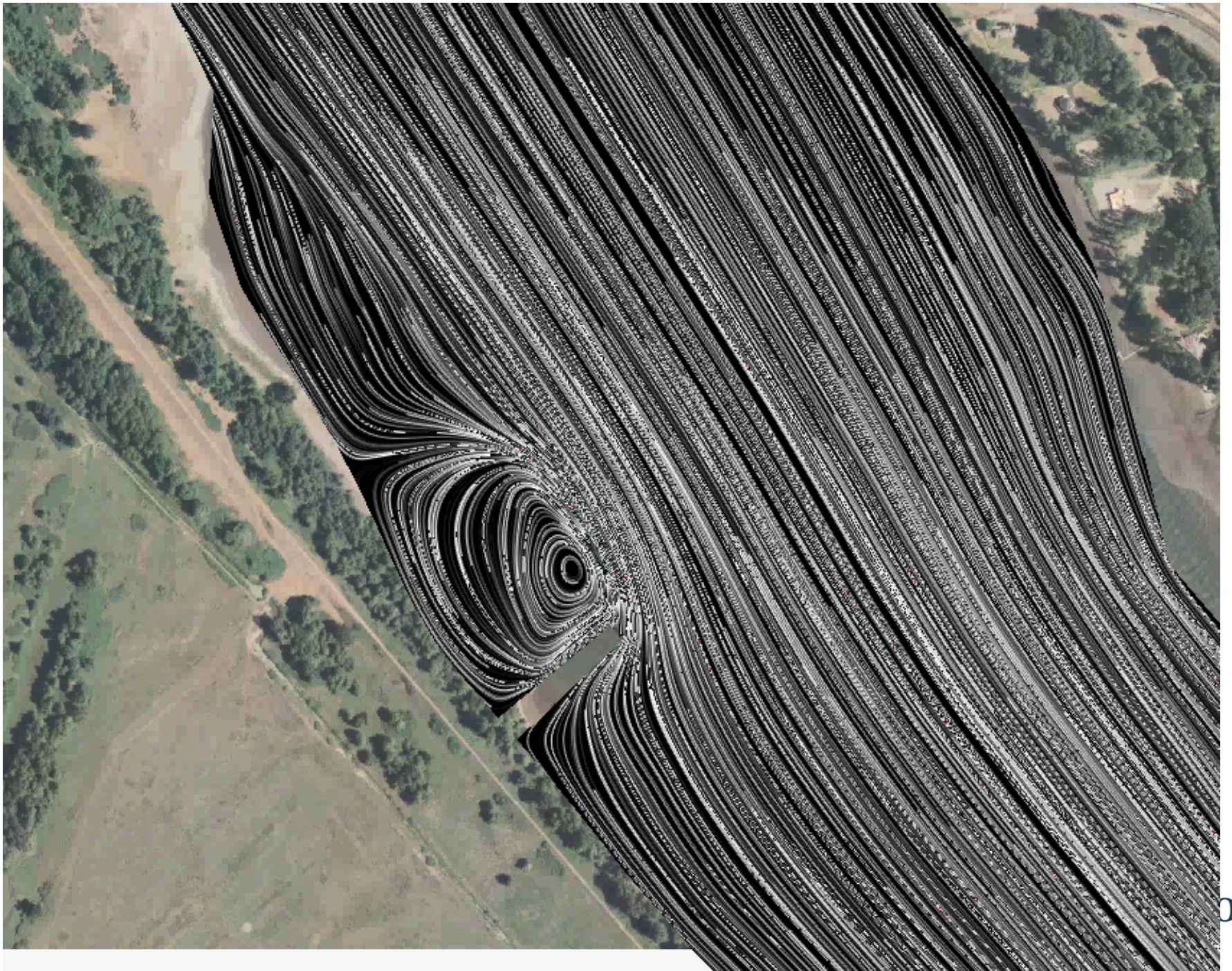


# Oregon Placement Site to Maintain Natural Littoral Drift

---

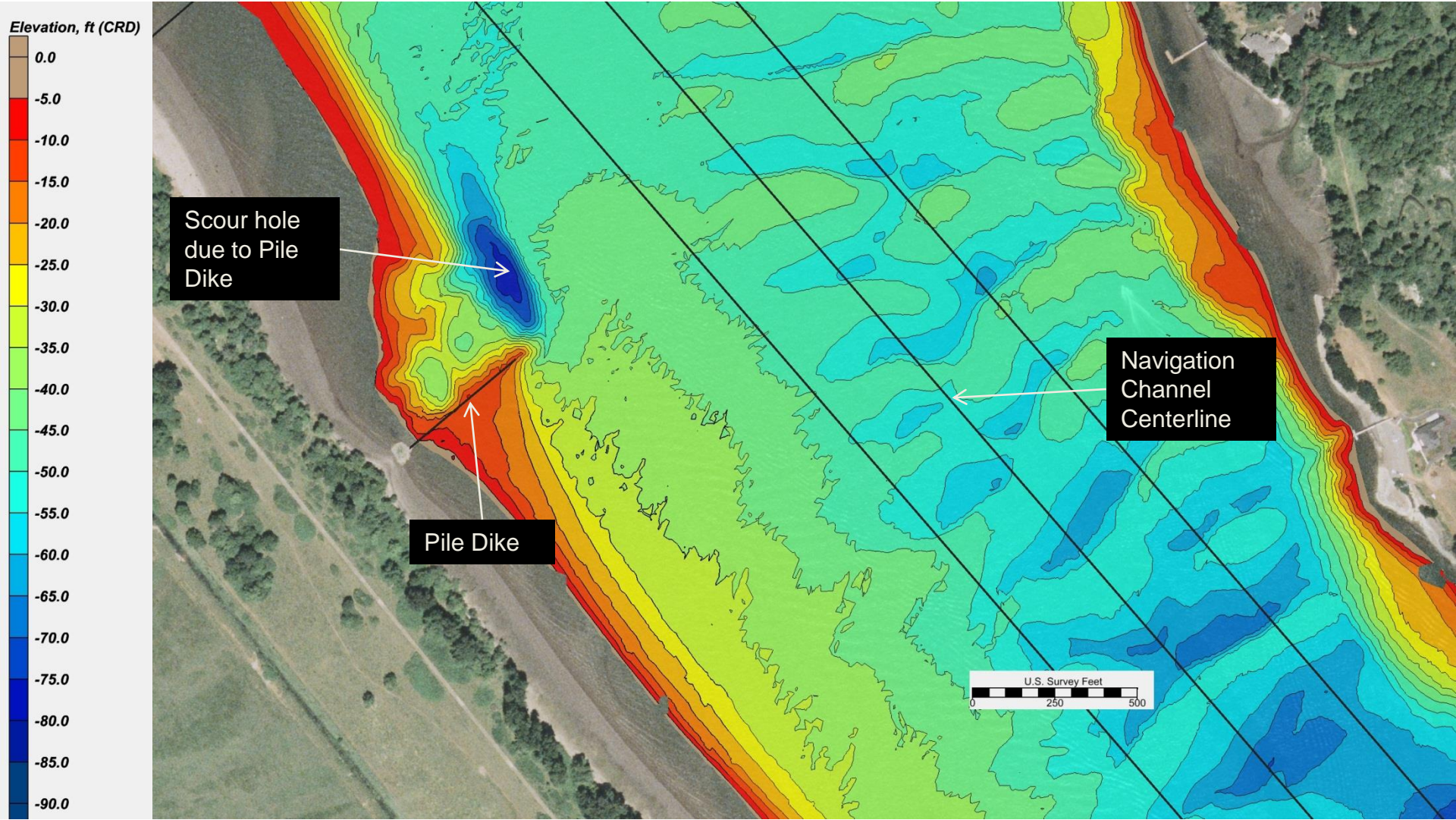






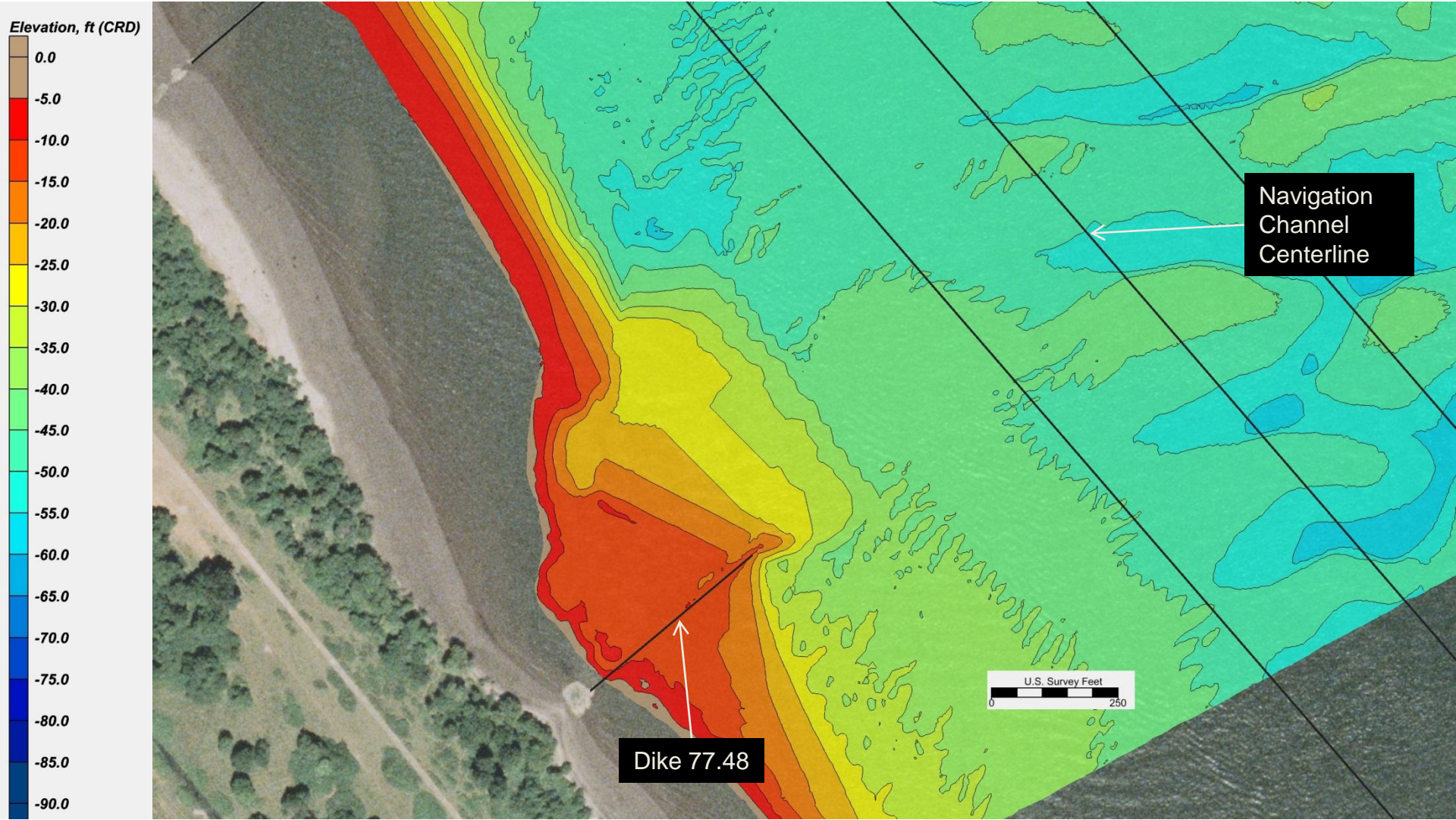


# Placement of Sediment to Maintain Natural Littoral Drift

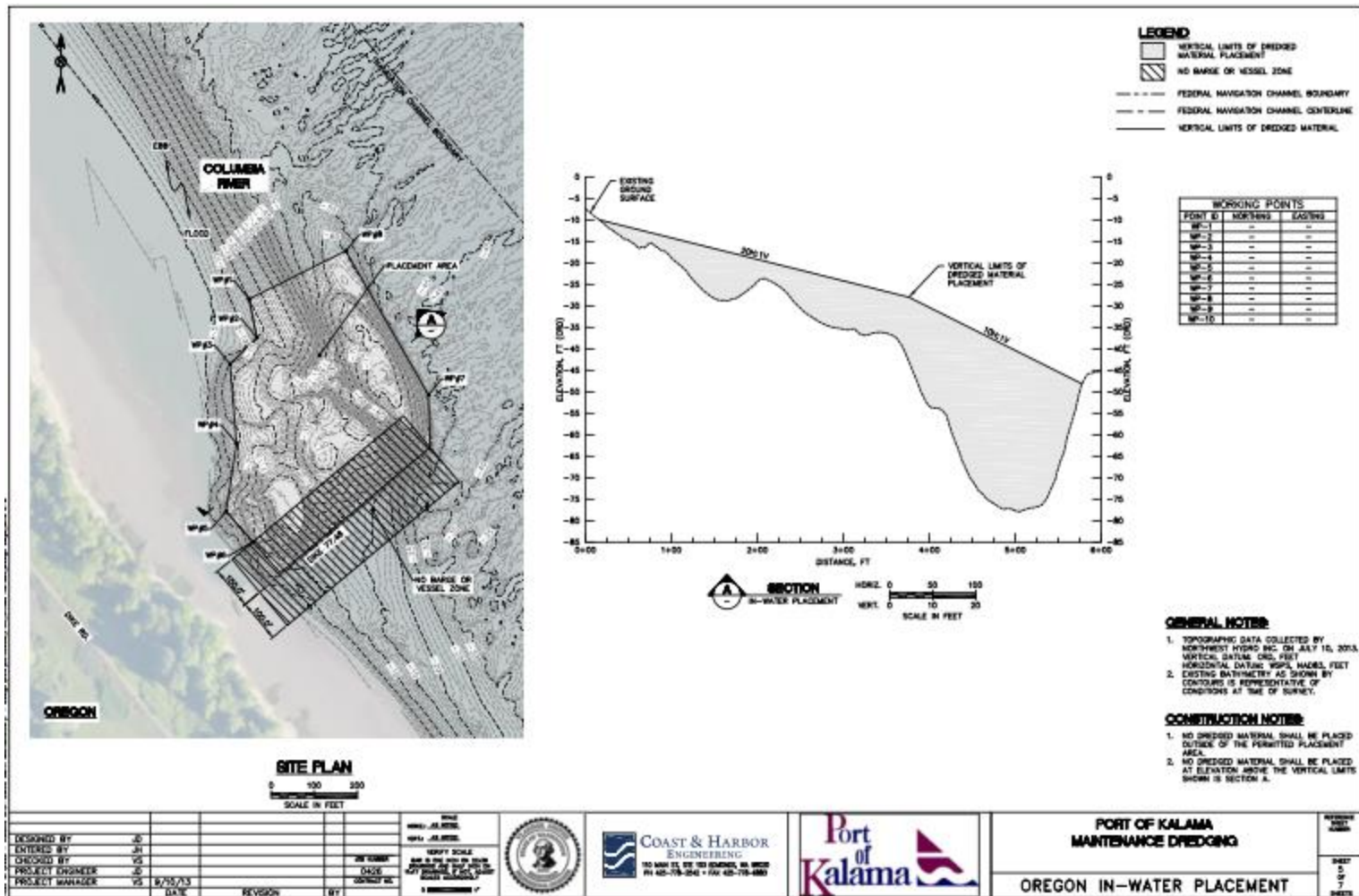




# Oregon Flow Lane Placement Site



# Oregon Flow Lane Placement Site



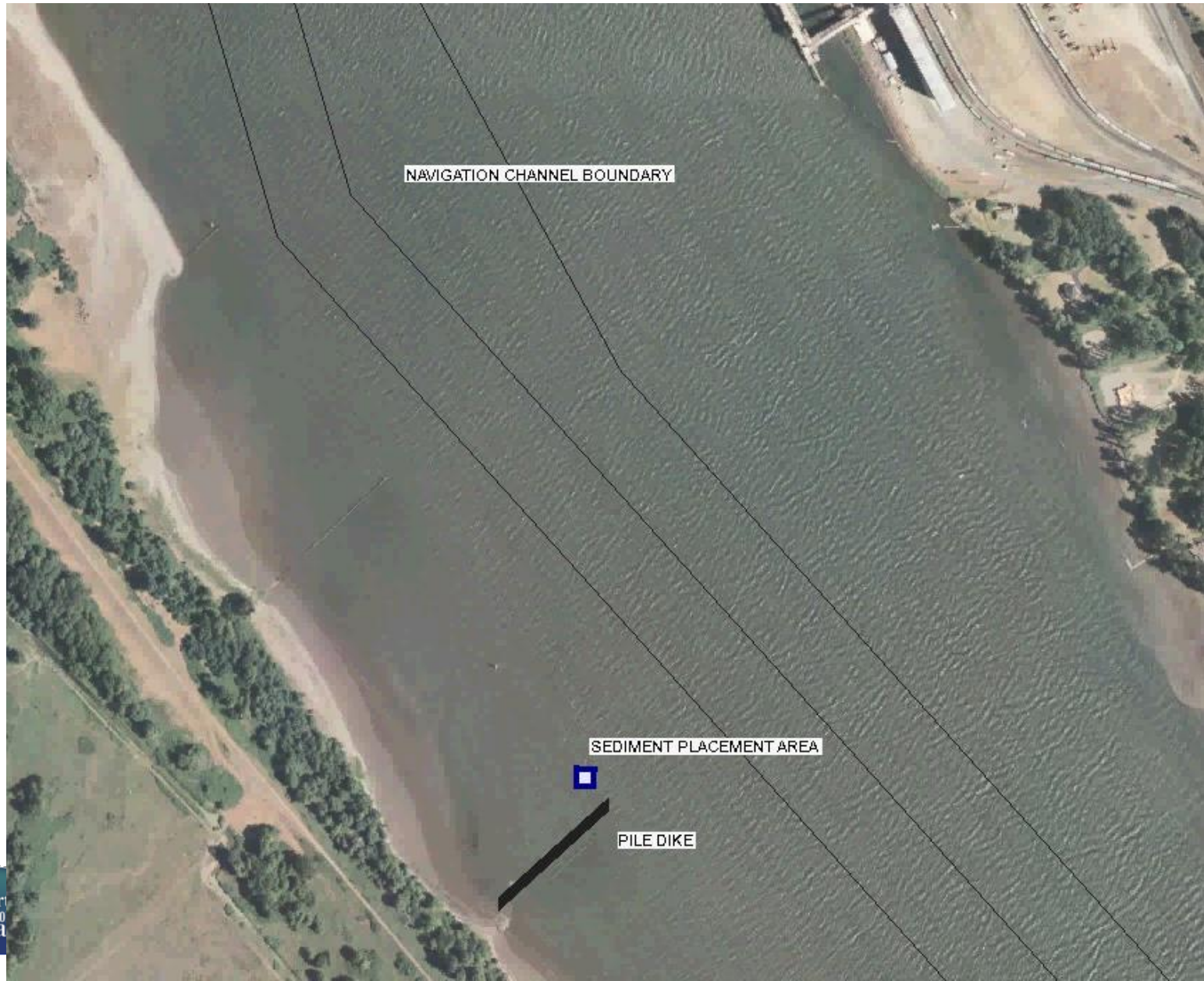
2009 Survey , Volume of Dredging is ~140,000 cy



**COAST & HARBOR  
ENGINEERING**



# Minimize Impact to FNC



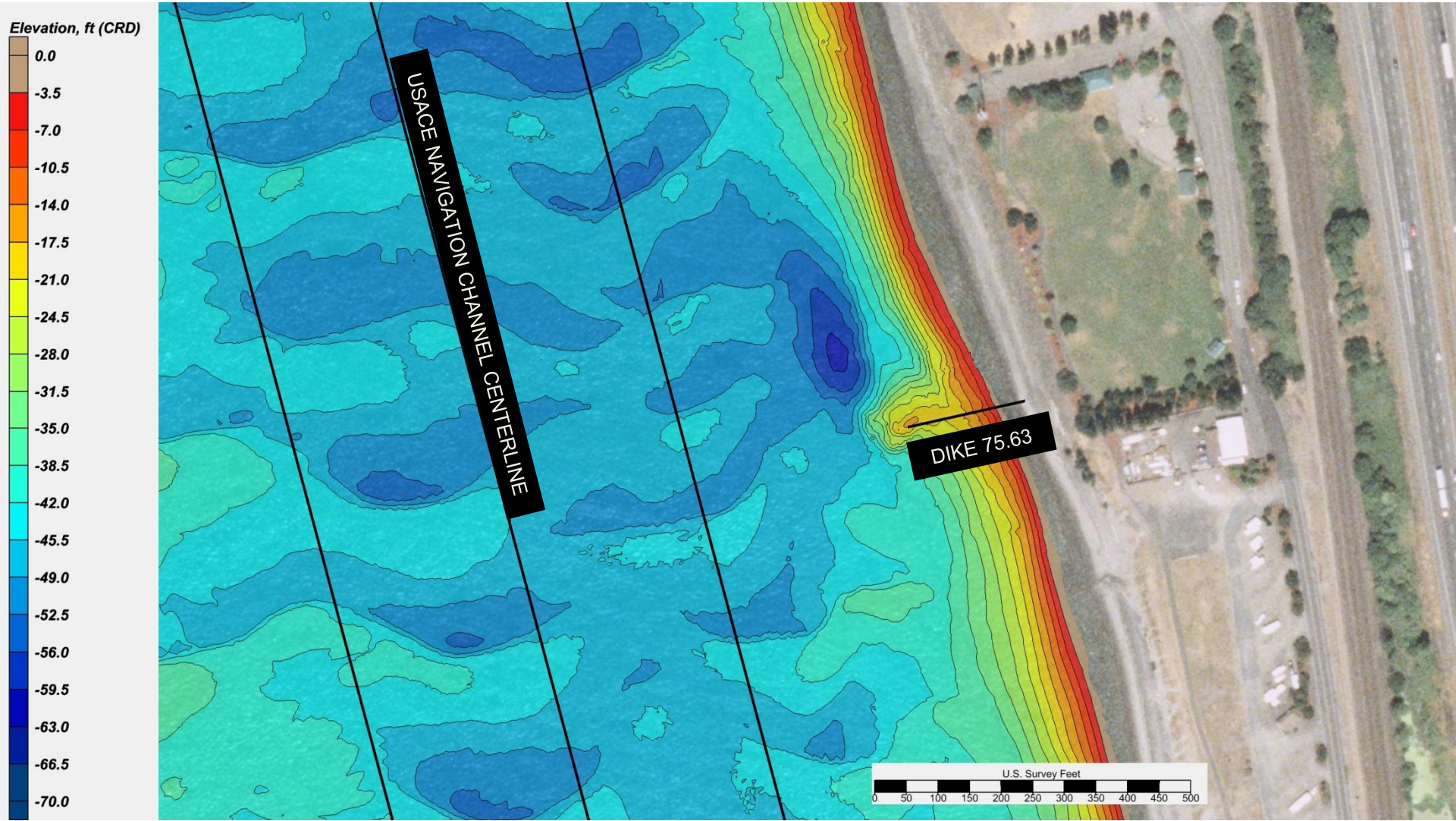


# Minimize Impact to FNC





# WA Flow Lane Placement Site



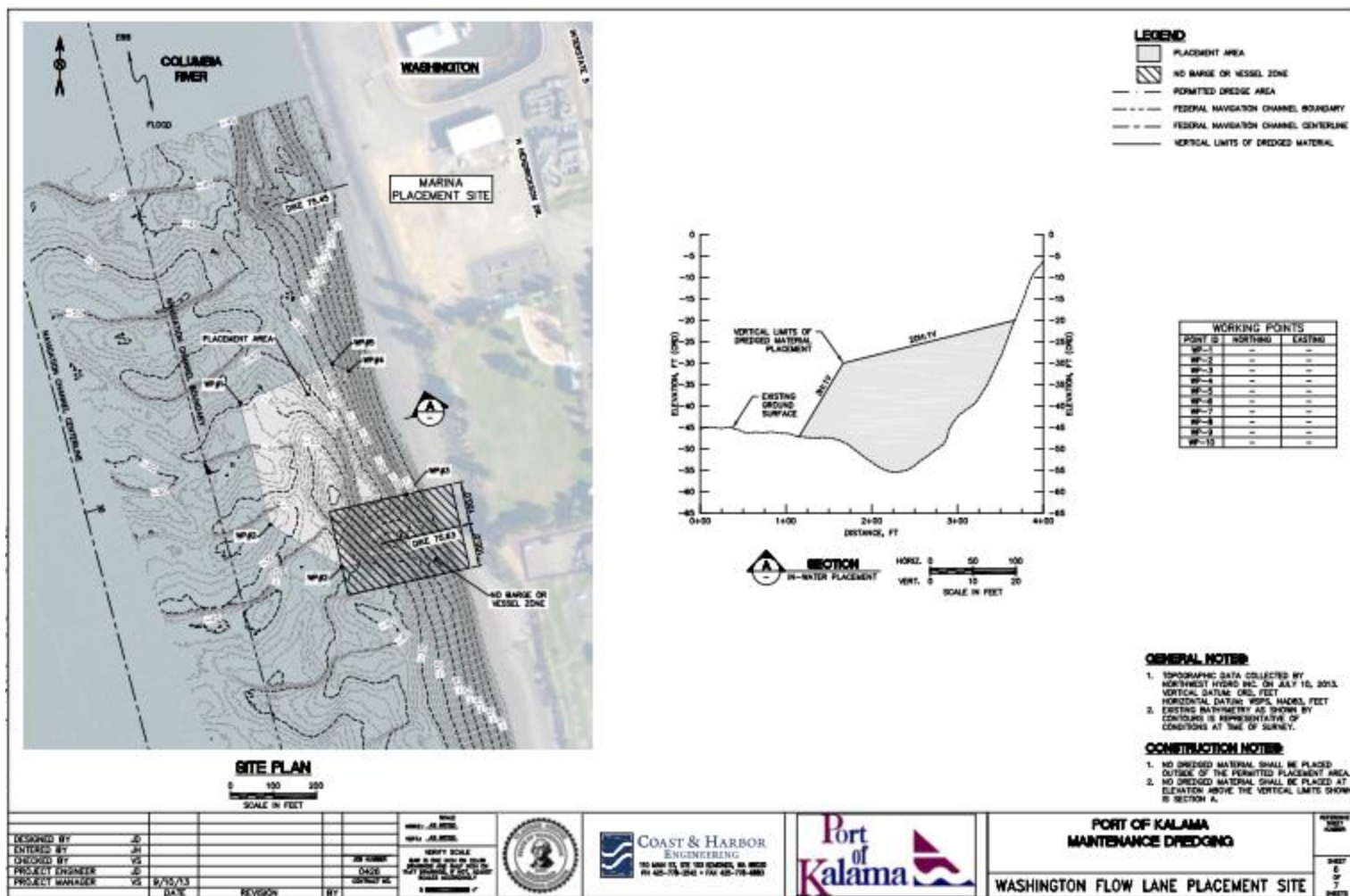
\*Bathymetric data provided via NOAA BAG Survey in 2009



**COAST & HARBOR**  
**ENGINEERING**



# WA Flow Lane Placement Site



2009 Survey , Volume of Dredging is ~70,000 cy



**COAST & HARBOR  
ENGINEERING**



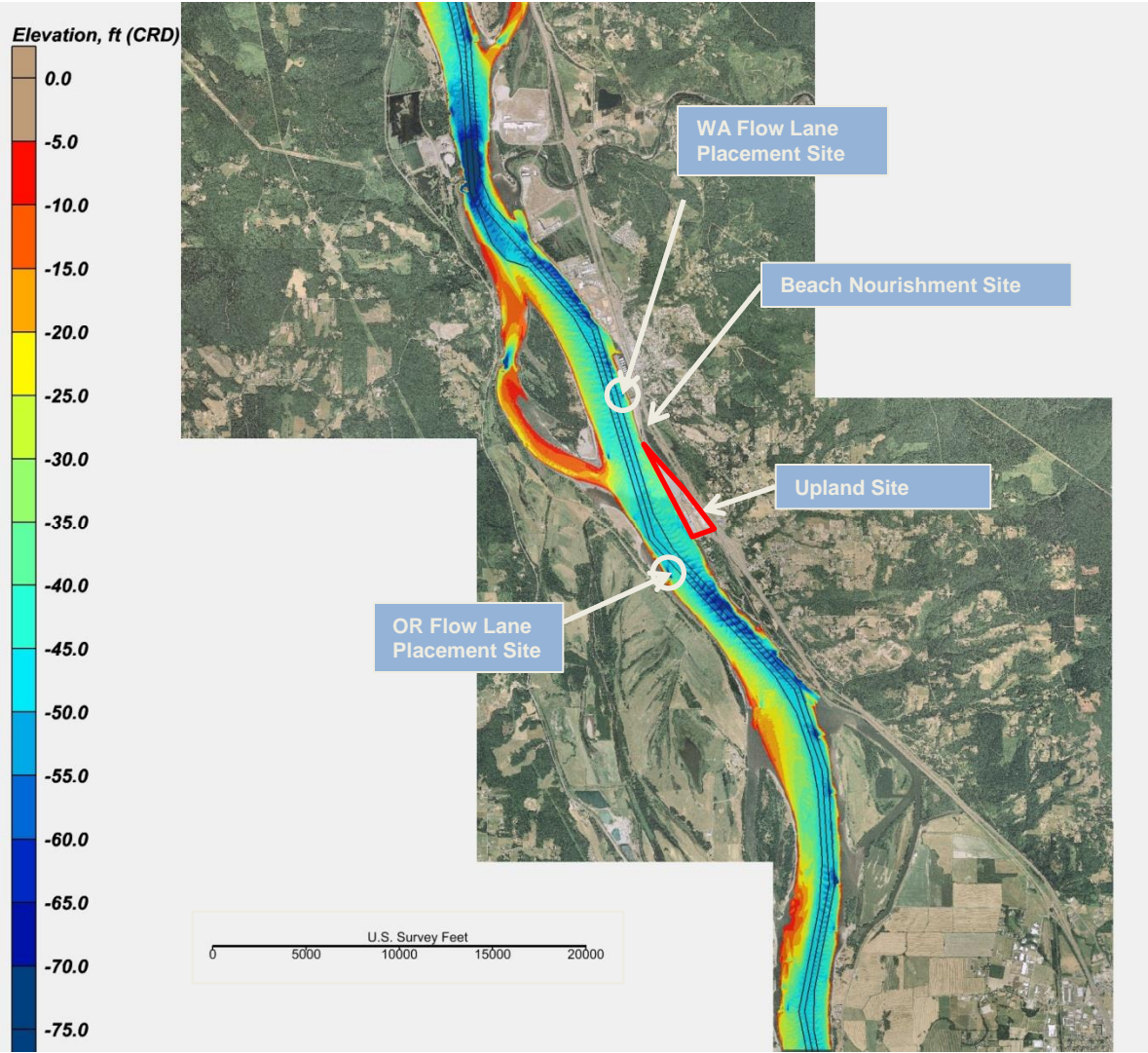
NAVIGATION CHANNEL BOUNDARY

SEDIMENT PLACEMENT AREA

PILE DIKE



# Dredged Sediment Placement Site Locations





JULY 2012





**July 1990 –  
July 2012**



**COAST & HARBOR  
ENGINEERING**







OCT 2012





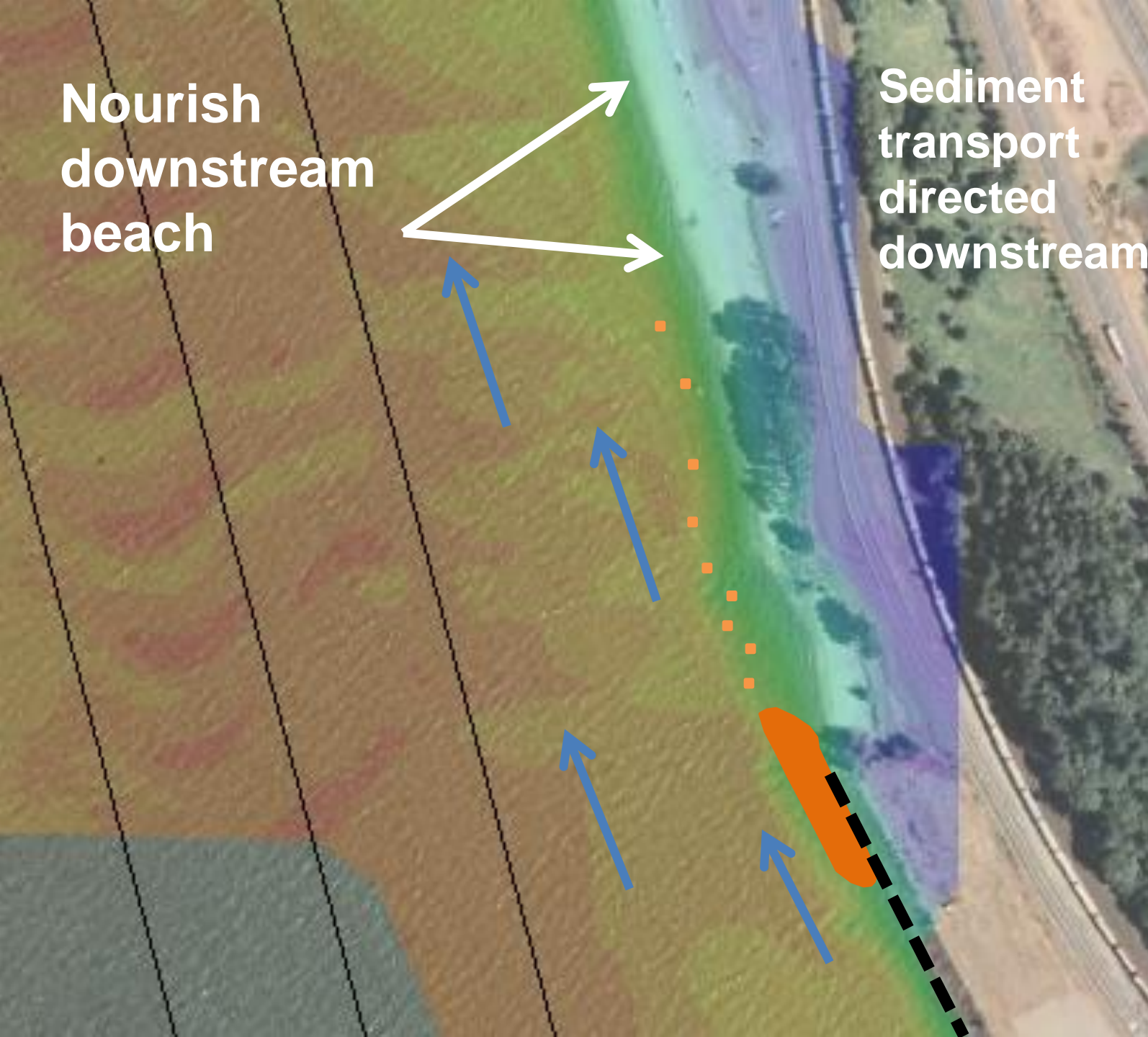


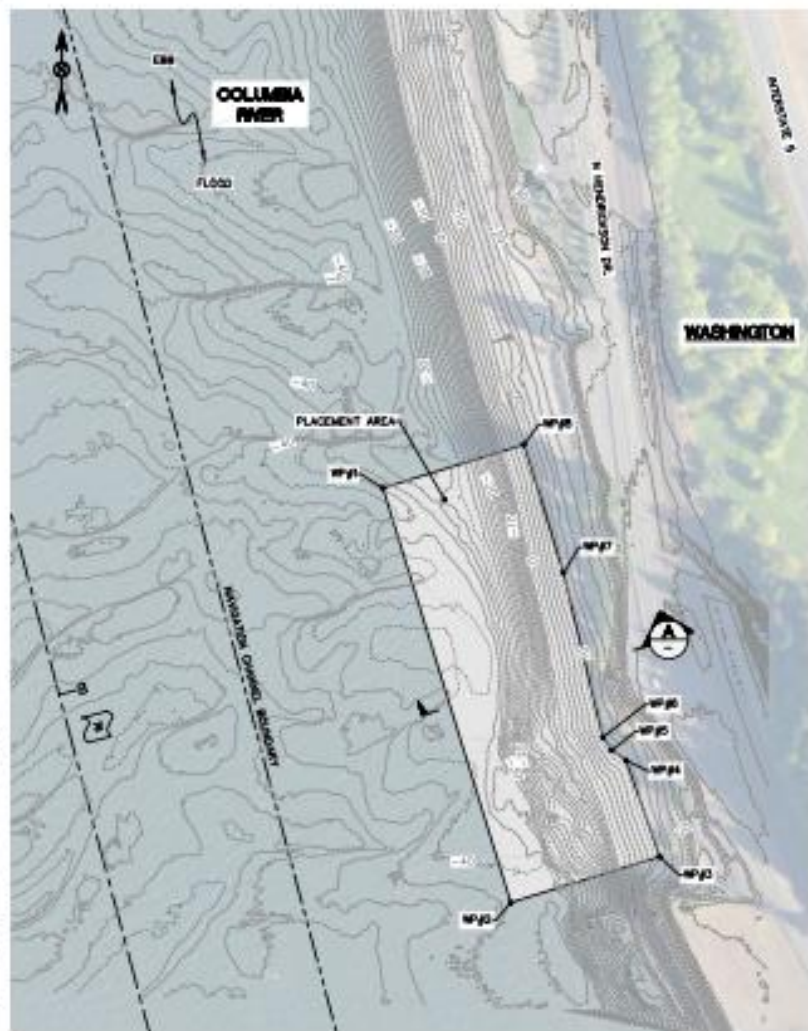
Location of  
proposed beach  
nourishment site



**Nourish  
downstream  
beach**

**Sediment  
transport  
directed  
downstream**



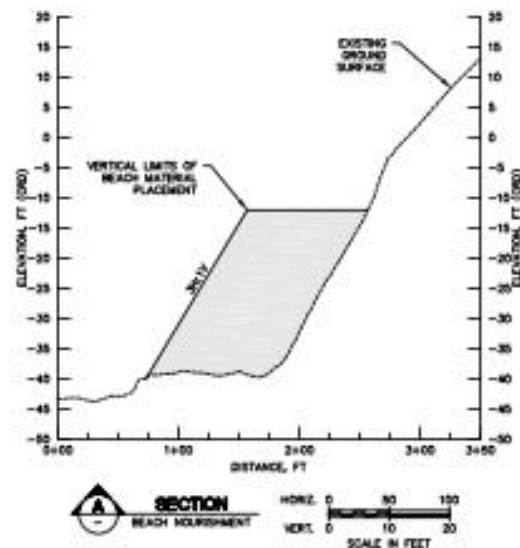


**SITE PLAN**

0 100 200  
SCALE IN FEET

**LEGEND**

- PLACEMENT AREA
- FEDERAL NAVIGATION CHANNEL BOUNDARY
- FEDERAL NAVIGATION CHANNEL CENTERLINE
- VERTICAL LIMITS OF BEACH MATERIAL
- RIVER MILE



WORKING POINTS		
POINT ID	NORTHING	EASTING
WP-1	--	--
WP-2	--	--
WP-3	--	--
WP-4	--	--
WP-5	--	--
WP-6	--	--
WP-7	--	--
WP-8	--	--
WP-9	--	--
WP-10	--	--

**GENERAL NOTES**

- TOPOGRAPHIC DATA COLLECTED BY NORTHWEST HYDRO INC. ON JULY 10, 2013. VERTICAL DATUM: DSD, FEET. HORIZONTAL DATUM: WPM, HAZARD, FEET.
- EXISTING BATHYMETRY AS SHOWN BY CONTOURS IS REPRESENTATIVE OF CONDITIONS AT TIME OF SURVEY.

**CONSTRUCTION NOTES**

- NO DREDGED MATERIAL SHALL BE PLACED OUTSIDE OF THE PERMITTED PLACEMENT AREA.
- NO DREDGED MATERIAL SHALL BE PLACED AT ELEVATION ABOVE THE VERTICAL LIMITS SHOWN IN SECTION A.

DESIGNED BY	JG	DATE	9/15/13
ENTERED BY	JH	REVISION	
CHECKED BY	YS	BY	
PROJECT ENGINEER	JG		
PROJECT MANAGER	YS		



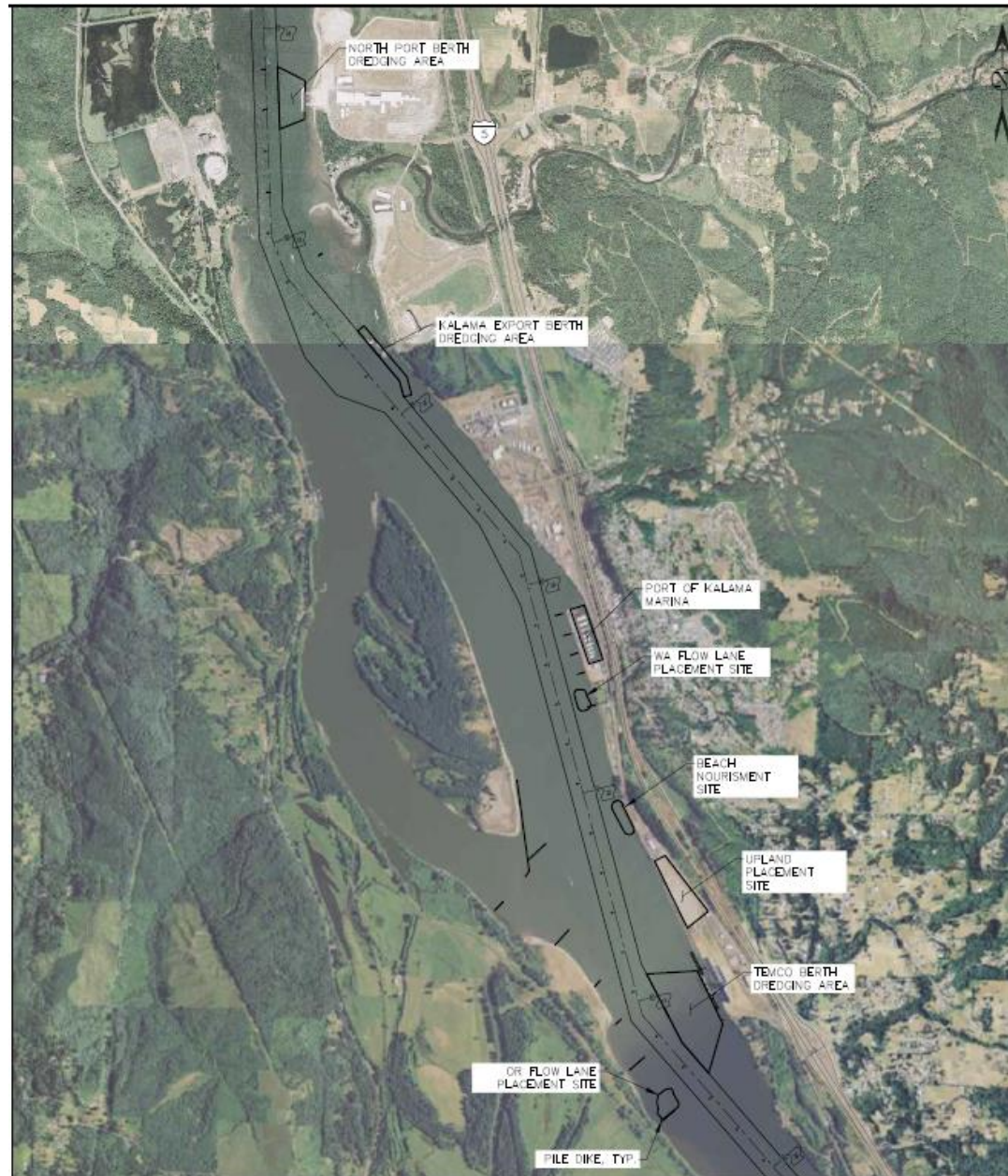
**COAST & HARBOR  
ENGINEERING**  
180 MAIN ST., STE 100 BEND, WA 98501  
PH 425-778-2542 • FAX 425-778-6882



<b>PORT OF KALAMA MAINTENANCE DREDGING</b>		PERMIT NUMBER
<b>WASHINGTON BEACH NOURISHMENT</b>		SHEET 7 OF 7 SHEETS



# Port of Kalama Maintenance Dredging Project



- Received US Army Corps of Engineers Section 10/404 permit to continue maintenance dredging into 2013 with three new open water disposal sites
- Increased total dredge quantity from 630,000 cy to 2.1 million cy
- Extended dredging period from August to December (Instead October –December)
- Received all federal, and two states, and local permits within 8 months of submittal. ,



# Sequence of Events Unaveled

- Corps of Engineers Permit was issued on October 5, 2013
- Maintenance dredging project was advertised (RFP) on October 7, 2013
- Bid opening - October 15, 2013
- Selection of dredging contractor - October 16, 2013
- Mobilization and start of dredging - October 31, 2013



# **Port of Kalama, New Approach to Maintenance Dredging**

- Innovative approach, advanced technologies proper application to optimize volumes and frequencies of maintenance dredging- Maximum utilization of under keel clearance with safe navigation.**
- Designed dredging projects to be environmentally friendly- work with nature.**
- Provided credible technical information to accelerate permitting process.**
- Maintained strong communication with the Port and agencies to expeditiously address any complications occurring during permitting process**
- Provided technically competent dredging plans and specifications.**



**COAST & HARBOR  
ENGINEERING**



# Port of Kalama, New Approach to Maintenance Dredging

*Vladimir Shepsis, Coast @ Harbor Engineering, Inc.*

*John Dawson, Coast @ Harbor Engineering, Inc.*

*Mark Wilson, Port of Kalama*

*Tabitha Reeder, Port of Kalama*

*October 24, 2013*

## Thank You



**COAST & HARBOR  
ENGINEERING**