



Technical Memorandum

To: Mark Pugh, RG
Oregon Department of Environmental Quality Date: October 9, 2024

From: Meaghan Pollock, RG Project No.: M0785.29.001

Re: Former Astoria Marine Construction Company–Visual Monitoring and Bathymetric Survey

Introduction

Maul Foster & Alongi, Inc. (MFA) prepared this memorandum for the former Astoria Marine Construction Company (AMCCO) sediment site in Astoria, Oregon (the Site; Figure 1). The Site is listed in the Oregon Department of Environmental Quality's (DEQ) Cleanup Site ID 1898. This memorandum was prepared for DEQ under Task 5 of Task Order Amendment No. 067-23-13.

The purpose of this memorandum is to describe results of the visual monitoring and bathymetric survey conducted on the Site in August 2024. This work was conducted to help establish baseline conditions for the Enhanced Monitored Natural Recovery (EMNR) sand layer and monitored natural recovery (MNR) areas and will inform future chemical monitoring. A report detailing the chemical monitoring will be prepared in spring of 2025, following sampling.

Background

The approximately seven acre upland property is located at 92134 Front Road, Astoria, Oregon. The property is just outside the eastern boundary of Warrenton and three miles southwest of Astoria, Oregon, at township 8 north, range 10 west, southeast quarter of section 25, Clatsop County (Figure 1). The sediment Site is located in the Lewis and Clark River and Jeffers Slough.

The Property was historically used by AMCCO to manufacture and repair wooden-hulled boats. These historical activities resulted in contamination of sediments adjacent to the Site, with the primary contaminants of concern identified as metals, dioxin/furans, polychlorinated biphenyls, and tributyltin.

A remedial action was implemented on the Site between July and September 2020. In-water work included nearshore dredging and installation of the EMNR sand layer. Per the U.S. Environmental Protection Agency (EPA) deferral agreement, DEQ is responsible for operation, maintenance, and monitoring for the in-water remedy. This work was conducted to comply with the EPA deferral agreement.

Site Activities

MFA notified DEQ of the planned work schedule on August 1, 2024, and DEQ verified site access with the AMCCO owner on August 7, 2024. Site activities were conducted between August 20 and 22, 2024.

The activities performed included visual monitoring and a bathymetric survey. Site conditions encountered included tall/dense vegetation, soft sediment, and unsafe wooden structures, which restricted access to portions of the Site for visual monitoring and the bathymetric survey. Excluding access limitations, these activities were performed in general accordance with the Performance Monitoring, Review & Contingency Plan.¹ A photograph log is included as Appendix A, a visual monitoring form is included as Appendix B, and the bathymetric survey results are included as Appendix C.

Visual Observation

On August 20, 2024, MFA conducted visual monitoring of accessible portions of the EMNR sand layer and MNR area (see Figure 2; Appendices A and B). MFA was unable to access photograph locations 2, 5, or 7 due to soft sediment that resulted in unsafe walking conditions even using Mudder Boots. The remaining photograph locations were adjusted based on conditions encountered in the field. An additional photograph location (location 10) was added to the visual monitoring program to provide coverage of the southern portion of the EMNR sand layer.

The following observations were noted:

- Visible sand appeared generally smooth. Rounded dimples associated with mollusk activity were observed in the intertidal zone.
- Vegetation on the EMNR sand layer was healthy and dense.
- No areas of significant sediment deposition were observed on the EMNR sand layer.
- Minor drainage channels were observed on the EMNR sand layer, consistent with those previously observed. No areas of significant sediment loss were noted.
- No significant debris were observed on the EMNR sand layer or sediment surface.
- No other visible indicators of potential contamination were observed (e.g., sheen or staining) on surface sediment.

Bathymetric Survey Monitoring

Between August 20 and 22, 2024, eTrac Inc., a surveyor licensed in the State of Oregon, conducted a survey of accessible portions of the EMNR sand layer and MNR area. MFA conducted oversight during the survey which included a multibeam bathymetric survey and land-based topographic surveying of areas inaccessible by water. The survey results are provided in Figure 3 and Appendix C.

The survey could not be conducted on a portion of the EMNR sand layer and MNR area due to dense vegetation. Minor drainage channels are noted across the EMNR sand layer and MNR area, consistent with visual monitoring observations. No areas of significant sediment disturbance were identified during the survey.

¹ MFA. 2024. *Performance Monitoring, Review & Contingency Plan, Former Astoria Marine Construction Company*. Maul Foster & Alongi, Inc. Portland, Oregon. June 14.

Recommendations

Upon completion of the visual monitoring and bathymetric survey in August of 2024, MFA recommended to DEQ that chemical monitoring field work be shifted to spring of 2025. MFA will also conduct visual monitoring of all accessible locations at this time. It is assumed that vegetation will be dormant at this time and allow for better access across the EMNR sand layer and MNR area for the collection of sediment samples. DEQ concurred with this recommendation on August 26, 2024.

MFA recommends that all future monitoring and surveys be conducted in the early spring. This will include visual and chemical monitoring in spring of 2025 with the next bathymetric survey in spring of 2026.

Conclusions

This memorandum was prepared to summarize the Year 1 visual monitoring and bathymetric survey results. The chemical monitoring will be conducted in late winter/early spring of 2025 and a report will be prepared within 6 weeks of receipt of data and completion of data validation, consistent with the Performance Monitoring, Review & Contingency Plan.²

² MFA. 2024. *Performance Monitoring, Review & Contingency Plan, Former Astoria Marine Construction Company*. Maul Foster & Alongi, Inc. Portland, Oregon. June 14.

Attachments

Limitations

Figures

A—Photograph Log

B—Visual Observation Form

C—Bathymetric Survey

Limitations

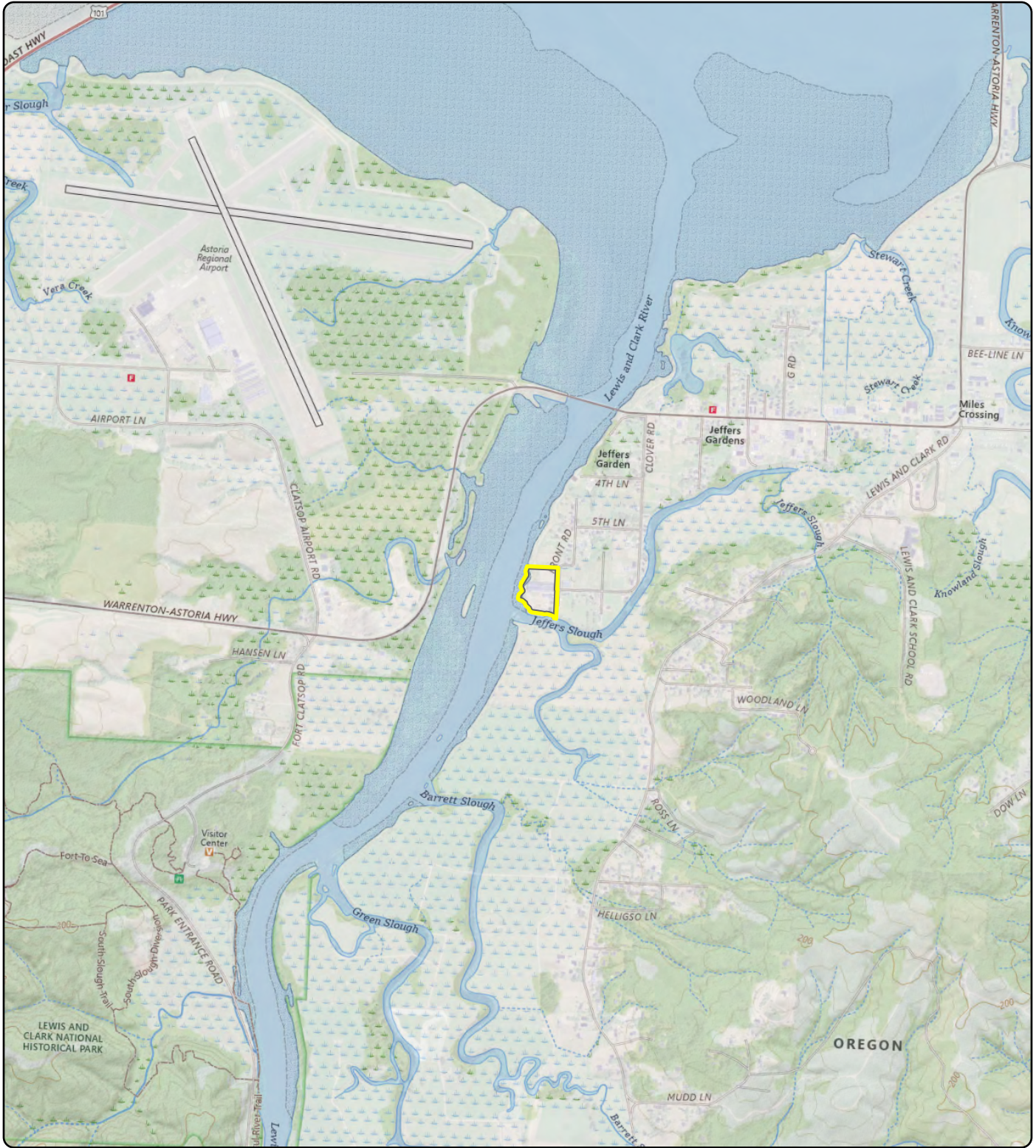
The services undertaken in completing this technical memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, express or implied, is made. These services were performed consistent with our agreement with our client. This technical memorandum is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk.

Opinions and recommendations contained in this technical memorandum apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices, or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this technical memorandum.

Figures



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Notes
 U.S. Geological Survey 7.5-minute topographic quadrangle (2020): Astoria.
 Township 8 north, range 10 west, section 36.

Data Source
 Site boundary obtained from Clatsop County parcel dataset.




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Legend

 Site

Figure 1
Site Location
 Former Astoria Marine Construction Company
 92134 Front Road
 Astoria, OR

0 2,000
 Feet




Path: X:\0_MFA_Projects\MOT85\29\001\Pro\MOT85_29_001_005.aprx\Fig.2 Photograph Locations for Visual Monitoring
Project: MOT85-29-001 Produced By: sturner Reviewed By: smabrey Print Date: 9/25/2024



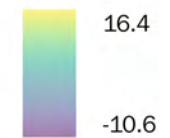
Figure 2 Photograph Locations for Visual Monitoring

Former Astoria Marine
Construction Company
92134 Front Road
Astoria, OR

Legend

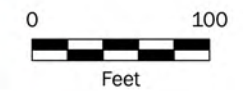
-  Photograph Location
-  Inaccessible Photograph Location
-  Photograph Direction
-  Outfall
-  Monitored Natural Recovery Area
-  EMNR Sand Layer

Bathymetric Elevation (Feet NAVD 88)



Notes

Area of EMNR sand fill is approximately 63,602 square feet (1.5 acres).
Area of monitored natural recovery area is approximately 351,118 square feet (8.1 acres).
EMNR = Enhanced Monitored Natural Recovery Area.
NAVD 88 = North American Vertical Datum of 1988.



Data Sources

Aerial photograph (2024) obtained from Google Earth;
bathymetric data (2024) obtained from eTrac.

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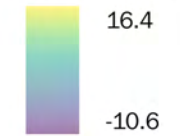
**Figure 3
Bathymetric Survey**

Former Astoria Marine
Construction Company
92134 Front Road
Astoria, OR

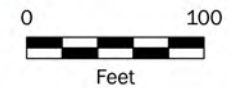
Legend

-  Outfall
-  Monitored Natural Recovery Area
-  EMNR Sand Layer

Bathymetric Elevation (Feet NAVD 88)



Notes
 Area of EMNR sand fill is approximately 63,602 square feet (1.5 acres).
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Attachment A

Photograph Log



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Photographs

Project Name: AMCCO Year 1 Visual Monitoring
Project Number: M0785.29.001
Location: 92134 Front Road, Astoria, OR 97103

Photo No. 1.

Description

Photograph location 1,
facing north.



Photo No. 2.

Description

Photograph location 1,
facing west.





Photographs

Project Name: AMCCO Year 1 Visual Monitoring

Project Number: M0785.29.001

Location: 92134 Front Road, Astoria, OR 97103

Photo No. 3.

Description

Photograph location 3,
facing west.



Photo No. 4.

Description

Photograph location 3,
facing north.





Photographs

Project Name: AMCCO Year 1 Visual Monitoring

Project Number: M0785.29.001

Location: 92134 Front Road, Astoria, OR 97103

Photo No. 5.

Description

Photograph location 4,
facing west.



Photo No. 6.

Description

Photograph location 6,
facing northwest.





Photographs

Project Name: AMCCO Year 1 Visual Monitoring

Project Number: M0785.29.001

Location: 92134 Front Road, Astoria, OR 97103

Photo No. 7.

Description

Photograph location 6,
facing southwest.



Photo No. 8.

Description

Photograph location 8,
facing northwest.





Photographs

Project Name: AMCCO Year 1 Visual Monitoring

Project Number: M0785.29.001

Location: 92134 Front Road, Astoria, OR 97103

Photo No. 9.

Description

Photograph location 9,
facing south-southwest.



Photo No. 10.

Description

Photograph location 10,
facing west-southwest.



Attachment B

Visual Observation Form



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Former Astoria Marine Construction Company Site



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EMNR Sand Layer Visual Monitoring Form

Date: 8/20/2024

Weather: Overcast/partly sunny

Monitoring Event: Visual monitoring and bathymetric survey

Personnel: Gina Baragona

Note: Record the photograph location number (corresponding with Figure 3-1 of the PMR&C Plan) associated with each observation.

Monitoring Components		Observation Result
Shoreline Conditions	Is there any sign of sloughing, cracking, or significant erosion?	None observed.
Vegetative Cover	Are there areas of inconsistent vegetative cover or stressed or dead vegetation?	None observed. Vegetation is dense and appears healthy.
Sand Layer Material	Is there any apparent significant loss of sand layer material?	None observed.
Deposited Material or Debris	Are there any areas with significant debris on the sand or sediment surface as a potential source of recontamination? Any staining or sheen? Any evidence of significant sediment deposition?	No debris, staining, or sheen were observed.
Other	Are there any significant abnormalities or physical changes identified during visual monitoring?	Large portions of the EMNR sand layer are covered with dense vegetation.

Comments:

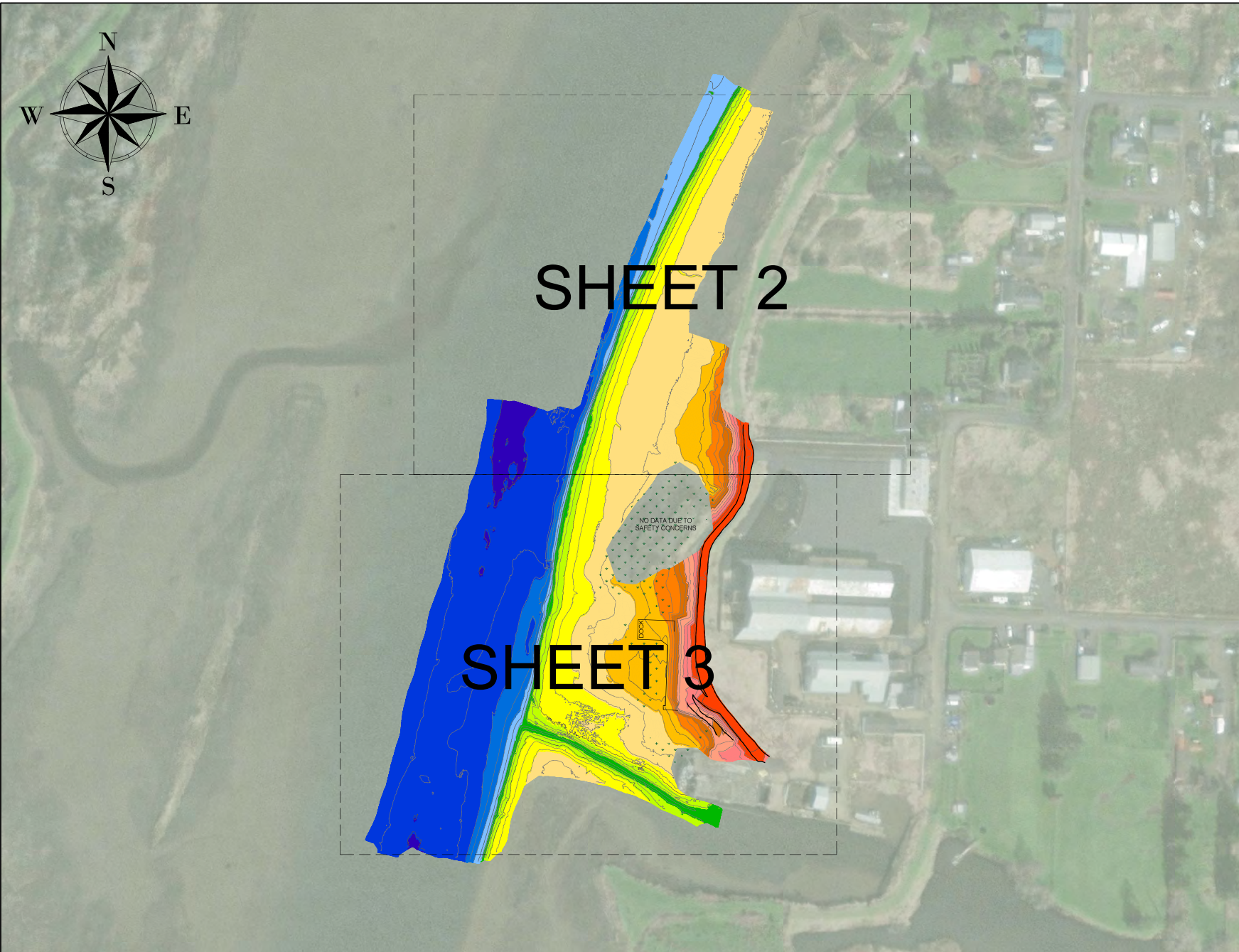
Portions of the EMNR sand layer were covered with dense vegetation and inaccessible. MFA could not access monitoring points 2, 5, or 7 due to soft sediment conditions. An additional monitoring location (10) was added to provide coverage of the southern portion of the EMNR sand layer.

Attachment C

Bathymetric Survey



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SHEET 2

SHEET 3

NO DATA DUE TO SAFETY CONCERNS

M.F.A. LEWIS AND CLARK RIVER
TOPOGRAPHIC AND BATHYMETRIC
SURVEY

CONDITIONAL SURVEY

GENERAL NOTES:

1. BATHYMETRY DATA COLLECTED BY ETRAC ON 20 AUG. 2024.
2. HORIZONTAL DATUM PROJECTION: NAD83 (2011) EPOCH 2010.00, STATE PLANE COORDINATE SYSTEM, OREGON ZONE NORTH IN INTERNATIONAL FEET.
3. VERTICAL DATUM: NAVD88 USING GEOID (12B).
4. POSITION AND MOTION DATA WERE COLLECTED USING AN APPLIX POSNAV WAVEMASTER VS.
5. SOUNDINGS WERE COLLECTED USING AN R2SONIC 2020 MULTIBEAM SONAR.
6. TOPO DATA COLLECTED BY ETRAC ON 20 AUG. 2024.
7. THIS DRAWING INDICATES GENERAL CONDITIONS AT THE TIME OF THE SURVEY.
8. SOUNDINGS ARE IN INTERNATIONAL FEET AND ARE MINUS UNLESS OTHERWISE NOTED.

VEGETATION: [Symbol]

SHEET INDEX:

- SHEET 1 - OVERVIEW
- SHEET 2 - CONTOURS & SOUNDINGS
- SHEET 3 - CONTOURS & SOUNDINGS
- SHEET 4 - MULTIBEAM BACKSCATTER

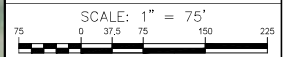
ELEVATION COLOR LEGEND

MIN. ELEV.	MAX. ELEV.	COLOR
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-10.0	-8.0	Blue
-8.0	-6.0	Light Blue
-6.0	-4.0	Light Green
-4.0	-2.0	Green
-2.0	0.0	Yellow-Green
0.0	2.0	Yellow
2.0	4.0	Light Orange
4.0	6.0	Orange
6.0	8.0	Dark Orange
8.0	10.0	Red-Orange
10.0	12.0	Red
12.0	14.0	Dark Red
14.0	16.4	Dark Red

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OVERVIEW
SURVEY DATE: 20 AUGUST, 2024
SHEET 1 OF 4



M.F.A. LEWIS AND CLARK RIVER
TOPOGRAPHIC AND BATHYMETRIC
SURVEY

CONDITIONAL SURVEY

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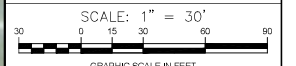
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CONTOURS AND SOUNDINGS
SURVEY DATE: 20 AUGUST, 2024
SHEET 2 OF 4



**M.F.A. LEWIS AND CLARK RIVER
TOPOGRAPHIC AND BATHYMETRIC
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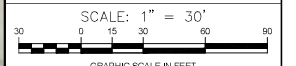
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CONTOURS AND SOUNDINGS
SURVEY DATE: 20 AUGUST, 2024
SHEET 3 OF 4

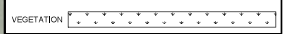


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TOPOGRAPHIC AND BATHYMETRIC
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CONDITIONAL SURVEY

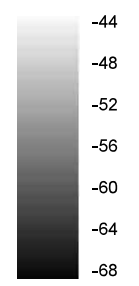
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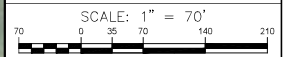
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