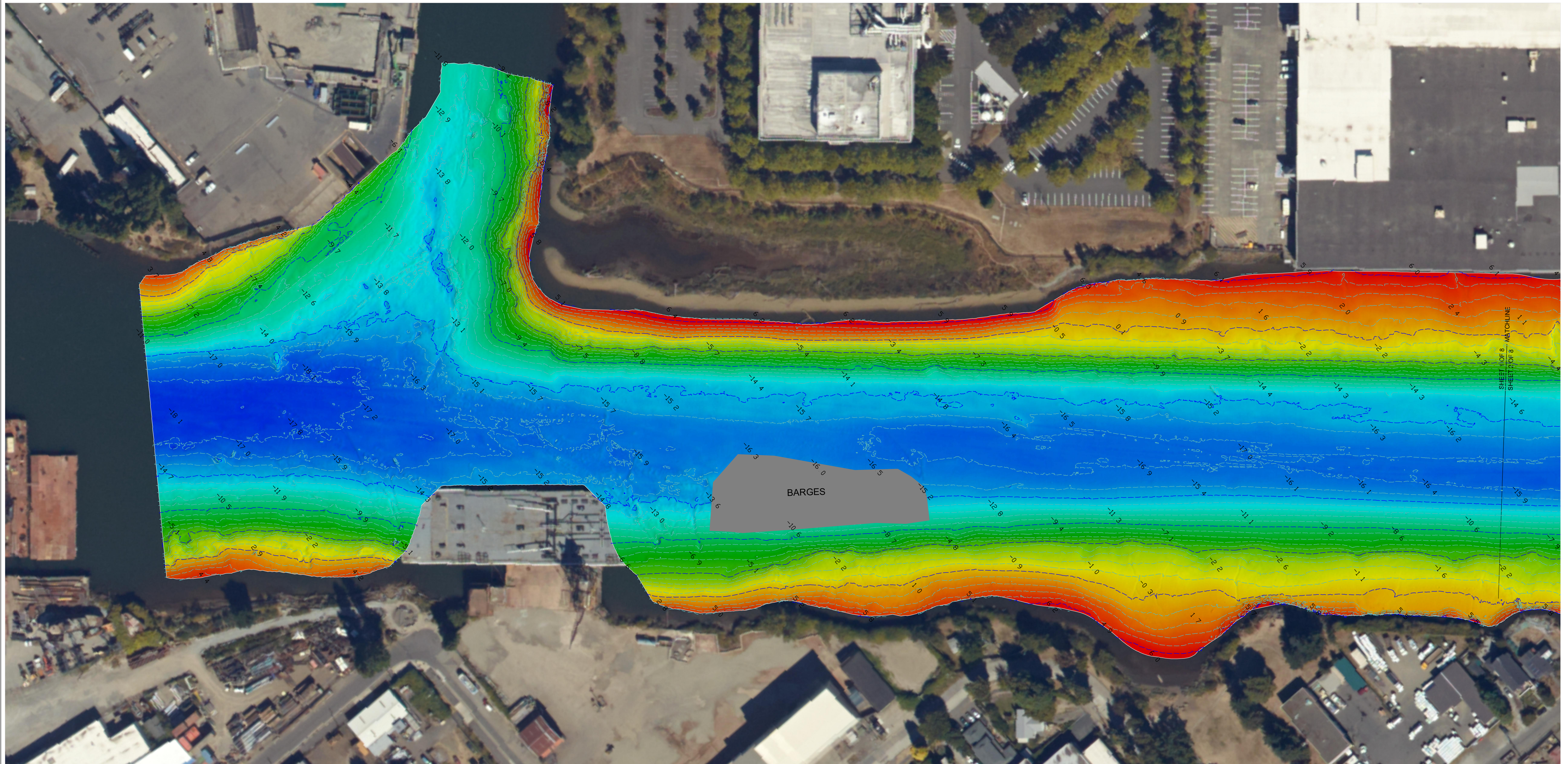


**ANCHOR QEA**  
**DUWAMISH WATERWAY BATHYMETRIC SURVEY**  
**RIVER MILES 2.75 - 5.25**  
DATA COLLECTED: APRIL 18 - MAY 15, 2019  
DRAWING DATE: JUNE 28, 2019  
SHEET 1 OF 8



NOTES:

1. HORIZONTAL DATUM: NAD 83-2011 EPOCH 2010.00, STATE PLANE COORDINATES, WASHINGTON NORTH ZONE

2. UNITS: U.S SURVEY FEET

3. VERTICAL DATUM: MEAN LOWER LOW WATER (MLLW). THE CONVERSION BETWEEN NAVD88 AND MLLW WAS DETERMINED USING NOAA/NOS VDATUM 3.9. THE VDATUM CALCULATED SEPERATION BETWEEN NAVD88 AND MLLW AT THE NOAA/NOS TIDE STATION 9447130 (SEATTLE) IS 2.34 FEET. (EXAMPLE: 10.00 FT NAVD88 = 12.34 FT MLLW)

4. CONTOUR INTERVAL: 1 FOOT.

5. ALL HORIZONTAL POSITIONING AND VESSEL ATTITUDE WAS PROVIDED IN REAL TIME USING AN APPLANIX POS/MV RTK GPS AIDED INERTIAL SENSOR. REAL TIME RTK CORRECTIONS FROM THE WSRN GNSS NETWORK WERE UTILIZED DURING ALL FIELDWORK FOR THIS PROJECT.

6. SOUNDINGS WERE COLLECTED USING A R2SONIC 2022 MULTIBEAM SONAR OPERATING AT 400 KHz. DATA PROCESSING WAS COMPLETED USING HYPACK HYWEEP SOFTWARE.

7. THIS BATHYMETRIC SURVEY IS REPRESENTATIVE OF THE GENERAL CONDITION OF THE SEABED AT THE TIME OF THE SURVEY. THE CONDITION OF THE BOTTOM MAY CHANGE AT ANY TIME AFTER THE DATE OF THIS SURVEY.

8. ALL BATHYMETRIC DATA WAS COLLECTED IN ACCORDANCE WITH THE U.S. ARMY CORPS OF ENGINEERS HYDROGRAPHIC SURVEY MANUAL EM-112-02-1003 (NOVEMBER 2013). SURVEY CLASSIFICATION: NAVIGATION AND DREDGING SUPPORT SURVEYS, BOTTOM CLASSIFICATION OF SOFT.

THIS HYDROGRAPHIC SURVEY WAS COMPLETED BY AN AMERICAN CONGRESS ON SURVEYING AND MAPPING CERTIFIED HYDROGRAPHER.

JAMES W. GLAESER  
AMERICAN CONGRESS ON SURVEYING AND MAPPING  
CERTIFIED HYDROGRAPHER #222

**DRAFT**



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