



# City of Renton Seaplane Base Maintenance Dredging, Challenges Beyond the Scope of Maintenance Dredging

*Dredging Summit and Expo 2015, Houston, Texas, USA*

*John Dawson, Coast & Harbor Engineering,  
a Division of Hatch Mott MacDonald*

*Shane Phillips, Coast & Harbor Engineering,  
a Division of Hatch Mott MacDonald*

*June 23, 2015*



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**BRITISH  
COLUMBIA**

**RENTON, WA**

**WASHINGTON**

**OREGON**

**PACIFIC OCEAN**



# Presentation Overview

## **1. Project Site and Brief History**

## **2. Project Challenges**

- Submerged Land Ownership**
- FEMA Correspondence**
- Design Restrictions associated with both communication and utility lines located near or within the dredging area**
- FAA Construction Notifications and Safety Correspondence**
- Water Quality Monitoring**

## **3. Summary of Solutions and/or Mitigative Actions**

## **4. Conclusions and Recommendations**

LAKE WASHINGTON



**City of Renton Will  
Rogers Wiley Post  
Memorial Seaplane Base  
(Project Site)**

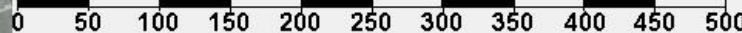
**Approximate Extent  
of Cedar River Delta**

**Cedar River**

**City of Renton  
Municipal Airport  
- Clayton Scott  
Field**



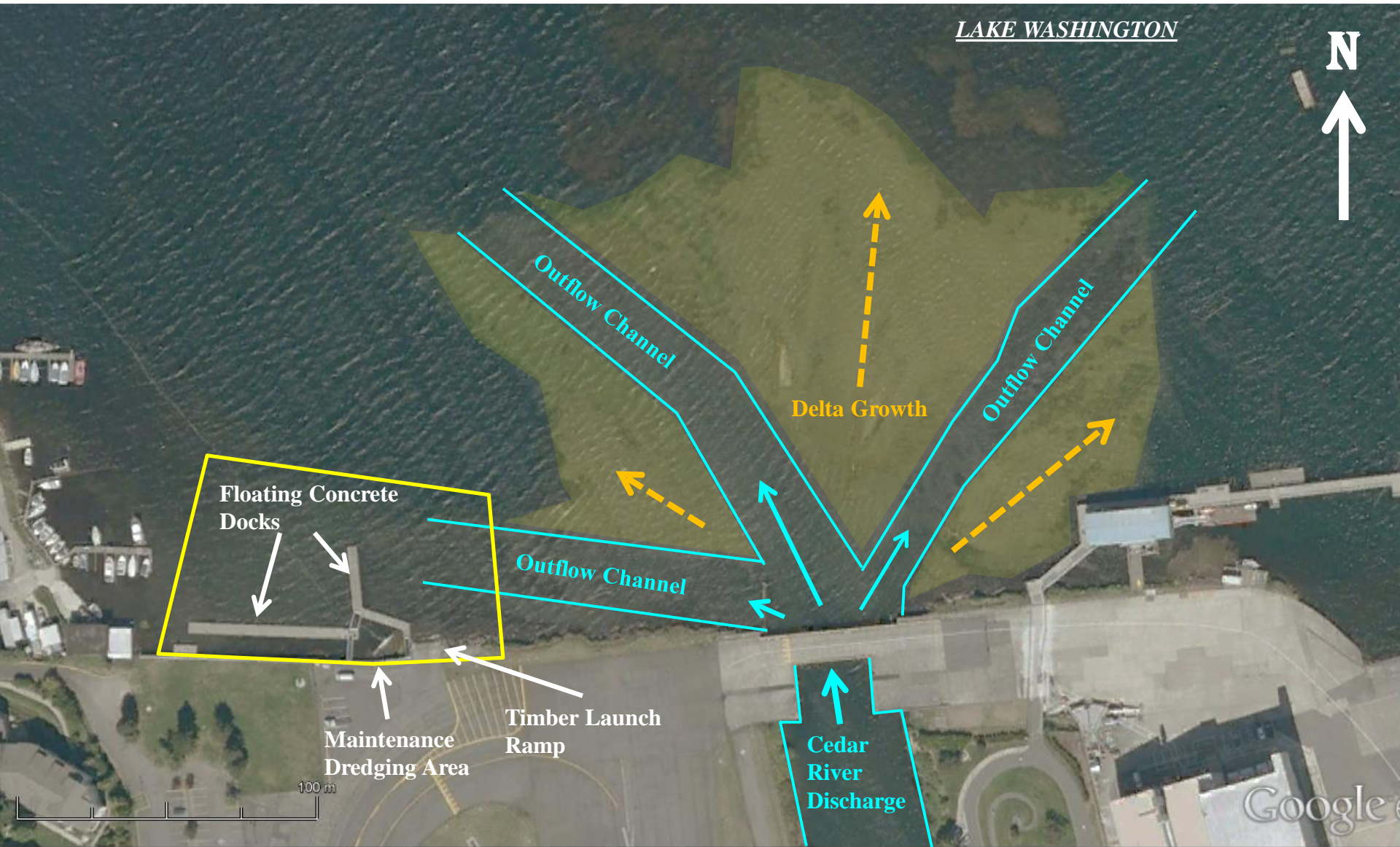
Meters



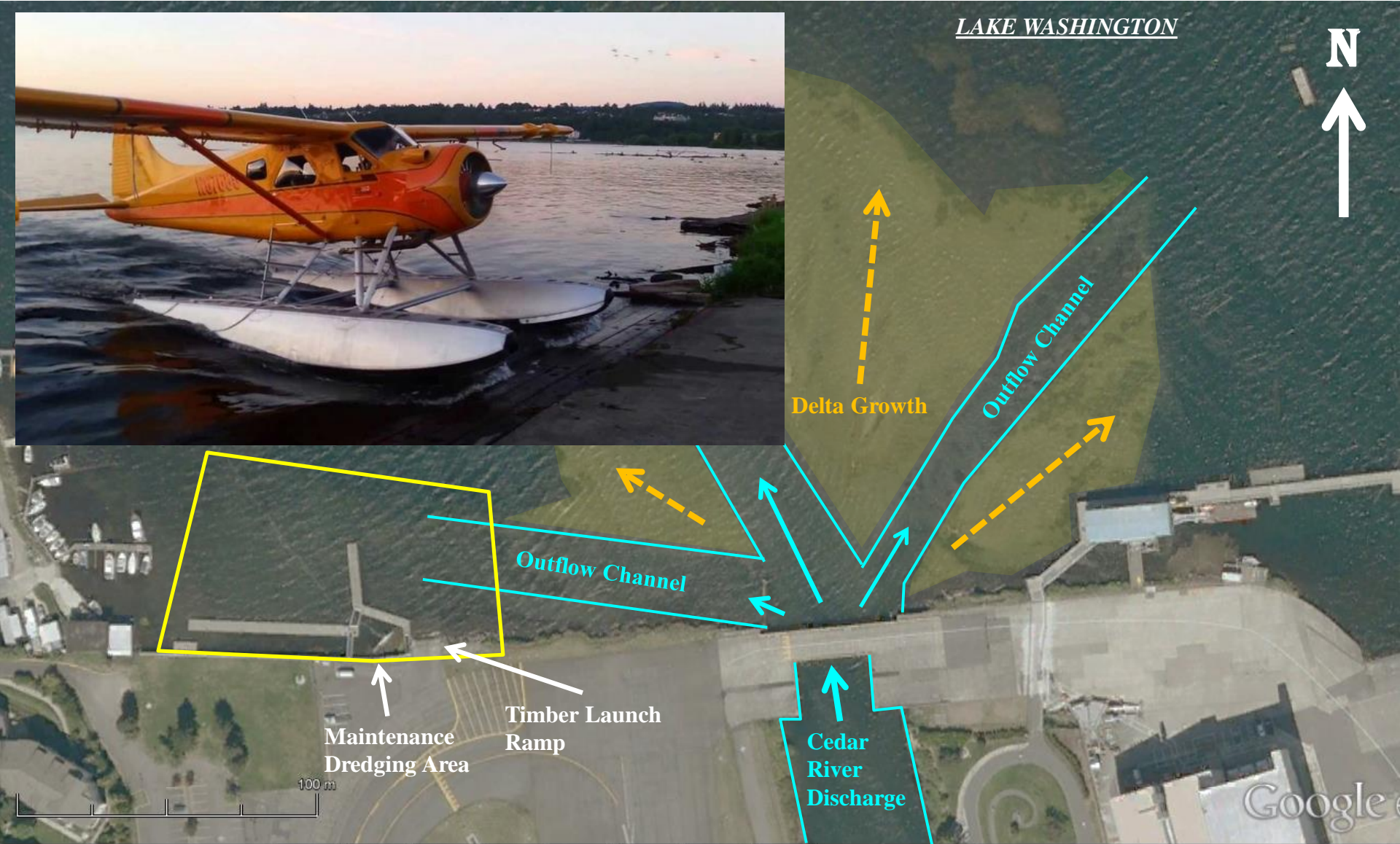
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# Project Site and Cedar River Delta Channels



# Project Site and Cedar River Delta Channels







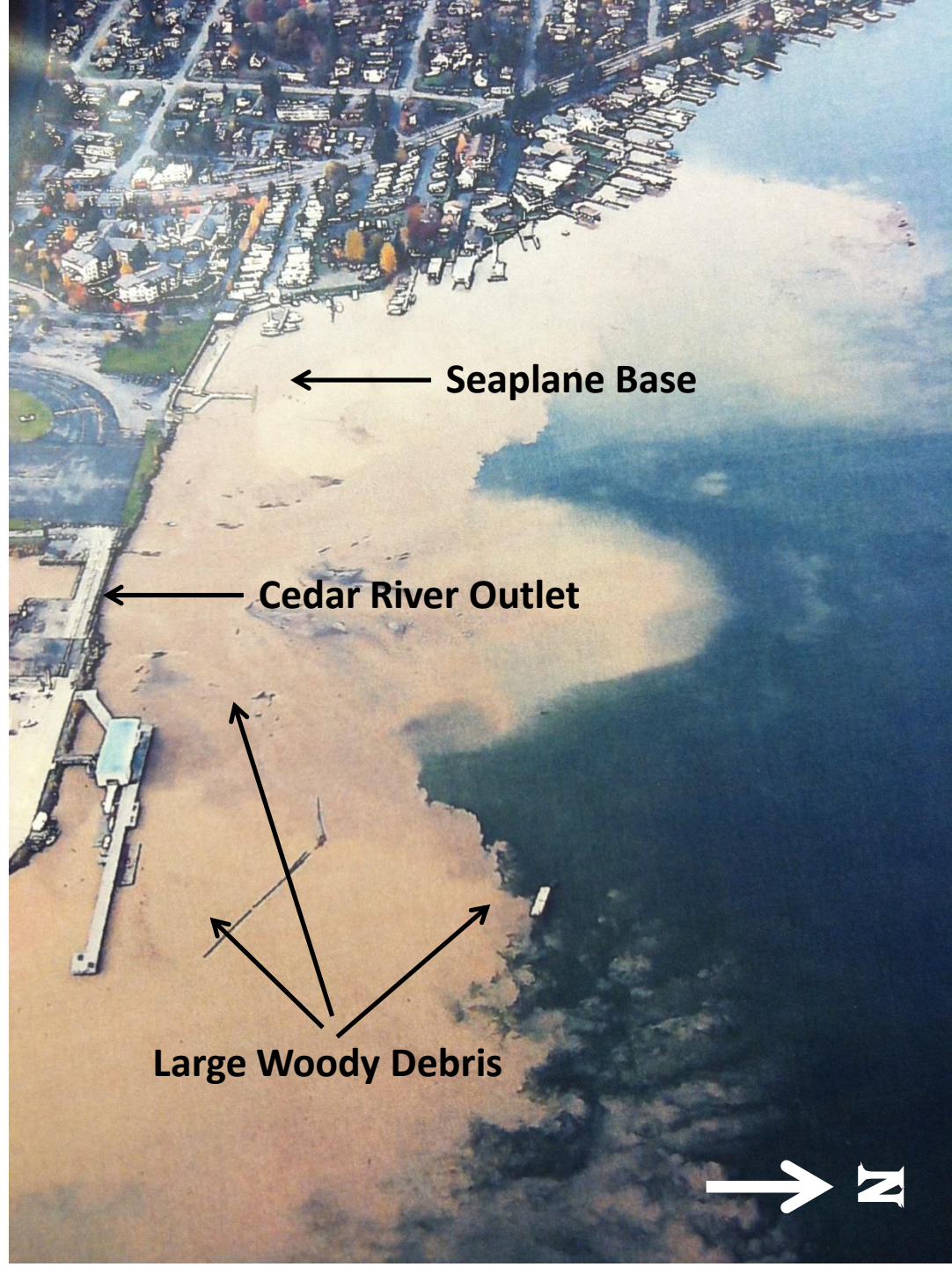






## Dredging Project Summary:

- January 2009 Cedar River flooding events deposited a large amount of sediment and debris within project site
- Fall 2012, the City of Renton hired Coast & Harbor Engineering as their consultant
- Winter 2013-2014, the dredging project was completed, removing approximately 12,000 CM or 16,000 CY of material from the Seaplane Base dredging area



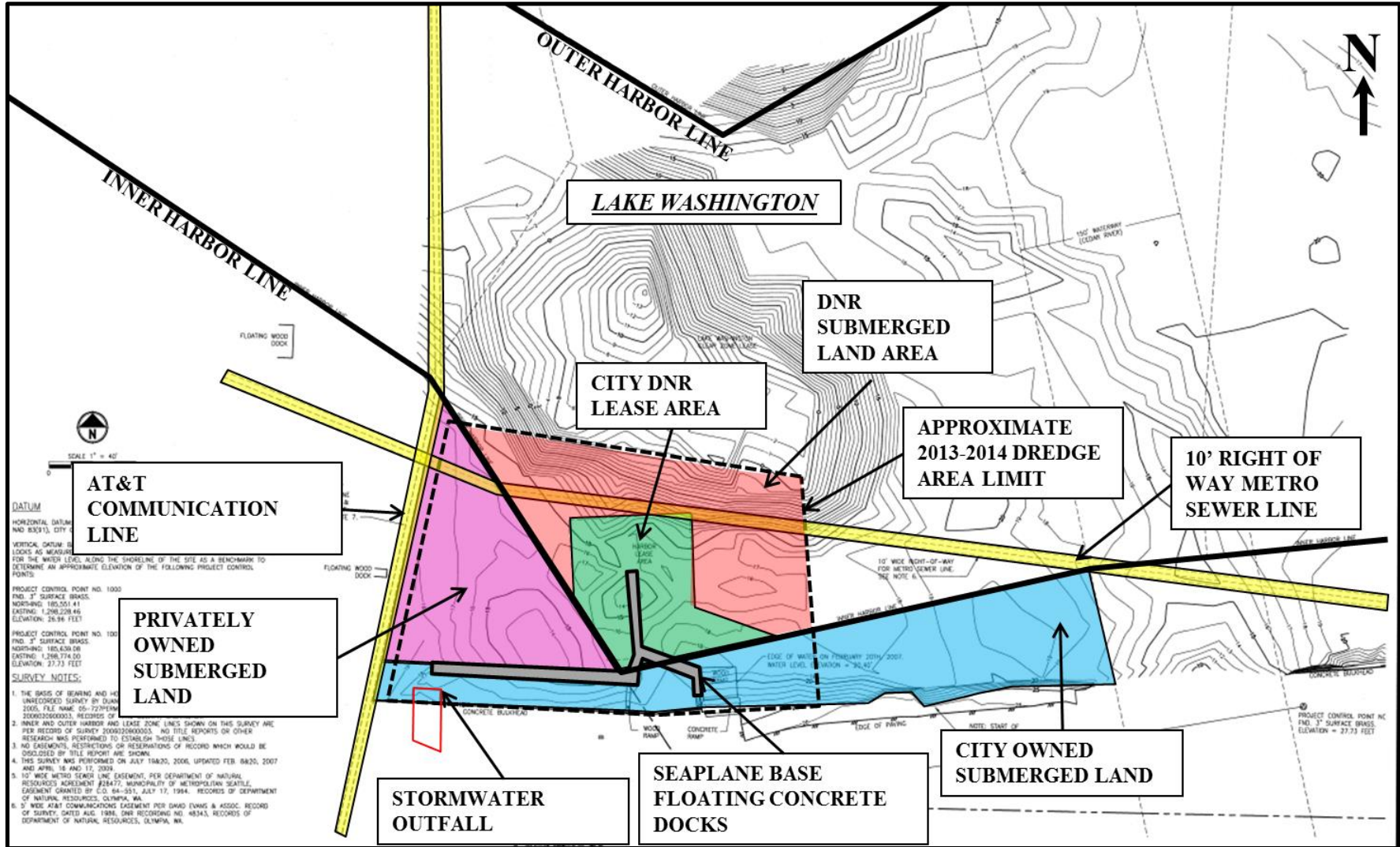
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# Presentation Overview

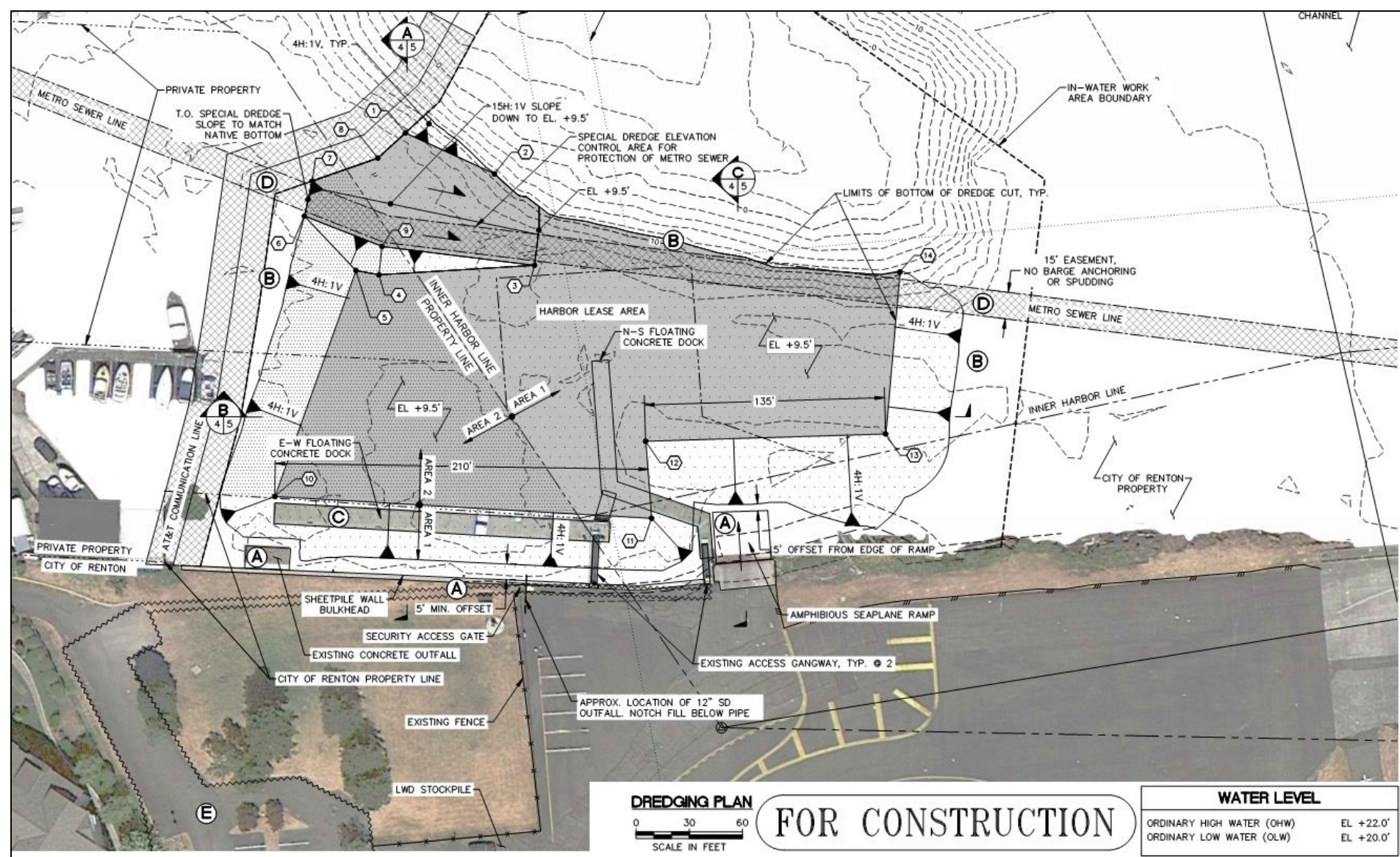
1. Project Site Overview and Brief History
2. **Project Challenges and Solutions**
  - Submerged Land Ownership
  - FEMA Correspondence
  - Design Restrictions associated with communication/utility Lines located near dredging area
  - FAA Construction Notifications and Safety Correspondence
  - Water Quality Monitoring
3. Summary of Solutions or Mitigative Actions
4. Conclusions and Recommendations

# Submerged Land Boundaries and Underwater Obstacles



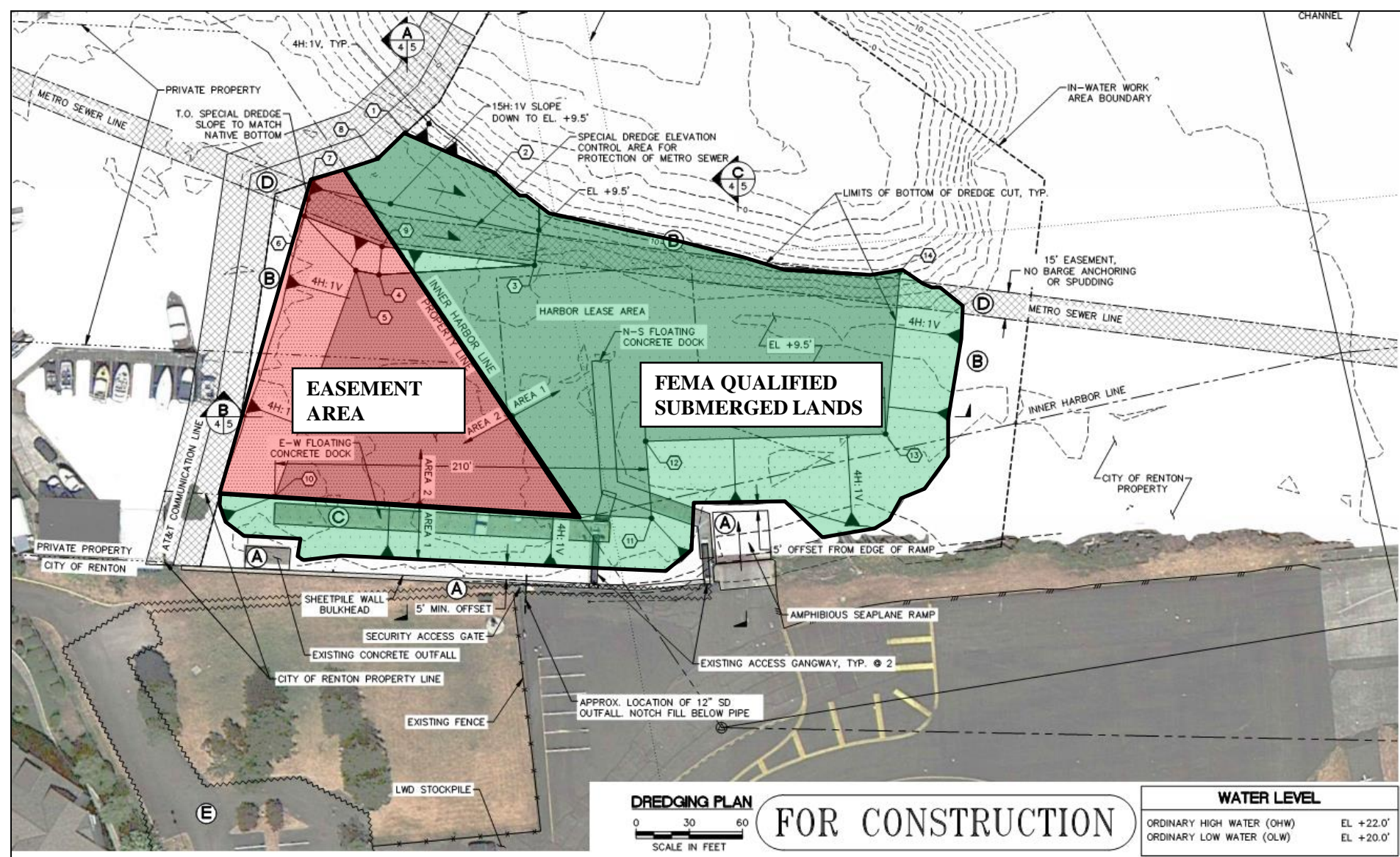
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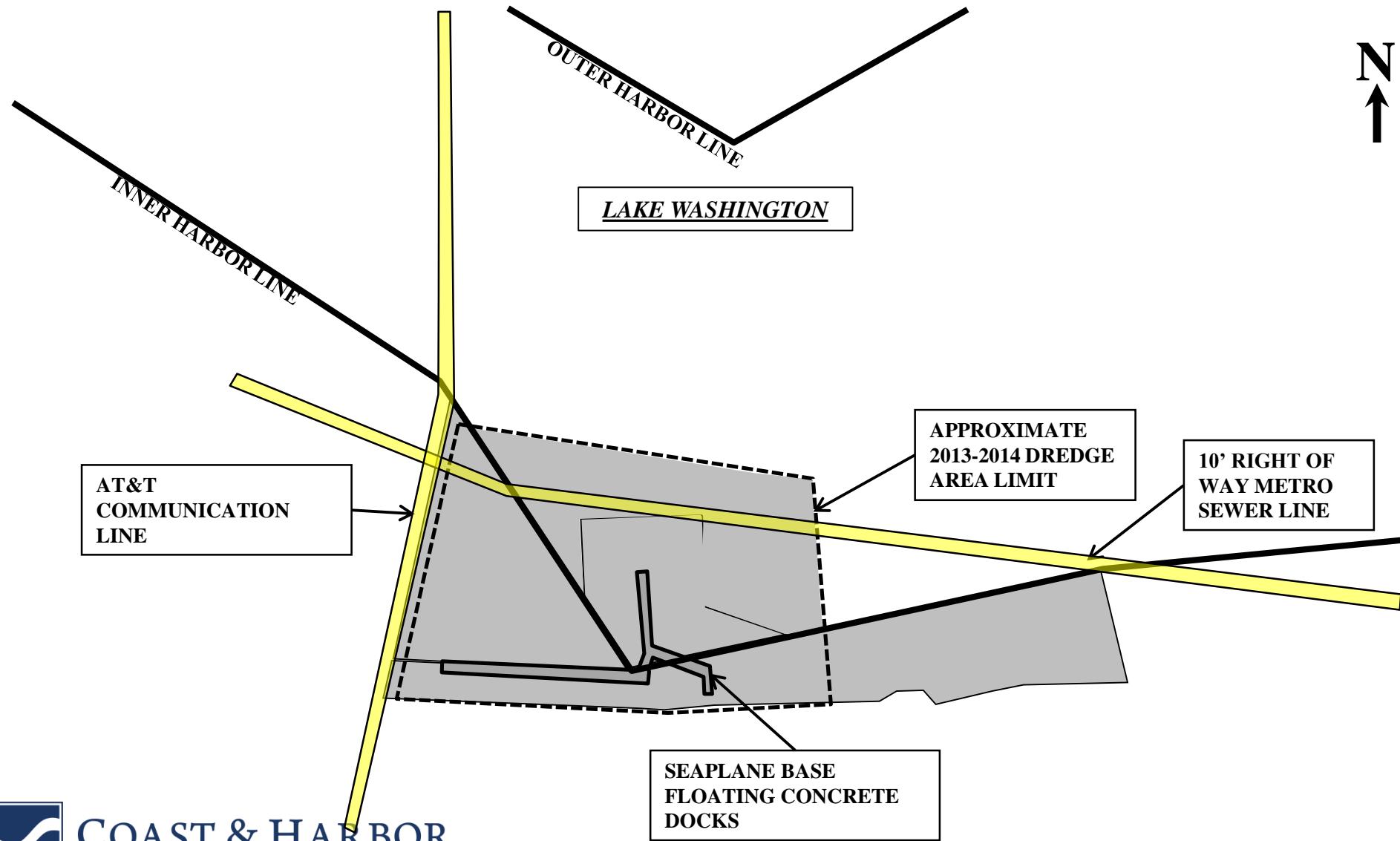
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# Communication and Utility Lines within Dredge Prism



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NOTE: ALL DEPTHS ARE APPROXIMATE

DATE	BY
1/20/11	AD/ST
1/20/11	AD/ST
1/20/11	AD/ST

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NO DELEGATION  
NO CONVEYANCE  
NO ENCUMBRANCE  
NO MORTGAGE  
NO PLEDGE  
NO SECURITY INTEREST  
NO LIEN  
NO EASEMENT  
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NO OPTION  
NO COVENANT  
NO RESTRICTION  
NO COVENANT NOT TO SUE  
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NO COVENANT TO INDEMNIFY  
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NO COVENANT TO WAIVE DEFENSE  
NO COVENANT TO WAIVE JURY TRIAL  
NO COVENANT TO WAIVE APPEAL  
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NO COVENANT TO WAIVE DISCLOSURE

RENTON AIRPORT  
RENTON, WA

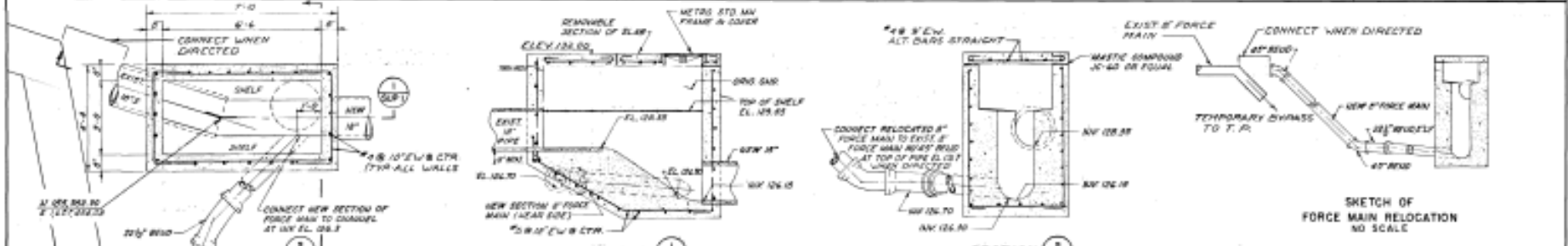
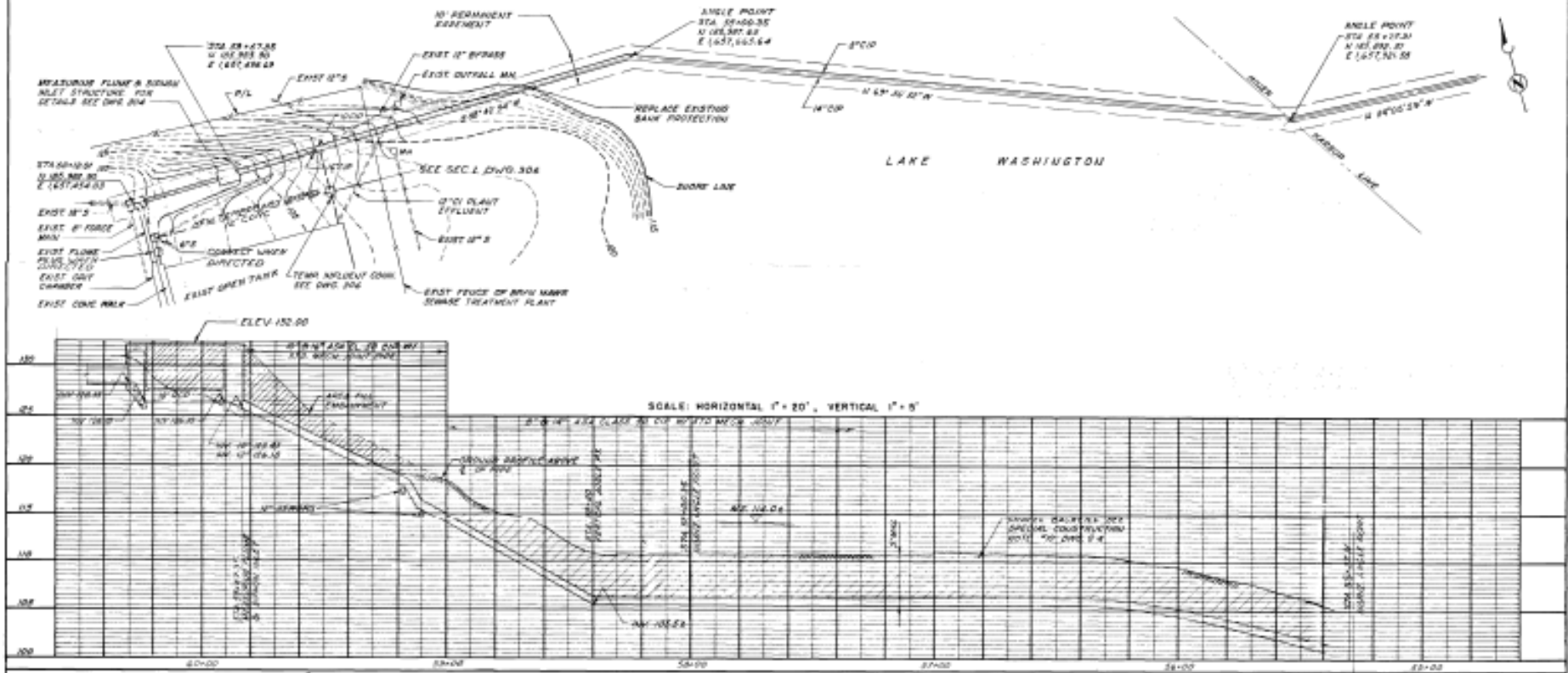
BELLEVUE, WA  
TO  
TACOMA, WA

DT001



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CONNECTION TO EXISTING PLANT FACILITIES (NOT IN CONTRACT)  
SCALE 1/2"=1'-0"

AS CONSTRUCTED  
DATE JULY 6, 1964

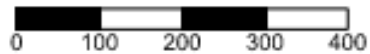
104623

DESIGNED BY EDB	CHECKED BY JCC	METROPOLITAN ENGINEERS BROWN AND CALDWELL PHELPS AND NORMAN R. W. BECK AND ASSOCIATES	APPROVED BY [Signature]	APPROVED BY [Signature]	APPROVED BY [Signature]	APPROVED BY [Signature]	APPROVED BY [Signature]	APPROVED BY [Signature]	DATE AS NOTED	BY S. J. HARRIS	RENTON SYSTEM	BRYN MAWR TRUNK SIPHON & BRYN MAWR T.P. CONNECTION	PP1 SIP. NO. 1 1 of 1
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FEET

KING COUNTY  
BRYN MAWR TRUNK

SEWER INSPECTION SURVEY

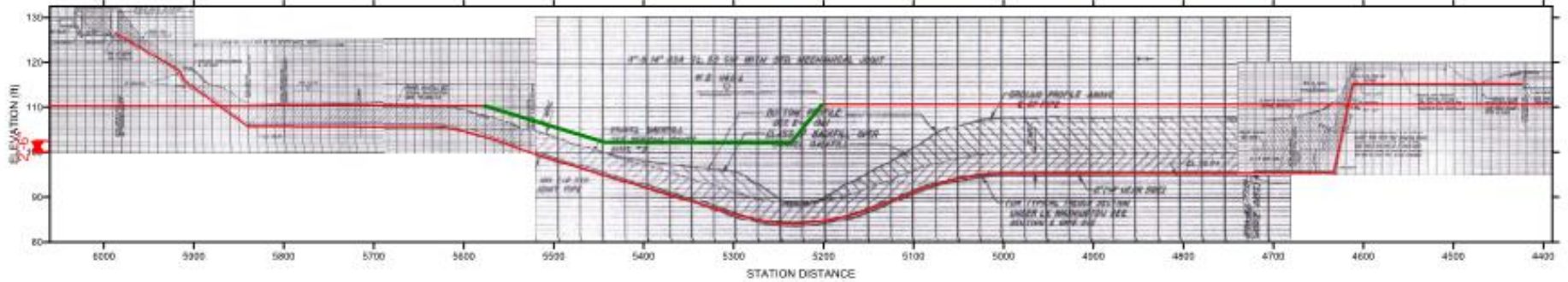
SURVEY LOCATION PLAN



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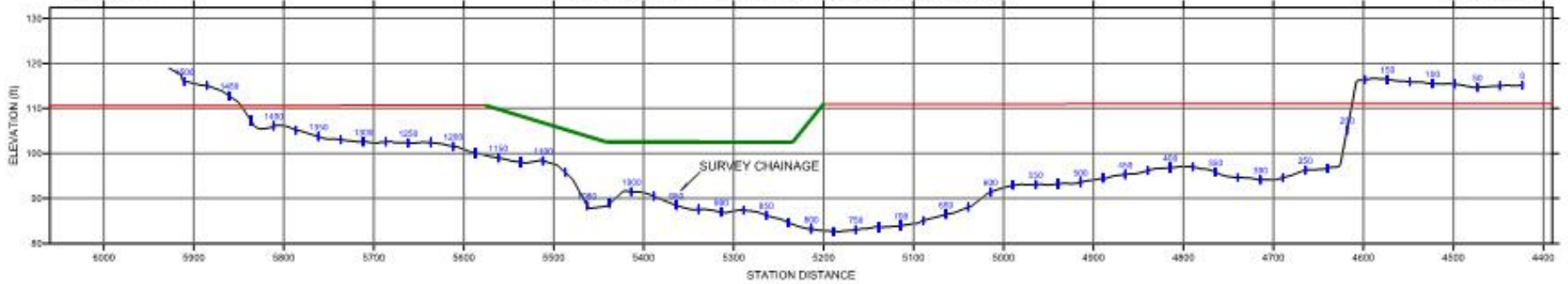
1962 AS-BUILT



SIPHON INLET

SONAR INCLINOMETER DETERMINED SURVEY SCHEMATIC

SIPHON OUTLET



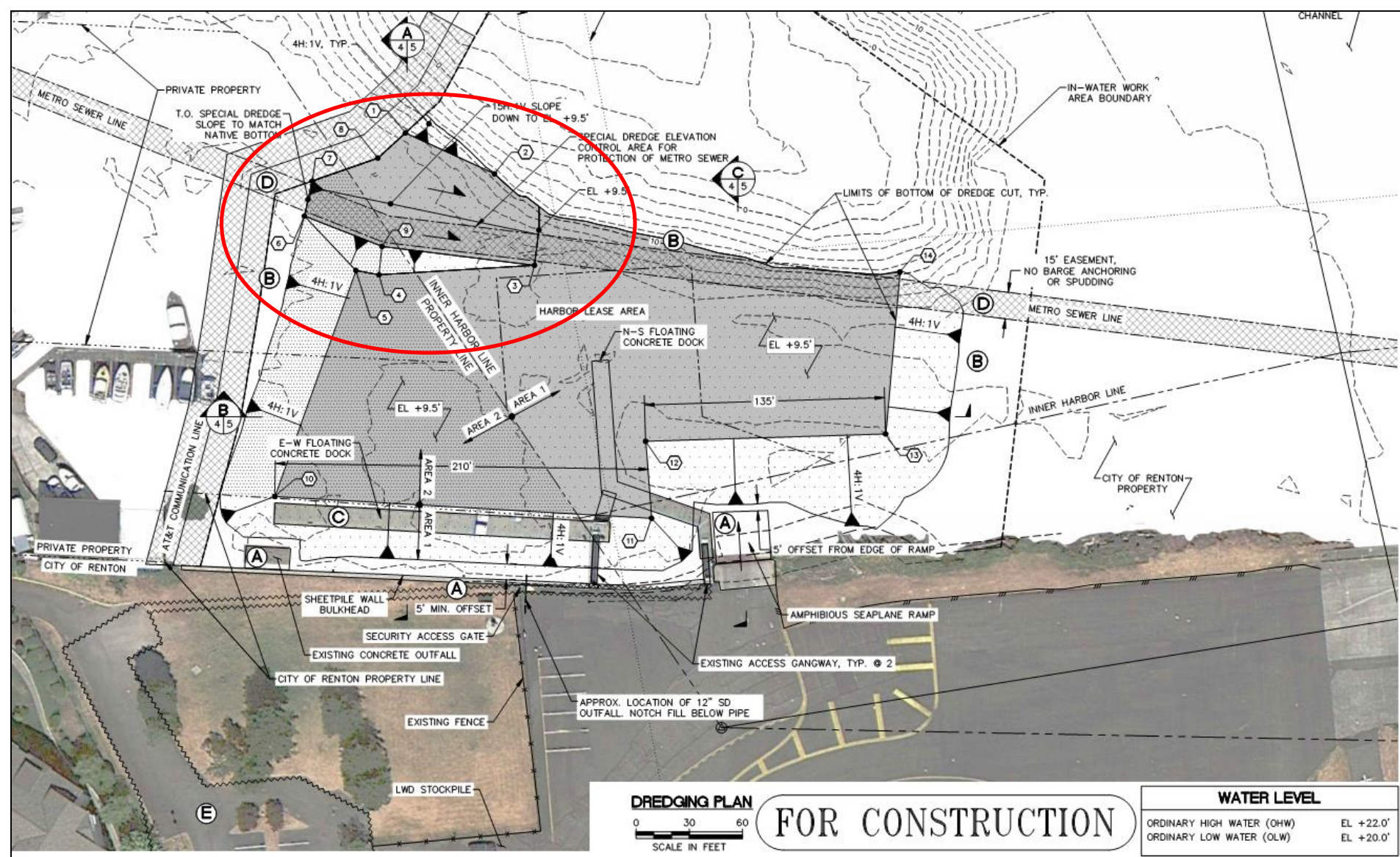
KING COUNTY	
BRYN MAWR TRUNK	
SEWER INSPECTION SURVEY	
LONGITUDINAL SECTIONS	
FRONTIER GEOSCIENCES INC.	
DATE: OCT 2009	DWG: BM1.009-1

HORIZONTAL SCALE 1" = 10'  
VERTICAL SCALE 1" = 2'



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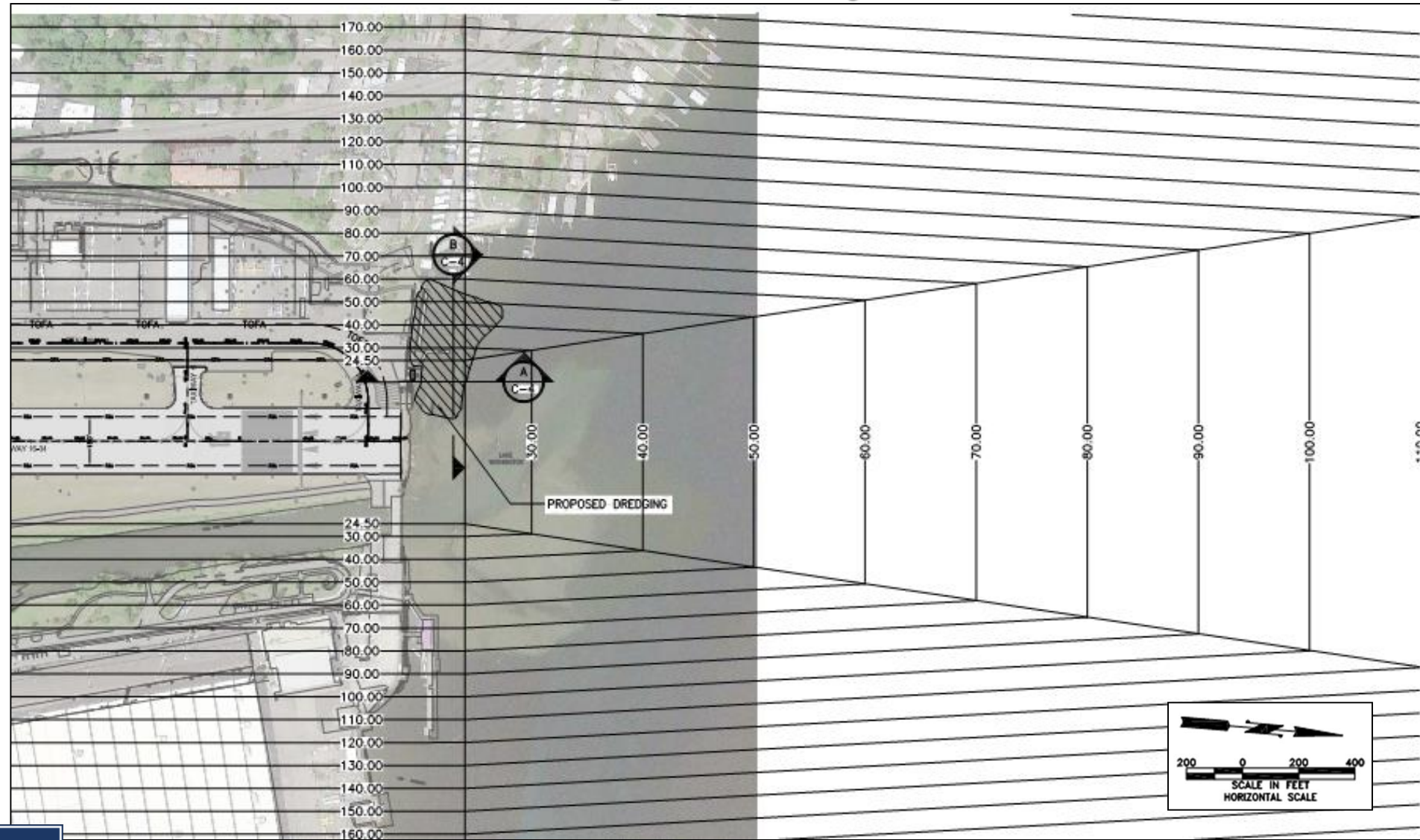
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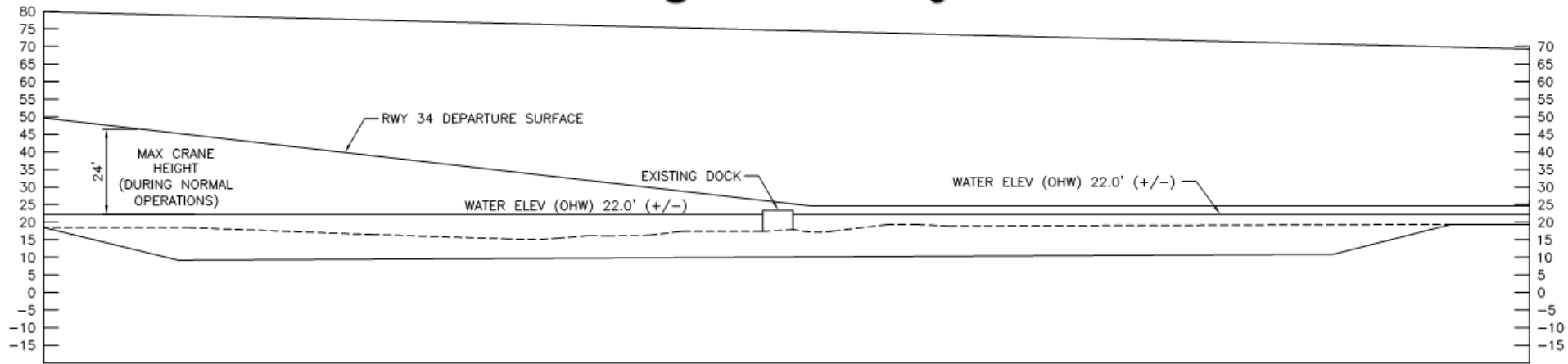
# FAA Construction Phasing and Safety



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# FAA Construction Phasing and Safety

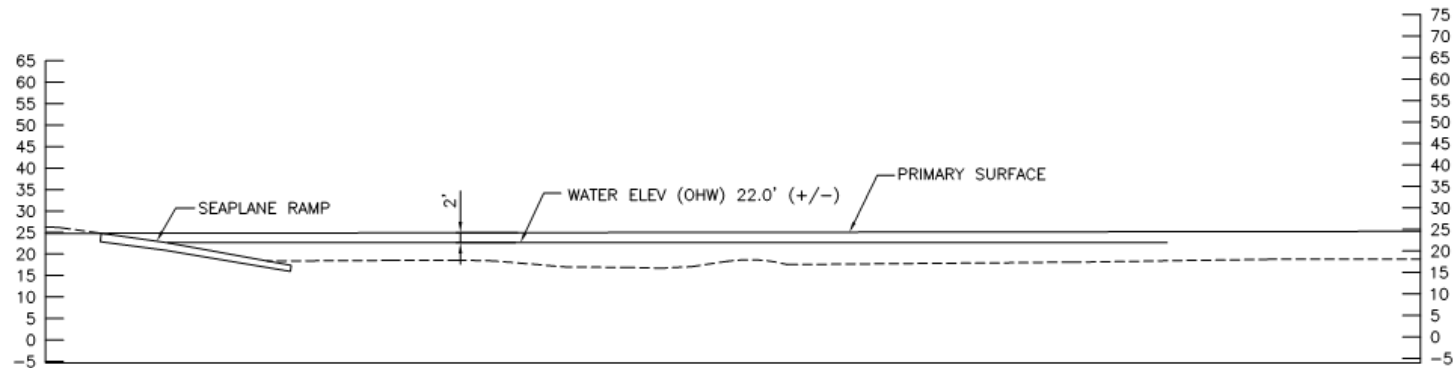


A



**B CONSTRUCTION SITE FACING SOUTH**

SCALE: N.T.S.



**B CONSTRUCTION SITE FACING WEST**

SCALE: N.T.S.



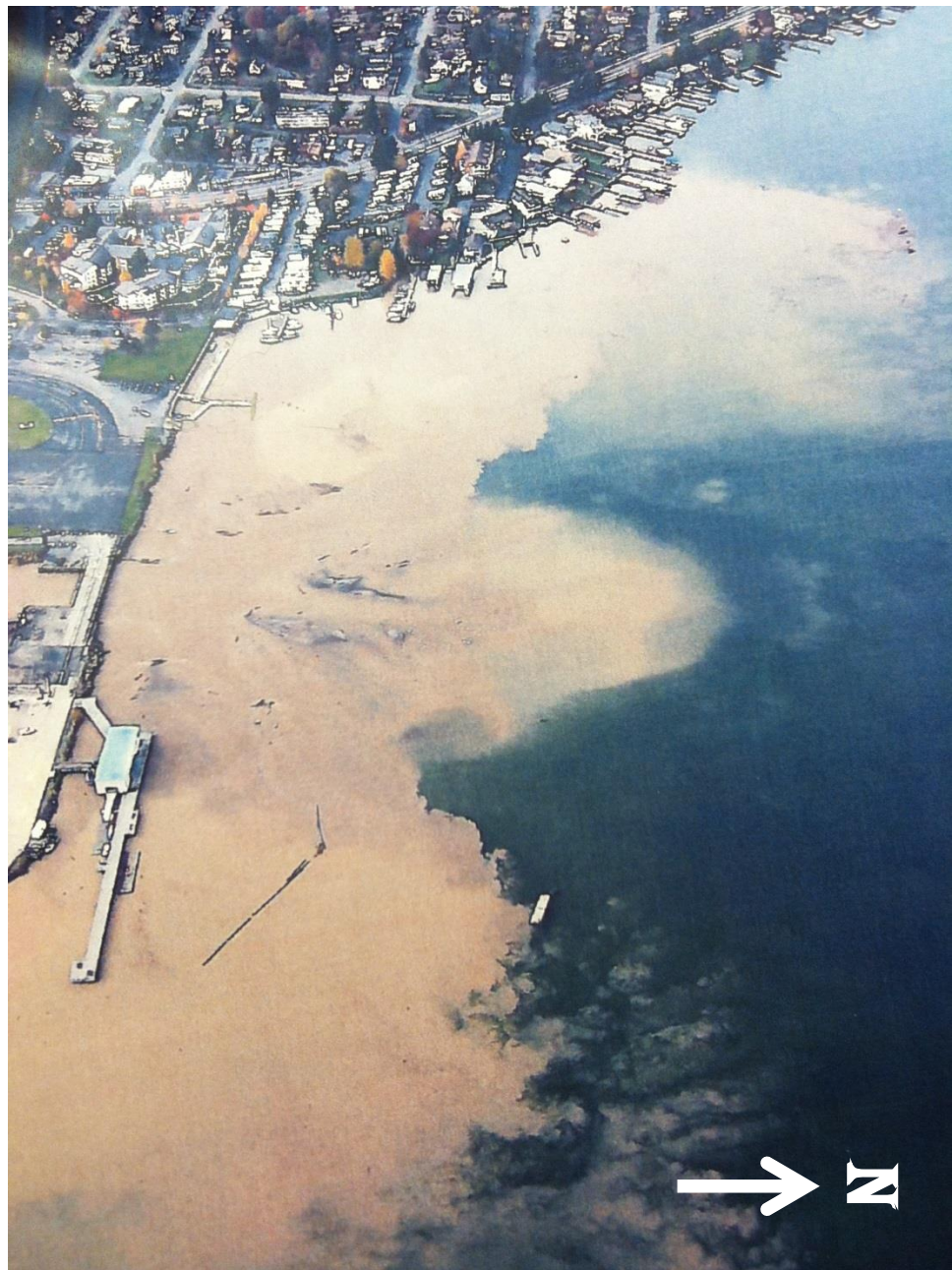
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# Water Quality Monitoring during Construction

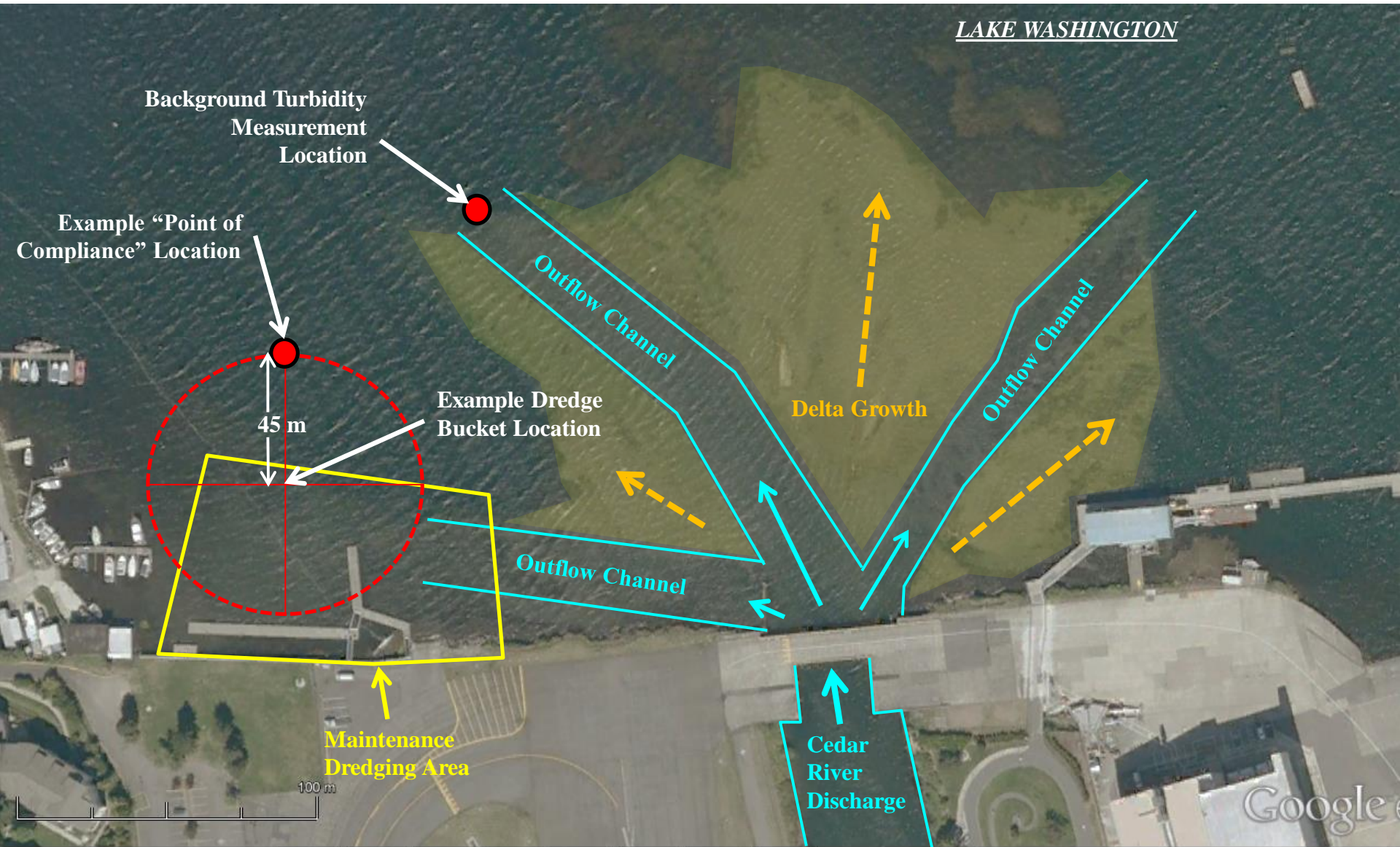
## Summary:

- Washington State Department of Ecology, the agency responsible for enforcing water quality standards in Washington State
- Contractor responsible for measuring Turbidity during Construction, Turbidity measured in NTU's (Nephelometric Turbidity Units).
- **WAC 173-201A-200** for freshwaters of the State, turbidity shall not exceed 5 NTU's over background conditions when turbidity is 50 NTU or less; or a 10 percent increase in turbidity when the background is more than 50 NTU.
- Point of compliance is 45 meters or 150' from point of disturbance (i.e. dredge bucket location)





# WQ Background and Point of Compliance Locations



Project Challenge	Solutions and/or Mitigative Actions
Submerged Lands Ownerships	<ul style="list-style-type: none"> <li>• Accumulated property boundary information via the City of Renton and King County GIS data sources</li> <li>• Applied for private property construction easements</li> </ul>
FEMA Correspondence for Financial Assistance	<ul style="list-style-type: none"> <li>• Continuously corresponded with FEMA during the permitting, design, and construction phases of the project.</li> <li>• Quantified dredge volumes for financial assistance based upon delineated property (submerged land) boundaries</li> </ul>
Communication/Utility Line Design Considerations	<ul style="list-style-type: none"> <li>• Reviewed as-built drawings and previously produced condition/location assessments</li> <li>• Modified dredging design elevations and slopes based upon communication/utility line easements and vertical clearances</li> <li>• Annoyed King County</li> </ul>
FAA Phasing and Safety Correspondence	<ul style="list-style-type: none"> <li>• Owner/Engineer completed and submitted a Construction Safety and Phasing Plan (CSPP) prior to the start of construction</li> <li>• Contractor completed and submitted a Safety Plan Compliance Document (SPCD)</li> <li>• Issued a Notice to Airmen (NOTAM)</li> </ul>
Water Quality Monitoring	<ul style="list-style-type: none"> <li>• Participated in early correspondence with the pertinent State and Federal agencies to develop a feasible water quality monitoring plan and monitoring criteria for construction</li> </ul>



# Conclusions and Recommendations

- Dredging projects are never as simple as they seem.
- Take the time to correspond with local, State and Federal Agencies early.
- Be prepared to deal with change orders and a lot of RFI's.
- Hire a Contractor with a proven track record and pertinent experience.
- Expect the unexpected.



**THANK YOU!**

***WEDA/TAMU Dredging Summit and Expo 2015  
Houston, Texas, USA***

*John Dawson, Coast & Harbor Engineering,  
a Division of Hatch Mott MacDonald*

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