CENWS-OD-TS-DMMO **22 AUGUST 2008**

MEMORANDUM FOR RECORD

SUBJECT: DETERMINATION REGARDING THE SUITABILITY OF PROPOSED DREDGED MATERIAL FROM LAGOON POINT MARINA AT WHIDBEY ISLAND WASHINGTON FOR BENEFICIAL USE OR UNCONFINED OPEN WATER DISPOSAL AT THE PORT TOWNSEND OPEN WATER DISPOSAL SITE

1. Introduction. This memorandum reflects the consensus determination of 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) regarding the suitability of up to 24,000 cubic yards of dredged material from Lagoon Point Marina for beneficial use or disposal at the Port Townsend open-water disposal site.

2. Background. Lagoon Point Marina is located on the west side of Whidbey Island. The area is residential with no history of industrial development. Marinas are ranked moderate under DMMP guidelines. The marina is used by recreational boaters for moorage. The applicant is proposing to dredge and remove accumulated sediment to maintain -10 feet MLLW depth to accommodate marina boating activities.

3. Project Summary. Table 1 includes project summary and tracking information.

Table 1. Project Summary

Project ranking	Moderate
Proposed Dredging volume	24,000 cubic yards
Proposed Dredging depth	-10 feet MLLW
SAP Received	16 January 2008
SAP Approved	2 February 2008
Sampling Dates	21 March 2008
Data report received	22 July 2008
DAIS Tracking Number	LAGOO-1-A-F-253
USACE Permit Application Number	NWS-2008-
Recency Determination (Moderate = 5 to 7 Years)	21 March 2013 – 21 March 2015

4. Project Sampling. Core samples were taken from four locations using a vibracore, and composited for two analyses. Samples were composited vertically as well as horizontally since the proposed dredged material is in-fill from over the last ten years from an area that lacks any industry or potential sources of contamination. Z-samples

were also collected from all core locations. The sampling and compositing scheme is outlined in Table 2. Sample locations are illustrated in Figure 1.

5. Chemical Analysis. Sediments were evaluated for the standard list of DMMP chemicals of concern and for tributyltin (TBT). Due to the sediment grain-size (less than 20 percent fines in both DMMUs) it was not possible to recover sufficient pore-water to complete interstitial TBT analysis. Bulk sediment TBT analysis was completed. Sediment conventional results are listed in Table 3. The material is predominantly sand, with some gravel and fine-grained sediment.

There were no exceedances of DMMP screening guidelines. Bioassay testing was not required. Since this material may be used beneficially, sampling results were compared to Washington State Sediment Management Standards. There were no exceedances of state Sediment Quality Standards (SQS).

The approved sampling and analysis plan was followed and quality control guidelines specified by the PSEP and DMMP guidelines were met. The data were considered sufficient and acceptable for regulatory decision-making.

6. Suitability Determination. This memorandum documents the evaluation of the suitability of sediment proposed for dredging from Lagoon Point Marina for open-water disposal. The approved sampling and analysis plan was followed. The data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP program.

Based on the results of the previously described testing, the DMMP agencies conclude that **all 24,000 cubic yards are suitable** for open-water disposal at the Port Townsend open water disposal site or for beneficial use. This suitability determination does ***not*** constitute final agency approval of the expanded project. A completed JARPA application must be submitted to all DMMP agencies. During the public comment period that follows a public notice, the resource agencies will provide input on the overall project. A final decision will be made after full consideration of agency input, and after an alternatives analysis is done under section 404(b)(1) of the Clean Water Act.

A pre-dredge meeting with DNR, Corps of Engineers and Washington Department of Ecology will be required. A dredging quality control plan must be developed and submitted to the Regulatory Branch of the Seattle District Corps of Engineers at least 7 days prior to the pre-dredge meeting. A DNR site use authorization must also be acquired.

8. Agency Signatures.

Concur:

9/11/08
Date

Stephanie Stirling, Seattle District Corps of Engineers

9/11/08
Date

Erika Hoffman, Environmental Protection Agency

9/11/2008
Date

Laura Inouye, Ph.D., Washington Department of Ecology

9/12/08
Date

Courtney Wasson, Washington Department of Natural Resources

Copies Furnished:

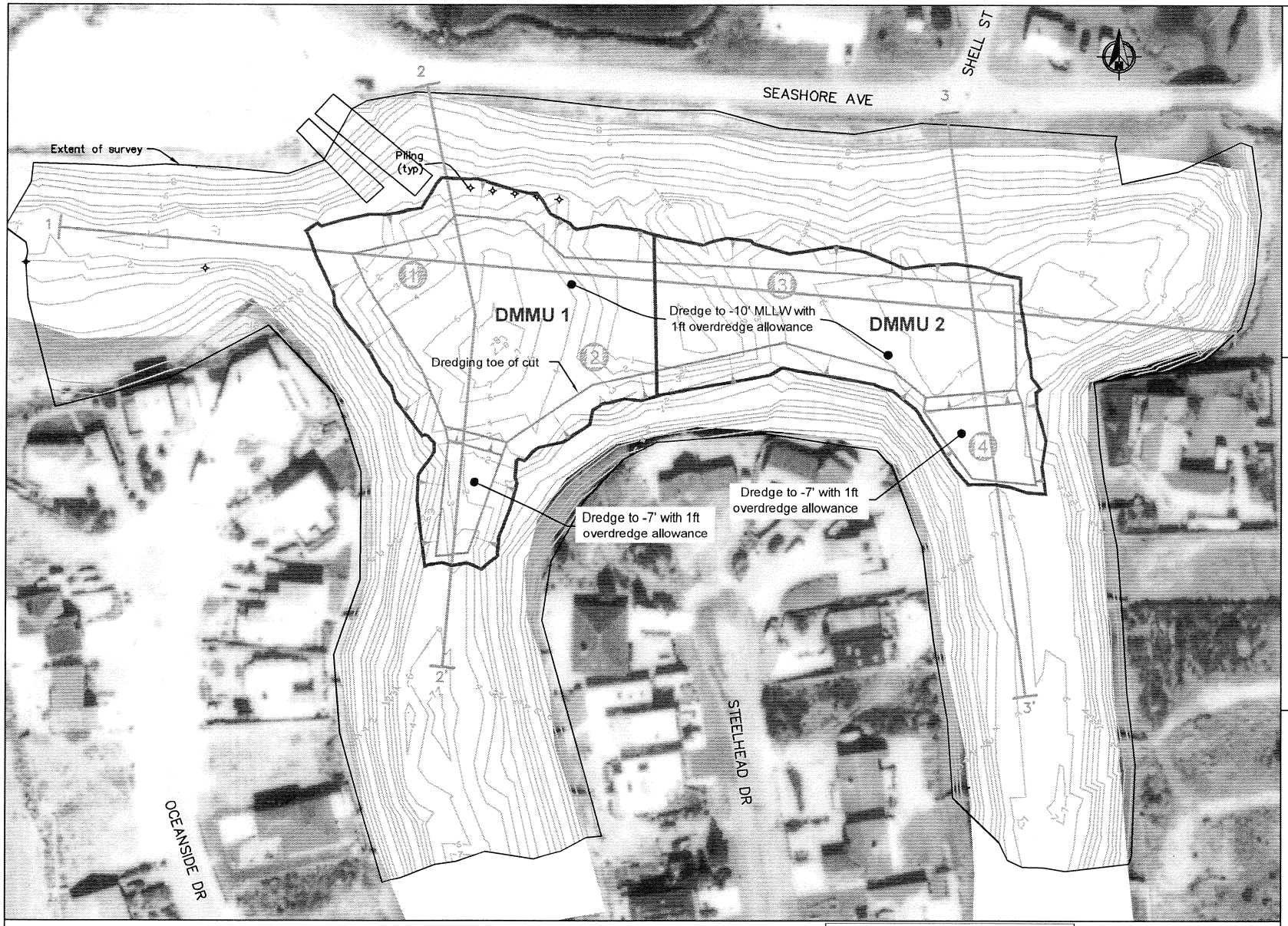
DMMP Agencies
Vickie Didenhover, Corps Regulatory
Cassandra Moore, Grette and Associates
Rob Webb, DOF
,

Table 2. Sediment Compositing Scheme

DMMU Number	Sample Core Sections	DMMU Volume
1	1A, 2A 1B, 2B	12,000
2	3A, 3B 4A	12,000

Table 3. Sediment Conventional Data.

		DMMU 1	DMMU 2
DAIS ID:		C1	C2
GRAIN SIZE	% Gravel:	15.6	3.1
	% Sand:	77.9	79.5
	% Fines (clay+silt):	6.5	17.5
Total Solids (%):		70.7	71.1
Volatile Solids (%):		2.15	3.45
Total Organic Carbon (%):		1.42	0.7
Total Sulfides (mg/kg):		142	76.4
Total Ammonia (mg N/kg):		12.8	11.7



Survey Notes:
Survey performed 3 Oct 2005 using a Leica TCR1005 with direct rod measurements.
Bearing and elevation based on Al Bowens Surveying.
Elevation converted from NGVD29 to MLLW using VDatum (NOAA).
Base image is a georeferenced 1995 aerial for reference only.
Vertical Datum: local MLLW

Legend
1 Proposed Sample Location

General Note:
Basemap information and dredge design provided by Coastal Geologic Services,Inc.

PURPOSE: Maintenance dredge of marina
DATUM: MLLW (MHHW = +9.35' MLLW)
ADJACENT PROPERTY OWNERS:

LAGOON POINT MARINA
Proposed Sampling Plan
H:1"=60'
OWNER AND ADDRESS
Lagoon Point Association

Dalton, Olmsted & Fuglevand, Inc.

PROPOSED: Maintenance dredge
IN: Admiralty Inlet at Lagoon Point
COUNTY: Island **STATE:** WA
APPLICATION BY: Lagoon Point Association

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Table 4. Chemical results compared to DMMP regulatory guidelines.

CHEMICAL	SL	BT	ML	DMMU 1		DMMU 2	
METALS (mg/kg dry)				conc	QL	conc	QL
Antimony	150	---	200	6	u	7	u
Arsenic	57	507	700	6	u	7	u
Cadmium	5.1	11.3	14	0.3	u	0.4	
Chromium	---	267	---	28.1		38.4	
Copper	390	1,027	1,300	9.4		13.5	
Lead	450	975	1,200	3	u	3	u
Mercury	0.41	1.5	2.3	0.05	u	0.05	u
Nickel	140	370	370	41		44	
Selenium	---	3.0	---	0.6	u	0.7	u
Silver	6.1	6.1	8.4	0.4	u	0.4	u
Zinc	410	2,783	3,800	26		34	
Organometallic Compunds							
Tributyltin (ug/kg dry)				3.6	u	3.7	u
LPAH (ug/kg dry)							
2-Methylnaphthalene	670	---	1,900	20	u	20	u
Acenaphthene	500	---	2,000	20	u	20	u
Acenaphthylene	560	---	1,300	20	u	20	u
Anthracene	960	---	13,000	20	u	20	u
Fluorene	540	---	3,600	20	u	20	u
Naphthalene	2,100	---	2,400	20	u	20	u
Phenanthrene	1,500	---	21,000	20	u	20	u
Total LPAH	5,200	---	29,000	70		70	
HPAH (ug/kg dry)							
Benzo(a)anthracene	1,300	---	5,100	20	U	20	U
Benzo(a)pyrene	1,600	---	3,600	20	u	20	u
Benzo(g,h,i)perylene	670	---	3,200	24		20	u
Benzofluoranthenes	3,200	---	9,900	10		13	
Chrysene	1,400	---	21,000	20	u	12	
Dibenzo(a,h)anthracene	230	---	1,900	20	u	20	u
Fluoranthene	1,700	4,600	30,000	11		25	
Indeno(1,2,3-c,d)pyrene	600	---	4,400	20	u	20	u
Pyrene	2,600	11,980	16,000	22		35	
Total HPAH	12,000	---	69,000	113		145	
CHLORINATED HYDROCARBONS (ug/kg dry)							
1,2,4-Trichlorobenzene	31	---	64	5.4	u	5.7	u
1,2-Dichlorobenzene	35	---	110	1.1	u	1.2	u
1,3-Dichlorobenzene	170	---	---	1.1	u	1.2	u
1,4-Dichlorobenzene	110	---	120	1.1	u	1.2	u
Hexachlorobenzene	22	168	230	20	u	20	u
PHTHALATES (ug/kg dry)							
Bis(2-ethylhexyl)phthalate	1,300	---	8,300	11		12	
Butyl benzyl phthalate	63	---	970	20	u	20	u
Di-n-butyl phthalate	1,400	---	5,100	20	u	20	u
Di-n-octyl phthalate	6,200	---	6,200	20	u	20	u
Diethyl phthalate	200	---	1,200	20	u	20	u
Dimethyl phthalate	71	---	1,400	20	u	20	u

CHEMICAL	SL	BT	ML	DMMU 1		DMMU 2	
PHENOLS (ug/kg dry)							
2 Methylphenol	63	---	77	20	u	20	u
2,4-Dimethylphenol	29	---	210	20	u	20	u
4 Methylphenol	670	---	3,600	39		20	u
Pentachlorophenol	400	504	690	98	u	99	u
Phenol	420	---	1,200	20	u	20	u
MISCELLANEOUS EXTRACTABLES (ug/kg dry)							
Benzoic acid	650	---	760	200	u	200	u
Benzyl alcohol	57	---	870	20	u	20	u
Dibenzofuran	540	---	1,700	20	u	20	u
Hexachlorobutadiene	29	---	270	20	u	20	u
Hexachloroethane	1,400	---	14,000	20	u	20	u
N-Nitrosodiphenylamine	28	---	130	20	u	20	u
VOLATILE ORGANICS (ug/kg dry)							
Ethylbenzene	10	---	50	1.1	u	1.2	u
Tetrachloroethene	57	---	210	1.1	u	1.2	u
Total Xylene	40	---	160	1.1	u	1.2	u
Trichloroethene	160	---	1,600	1.3	u	1.2	u
PESTICIDES AND PCBs (ug/kg dry)							
Aldrin	10	---	---	0.96	u	0.96	u
Chlordane	10	37	---	3.8		3.8	
Dieldrin	10	---	---	1.9	u	1.9	u
Heptachlor	10	---	---	0.96	u	0.97	u
Lindane	10	---	---	0.96	u	0.97	u
Total DDT	6.9	50	69	2.8		2.8	
Total PCBs	130	---	3,100	20	u	20	u
Total PCBs (mg/kg OC)	---	38	---	20	u	20	u

u = undetected

QL = laboratory qualifier
OC = organic carbon
SL = screening level
BT = bioaccumulation trigger
ML = maximum level

Table 5. Chemical results compared to SMS regulatory guidelines.

CHEMICAL	SQS	CSL	DMMU 1		DMMU 2	
METALS (mg/kg dry)			conc	QL	conc	QL
Arsenic	57	93	6	u	7	u
Cadmium	5.1	6.7	0.3	u	0.4	
Chromium	260	270	28.1		38.4	
Copper	390	390	9.4	u	13.5	
Lead	450	530	3		3	u
Mercury	0.41	0.59	0.05	u	0.05	u
Silver	6.1	6.1	0.4	u	0.4	u
Zinc	410	960	26		34	
LPAH (mg/kg OC)						
2-Methylnaphthalene	38	64	1.4	u	2.9	u
Acenaphthene	16	57	1.4	u	2.9	u
Acenaphthylene	66	66	1.4	u	2.9	u
Anthracene	220	1200	1.4	u	2.9	u
Fluorene	23	79	1.4	u	2.9	u
Naphthalene	99	170	1.4	u	2.9	u
Phenanthrene	100	480	1.4	u	2.9	u
Total LPAH	370	780	4.9		10.0	
HPAH (mg/kg OC)						
Benzo(a)anthracene	110	270	1.4	U	2.9	U
Benzo(a)pyrene	99	210	1.4	u	2.9	u
Benzo(g,h,i)perylene	34	88	1.7		2.9	u
Benzofluoranthenes	230	450	0.7		1.9	
Chrysene	110	460	1.4	u	1.7	
Dibenzo(a,h)anthracene	12	33	1.4	u	2.9	u
Fluoranthene	160	1200	0.8		3.6	
Indeno(1,2,3-c,d)pyrene	34	88	1.4	u	2.9	u
Pyrene	1000	1400	1.5		5.0	
Total HPAH	960	5300	8.0		20.7	
CHLORINATED HYDROCARBONS (mg/kg OC)						
1,2,4-Trichlorobenzene	0.81	1.8	0.4	u	0.8	u
1,2-Dichlorobenzene	2.3	2.3	0.1	u	0.2	u
1,4-Dichlorobenzene	3.1	9	0.1	u	0.2	u
Hexachlorobenzene	0.38	2.3	1.4	u	2.9	u
PHTHALATES (mg/kg OC)						
Bis(2-ethylhexyl)phthalate	47	78	0.8		1.7	
Butyl benzyl phthalate	4.9	64	1.4	u	2.9	u
Di-n-butyl phthalate	220	1700	1.4	u	2.9	u
Di-n-octyl phthalate	58	4500	1.4	u	2.9	u
Diethyl phthalate	61	110	1.4	u	2.9	u
Dimethyl phthalate	53	53	1.4	u	2.9	u

CHEMICAL	SQS	CSL	DMMU 1		DMMU 2	
PHENOLS (ug/kg dry)						
2 Methylphenol	63	63	20	u	20	u
2,4-Dimethylphenol	29	29	20	u	20	u
4 Methylphenol	670	670	39		20	u
Pentachlorophenol	360	690	98	u	99	u
Phenol	420	1200	20	u	20	u
MISCELLANEOUS EXTRACTABLES (ug/kg dry)						
Benzoic acid	650	650	200	u	200	u
Benzyl alcohol	57	73	20	u	20	u
MISCELLANEOUS EXTRACTABLES (mg/kg OC)						
Dibenzofuran	15	58	1.4	u	2.9	u
Hexachlorobutadiene	3.9	6.2	1.4	u	2.9	u
N-Nitrosodiphenylamine	11	11	1.4	u	2.9	u
PCBs (mg/kg OC)						
Total PCBs (mg/kg carbon)	12	65	20	u	20	u

u = undetected

QL = laboratory qualifier
OC = organic carbon
SMS = Sediment Management Standards
SQS = sediment quality standard
CSL = cleanup screening level