

MEMORANDUM FOR: RECORD

October 2, 2013

SUBJECT: DETERMINATION REGARDING THE SUITABILITY OF PROPOSED DREDGED MATERIAL FROM MJB PROPERTIES TRAVELIFT (Permit NWS-2012-1111) EVALUATED UNDER SECTION 404 OF THE CLEAN WATER ACT FOR UNCONFINED OPEN-WATER DISPOSAL AT THE PORT GARDNER NON-DISPERSIVE 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 State Department of Ecology, Washington State Department of Natural Resources, and the Environmental Protection Agency) regarding the suitability of up to 1,350 cubic yards (cy) of dredged material from MJB Properties Travelift for open-water disposal at the Port Gardner non-dispersive disposal site.
2. **Background.** MJB Properties is located in Anacortes, WA on Fidalgo Bay, see Figure 1. The proposed construction includes removal of approximately 1,350 cy of dredge material (DMMU 3) and 430 cy of adjacent upland soil in order to install a travelift on MJB-owned property, see Figure 2 for DMMU outline and sampling locations.

Previous characterization of DMMUs 1 and 2 in November 2008 revealed elevated dioxin concentrations and only a portion of the material was deemed suitable for open-water disposal. See the April 29, 2009 suitability determination (DMMP, 2009) for further details.

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

Table 1. Project Summary

Project ranking	Moderate
Proposed dredging volume	1,350 cy
Proposed dredging depth	-9 feet MLLW (including 1 foot of overdepth)
1 st draft SAP received	April 23, 2013
Comments provided on 1 st draft SAP	April 26 and May 3, 2013
2 nd draft SAP received	May 22, 2013
Comments provided on 2 nd draft SAP	June 12, 2013
Final SAP received	June 26, 2013
SAP approved	July 2, 2013
Sampling dates	July 1, 2013
Draft data report received	September 19, 2013
Comments provided on draft report	September 23, 2013
Final data report received	September 30, 2013

EIM Study ID	MJBTR13
USACE Permit Application Number	NWS-2012-1111
Recency Determination (moderate = 5 years)	July 2018

4. **Project Ranking and Sampling Requirements.** This project was ranked moderate by the DMMP agencies according to the guidelines set out in the User's Manual for areas in Anacortes. In a moderate-ranked area the number of samples and analyses are calculated using the following guidelines (DMMP, 2013):
- Maximum volume of sediment represented by each field sample = 4,000 cubic yards
 - Maximum volume of sediment represented by each analysis in the upper 4-feet of the dredging prism (surface sediment) = 16,000 cubic yards
 - Maximum volume of sediment represented by each analysis in the subsurface portion of the dredging prism = 24,000 cubic yards

Due to the small volume of material only a single DMMU was required, with two cores composited into one analysis to represent DMMU 3.

5. **Sampling.** Sampling took place July 1, 2013 using a 4-inch outer diameter RIC-6500 Vibracorer. Core compositing information is presented in Table 2 and Figure 2 shows the DMMU configuration and actual sampling locations. The approved SAP was followed to the extent possible, with the following minor deviations. Both core samples were moved east from the proposed locations due to the presence of a remnant steel structure from an old loading platform that blocked access to the western portion of the DMMU. As a result, the cores were collected in deeper water and contained a smaller fraction of the dredged material than originally planned. Despite this change, the cores were still taken from within the footprint of DMMU 3 and there was sufficient material collected to perform all the required analysis, so the DMMP agencies determined this change did not affect the representativeness or usability of the data collected.

6. **Chemical Analysis.** The approved sampling and analysis plan (Farallon, 2013) was followed, with the exceptions noted above, and quality control guidelines specified by the DMMP program were generally met. The conventional and DMMP chemical analysis results are summarized in Table 3.

The grain size data show that the material is well mixed, with 34.9% gravel, 25.8% sand and 39.2% fines. Sulfides and total organic carbon (TOC) were both fairly high at 1970 mg/kg and 2.57%, respectively. There were no detected exceedances of any of the standard DMMP chemicals of concern. However, there were undetected exceedances of total chlordane, dieldrin, heptachlor and total PCBs in DMMU 3. The elevated detection limit for total PCBs was the result of an elevated detection limit for Aroclor 1232, an aroclor not typically found in Puget Sound. According to the laboratory, the highly elevated detection limit was the results of unknown interferences.

The analytical results were also compared to the Sediment Management Standards (SMS), see Table 4. There were no exceedances of any of the SQS criteria.

Dioxin analysis was conducted due to the previously encountered elevated dioxin concentrations in the surrounding sediments. The total dioxin TEQ for DMMU 3 was 9.99 ppt TEQ (with U = 1/2 RL), see Table 5 for dioxin TEQ calculations.

7. **Sediment Exposed by Dredging.** The sediment to be exposed by dredging must either meet the State of Washington Sediment Quality Standards (SQS) (Ecology, 1995) or the State's antidegradation standard (DMMP, 2008). There were no detected SQS exceedances in the dredge prism, and therefore the DMMP agencies determined that z-sample analysis was not required. For dioxins, the concentration in the dredge prism was below the 10 ppt TEQ dioxin maximum allowable at the disposal sites, and therefore did not trigger Z-layer analysis for dioxin. On this basis the DMMP agencies conclude that this project is in compliance with the State of Washington anti-degradation policy.
8. **Suitability Determination.** This memorandum documents the evaluation of the suitability of sediment proposed for dredging from the MJB Travelift project for open-water disposal at the Port Gardner non-dispersive disposal site. The approved sampling and analysis plan was generally followed and the data gathered were deemed sufficient and acceptable for regulatory decision-making under the DMMP program.

Based on chemical analysis results for DMMU 3, there were undetected exceedances of several standard DMMP chemicals of concern, and dioxin concentrations exceeded the site management objective of 4 ppt TEQ for non-dispersive disposal sites (DMMP, 2010). The dredging proponent decided not to pursue the additional chemical and biological testing of the proposed dredged material that would be necessary to pursue open-water disposal.

In summary, based on the results of the previously described testing, the DMMP agencies conclude that **all 1,350 cy are unsuitable** for open-water disposal at the Port Gardner non-dispersive site and must be disposed of at an approved upland location.

This suitability determination does ***not*** constitute final agency approval of the project. 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 Ecology and the Corps of Engineers is required at least 7 days prior to dredging. 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.

9. **References.**

DMMP, 2013. *Dredged Material Evaluation and Disposal Procedures (User Manual)*. Prepared by the Seattle District Dredged Material Management Office for the Dredged Material Management Program, July 2013.

DMMP, 2010. *Dredged Material Management Program New Interim Guidelines for Dioxins*. December 6, 2010.

DMMP, 2009. *Determination on the Suitability of Proposed Maintenance Dredged Material from the MJB Properties South Dock Boat Ramp, and Supplemental Dioxin Testing at South Dock Barge*

Channel Maintenance Dredging Project in Anacortes, WA. April 29, 2009.

DMMP, 2008. *Quality of Post-Dredge Sediment Surfaces (Updated)*. A Clarification Paper Prepared by David Fox (USACE), Erika Hoffman (EPA) and Tom Gries (Ecology) for the Dredged Material Management Program, June 2008.

Ecology, 1995. *Sediment Management Standards – Chapter 173-204 WAC*. Washington State Department of Ecology, December 1995.

Farallon, 2013. *Sediment Sampling and Analysis Plan: MJB Travelift Project, MJB Property, Anacortes, Washington*. Prepared by Farallon Consulting, LLC. June 24, 2013.

10. Agency Signatures.

The signed document is available in the Dredged Material Management Office

Concur:

Date Kelsey van der Elst - Seattle District Corps of Engineers

Date Erika Hoffman - Environmental Protection Agency

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

Date Celia Barton - Washington Department of Natural Resources

Copies furnished:

DMMP signatories

James Greene, Corps Regulatory PM

Jim Blais, MJB Properties

Riley Conkin, Farallon Consulting, LLC

Drew Seutter, Farallon Consulting, LLC

Table 2. Sampling and Compositing, depths in ft MLLW.

		Coordinates (NAD83)		DMMU 3	z-sample	Total
		Latitude	Longitude			
SAP volume (cy):				1,350	---	1,350
Station	C-1	48° 30.065' N	122° 36.289' W	-7.6 to -9	-9 to -11	
	C-2	48° 30.062' N	122° 36.289' W	-7.1 to -9	-9 to -11.3	

Notes:

- 1) The design depth for DMMU 3 is -9 feet MLLW, including 1 foot of overdepth.

Table 3. Chemical results compared to DMMP regulatory guidelines.

CHEMICAL	DMMP Guidelines			DMMU 3	
	SL	BT	ML	conc	LQ
CONVENTIONALS					
Gravel, %				34.9	
Sand, %				25.8	
Silt, %				22.7	
Clay, %				16.5	
Fines (Silt + Clay), %				39.2	
Total Solids, %				60.04	
Volatile Solids, %				5.21	
Total Organic Carbon, %				2.57	
Total Sulfides, mg/kg				1970	
Total Ammonia, mg N/kg				27.5	
METALS (mg/kg dry)					
Antimony	150	---	200	20	U
Arsenic	57	507	700	20	U
Cadmium	5.1	11.3	14.0	0.8	U
Chromium	260	260	---	36	
Copper	390	1,027	1,300	36.8	
Lead	450	975	1,200	28	
Mercury	0.41	1.5	2.3	0.05	
Selenium	---	3	---	20	U
Silver	6.1	6.1	8.4	1	U
Zinc	410	2,783	3,800	111	
PAHs (ug/kg dry)					
Total LPAH	5,200	---	29,000	707	
Naphthalene	2,100	---	2,400	310	
Acenaphthylene	560	---	1,300	32	
Acenaphthene	500	---	2,000	33	
Fluorene	540	---	3,600	40	
Phenanthrene	1,500	---	21,000	240	
Anthracene	960	---	13,000	52	
2-Methylnaphthalene	670	---	1,900	55	
Total HPAH	12,000	---	69,000	1686	
Fluoranthene	1,700	4,600	30,000	360	
Pyrene	2,600	11,980	16,000	590	
Benzo(a)anthracene	1,300	---	5,100	110	
Chrysene	1,400	---	21,000	160	
Total benzofluoranthenes	3,200	---	9,900	230	
Benzo[a]pyrene	1,600	---	3,600	94	
Indeno(1,2,3-c,d)pyrene	600	---	4,400	53	
Dibenzo(a,h)anthracene	230	---	1,900	16	
Benzo(g,h,i)perylene	670	---	3,200	72	
CHLORINATED BENZENES (ug/kg dry)					
1,2-Dichlorobenzene	35	---	110	4.8	U
1,4-Dichlorobenzene	110	---	120	6.4	
1,2,4-Trichlorobenzene	31	---	64	4.8	U
Hexachlorobenzene	22	168	230	4.8	U

CHEMICAL	DMMP Guidelines			DMMU 3	
	SL	BT	ML		
PHTHALATE ESTERS (ug/kg dry)					
Dimethyl phthalate	71	---	1,400	17	
Diethyl phthalate	200	---	1,200	47	J
Di-n-butyl phthalate	1,400	---	5,100	19	U
Butyl benzyl phthalate	63	---	970	24	
Bis(2-ethylhexyl)phthalate	1,300	---	8,300	91	
Di-n-octyl phthalate	6,200	---	6,200	19	U
PHENOLS (ug/kg dry)					
Phenol	420	---	1,200	110	
2 Methylphenol	63	---	77	8.6	
4 Methylphenol	670	---	3,600	180	
2,4-Dimethylphenol	29	---	210	7.2	J
Pentachlorophenol	400	504	690	15	J
MISCELLANEOUS EXTRACTABLES (ug/kg dry)					
Benzoic acid	650	---	760	160	J
Benzyl alcohol	57	---	870	11	J
Dibenzofuran	540	---	1,700	49	
Hexachlorobutadiene	11	---	270	2.8	J
N-Nitrosodiphenylamine	28	---	130	3.4	J
PESTICIDES (ug/kg dry)					
Aldrin	9.5	---	---	2.5	U
Total Chlordane	2.8	37	---	4.9	U
Dieldrin	1.9	---	---	4.9	U
Heptachlor	1.5	---	---	2.5	U
p,p'-DDE	9	---	---	4.9	U
p,p'-DDD	16	---	---	4.9	U
p,p'-DDT	5	---	---	4.9	U
Total DDT		50	69	4.9	U
PCBs (ug/kg dry)					
Total PCBs	130	---	3,100	190	U
Total PCBs (mg/kg OC)	---	38	---	7.39	U
DMMP DETERMINATION					
DMMU volume					
Rank					
Mean sample depth					
Maximum sampling depth					
	SL	BT	ML	DMMU 3	

J = estimated concentration

U = undetected

OC = organic carbon

SL = screening level

BT = bioaccumulation trigger

ML = maximum level

8270D SIM
undetected SL exceedance

Table 4. Chemical results compared to SMS regulatory guidelines.

CHEMICAL	SMS Guidelines		DMMU 3	
	SQS	CSL	conc	LQ
Total Organic Carbon, %			2.57	
METALS (mg/kg dry)				
Arsenic	57	93	20	U
Cadmium	5.1	6.7	0.8	U
Chromium	260	270	36	
Copper	390	390	36.8	
Lead	450	530	28	
Mercury	0.41	0.59	0.05	
Silver	6.1	6.1	1	U
Zinc	410	960	111	
PAHs (mg/kg OC)				
Total LPAH	370	780	27.51	
Naphthalene	99	170	12.06	
Acenaphthylene	66	66	1.25	
Acenaphthene	16	57	1.28	
Fluorene	23	79	1.56	
Phenanthrene	100	480	9.34	
Anthracene	220	1200	2.02	
2-Methylnaphthalene	38	64	2.14	
Total HPAH	960	5300	65.60	
Fluoranthene	160	1200	14.01	
Pyrene	1000	1400	22.96	
Benzo(a)anthracene	110	270	4.28	
Chrysene	110	460	6.23	
Benzofluoranthenes	230	450	8.95	
Benzo(a)pyrene	99	210	3.66	
Indeno(1,2,3-c,d)pyrene	34	88	2.06	
Dibenzo(a,h)anthracene	12	33	0.62	
Benzo(g,h,i)perylene	34	88	2.80	
CHLORINATED BENZENES (mg/kg OC)				
1,2-Dichlorobenzene	2.3	2.3	0.19	
1,4-Dichlorobenzene	3.1	9	0.25	
1,2,4-Trichlorobenzene	0.81	1.8	0.19	
Hexachlorobenzene	0.38	2.3	0.19	
PHTHALATE ESTERS (mg/kg OC)				
Dimethyl phthalate	53	53	0.66	
Diethyl phthalate	61	110	1.83	
Di-n-butyl phthalate	220	1700	0.74	
Butyl benzyl phthalate	4.9	64	0.93	
Bis(2-ethylhexyl)phthalate	47	78	3.54	
Di-n-octyl phthalate	58	4500	0.74	

CHEMICAL	SMS Guidelines		DMMU 3	
	SQS	CSL	conc	LQ
PHENOLS (ug/kg dry)				
Phenol	420	1200	110	
2 Methylphenol	63	63	8.6	
4 Methylphenol	670	670	180	
2,4-Dimethylphenol	29	29	7.2	J
Pentachlorophenol	360	690	15	J
MISCELLANEOUS EXTRACTABLES (mg/kg OC)				
Dibenzofuran	15	58	1.9	
Hexachlorobutadiene	3.9	6.2	0.1	J
N-Nitrosodiphenylamine	11	11	0.1	J
PCBs (mg/kg OC)				
Total PCBs (mg/kg carbon)	12	65	7.39	U
MISCELLANEOUS EXTRACTABLES (ug/kg dry)				
Benzyl alcohol	57	73	11	J
Benzoic acid	650	650	160	J

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

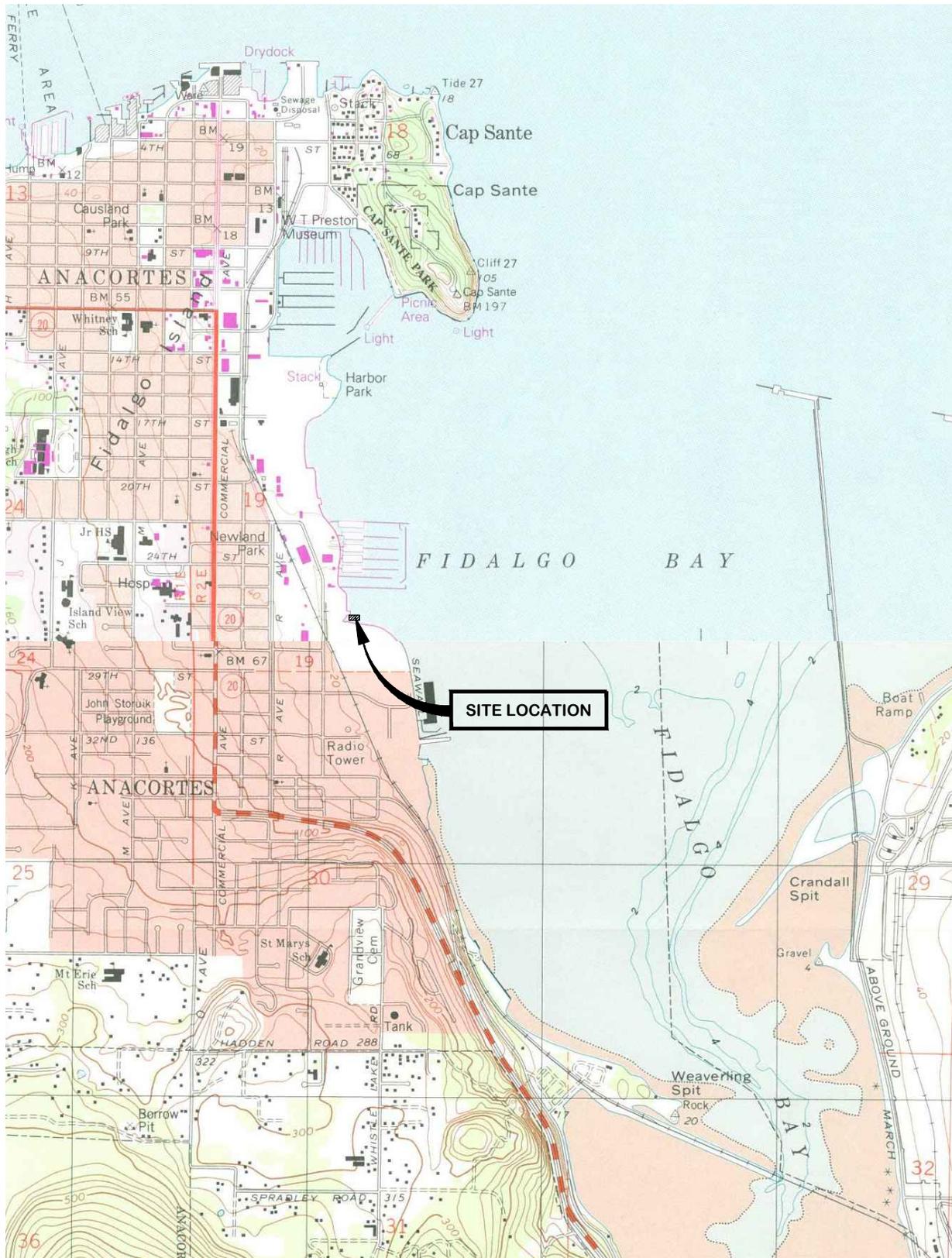
Table 5. Dioxin results

CHEMICAL	TEF	DMMU 3			
		conc	VQ	TEQ (U = 0)	TEQ (U = 1/2 RL)
DIOXINS/FURANS					
2,3,7,8-TCDD	1	0.736	B,J EMPC	0	0.368
1,2,3,7,8-PeCDD	1	2.91		2.91	2.91
1,2,3,4,7,8-HxCDD	0.1	2.83		0.283	0.283
1,2,3,6,7,8-HxCDD	0.1	12.2		1.22	1.22
1,2,3,7,8,9-HxCDD	0.1	5.89		0.589	0.589
1,2,3,4,6,7,8-HpCDD	0.01	231		2.31	2.31
OCDD	0.0003	1660		0.498	0.498
2,3,7,8-TCDF	0.1	2.33		0.233	0.233
1,2,3,7,8-PeCDF	0.03	1.21		0.0363	0.0363
2,3,4,7,8-PeCDF	0.3	1.45		0.435	0.435
1,2,3,4,7,8-HxCDF	0.1	2.32	X	0.232	0.232
1,2,3,6,7,8-HxCDF	0.1	1.69		0.169	0.169
1,2,3,7,8,9-HxCDF	0.1	0.746	J EMPC	0	0.0373
2,3,4,6,7,8-HxCDF	0.1	1.77	X	0.177	0.177
1,2,3,4,6,7,8-HpCDF	0.01	42.7		0.427	0.427
1,2,3,4,7,8,9-HpCDF	0.01	2.29		0.0229	0.0229
OCDF	0.0003	150		0.045	0.045
TOTAL TEQ				9.59	9.99

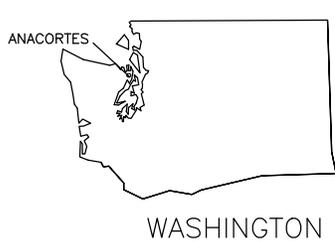
EMPC = estimate maximum possible concentration

X = PBDE interference

4 - 10 pptr TEQ
> 10 pptr TEQ



REFERENCE: 7.5 MINUTE USGS QUADRANGLE ANACORTES NORTH AND SOUTH, WASHINGTON. DATED 1953 AND PHOTOREVISED 1981



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FIGURE 1
 SITE VICINITY MAP
 MJB TRAVELIFT PROJECT
 ANACORTES, WASHINGTON

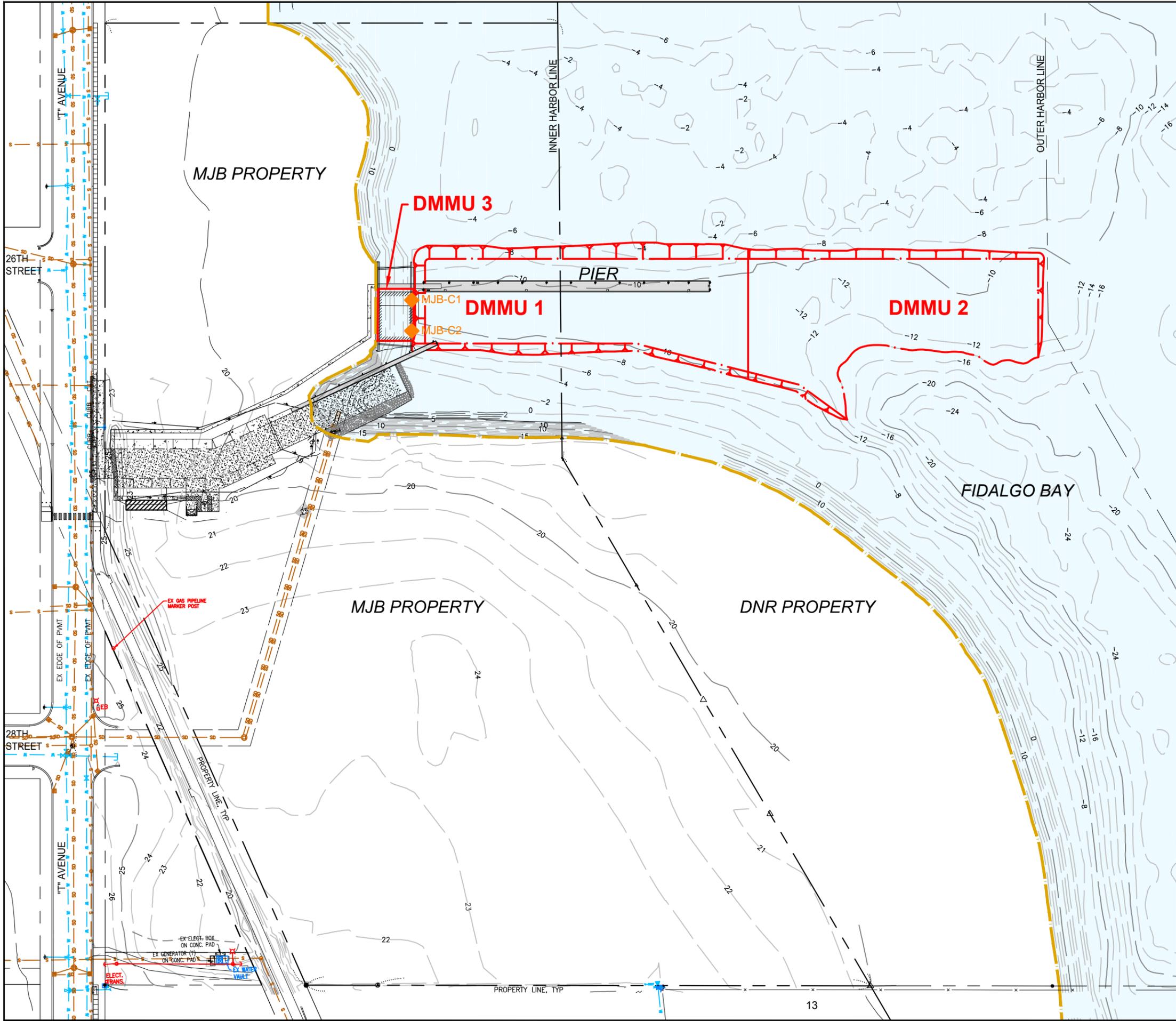
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Checked By: RC

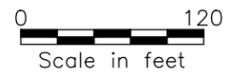
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LEGEND

- MJB-C1 SEDIMENT CORE SAMPLE LOCATION
- MJB PROPERTY BOUNDARY
- STORM DRAIN
- SANITARY SEWER LINE
- WATER LINE
- 10 CONTOUR LINE
- TOP OF BANK
- CONCRETE BOAT RAMP
- DMMU 3 DREDGED MATERIAL MANAGEMENT UNIT 3



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FIGURE 2
 DMMU 3 SEDIMENT SAMPLING LOCATIONS
 MJB TRAVELIFT PROJECT
 ANACORTES, WASHINGTON