

**YAQUINA BAY**  
[Local Sponsor: Port of Newport]

**Description**

Sediment removed by a hopper dredge has been deposited at one of three Yaquina Bay ocean dredged material disposal sites (ODMDSs). Between **1977** and **1985**, all material was placed in the U.S. Environmental Protection Agency (EPA) Interim ODMDS (Figure 1). Dispersion from the site was inadequate for the amount of material deposited and mounding occurred.

The U.S. Army Corps of Engineers – Portland District (Corps) selected an alternate ODMDS (Section 103 Site) in **1986**, using its authority under Section 103 of the Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972. In **1998**, the Corps extended the Section 103 site selected in **1986** to include the outer 2/3 of the **1977** Interim site (Figure 2).

Coordinates: Yaquina Bay Ocean Dredged Material Disposal Sites

Interim Site (used 1977-1985, Figure 1)

*Corner Coordinates* (North American Datum (NAD) 27):

44° 36' 31" N, 124° 06' 04" W  
44° 36' 31" N, 124° 05' 16" W  
44° 36' 17" N, 124° 05' 16" W  
44° 36' 17" N, 124° 06' 04" W

*Dimensions:*

3,600' x 1,400'  
Azimuth (long axis): 270° T  
Average Depth: 60'

1986 Section 103 Site (used 1986 – 2001, Figure 2)

*Coordinates* (NAD 27):

44° 36' 32" N, 124° 06' 21" W  
44° 36' 54" N, 124° 06' 21" W  
44° 36' 54" N, 124° 05' 24" W  
44° 36' 32" N, 124° 05' 24" W

*Dimensions:*

2,220' x 4,070'  
Azimuth (long axis): 270° T  
Average Depth: 70'

1998 Section 103 Site (used 1998 – 2001, Figure 2)

*Corner Coordinates* (NAD 83):

44° 36' 53" N, 124° 06' 25" W  
44° 36' 53" N, 124° 05' 28" W  
44° 36' 16" N, 124° 05' 28" W  
44° 36' 16" N, 124° 06' 08" W  
44° 36' 31" N, 124° 06' 08" W  
44° 36' 31" N, 124° 06' 25" W

*Dimensions:*

2,220' x 4,070' (northern rectangle) plus 2,800' x 1,400' (southern rectangle)

Azimuth (long axis): 270° T

Average Depth: 60'

In **2001**, the Corps completed an ODMDS Site Evaluation Study which identified two new sites offshore from Yaquina Bay (Figure 3). Selected under its Section 103 authority, the Corps began utilizing the North Site in **2001** for all material dredged from the Yaquina Bay and Harbor projects. The South Site was used in **2012** for all material. In **2012**, the EPA designated both the North and South Sites and both sites were used in **2013** to present for the project materials.

Site coordinates (degrees, minutes, seconds; NAD 1983) and dimensions of North Site and the South Site are as follows:

**North Site** (used 2001 – 2011 and 2013 – Present, Figure 3)

*Corner Coordinates:*

44° 38' 17.98" N, 124° 07' 25.95" W  
44° 38' 12.86" N, 124° 06' 31.10" W  
44° 37' 14.33" N, 124° 07' 37.57" W  
44° 37' 09.22" N, 124° 06' 42.73" W

*Dimensions:*

4,000' width by 6,500' long  
597 Acres  
Azimuth (long axis): 10° T  
Depth: 112-152'

**South Site** (2012 – Present, Figure 3)

*Corner Coordinates:*

44° 36' 04.50" N, 124° 07' 52.66" W  
44° 35' 59.39" N, 124° 06' 57.84" W  
44° 35' 00.85" N, 124° 08' 04.27" W  
44° 34' 55.75" N, 124° 07' 09.47" W

*Dimensions:*

4,000' wide by 6,500' long  
597 Acres  
Azimuth (long axis): 10° T  
Depth: 112-152'

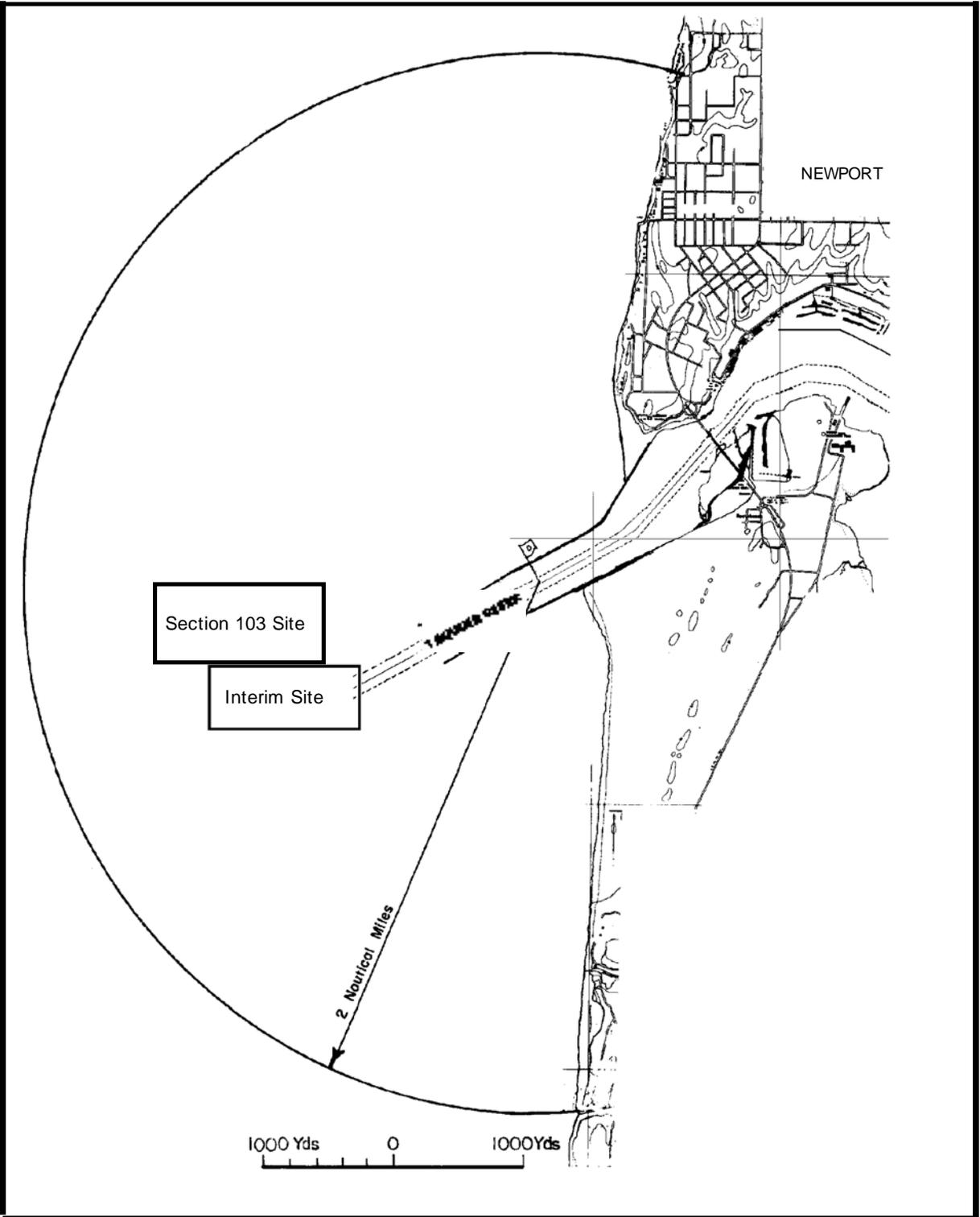


Figure 1. Yaquina interim ODMDS (1977-1985), 1986 Section 103 site, and vicinity.

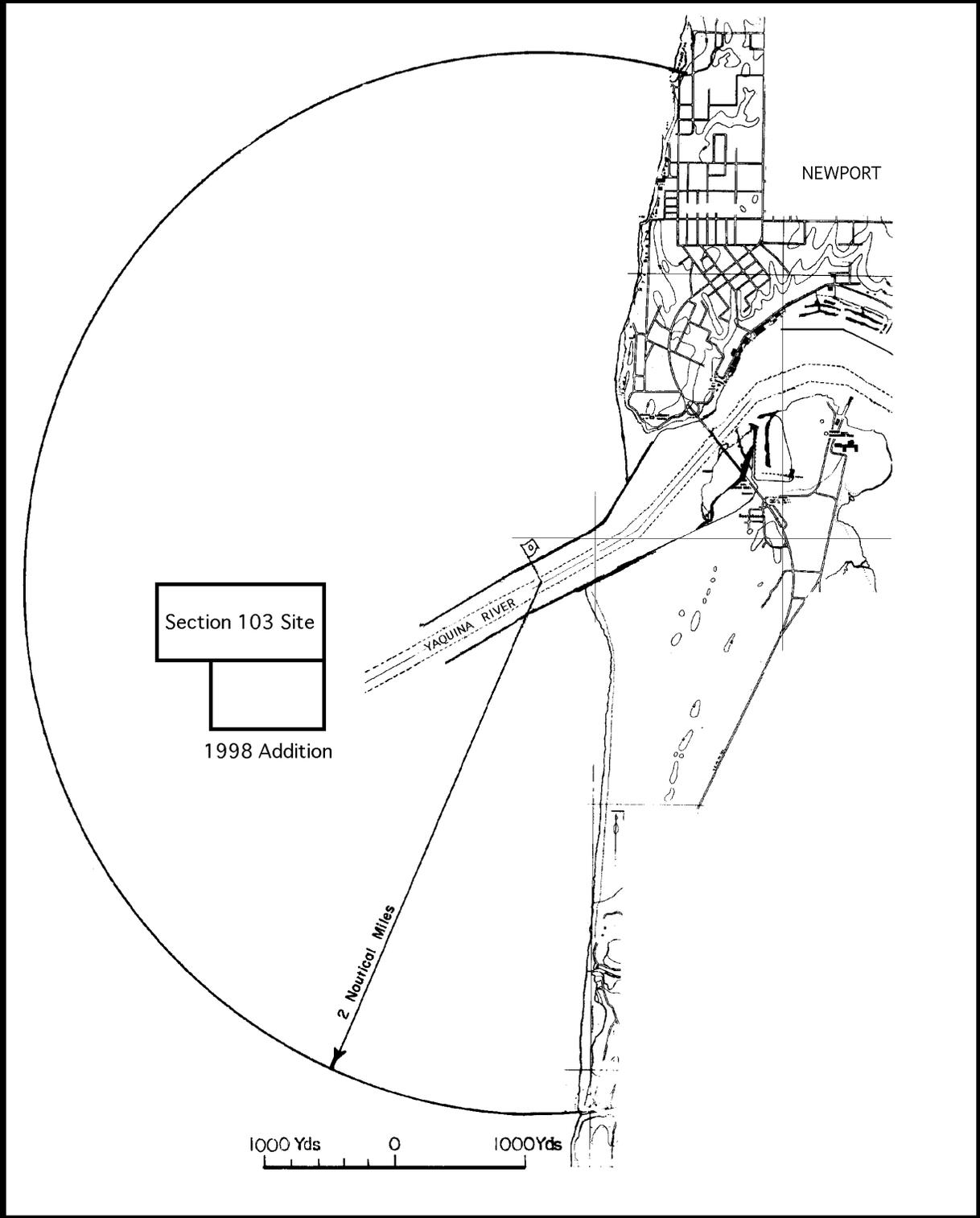


Figure 2. Yaquina ODMDS (1998 Section 103 Site) and vicinity.

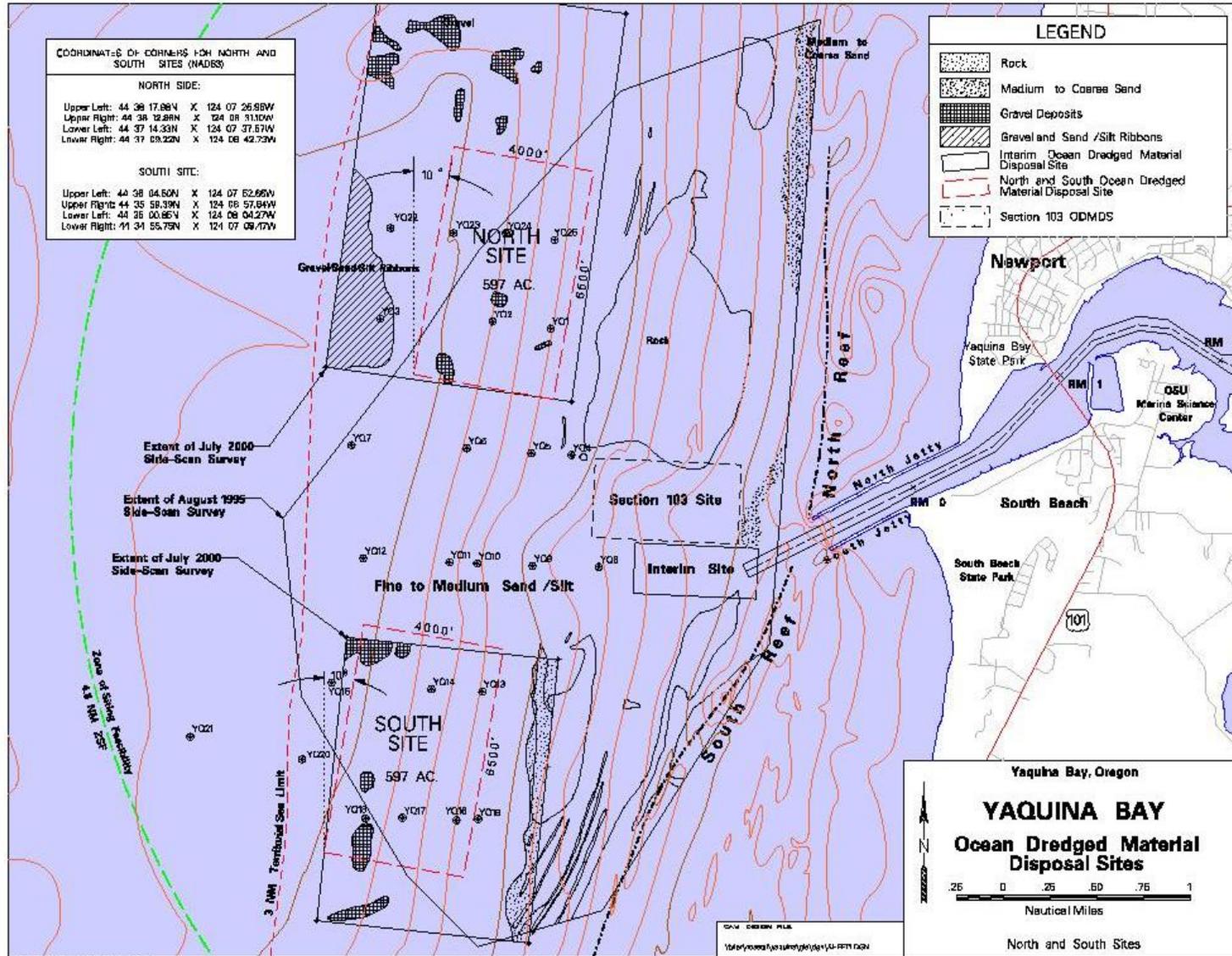


Figure 3: Yaquina ODMDS North and South (2001) and vicinity.

## **Dredged Material Description**

The sediment from the Yaquina Bay and Harbor entrance channel to the turning basin at river mile (RM) 2 is composed of medium to coarse sand having a mean grain size of 0.22 mm and low in organic content as measured by volatile solids (0.60%). Samples from within the turning basin are composed of fine sands having a mean grain size of 0.18 mm and higher volatile solids content (1.80%). Resuspended density ranged from 1518 gm/L to 1934 gm/L. Material is also occasionally dredged from the access channel of the South Beach Marina. Material in the South Beach Marina access channel ranges from 63.1% to 15.6% sand and 2.35% to 3.63% total organic carbon (TOC). Depot Slough at Yaquina River RM 13 is dredged as needed on an infrequent basis. A **2003** physical analyses resulted in mean values of 0.0% gravel, 4.71% sand (2.40%-6.06% range), and 95.3% silt/clay (93.94%-97.60% range), with 10.5% volatile solids (9.43%-11.85% range). Mean grain-size for all the samples was 0.042mm; this material is classified as silt. Both physical and chemical analyses of the material from all of these project areas have shown the dredged material to be suitable for ocean disposal without further testing. Quantities dredged from Yaquina Bay and Harbor are shown in Table 1 at the end of the report.

## **Sediment Evaluations – Navigation Channel**

**1980 June.** Sediments were subjected to elutriate, benthos, and/or physical analyses from the Yaquina River and Bay federal navigation channel (FNC) from RM 0.0 to RM 14.0. Sediments were also collected from Depot Slough. Sediments from RM 0.0 to RM 2.8 are very clean sands and could be excavated and placed without restriction. Material from Yaquina River and Depot Slough would require further evaluation including bioassays.

**1981 March.** Sediments from Depot Slough were subjected to "jar tests" to determine the best flocculent to use for settling sediments discharged into an upland disposal facility. Disposal facility design and flocculent application methods were presented.

In **1986 July**, 11 sediment samples were collected at various locations from the mouth of the Yaquina River to the turning basin at river mile 2.4. Sample #11 was collected from the boat harbor, the rest from shoals within the FNC that were to be dredged. Physical and chemical analyses were performed on all samples except #11 (no chemical analysis).

**1990 April.** Eleven (11) samples were collected from the FNC between RM -0.5 to RM 2.4. All samples were subjected to physical analysis while samples YQ-BC-9 & 10 were also subjected to chemical analyses. Based upon the analyses performed all material to be dredged from the main FNC was considered to be suitable for unconfined in-water disposal.

**1990 April.** Fourteen (14) samples were collected outside of the FNC at the same time as the FNC sediment mentioned above. Funded by EPA, Region 10 the purpose for these samples was to provide basin wide sediment characterization in Yaquina Bay. Sampling stations were located in marinas, backwater areas, and up river. These sediments were finer (38.6% fines) and had higher organic content (6.5% volatile solids). Due to contamination by tributyltin (TBT) and phenols, the South Beach Marina sediments required additional testing and evaluation prior to

dredging and disposal.

**1991 May.** Six (6) sediment samples were collected along the access channel in the South Beach Marina and subjected to physical, chemical, and biological analyses. The material was composed of silty sand and sandy silt. Median grain size ranged from 0.09 mm to 0.15 mm, percent fines ranged from 15.9% to 65.4% with a mean of 33.9%. Volatile solids ranged from 2.2% to 9.4% with a mean of 5.52%. All chemical analyses indicated chemical contamination was below established levels of concern. Biological testing further indicated that no unacceptable adverse environmental impacts would be expected due to dredged material disposal. The material was subsequently dredged by a small pipeline dredged and the material placed upland.

**1994 February.** Six (6) sediment samples were collected between RM 6.0 and RM 11.0 for physical analyses and to determine if the material was suitable for oyster habitat. The sediments were found to be predominantly clean sand (80.6 to 97.6%) with lower percentages of silt (2.7 to 19.4%). Mean median grain size was 0.29 mm, corresponding to medium sand. Sediment samples were also collected from Depot Slough and subjected to physical as well as bulk and elutriate chemical analyses. The Depot slough sediments were found to be acceptable for in-water or upland disposal.

**1995 March.** Seven (7) sediment samples were collected from various locations in the federal channel areas and South Beach Marina. Two samples from the South Beach Marina and 1 sample from the turning basin at RM 2.5 were subjected to chemical analyses, as well as physical analysis. Material from the main FNC was sandy with low volatile solids (0.7% to 1.2 %). Material from South Beach Marina and the turning basin were finer (median grain size 0.03 mm, 0.07 mm & 0.15 mm) and had higher organic content (7.2%, 8.5%, & 3.6% volatile solids) than the federal channel. Chemical analyses included 8 metals, 19 pesticides, 7 polychlorinated biphenyls (PCBs) arochlors, 18 polynuclear aromatic hydrocarbons (PAHs), 14 phenols, butyltins, acid volatile sulfide and TOC. Contaminant levels were all below established levels of concern and the material determined to be suitable for unconfined in-water or upland disposal.

**2000 May.** Prior to potential maintenance dredging, nine (9) sediment samples and 1 quality control (QC) duplicate were collected from Yaquina Bay and South Beach Marina on May 31, 2000. All samples were submitted to Sound Analytical Services for physical analyses, with 4 samples analyzed for metals (9 inorganic), TOC, pesticides/ PCBs, phenols, phthalates, miscellaneous extractables, PAHs and 3 samples submitted for organotin (TBT) analysis.

Materials represented by all samples collected during this sampling event met Tier II guidelines of the *Dredge Material Evaluation Framework* (DMEF) and have been determined suitable for unconfined in-water placement without further characterization.

**August 2003.** A total of five (5) gravity core sediment samples were collected from the Depot Slough. All samples were submitted for physical analyses including total volatile solids. All five (5) sediment samples were analyzed for metals (9 inorganic), TOC, pesticides and PCBs, phenols, phthalates, miscellaneous extractables, PAHs, total and pore water organotin and dioxin/furan.

The physical analyses resulted in mean values of 0.0% gravel, 4.71% sand (2.40%-6.06% range), and 95.3% silt/clay (93.94%-97.60% range), with 10.5% volatile solids (9.43%-11.85% range). Mean grain-size for all the samples is 0.042 mm; this material is classified as silt. None of the contaminants tested were found to be at or above their screening level (SL). All sediment is determined to be suitable for unconfined, in-water placement without further characterization.

**2005 September.** On September 12, a total of 10 samples were collected from shoaling areas at 7 stations within the federally maintained entrance channel and harbor and 3 additional stations within South Beach Marina channel. All samples were submitted for a full suite of physical and chemical parameters as outlined in the DMMF (1998) Tier II a & b. Samples from the FNC were classified as “poorly graded sand”. Mean grain-size for FNC samples is 0.18 mm, with 0.2% gravel (0.0%-1.2% range), 91.6% sand (62.3%-99.3% range) and 8.4% silt/clay (0.7%-37.6% range). Mean volatile solids were 2.7%, with a 0.4% to 13.8% range. Sample from the South Beach Marina channel had a mean grain-size of 0.09 mm, with 0.6% gravel (0.0%-1.7% range), 48.2% sand (12.1%-71.7% range) and 42.8% silt/clay (28.3%-86.2% range). Mean volatile solids were 8.0%, with a 5.8% to 9.2% range.

The chemical analyses indicated only very low levels of contamination in any of the samples, with all levels well below their respective DMEF SLs. Detection levels were sufficiently below the SL to evaluate material proposed for dredging.

Monobutyltin, which does not have an established DMEF SL, was detected in 2 samples within the South Beach Marina federally maintained channel. The levels (0.937ug/L and 0.166ug/L) are below calculated effects level concentrations. Sediment data, from samples collected within the South Beach Marina federally maintained channel, was submitted to the Regional Sediment Management Team for the in-water suitability. The  $K_{ow}^*$  is very low for monobutyltin, so it would take high environmental concentrations for any significant amounts to be bioaccumulated (ref. NOAA fisheries, J. Meador).

Sediments represented by all samples in Yaquina Bay FNC are determined to be suitable for unconfined, in-water placement without further characterization.

**2010 July.** Eight (8) box core grab samples and one gravity core sample were collected from the project area on July 28, 2010. All 9 sediment samples were submitted for physical analyses, with 5 samples collected from finer-grained areas further subjected to chemical analyses.

The overall mean grain size for the project is 72% sand, with a mean grain size of 94% sand for the FNC (entrance to turning basin) and 45% sand within South Beach Marina. Chemical analyses included metals (10), pesticides/PCBs, chlorinated hydrocarbons, phenols, phthalates, miscellaneous extractables, PAHs, total petroleum hydrocarbons (TPH), TBT, and dioxin. All analyte concentrations were substantially below the 2009 *Sediment Evaluation Framework for the Pacific Northwest* (SEF) marine SLs. The material within the FNC study area is suitable for dredging and unconfined in-water placement without further characterization for a period for the Low and Very-Low ranked areas of 7 and 10 years respectively.

**2015 July.** Grab samples (12) were collected from the Yaquina Bay FNC (entrance channel to turning basin) and South Beach Marina access channel on July 7th and 8th, 2015. Results are pending.

## **ODMDS HISTORY**

### **Designation**

**1977.** The Yaquina Bay ODMDS received interim designation from the EPA (Figure 1).

**1985.** An ODMDS evaluation report by the Corps recommends final site designation for the interim site by EPA.

In **1986**, prior to final site designation, mounding at the interim ODMDS necessitated the Corps to select, under its Section 103 authority, an adjusted ocean disposal site to the north of the interim site (Figure 1).

In **1998**, the Corps selected, under its Section 103 authority, an additional area to the south of the **1986** Section 103 area for the disposal of dredged material (Figure 2).

In **July 2001**, a site evaluation study was completed.

In **July 2001**, the Corps selected, under its Section 103 authority, two new ODMDSs (North and South) for the disposal of dredged material (Figure 3). EPA concurred in a **July 19, 2001** letter for the first 5 year period. The North Site was first used in **2001** and its use expired in **2006** with an option for an additional 5 years. EPA issued a second Section 103 concurrence letter dated **April 27, 2007** for continued use of the North Site. This allowed use of the North Site until the end of the dredging season of **2011**. The South Site has not been used so the Section 103 clock has not started for this site.

In **2012**, the EPA designated both the North and South Sites. The Proposed Rule for site designation was published on **April 5, 2012**. The EPA published the Final Rule for site designation of the North Site and South Site on ~~Setpember~~**September 7, 2012**, which became effective on **October 9, 2012**.

### **Evaluation Studies for Designation**

In **May 1984**, information on disposal site sediment and aquatic resources were obtained through field sampling.

In **August and September 1984**, site-specific geologic information and geophysical investigations by sidescan sonar and sub-bottom acoustic reflection profiling was performed. In addition, existing geologic and oceanographic data pertinent to the Yaquina Bay Zone of Siting Feasibility (ZSF) was compiled.

**1985 April.** The Yaquina Bay Interim Ocean Dredged Material Disposal Site Evaluation Study. Final report was published by the Corps. The evaluation report recommended final designation for the Yaquina Bay interim ODMDS.

In **1995**, a new Yaquina Bay ODMDS evaluation study was initiated. As part of the study, a sidescan sonar survey was conducted on **July 25 and 27, 1995**. Areas surveyed included the interim and Section 103 disposal sites and sandy areas further offshore. Sediment transport and modeling studies were conducted in **1996-1997** to determine site capacity and site size. Biological sampling was to commence in the fall of **1998**, after evaluation of the existing biological data for the ZSF at Yaquina Bay and finding them insufficient. Due to rough weather and sea conditions sampling had to be postponed until **June and September 1999**.

Several meetings were held in Newport, OR to present and discuss the status of the ODMDS evaluation studies with local interest groups. As a result of these meetings and the desire to place the ocean disposal sites further to the north and south of the Yaquina Bay entrance the EPA and Corps determined that additional information was needed prior to site designation and use. The additional studies included physical and chemical baseline information, sidescan sonar, and two additional seasons of benthic sampling.

The ODMDS baseline sediment evaluations were conducted at the proposed new North and South ODMDSs and vicinity in **May 2000**. Twenty stations were sampled and analyzed for physical parameters. Ten stations were combined in to 5 composites for chemical analyses. Two were from both the North and South Site and one from a reference area. The material in the offshore study area is fairly uniform composed primarily of sand (96.5% to 100%) with 3.5% or less silt. All chemical analyses (metals, PAHs, pesticides/PCBS, Phenols, chlorinated hydrocarbons, phthalates, and misc. extractables) indicate that the material in the offshore study area is clean for the chemicals of concern studied.

The benthic sampling was conducted in **July and September 2000** and the sidescan survey was conducted in **July 2000**. During the **July 2000** benthic sampling, additional samples were collected for the physical and chemical baseline analyses. A site evaluation study was completed **July 2001**. Material was first placed in the north half of the North Site during the **2001** dredging season; the south half first received dredged material in **2010**.

The authority to use the North Site under Section 103 ceased at the end of the **2011** dredging season. Pending EPA's Section 102 Final site designation of the Yaquina Bay North and South Sites, the only site available for the placement of dredged material at Yaquina Bay in **2012** was the South Site. Previously no material had been placed in the South Site; therefore it was available for use under the Corps Section 103 authority. Approximately 344,000 cubic yards (CY) of material was placed at the South Site in **2012**.

## **MANAGEMENT/MONITORING**

The Yaquina Bay **site management/monitoring plan (SMMP)** calls for conducting bathymetric surveys of the ODMDS annually as a Tier I activity.

**Bathymetric surveys** of the Interim and **1986** Section 103 site were conducted in **October 1983, September 1984, August 1985, May 1986, May 1987, August 1988, August 1989, August 1990, August 1992, May/June 1993, May 1994, April 1995, June 1996,**

**September 1996, June 1997, September 1997, May 1998, July 1998, June 1999, September 1999, May 2000, November 2000, May 2001, June 2001, May 2005 and April 2006.** Bathymetric surveys of the new North Site were conducted in **July 2001, August 2003, September 2003, May 2004, April 2006, July 2007, May 2008, April 2009, June 2010, April 2011, April 2012, August 2012, April 2013, and June 2015.** Bathymetry surveys of the new South site were conducted in **April 2012, April 2013, and June 2015.** Copies of the latest bathymetry and bathymetry difference plots for the Yaquina Bay ODMDSs are attached to the end of the report.

At the interim ODMDS, no prominent mound appeared in the **October 1983** bathymetry. By **September 1984**, a roughly conical mound with a base diameter of 600-1000 feet and a height of 16 feet in a water depth of 60 feet was evident. The **September 1984** survey was conducted immediately following the placement of 571,000 CY of material between **June and September 1984.** The **August 1985** survey indicates increased mounding to 22 feet of accumulation in water depths of 64 feet at the interim ODMDS.

Due to the increased mounding at the interim ODMDS and its potential adverse effect on navigation safety, the Corps selected an alternate ODMDS under its Section 103 authority in **1986.** Between **1985 and 1999**, no dredged material was been placed at the interim ODMDS. Mounding at the interim ODMDS decreased in **1986, 1987, and 1988** such that by **August 1988** the bathymetric surveys show little or no mounding. Better than 20 feet of material present in **1985** had been removed by natural processes and depth contours had returned to their **1983** condition.

The **1986** Section 103 site is located to the north and further offshore of the interim site in water depths ranging from 50 feet to 102 feet (Figure 1). Dredged material continued to accumulate at the site. As of **May 1998**, maximum accumulation was 19 feet at an original water depth of approximately 84 feet. All contour lines continue to shift offshore. Between **1990 and 1997** dredged material disposal was managed by restricting placement to only deeper portions of the 103 site however management options became limited due to continued mounding. In **1998**, dredged material placement was managed by restricting the areas available for placement to the northeast and southwest corners of the site. In **1999** material placement was restricted to the new southern portion of the Section 103 site. This is the area of the **1977** interim site. The **September 1999** survey when compared to the **June 1999** survey shows accumulation of up to 3 feet of material in the NE corner of the **1977** interim site as well as in the outer 1/3. Placement was by both contract and Corps dredges with the Corps dredged restricted to the outer 1/3 of the site late in the dredging season. The **May 2000** survey shows both areas of accumulation shifted further offshore downslope into deeper water. In **2000**, dredging was delayed until **October 1-9**, when ~76,800 CY was dredged. Placement was restricted to the outer, deepest SW corner of the **1986** Section 103 site. This was the last year the nearshore sites were used for the placement of dredged material. Difference plots between the **May 2005** and **June 2001** surveys indicated up to 6 feet of erosion in some areas after placement stopped. On average, there appears to have been 3-4 feet of erosion in the **1986** Section 103 area and 1-2 feet in the area of the original **1977** Interim Site. In the deeper, outer third of the site there was 10-13 feet of material when compared to the baseline **August 1985** survey.

Between **2001** and **2009**, all dredged material was placed in the northern half of the Section 103 North Site. Due to a conversion error of the corner coordinates for the placement area, material was accidentally placed outside of the actual disposal site between **August 8** and **August 18**. It was estimated that approximately 24,000 CY of material was placed outside the northeast corner of the new North Site. Bathymetric surveys were requested but were delayed and never conducted following the event. Maximum mound height in **2007** reached 5 feet while in **2008** it had reached 6 feet and in **2009** maximum mound height reached 10 feet relative to **July 2001** survey. In **2009-2010**, material from Depot Slough was dredged by clamshell and barged to the North Site (see Table 1). Also a portion of the material from the Yaquina Bay federal project was placed in the southern half of the North Site. Portions of the North Site have mounded 10-13 feet above the **2001** baseline bathymetry. The bulk of material was placed in the southern half of the North Site in **2011**. The South Site was first used in **2012**. In October **2014**, the Port of Newport placed approximately 10,500 CY at the South Site.

### **Special Studies**

In **1986 May** and **1989 October**, benthic and sediment characterization studies were conducted and compared to the **1984 March** interim site evaluation study. Variations noted between the studies appeared consistent with other areas of the Oregon Coast and did not indicate anthropogenic impacts due to dredged material disposal.

A second side-scan survey was conducted **October 13, 1995** as a result of questions regarding the location and improper disposal of material dredged from Depot Slough, including debris. This dredging was under contract with the Corps. The contractor used a clamshell with barges. The area covered in the second survey was the interim and Section 103 disposal sites and the area immediately seaward. By comparing the August and October surveys, an attempt was made to identify the location of debris. Twelve “targets” were identified as potential debris. All were located within the interim disposal site. The misplacement of material and possible inclusion of debris was coordinated with the proper state and federal agencies. Subsequent to this, the ODMDS site management/monitoring plans were written to include a debris management section. All subsequent site management/monitoring plans address debris management.

In **1998**, due to concerns of potential worsening of the wave environment due to mound-induced wave amplification, a limited modeling effort was conducted. Using the MDFATE model, simulated accumulation of “useable” disposal areas was modeled then subsequently compared to observed dredged material accumulation. A series of 5 plots were produced during the dredging season showing predicted and actual accumulation during the dredging season.

In **2001**, a site evaluation study was completed as part of the site selection process for new ODMDS selection.

A fall **2001** benthic infaunal survey was contracted, but due to the lateness in the season, it was not realized prior to the onset of rough winter weather. This sampling was conducted in the spring and fall of **2002**. The resulting report compared sampling events for **1999, 2000, and 2002 (June and September)**. Conclusions noted the variability throughout the sampling events appeared consistent with other areas of the Oregon Coast and did not necessarily indicate a man made impact on the study area.

In **2008**, the EPA's research vessel OSV Bold visited various ODMDs in the Pacific Northwest. At Yaquina Bay ODMDs sidescan, benthic infauna, fish trawls, and physical/chemical studies were conducted.

### **Management/Monitoring Actions and Recommendations**

Beginning in **1992**, the Corps was formally notified of requirements for annual bathymetric surveys of all ODMDs as a Tier I monitoring requirement. Bathymetric monitoring of the **1977** Interim and Section 103 sites was conducted through **2005** with continued attention with respect to mounding. Continued bathymetric surveys of the North Site and close management of dredged material placement is essential.

The Corps, under its Section 103 authority, expanded the **1986** Section 103 site in **1998**. The Section 103 site at Yaquina was extended south and included the outer three-fourths of the area of the **1977** Interim Site. No material had been placed in this area since **1985** due to mounding of dredged material. Placement of material in **1999** was restricted to the new Section 103 area and the material was evenly dispersed in the site. Material placement was managed to avoid unacceptable impacts to the wave climate (<10% increase). In **2000** the dredging volume was reduced to ~76,800 CY (average annual volume is ~313,000 CY) late in the dredging season (**October 1-9**). *Since 2001, these areas were no longer available for the disposal of dredged material.*

To avoid misplacements of material, such as occurred at the new North Site in **August 2001**, it is recommended that coordinated conversion calculations be double-checked in the field and back in the Corps office. Further, sufficient training of crew on both dredging shifts in conversion software is a must. Beginning and ending coordinated for all disposal activities need to be recorded in electronic form and provided to the Corps' Waterways Maintenance Office. This information is part of the site management/monitoring effort and will be incorporated into this report and coordinated with EPA when requested.

Between **2001** and **2009**, placement of material in the gridded northern portion of the Yaquina Bay North Section 103 disposal site was recommended. In **2010**, material was first placed in the southern half as well as the northern section. In **2011**, the bulk of the material went into the southern portion of the North Site. Material placement should continue in a dispersive manner as presently practiced.

The authority to use the North Site under Section 103 ceased at the end of the **2011** dredging season. Pending EPA Section 102 Final site designation of the Yaquina Bay North and South Sites, the only site available for the placement of dredged material at Yaquina Bay in **2012** was the South Site. Previously no material had been placed in the South Site; therefore it was available for use under the Corps' Section 103 authority. Approximately 344,000 CY of material was placed at the South Site in **2012**. In **2013** and **2014**, the majority of dredged material was placed at the South Site, resulting in a 1-3 foot increase of sediment across most of the site between **2010** and **2015**.

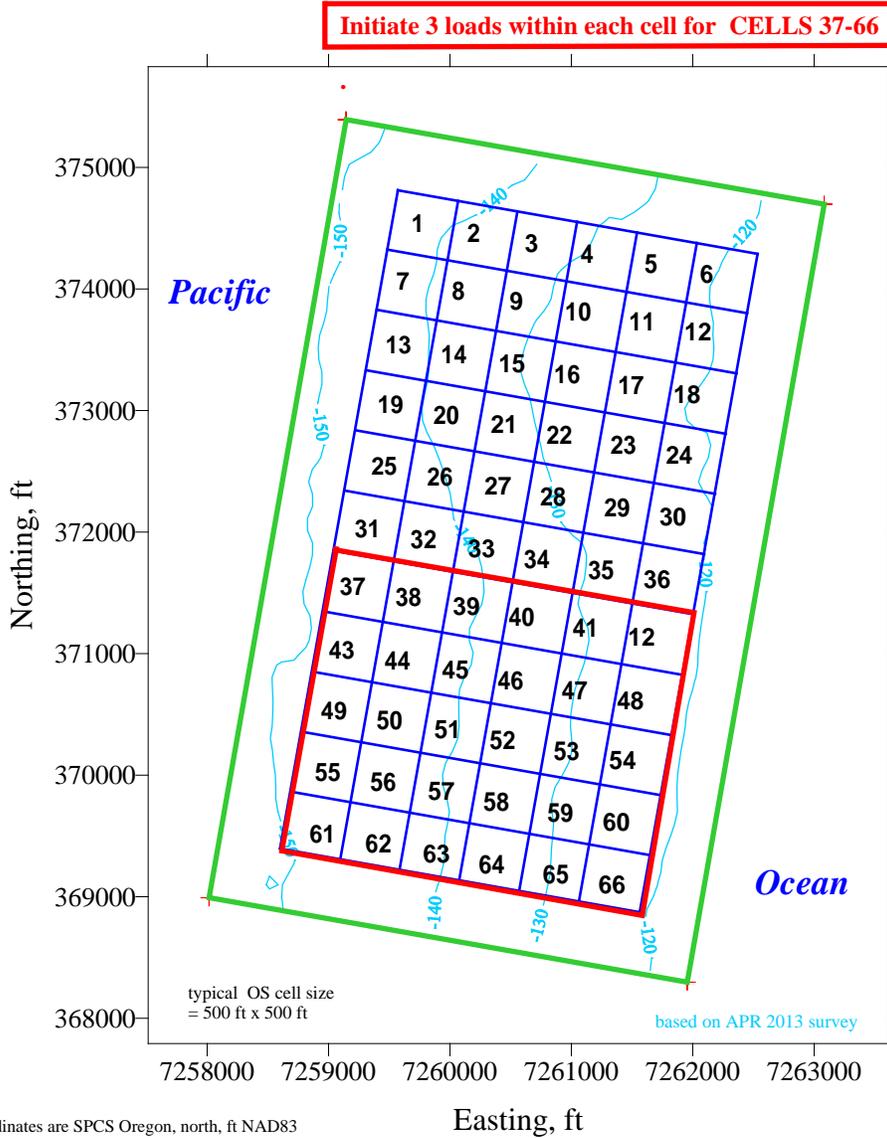
Since **2012**, dump plans have been developed throughout the dredging season for the

Yaquina North and South Sites. In **2013**, three dump plans were developed for the North Site and two for the South Site. The south side of the North Site and the South Site were used in 2013. A third dump plan was developed for the North Site in October 2013, when weather and swells precluded further use of the South Site. In **2014**, individual ODMDS dump plans (Figures 4 (North #1), 5 (South #1), 6 (South #3), 7 (South #4)) were developed for use by the dredge *Yaquina*, the contract clamshell *WJ Marston*, and for the Port of Newport's dredging of the International Terminal.

**Yaquina North ODMDS  
Dump Plan #1  
for 2014**

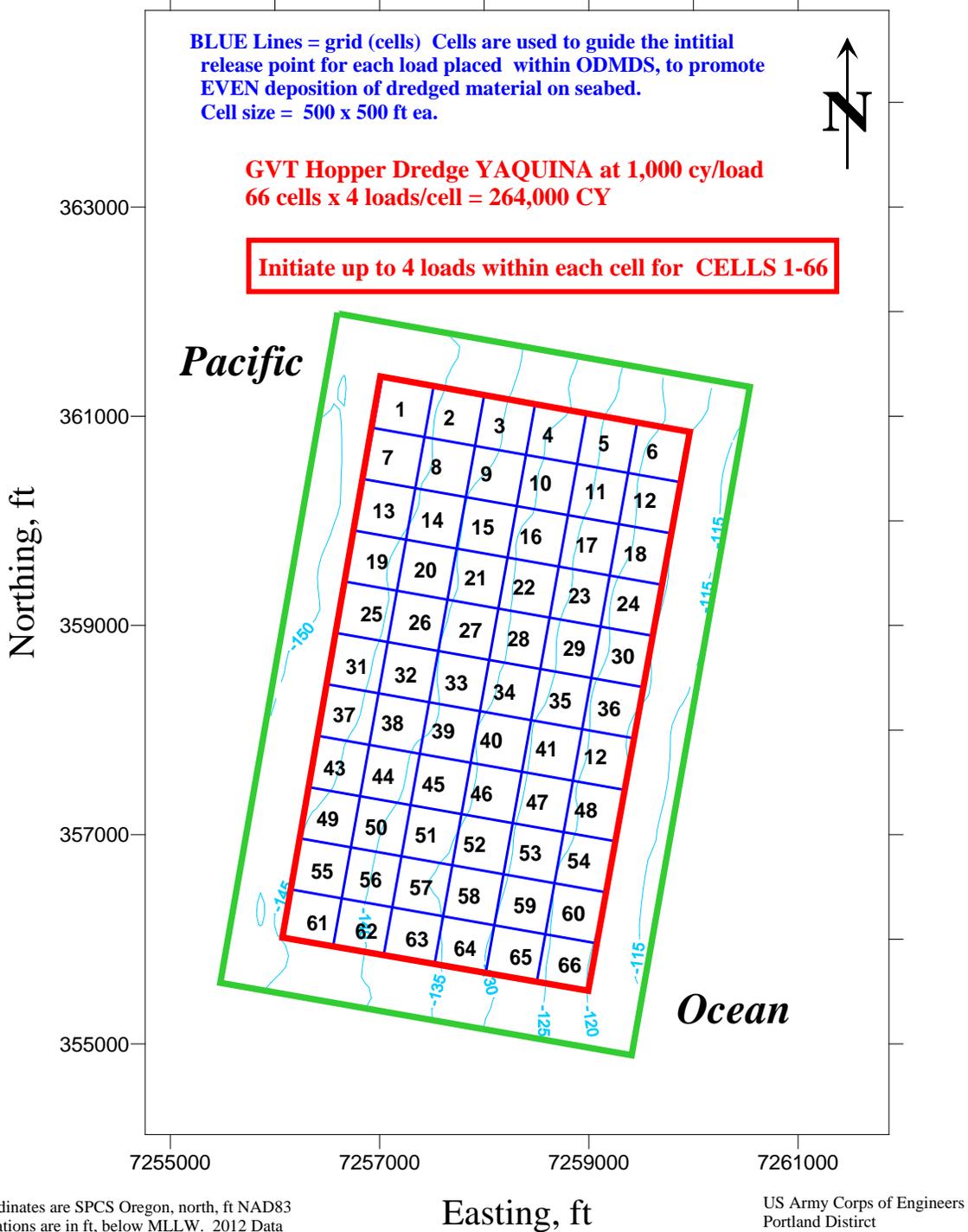
**GVT Hopper Dredge YAQUINA at 1,000 cy/load  
30 cells x 3 loads/cell = 90,000 CY**

**BLUE Lines = grid (cells)  
Cells are used to guide the initial  
release point for each load placed  
within ODMDS, to promote EVEN  
deposition of dredged material  
on seabed. Cell size = 500 x 500 ft ea.**



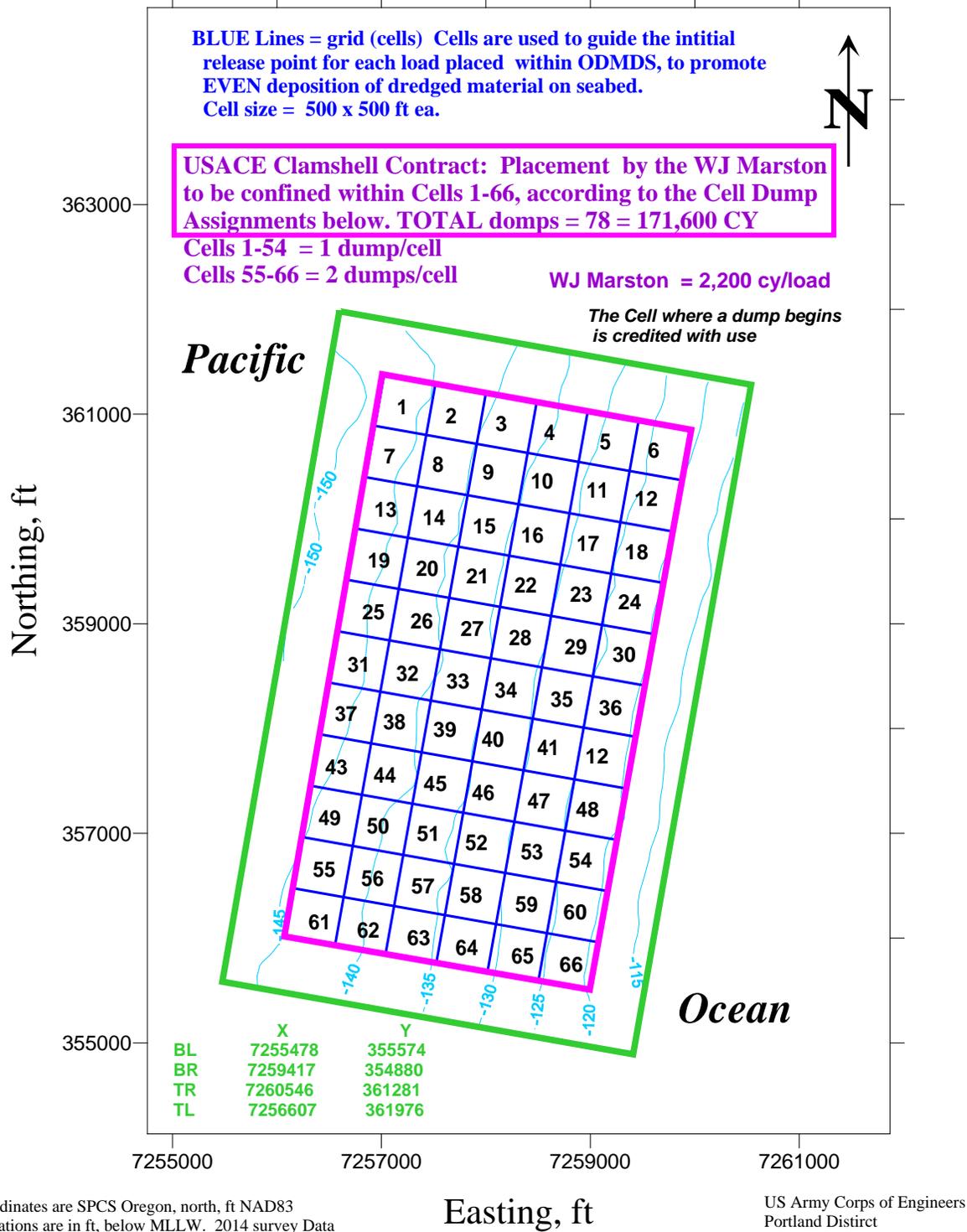
**Figure 4. Yaquina North ODMDS, 2014 Dump Plan 1 for the Yaquina.**

# Yaquina South ODMDS Dump Plan #1 for 2014



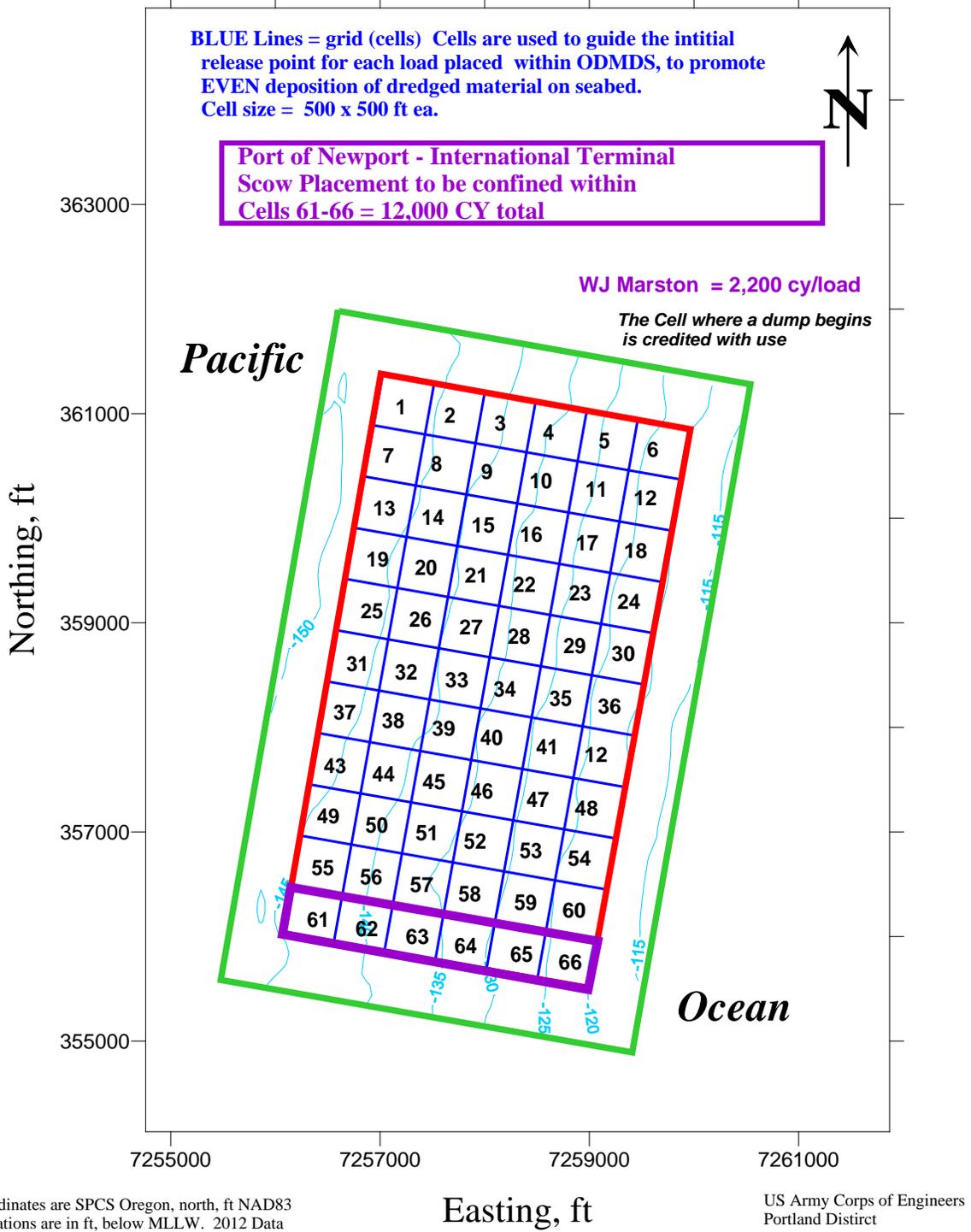
**Figure 5. Yaquina South ODMDS, 2014 Dump Plan 1 for the Yaquina.**

## Yaquina South ODMDS Dump Plan #3 for 2014



**Figure 6. Yaquina South ODMDS, 2014 Dump Plan 3 for the WJ Marston.**

# Yaquina South ODMDS Dump Plan #4 for 2014



**Figure 76. Yaquina South ODMDS, 2014 Dump Plan 4 for the Port of Newport International Terminal.**

**Table 1**  
Volumes Dredged and Disposes at the ODMDSs

Yaquina Bay and Harbor, Total Project  
[in thousands of CY]

<u>Fiscal Year</u>	<u>Quantity (Site)</u>
1986	237.3
1987	543.0
1988	324.6
1989	383.8
1990	216.7
1991	425.7
1992	213.0
1993	358.4
1994	207.0
1995	456.3
1996	286.8
1997	313.5
1998	185.4
1999	238.9
2000	104.7
2001	152.6 (N)
2002	167.6 (N)
2003	273.3 (N)
2004	271.9 (N)
2005	156.6 (N)
2006	275.8 (N)
2007	192.4 (N)
2008	171.2 (N)
2009	221.7 (N)*
2010	205.4 (N)**
2011	214.6 (N)
2012	344.8 (S)
2013	102.9 (N) and 192.0 (S)
2014	97.6 (N) and 310.1*** (S)

\*142.5 CY from Yaquina Bay and Harbor Project and 79.2 CY from Depot Slough

\*\*183.4 CY from Yaquina Bay and Harbor Project and 21.9 CY from Depot Slough

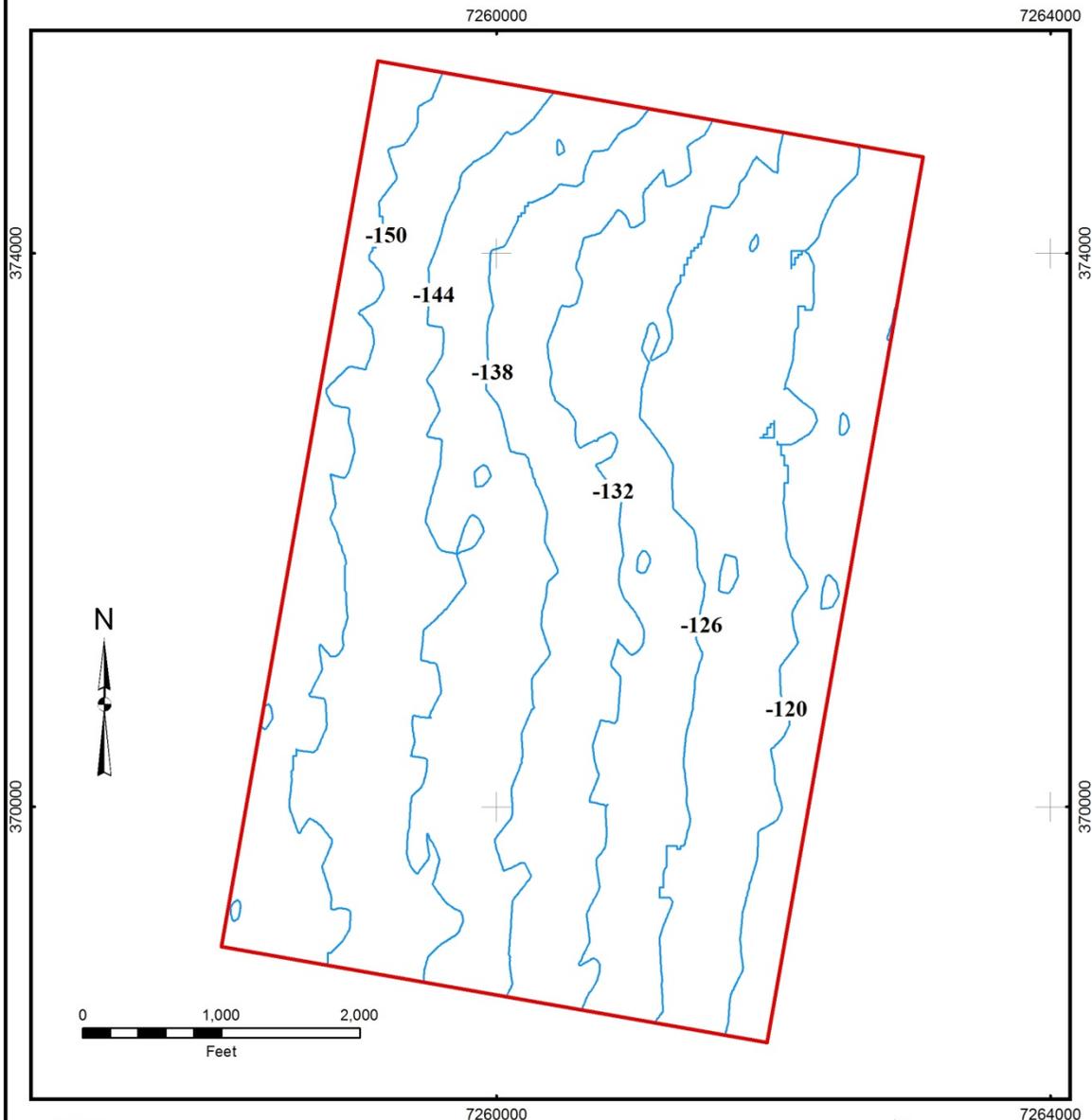
\*\*\* 299.6 CY from Yaquina Bay and Harbor Project and 10.5 CY from Port of Newport

## **North Site**

# OFFSHORE DREDGED MATERIAL DISPOSAL Yaquina North Disposal Site

Survey Date: 16 June 2015

6' Contours



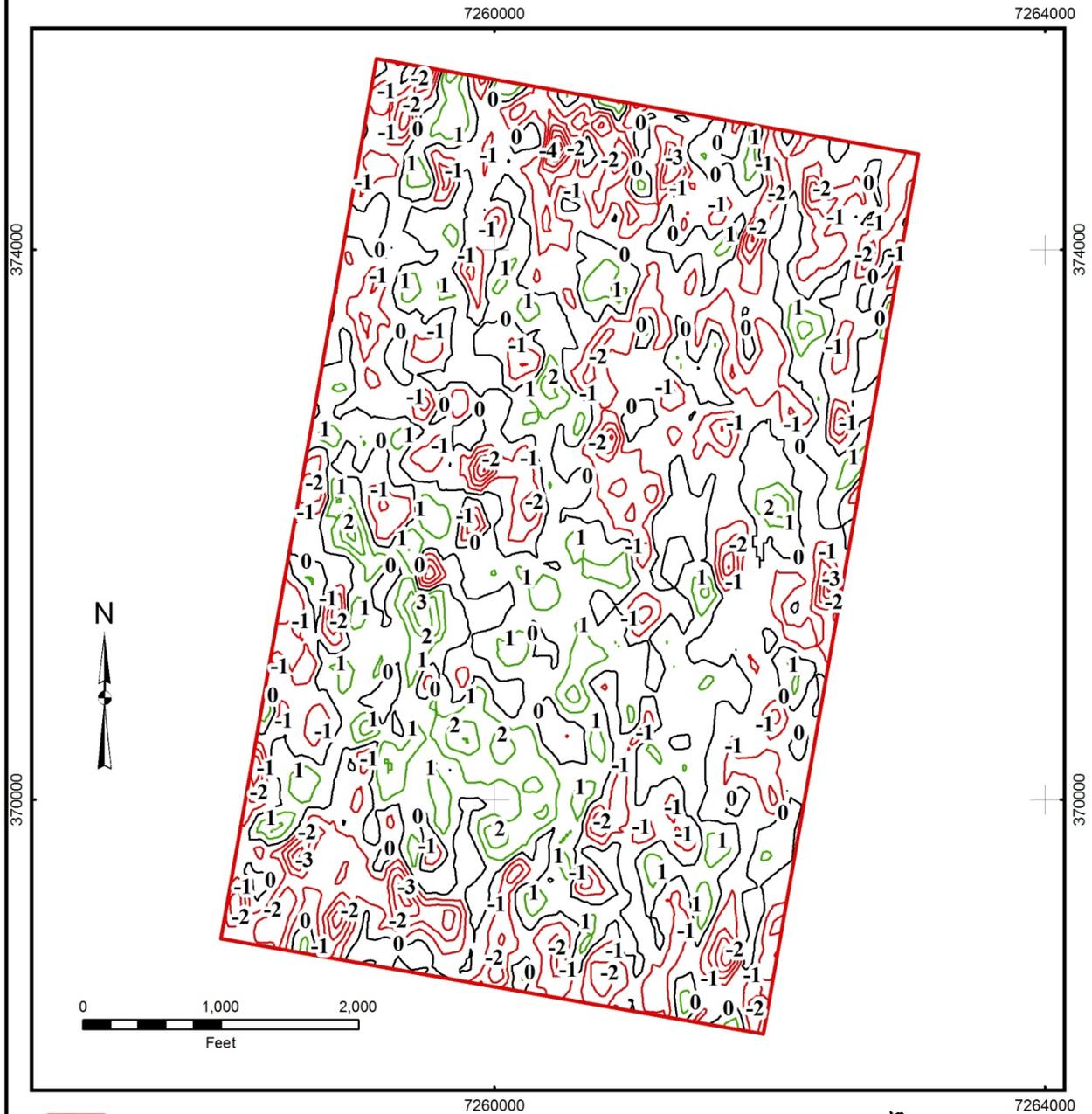
**US Army Corps  
of Engineers®**  
Portland District

Horizontal Coordinate System:  
NAD83, State Plane Oregon North, U.S. Survey Feet  
Vertical Datum: NAVD88  
Mean Lower Low Water (MLLW)

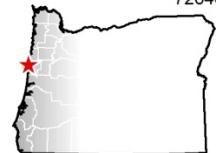


# OFFSHORE DREDGED MATERIAL DISPOSAL Yaquina North Disposal Site

Survey Date: 13 April 2013 & 16 June 2015  
1 Foot Contours of Difference from 2013 to 2015

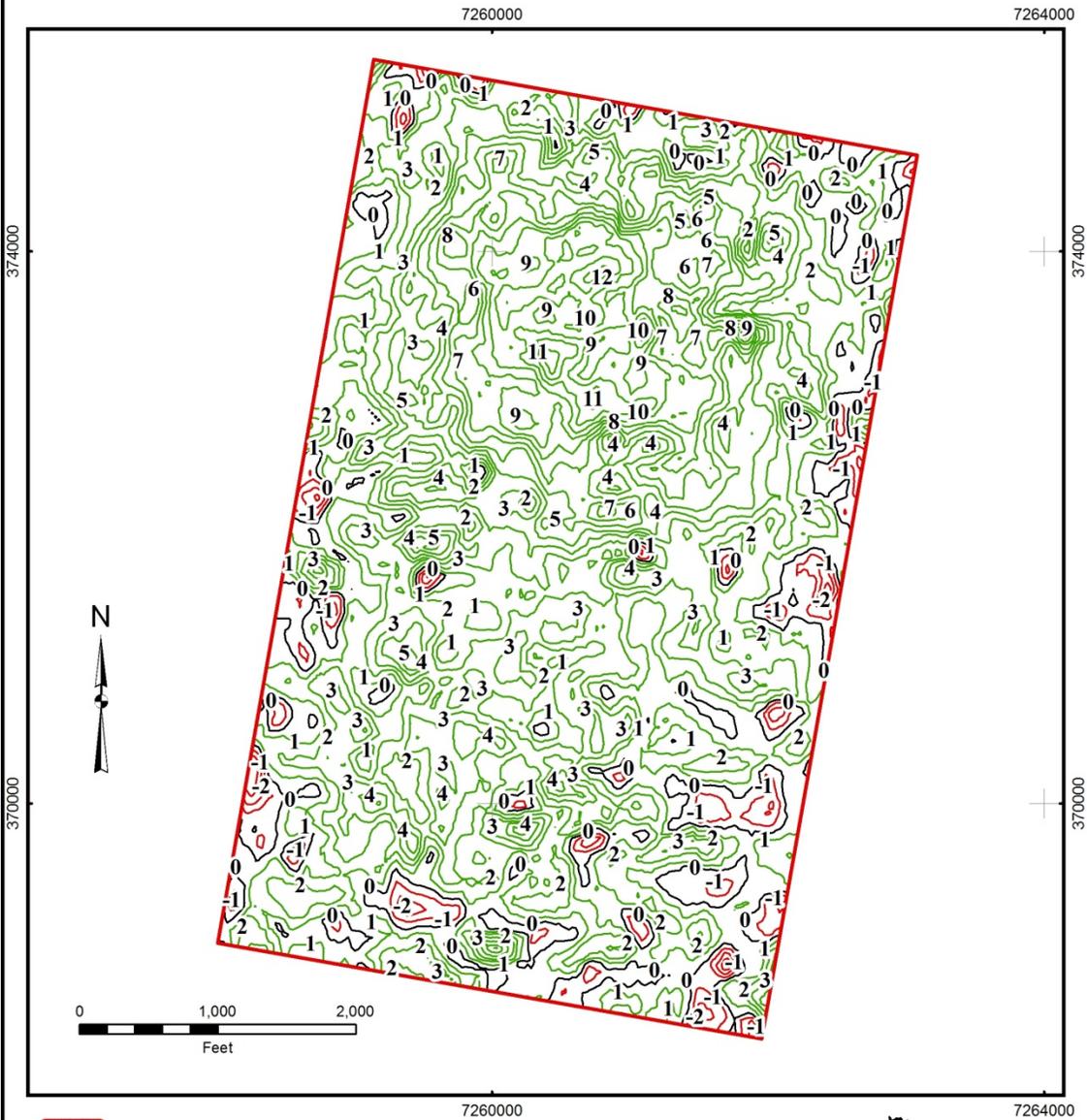


Horizontal Coordinate System:  
NAD83, State Plane Oregon North, U.S. Survey Feet  
Vertical Datum: NAVD88  
Mean Lower Low Water (MLLW)

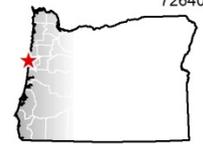


# OFFSHORE DREDGED MATERIAL DISPOSAL Yaquina North Disposal Site

Survey Date: 12 February 2001 & 16 June 2015  
1 Foot Contours of Change in Bathymetry from 2001 to 2015

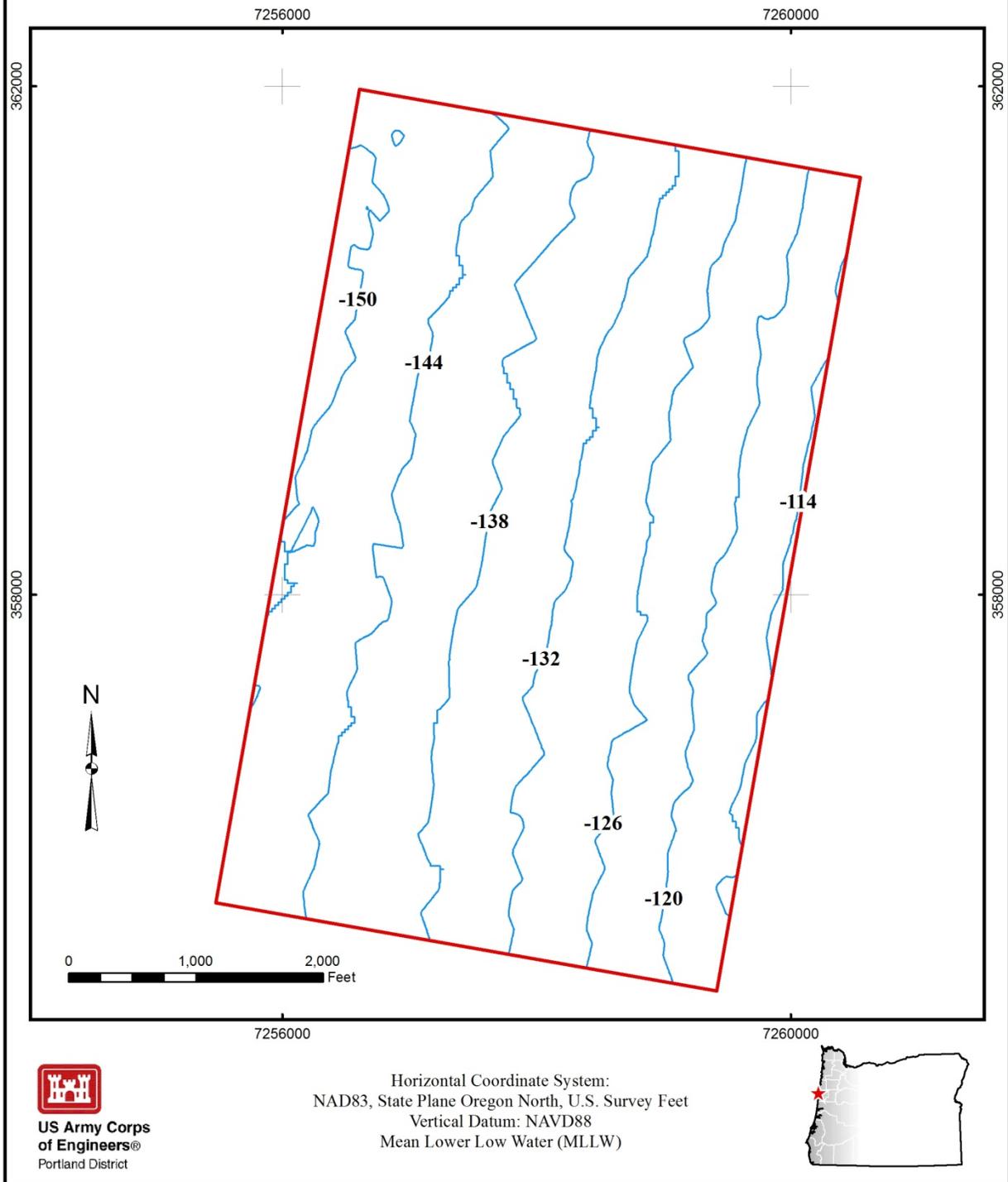


Horizontal Coordinate System:  
NAD83, State Plane Oregon North, U.S. Survey Feet  
Vertical Datum: NAVD88  
Mean Lower Low Water (MLLW)



## **South Site**

**OFFSHORE DREDGED MATERIAL DISPOSAL  
Yaquina South Disposal Site  
Survey Date: 22 June 2015  
6 Foot Contours**



**OFFSHORE DREDGED MATERIAL DISPOSAL  
Yaquina South Disposal Site  
Survey Date: 13 April 2013 & 22 June 2015  
1 Foot Contours of Difference from 2013 to 2015**



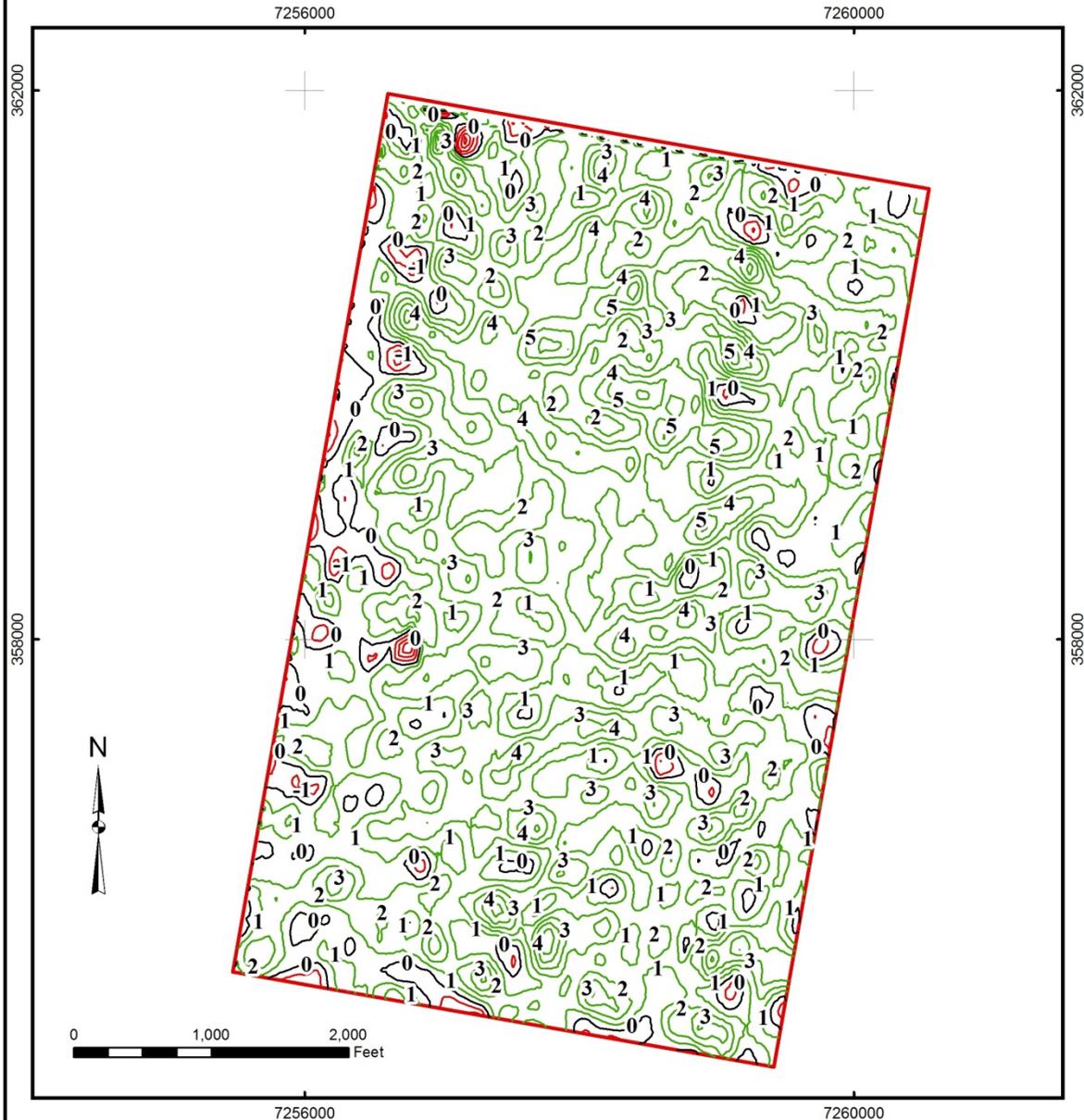
Horizontal Coordinate System:  
NAD83, State Plane Oregon North, U.S. Survey Feet  
Vertical Datum: NAVD88  
Mean Lower Low Water (MLLW)



# OFFSHORE DREDGED MATERIAL DISPOSAL Yaquina South Disposal Site

Survey Date: 11 April 2010 & 22 June 2015

## 1' Contours of Change in Bathymetry from 2010 to 2015



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Horizontal Coordinate System:  
NAD83, State Plane Oregon North, U.S. Survey Feet  
Vertical Datum: NAVD88  
Mean Lower Low Water (MLLW)

