Memorandum for Record **March 18, 2025**

Subject: Antidegradation Evaluation for Dagmars Marina, Everett, Washington (NWS-2024-610)

Introduction

This memorandum documents the results of sediment characterization conducted for the Dredged Material Management Program (DMMP) agencies (U.S. Army Corps of Engineers, Washington Departments of Ecology and Natural Resources, and the U.S. Environmental Protection Agency) to assess post-dredge conditions at Dagmar's Marina and determine compliance with the State of Washington Anti-degradation standard.

Project Description

Dagmars Marina, located in Everett along the Snohomish River between river miles 1 and 2, encompasses a 37-acre site that functions as a dry storage facility for recreational boats. It features launch lanes and a dock that runs parallel to the river. The marina was last dredged in 2018, and since then, sedimentation has affected the launch ramp and dock areas (Figures 1 and 2). To restore functionality, Dagmars Marina plans to dredge these two locations. The ramp area consists of concrete lined launch lanes and a soft-bottomed section extending waterward. Dredging will be conducted along the slope of the concrete ramp to a maximum depth of -3 feet (ft) Mean Lower Low Water (MLLW) beyond the concrete and within the bounds of the dredge prism. The dock area will be dredged to -7 ft MLLW. Since the two areas are spatially separated each area was treated as its own dredged material management unit (DMMU). The cubic yards (cy) of dredged material from the ramp (1,845 cy) and the dock (1,201 cy) areas total 3,046 cy and will be stockpiled on marina property across the road from the river.

Since the dredged material will be deposited at an upland site, there is no requirement to assess its suitability for in-water placement according to DMMP guidelines. However, the sediment surface that will be exposed by dredging must comply with either the State of Washington Sediment Management Standards (SMS) or the State's Antidegradation Standard, as specified by Ecology (2013) and outlined in DMMP guidance (DMMP, 2021). This memorandum documents the antidegradation evaluation.

Site History

The marina and associated buildings were developed in the 1970s, and the current operations (boat dock storage, marine maintenance, and equipment sales) have been present since the 1980s. Prior to the 1980s, the site was used for agricultural and dairy operations.

A remedial investigation (RI) was conducted at Dagmars Marina by Apex Companies, LLC. in 2023 (Apex, 2023a). The RI identified historical releases at the site as contributing to contamination in the upland soil and groundwater that could potentially harm people and the environment. On June 7, 2024 the site entered in to an expedited voluntary cleanup process (eVCP) with the Washington Department of Ecology. Cleanup activities were still ongoing as of December 10, 2024.

A supplemental RI was also performed at the request of Ecology to determine if sediment cleanup may be required as part of the eVCP cleanup action plan (Apex, 2023b). Sediment core samples were collected by vibracore with a targeted depth of 10 ft below mudline and included the ramp and dock areas, as well as other areas around the site. The samples were then submitted for chemical analysis under SMS.

Analytical results included detections of nickel at concentrations of 19.4 to 26.0 mg/kg in the ramp area and 31.3 mg/kg in the dock area. Some values were at or exceeded the SMS freshwater sediment cleanup objective of 26.0 mg/kg. SMS and DMMP do not have established criteria for nickel in marine sediments. The RI indicated that the observed nickel concentrations were below the Puget Sound natural background value of 50 mg/kg. Total sulfides were elevated in some samples above SMS benchmarks; however, the RI determined that sulfides were present due to natural processes and did not represent a condition that requires remedial action. All other analytes measured in these areas were either not detected or detected at concentrations below the SMS criteria both freshwater and saltwater.

DMMP reviewed the RI and found the following aspects incomplete for the purpose of making a definitive finding related to the proposed leave surface under DMMP and SMS criteria:

- Missing analytes: Antimony, N-Nitrosodiphenylamine, Benzoic Acid, Pesticides, and Dioxins/Furans
- Measured analytes with detection limits greater than established screening levels: 2, 4 Dimethylphenol and Benzyl alcohol

Due to this finding, DMMP requested a full characterization of Z-layer samples collected from the dredge areas. Butyltins were not requested for analysis based on the results of the RI.

Sampling and Analysis Description

Sediment samples were collected by vibracore on December 17, 2024, aboard a sampling vessel provided by Gravity Consulting. Figures 1 and 2 show the sediment sampling locations. There were no significant deviations from the Sampling and Analysis Plan (NWEC, 2025).

Samples were submitted to Analytical Resources in Tukwila, Washington for analysis. Analyses were performed by Analytical Resources and AmTest Laboratories in Kirkland, Washington. Analytical results are summarized in Tables 1, 2, and 3.

Data Validation

A data quality assurance/quality control review was performed by Northwest Environmental Consulting, LLC on all chemistry data. Only minor issues were documented; no analytical results were rejected; and all data were considered usable.

Analytical Testing Results

Tables 1 and 3 summarize the analytical results for the two Z-layer alongside the DMMP marine guidelines (NWEC, 2025). Table 4 summarizes the analytical results alongside the State of Washington Sediment Management Standards for evaluation of antidegradation. This table (prepared by DMMP) included organic carbon normalizing of the data, when appropriate. Semi-volatile organic compounds were reported as both full scan and selected ion monitoring (SIM). Due to the higher sensitivity and lower detection limits provided by the SIM analyses, this data was used for comparison to the DMMP and SMS guidelines.

There were no detected or undetected exceedances of metals, PAHs, PCBs, pesticides, or phthalates. There were undetected exceedances of some semi-volatile chemicals of concern, as detailed below:

Undetected exceedances occur when an analyte is undetected, but the level at which the laboratory can reliably detect it is above the level of potential concern. The MDLs for undetected chemicals exceeded

SMS Sediment Cleanup Objective (SCO) criteria for 1,2,4-trichlorobenzene and hexachlorobenzene, in Z-layer sample 2-Z-121724. These non-detect exceedances were expressed as organic carbon normalized values of the SIM result. The total organic carbon (TOC) for this sample was 0.52%. Following SCUM guidance, sediment samples with TOC that is very high (>3.5%) or very low (<0.5%) may also be compared to the apparent effects threshold (AET) values without normalizing the data (as dry weight). Comparing to dry weight AETS for these compounds did not exceed the SCO for this sample (Table 5).

Dioxins/furans. D/F analyses were performed because they are chemicals of concern in portions of the Snohomish River and lacking site-specific historical data. The D/F concentrations found in the Z-layer samples were 1.1 and 0.65 ng/kg-TEQ (reported with non-detected concentrations included at ½ the reported value) were all below the 4 ng/kg-TEQ guideline.

TBT. Tributyltin analysis was not required by the DMMP for this project based on the site history and location of the project.

DMMP Determinations

Suitability Determination

The applicant has indicated that dredged material will be disposed of at an on-site upland location. This memo does make any determination of the suitability of the proposed dredged material for open water disposal or beneficial use.

Antidegradation Determination

The sediment to be exposed by dredging must either meet the State of Washington Sediment Management Standards (SMS) or the State's Antidegradation Standard (Ecology, 2013) as outlined by DMMP guidance (DMMP, 2008). All results were less than DMMP screening levels and SMS criteria, therefore the leave surface is in compliance with the State of Washington anti-degradation policy.

Project Summary

Waterbody	Snohomish River
Water classification	Marine[1]
Project rank	Moderate[2]
Proposed Dredging Volume (cy)	3,046
Target Proposed Dredging Depth(s)	Ramp: -3 ft MLLW; Dock: -7 ft MLLW
Disposal Location	Upland
Dredged Material Management Units (DMMUs): No. of stations	Two surface DMMUs: One sample collected for each DMMU[3]
Z-Samples	Two Z-layer samples (one from each DMMU)
EIM Study ID	DAGMAR24
USACE Regulatory Reference Number	NWS-2024-610
Sampling and Analysis Plan (SAP) Approval Date	December 12, 2024
Sampling Date(s)	December 17, 2024
Sediment Characterization Report Approval Date	March 18, 2025
Testing Parameters	DMMP standard marine COCs and dioxins/furans
Antidegradation Outcome	The leave surface meets sediment quality guidelines. No further action required.

[1] The freshwater zone in the Snohomish River is defined as beginning at RM 6.2 (DMMP, 2021).
[2] General ranking for existing marinas not identified individually under the User Manual (DMMP, 2021).
[3] Surface layer samples were archived, but not analyzed as part of this antidegradation evaluation.

References

Apex, 2023a. Remedial Investigation Report. Dagmars Marina. 1871 Ross Ave. Everett, WA. Prepared for: 1870 Ross Partners, LLC c/o Alterra Property Group, LLC. March 17, 2023.

Apex, 2023b. Supplemental Remedial Investigation Report. Dagmars Marina. 1871 Ross Ave. Everett, WA. Prepared for: 1870 Ross Partners, LLC c/o Alterra Property Group, LLC. November 1, 2023

DMMP, 2021. *Dredged Material Evaluation and Disposal Procedures (User Manual)*. Dredged Material Management Program, updated July 2021.

Ecology, 2013. *Sediment Management Standards – Chapter 173-204 WAC*. Washington State Department of Ecology, February 2013.

Ecology. 2021. Sediment Cleanup User's Manual (SCUM): Guidance for Implementing the Cleanup Provisions of the Sediment Management Standards, Chapter 173-204-WAC. December 2021.

NWEC, 2025. Dagmars Marina. Sediment Sampling Report. USACE Project No. NWS-2024-601. Prepared for Dagmars Investors, LLC. Prepared by Northwest Environmental Consulting, LLC. March 2025.

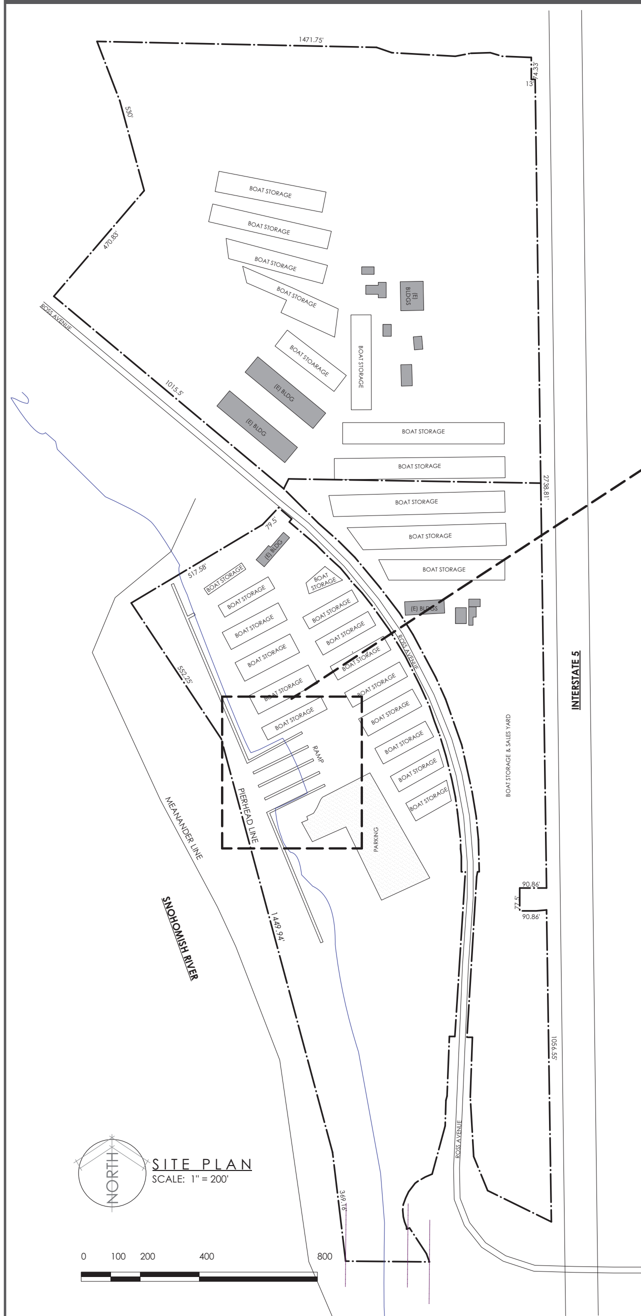
Agency Signatures

The signed copy is on file in the Dredged Material Management Office, Seattle District U.S. Army Corps of Engineers

_____	_____
Date	Brian Hester – U.S. Army Corps of Engineers, Seattle District
_____	_____
Date	Sarah Burgess – U.S. Environmental Protection Agency, Region 10
_____	_____
Date	Laura Inouye, PhD. – Washington State Department of Ecology
_____	_____
Date	Shannon Soto – Washington State Department of Natural Resources

Copies Furnished:
DMMP agencies
Ryan Cochoit, USACE Regulatory Project Manager
Kristin Noreen and Brad Thiele, Northwest Environmental Consulting, LLC
Charlie Bauman and Skip Slavin, Guntower Capital LLC
DMMO File

SITE PLAN



SITE PLAN
SCALE: 1" = 200'

AERIAL SITE DETAIL

SEDIMENT REMOVAL
AREA 16607.7 SF
VOLUME: 16607.7 x 3 FT DEPTH = 49823.10 CF
49823.10 CF/27 = 1845.30 CY

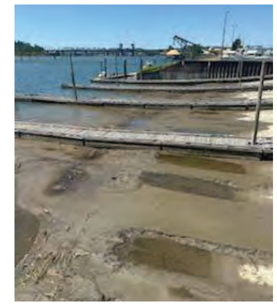
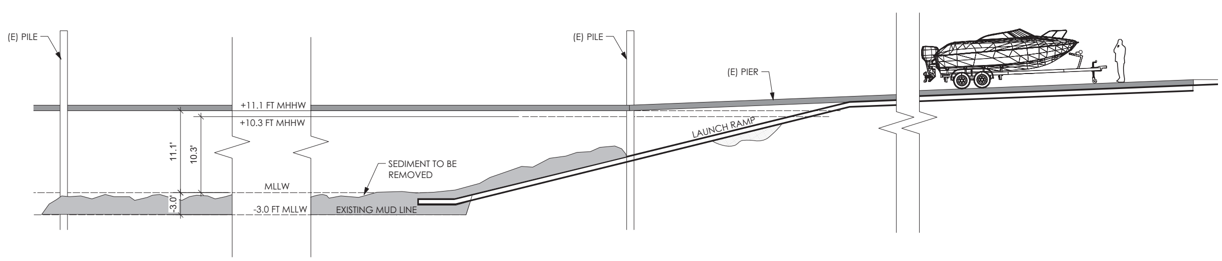


PHOTO TAKEN IN 2017. CURRENT CONDITIONS ARE SIMILAR.

SITE SECTION DETAIL



SITE SECTION DETAIL
SCALE: 1/8" = 1'-0"

ECCO
Architecture & Design

DAGMARS MARINA DREDGING PLAN

1871 ROSS AVE
EVERETT, WA 98201-8668

Architect
ECCO DESIGN INC
7413 GREENWOOD AVE N
SEATTLE, WA 98103

Consultant

REV.	DATE	DESCRIPTION

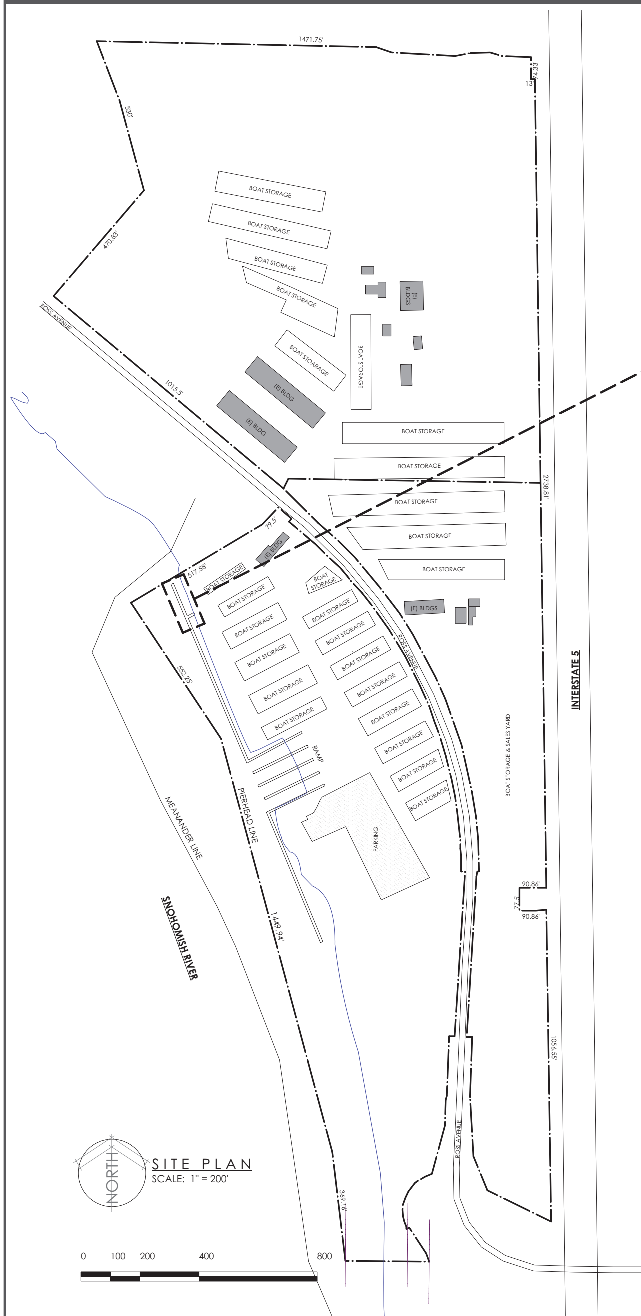
NO.	DATE	ISSUE NOTE

Project Manager	Drawn By
Date 2024.07.11	Reviewed By
Project ID S2430	

Sheet Title
LAUNCH LANES- SITE PLAN , AERIAL, SITE SECTION

Fig. 1

SITE PLAN



AERIAL SITE DETAIL

SEDIMENT REMOVAL
AREA 6657.4 SF
VOLUME 6657.4 SF x 4.87 FT = 32421.5 CF
32421.5 CF/27 = 1200.8 CY

VIEW 1

VIEW 2

VIEW 3

ECCO
Architecture & Design

DAGMARS MARINA DREDGING PLAN

1871 ROSS AVE
EVERETT, WA 98201-8668

Architect
ECCO DESIGN INC
7413 GREENWOOD AVE N
SEATTLE, WA 98103

Consultant

REV.	DATE	DESCRIPTION

NO.	DATE	ISSUE NOTE

Project Manager | Drawn By
Date 2024.07.11 | Reviewed By
Project ID S2430

Sheet Title
RIVERFRONT DOCK - SITE PLAN, AERIAL

Fig 2.

Table 1
Dagmar Sediment Analytical Results and DMMP Screening

				DMMP MARINE			1-Z-121724	2-Z-121724
Parameter	**CAS Number**		**Units**	**SL**	**BT**	**ML**	**Result**	**Result**
Antimony	7440-36-0		mg/Kg	150		200	0.22 U	0.19 U
Arsenic	7440-38-2		mg/Kg	57	507.1	700	**11.7**	**6.8**
Cadmium	7440-43-9		mg/Kg	5.1	11.3	14	**0.16**	**0.1** J
Chromium	7440-47-3		mg/Kg	260	260		**40.5**	**26.6**
Copper	7440-50-8		mg/Kg	390	1,027	1,300	**47.4**	**25.1**
Lead	7439-92-1		mg/Kg	450	975	1,200	**10.4**	**6.14**
Mercury	7439-97-6		mg/Kg	0.41	1.5	2.3	**0.0727**	**0.0254**
Nickel	7440-02-0		mg/Kg				**47.2**	**31.1**
Selenium	7782-49-2		mg/Kg		3		**0.77**	0.63 U
Silver	7440-22-4		mg/Kg	6.1	6.1	8.4	0.15 U	0.12 U
Zinc	7440-66-6		mg/Kg	410	2,783	3,800	**73.2**	**52.3**
Naphthalene	91-20-3		ug/Kg	2,100		2,400	**24.4**	10 U
2-Methylnaphthalene	91-57-6		ug/Kg	670		1,900	10 U	10 U
Acenaphthene	83-32-9		ug/Kg	500		2,000	10 U	10 U
Acenaphthylene	208-96-8		ug/Kg	560		1,300	10 U	10 U
Phenanthrene	85-01-8		ug/Kg	1,500		21,000	**23.8**	10 U
Anthracene	120-12-7		ug/Kg	960		13,000	**10.4** J	10 U
Fluorene	86-73-7		ug/Kg	540		3,600	20 U	10 U
Total LPAH			ug/Kg	5,200		29,000	**58.6**	10 U
Fluoranthene	206-44-0		ug/Kg	1,700	4,600	30,000	**73.4**	**59.6**
Pyrene	129-00-0		ug/Kg	2,600	11,980	16,000	**59.1**	**42.3**
Benzo(a)anthracene	56-55-3		ug/Kg	1,300		5,100	**25.3**	**15.7** J
Benzo(b)fluoranthene	205-99-2		ug/Kg	3,200		9,900	**32.4**	**15.4** J
Benzo(k)fluoranthene	207-08-9		ug/Kg	3,200		9,900	**11.5** J	10 U
Benzofluoranthenes, Total (b+k+j)			ug/Kg	3,200		9,900	43.2	29.9 U
Benzo(a)pyrene	50-32-8		ug/Kg	1,600		3,600	**24.9**	**10.1** J
Chrysene	218-01-9		ug/Kg	1,400		21,000	**24.2**	**16.7** J
Indeno(1,2,3-cd)pyrene	193-39-5		ug/Kg	600		4,400	20 U	20 U
Dibenzo(a,h)anthracene	53-70-3		ug/Kg	230		1,900	20 U	20 U
Dibenzo(a,h)anthracene	53-70-3	SIMS	ug/Kg	230		1,900	20 U	2.5 U
Benzo(g,h,i)perylene	191-24-2		ug/Kg	670		3,200	20 U	20 U
Total HPAH			ug/Kg	12,000		69,000	294	159.8

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Dagmar Sediment Analytical Results and DMMP Screening

				DMMP MARINE			1-Z-121724	2-Z-121724
Parameter	**CAS Number**		**Units**	**SL**	**BT**	**ML**	**Result**	**Result**
Phenol	108-95-2		ug/Kg	420		1,200	10.0 U	10.0 U
1,4-Dichlorobenzene	106-46-7		ug/Kg	110		120	10.0 U	10.0 U
1,2-Dichlorobenzene	95-50-1		ug/Kg	35		110	10.0 U	10.0 U
Benzyl Alcohol	100-51-6		ug/Kg	57		870	**39.1**	20.0 U
2-methylphenol (o-cresol)	95-48-7		ug/Kg	63		77	10.0 U	10.0 U
4-methylphenol (p-cresol)	106-44-5		ug/Kg	670		3,600	**24.7**	15.0 U
2,4-Dimethylphenol	105-67-9		ug/Kg	29		210	49.9 U	49.9 U
1,2,4-Trichlorobenzene	120-82-1		ug/Kg	31		64	10.0 U	10.0 U
Benzoic Acid	65-85-0		ug/Kg	650		760	**124** J	99.8 U
Hexachlorobutadiene	87-68-3		ug/Kg	11		270	10.0 U	10.0 U
Dimethyl phthalate	131-11-3		ug/Kg	71		1,400	10.0 U	10.0 U
Dibenzofuran	132-64-9		ug/Kg	540		1,700	20.0 U	20.0 U
Diethyl phthalate	84-66-2		ug/Kg	200		1,200	**72.4** B	**65.8** B
N-Nitrosodiphenylamine	86-30-6		ug/Kg	28		130	10.0 U	10.0 U
Hexachlorobenzene	118-74-1		ug/Kg	22	168	230	20.0 U	20.0 U
Pentachlorophenol	87-86-5		ug/Kg	400	504	690	125 U	125 U
dibutyl phthalate	84-74-2		ug/Kg	1,400		5,100	10.0 U	10.0 U
Butyl benzyl phthalate	85-68-7		ug/Kg	63		97	10.0 U	10.0 U
bis(2-ethylhexyl) Phthalate	117-81-7		ug/Kg	1,300		8,300	40.0 U	39.9 U
Di-n-Octyl Phthalate	117-84-0		ug/Kg	6,200		6,200	10.0 U	10.0 U
Phenol	108-95-2	SIMS	ug/Kg	420		1,200	**19.0**	**9.7**
1,4-Dichlorobenzene	106-46-7	SIMS	ug/Kg	110		120	2.5 U	2.5 U
1,2-Dichlorobenzene	95-50-1	SIMS	ug/Kg	35		110	2.5 U	2.5 U
Benzyl Alcohol	100-51-6	SIMS	ug/Kg	57		870	**45.3**	10.0 U
Benzoic Acid	65-85-0	SIMS	ug/Kg	650		760	**128**	49.9 U
2-methylphenol (o-cresol)	95-48-7	SIMS	ug/Kg	63		77	2.5 U	2.5 U
4-methylphenol (p-cresol)	106-44-5	SIMS	ug/Kg	670		3,600	**23.4**	**2.6** J
2,4-Dimethylphenol	105-67-9	SIMS	ug/Kg	29		210	10.0 U	10.0 U
1,2,4-Trichlorobenzene	120-82-1	SIMS	ug/Kg	31		64	5.0 U	5.0 U
Hexachlorobutadiene	87-68-3	SIMS	ug/Kg	11		270	2.5 U	2.5 U
Dimethyl phthalate	131-11-3	SIMS	ug/Kg	71		1,400	2.5 U	2.5 U
Diethyl phthalate	84-66-2	SIMS	ug/Kg	200		1,200	**70.5** B	**68.5** B

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Dagmar Sediment Analytical Results and DMMP Screening

				DMMP MARINE			1-Z-121724	2-Z-121724
Parameter	**CAS Number**		**Units**	**SL**	**BT**	**ML**	**Result**	**Result**
N-Nitrosodiphenylamine	86-30-6	SIMS	ug/Kg	28		130	2.5 U	2.5 U
Hexachlorobenzene	118-74-1	SIMS	ug/Kg	11		270	2.5 U	2.5 U
Pentachlorophenol	87-86-5	SIMS	ug/Kg	400	504	690	**12.1** J	10.0 U
Butyl benzyl phthalate	85-68-7	SIMS	ug/Kg	63		970	**4.3** J	2.5 U
Heptachlor	76-44-8		ug/Kg	1.5		270	0.26 U	0.25 U
Aldrin	309-00-2		ug/Kg	9.5			0.51 U	0.50 U
Oxychlordane	27304-13-8		ug/Kg				0.51 U	0.50 U
cis-Nonachlor	5103-73-1		ug/Kg				0.51 U	0.50 U
trans-Nonachlor	39765-80-5		ug/Kg				0.51 U	0.50 U
trans-Chlordane	5103-74-2		ug/Kg				0.51 U	0.50 U
cis-Chlordane	5103-71-9		ug/Kg				0.26 U	0.25 U
Total Chlordane			ug/Kg	2.8	37		0.51 U	0.50 U
4,4'-DDE	72-55-9		ug/Kg	9			0.51 U	0.50 U
Dieldrin	60-57-1		ug/Kg	1.9		1,700	0.51 U	0.50 U
4,4'-DDD	72-54-8		ug/Kg	16			0.51 U	0.50 U
4,4'-DDT	50-29-3		ug/Kg	12			0.51 U	0.50 U
Sum of DDX			ug/Kg		50	69	0.51 U	0.50 U
PCB-aroclor 1016	12674-11-2		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1221	11104-28-2		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1232	11141-16-5		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1242	53469-21-9		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1248	12672-29-6		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1254	11097-69-1		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1260	11096-82-5		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1262	37324-23-5		ug/Kg				2.0 U	2.0 U
PCB-aroclor 1268	11100-14-4		ug/Kg				2.0 U	2.0 U
Sum of PCB Aroclors			ug/Kg	130	38	3,100	2.0 U	2.0 U
2,3,7,8-TCDF	51207-31-9		ng/Kg				**0.523** J	**0.531** J
2,3,7,8-TCDD	1746-01-6		ng/Kg				0.213 NUJ,J,B	0.071 U
1,2,3,7,8-PeCDF	57117-41-6		ng/Kg				**0.309** J	0.175 U
2,3,4,7,8-PeCDF	57117-31-4		ng/Kg				0.145 U	0.189 U
1,2,3,7,8-PeCDD	40321-76-4		ng/Kg				**0.254** J	0.211 NUJ,J

Table 1
Dagmar Sediment Analytical Results and DMMP Screening

				DMMP MARINE			1-Z-121724	2-Z-121724
Parameter	CAS Number		Units	SL	BT	ML	Result	Result
1,2,3,4,7,8-HxCDF	70648-26-9		ng/Kg				**0.347** J	0.124 U
1,2,3,6,7,8-HxCDF	57117-44-9		ng/Kg				**0.311** J	0.178 NUJ,J
2,3,4,6,7,8-HxCDF	60851-34-5		ng/Kg				0.254 NUJ,J	**0.278** J
1,2,3,7,8,9-HxCDF	72918-21-9		ng/Kg				0.062 NUJ,J	0.187 U
1,2,3,4,7,8-HxCDD	39227-28-6		ng/Kg				**0.423** J	0.131 U
1,2,3,6,7,8-HxCDD	57653-85-7		ng/Kg				**1.19**	**0.764** J
1,2,3,7,8,9-HxCDD	19408-74-3		ng/Kg				**0.801** J	**0.676** J
1,2,3,4,6,7,8-HpCDF	67562-39-4		ng/Kg				**3.44**	**2.70**
1,2,3,4,7,8,9-HpCDF	55673-89-7		ng/Kg				**0.248** J	**0.227** J
1,2,3,4,6,7,8-HpCDD	35822-46-9		ng/Kg				**24.9**	**15.4**
OCDF	39001-02-0		ng/Kg				**6.23**	**5.03**
OCDD	3268-87-9		ng/Kg				**201** B	**140** B
Total TCDF	30402-14-3		ng/Kg				**2.14**	**1.44**
Total TCDD	41903-57-5		ng/Kg				**3.33**	**3.16**
Total PeCDF	30402-15-4		ng/Kg				**1.38**	**1.52**
Total PeCDD	36088-22-9		ng/Kg				**1.59**	**0.675** J
Total HxCDF	55684-94-1		ng/Kg				**2.93**	**3.79**
Total HxCDD	34465-46-8		ng/Kg				**15.5**	**10.8**
Total HpCDF	38998-75-3		ng/Kg				**9.65**	**7.85**
Total HpCDD	37871-00-4		ng/Kg				**69.9**	**34.1**
Total Volatile Solids			%				**4.11**	**2.40**
Total Organic Carbon			%				**1.04**	**0.52**
Total Solids			%				**64.54**	**78.09**
Total Solids			%				**65.41**	**82.43**

Notes:
All sediment results provided as dry weight
All samples collected 12/17/2024
Bold indicates a detect parameter
CAS = chemical abstract service
DMMP = Dredged Material Management Program
SL = screening level

Table 1
Dagmar Sediment Analytical Results and DMMP Screening

				DMMP MARINE			1-Z-121724	2-Z-121724
Parameter	CAS Number		Units	SL	BT	ML	Result	Result

BT = bioaccumulation trigger
ML = maximum level
U = means the analyte was not detected at the specified detection limit of the method.
J = indicates the analyte was detected but the concentration is considered an estimate because it falls between the method detection limit and reporting limit
B = potential bias suggesting the concentration might differ from the actual concentration due to potential interference
N = tentatively identified

Table 2
Grain Size Results
Dagmar

Grain Size (mm)	1-Z-121724 (%)	2-Z-121724 (%)
>4.75	0.1	0.2
4	ND	0.2
2	ND	0.7
Total Gravel	**<1**	**1**
1	0.1	3.4
0.5	0.2	32.8
0.25	2.3	25.9
0.125	20.2	14.6
0.063	25.6	9.0
Total Sand	**48**	**86**
0.032	18.2	0.9
0.016	8.6	1.4
0.008	7.4	3.3
0.004	5.2	1.5
Total Silt	**39**	**7**
0.002	2.7	1.1
0.001	1.4	0.6
<0.001	8.0	4.6
Total Clay	**12**	**6**

Notes:
mm = millimeters

Table 3

Toxicity Equivalency Factors (TEFs) for PCDDs and PCDFs and Total TCDD TEQ Calculation

	CONGENERS / ISOMERS	TEF	Units	1-Z-121724		2-Z-121724	
				Result	TEQ	Result	TEQ
Dioxins	2,3,7,8-TCDD	1	ng/Kg	0.213 NUJ,J,B	0.1065	0.071 U	0.0355
	1,2,3,7,8-PeCDD	1	ng/Kg	**0.254** J	0.254	0.211 NUJ,J	0.1055
	1,2,3,4,7,8-HxCDD	0.1	ng/Kg	**0.423** J	0.0423	0.131 U	0.00655
	1,2,3,6,7,8-HxCCD	0.1	ng/Kg	**1.19**	0.119	**0.764** J	0.0764
	1,2,3,7,8,9-HxCDD	0.1	ng/Kg	**0.801** J	0.0801	**0.676** J	0.0676
	1,2,3,4,6,7,8-HpCDD	0.01	ng/Kg	**24.9**	0.249	**15.4**	0.154
	OCDD	0.0003	ng/Kg	**201** B	0.0603	**140** B	0.042
Furans	2,3,7,8-TCDF	0.1	ng/Kg	**0.523** J	0.0523	**0.531** J	0.0531
	1,2,3,7,8-PeCDF	0.03	ng/Kg	**0.309** J	0.00927	0.175 U	0.002625
	2,3,4,7,8-PeCDF	0.3	ng/Kg	0.145 U	0.02175	0.189 U	0.02835
	1,2,3,4,7,8-HxCDF	0.1	ng/Kg	**0.347** J	0.0347	0.124 U	0.0062
	1,2,3,6,7,8-HxCDF	0.1	ng/Kg	**0.311** J	0.0311	0.178 NUJ,J	0.0089
	2,3,4,6,7,8-HxCDF	0.1	ng/Kg	0.254 NUJ,J	0.0127	**0.278** J	0.0278
	1,2,3.7,8,9-HxCDF	0.1	ng/Kg	0.062 NUJ,J	0.0031	0.187 U	0.00935
	1,2,3,4,6,7,8-HpCDF	0.01	ng/Kg	**3.44**	0.0344	**2.70**	0.027
	1,2,3,4,7,8,9-HpCDF	0.01	ng/Kg	**0.248** J	0.00248	**0.227** J	0.00227
	OCDF	0.0003	ng/Kg	**6.23**	0.001869	**5.03**	0.001509
Sum of TEQ					**1.1 (0.97)**		**0.65 (0.452)**

Notes:

Total TEQs were calculated using 1/2 the estimated detection limit (EDL) for non-detected congeners, as well as, using 0 (in parantheses) for non-detected congeners

TEQ = 2,3,7,8-TCDD toxicity equivalent

All sediment results provided as dry weight

All samples collected 12/17/2024

Bold indicates a detect parameter

U = means the analyte was not detected at the specified detection limit of the method.

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B = potential bias suggesting the concentration might differ from the actual concentration due to potential interference

N = tentatively identified

Table 4. Analytical results from Dagmar's Marina compared to SMS Criteria

Chemical	Sediment Management		1-Z-121724		2-Z-121724	
	SCO	CSL				
CONVENTIONALS						
Carbon, Total Organic (TOC)(%)			1.04		0.52	
Solids, Total (%)			65.41		82.43	
METALS (mg/kg dry weight)						
Arsenic	57	93	11.70		6.80	
Cadmium	5.1	6.7	0.16		0.10	J
Chromium	260	270	40.5		26.6	
Copper	390	390	47.4		25.1	
Lead	450	530	10.40		6.14	
Mercury	0.41	0.59	0.0727		0.0254	
Silver	6.1	6.1	0.15	U	0.12	U
Zinc	410	960	73.2		52.3	
PAHs (mg/kg OC)						
Naphthalene	99	170	2.346		1.932	U
Acenaphthylene	66	66	0.962	U	1.923	U
Acenaphthene	16	57	0.962	U	1.923	U
Fluorene	23	79	1.923	U	1.923	U
Phenanthrene	100	480	2.288		1.923	U
Anthracene	220	1,200	1.000	J	1.923	U
2-Methylnaphthalene	38	64	0.962	U	1.923	U
Total LPAH	370	780	5.634		1.923	U
Fluoranthene	160	1,200	7.058		11.460	
Pyrene	1,000	1,400	5.683		8.135	
Benz(a)anthracene	110	270	2.433		3.019	
Chrysene	110	460	2.327		3.212	J
Benzofluoranthenes (b, j ,k)	230	450	4.154		5.750	U
Benzo(a)pyrene	99	210	2.394		1.942	U
Indeno(1,2,3-c,d)pyrene	34	88	1.923	U	3.846	U
Dibenz(a,h)anthracene	12	33	1.923	U	3.846	U
Benzo(g,h,i)perylene	31	78	1.923	U	3.846	U
Total HPAH	960	5,300	24.049		25.826	
CHLORINATED HYDROCARBONS (mg/kg OC) [SIM]						
1,2-Dichlorobenzene	2.3	2.3	0.962	U	1.923	U
1,4-Dichlorobenzene	3.1	9	0.962	U	1.923	U
1,2,4-Trichlorobenzene	0.81	1.8	0.481	U	0.962	U
Hexachlorobenzene (HCB)	0.38	2.3	0.240	U	0.481	U

Table 4. Analytical results from Dagmar's Marina compared to SMS Criteria

PHTHALATES AND MISCELLANEOUS EXTRACTABLES (mg/kg OC)						
Dimethyl phthalate	53	53	0.962	U	1.923	U
Diethyl phthalate	61	110	6.962	B	12.650	B
Di-n-butyl phthalate	220	1700	0.962	U	1.923	U
Butyl benzyl phthalate	4.9	64	0.962	U	1.923	U
Bis(2-ethylhexyl) phthalate	47	78	3.846	U	7.673	U
Di-n-octyl phthalate	58	4500	0.962	U	1.923	U
Dibenzofuran	15	58	1.923	U	3.846	U
Hexachlorobutadiene	3.9	6.2	0.962	U	1.923	U
N-Nitrosodiphenylamine	11	11	0.962	U	1.923	U
PHENOLS AND MISCELLANEOUS EXTRACTABLES (µg/kg dry weight) [SIM]						
Phenol	420	1200	19.0		9.7	
2-Methylphenol	63	63	2.5	U	2.5	U
4-Methylphenol	670	670	23.4		2.6	J
2,4-Dimethylphenol	29	29	10.0	U	10.0	U
Pentachlorophenol	360	690	12.1	J	10.0	U
Benzyl alcohol	57	73	45.3		10.0	U
Benzoic acid	650	650	128		49.9	U
PCBs (mg/kgOC)						
Aroclor 1016			0.192	U	0.385	U
Aroclor 1221			0.192	U	0.385	U
Aroclor 1232			0.192	U	0.385	U
Aroclor 1242			0.192	U	0.385	U
Aroclor 1248			0.192	U	0.385	U
Aroclor 1254			0.192	U	0.385	U
Aroclor 1260			0.192	U	0.385	U
Total PCBs (Aroclors)	12	65	0.192	U	0.385	U

Non-detected exceedance of the Sediment Cleanup Objective (SCO)

The following are definitions of the data qualifiers utilized during data validation:

J+ (Estimated, High Bias): The analyte was analyzed for and positively identified by the laboratory; however, the reported concentration is estimated, displaying high bias, due to non-conformances discovered during data validation.

J- (Estimated, Low Bias): The analyte was analyzed for and positively identified by the laboratory; however, the reported concentration is estimated, displaying low bias, due to non-conformances discovered during data validation.

J (Estimated): The analyte was analyzed for and positively identified by the laboratory; however, the reported concentration is estimated due to nonconformances discovered during data validation.

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however, the analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).

UJ (Non-detected estimated): The analyte was reported as not detected by the laboratory; however, the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.

R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.

NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

Table 5. Analytical results from Dagmars Marina compared to dry weight AETs for low-TOC DMMUs.

Chemical	Sediment Magament Standards		2-Z-121724	
	SCO	CSL		
CHLORINATEDHYDROCARBONS (ug/kg dry weight)				
1,2,4-Trichlorobenzene	31	51	5	U
Hexachlorobenzene (HCB)	22	70	2.5	U

U (Non-detected): The analyte was analyzed for and positively identified by the laboratory; however, the analyte should be considered non-detected at the reported concentration due to the presence of contaminants