From: Margot Cronin [mailto:margotcronin@marine.ie]
Sent: 04 October 2010 17:13
To: Karen Creed
Cc: Terry McMahon; Francis X O Beirn
Subject: Haulbowline and Dublin Port DaS applications

Hi Karen,

Attached you'll find my comments regarding the DaS applications for Haulbowline and Dublin Port.

If you need clarification on anything, please don't hesitate to let me know.

Best regards,
Margot

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Marine Institute
Foras na Mara

Application for 6 year Dumping at Sea Permit
Dublin Port Company, 2010

Details:
Quantity to be dumped: 4 000 000 tonnes (approx 800 000 tonnes annually)
Sediment type: gravel 2% / sand 60% / silt 32% / mud 6%

Sediment chemistry:
(See summary table attached)

The sediment chemistry demonstrates some low levels of contamination (low class 2 levels), and is typical of industrial port sediment. Low class 2 concentrations of arsenic, cadmium, nickel, zinc and polycyclic aromatic hydrocarbons were detected in about 50% of the samples. To a lesser extent, copper, lead and mercury have also been found at low levels of contamination.

Class 3 levels of contamination have been detected in sample DP4 (at west end of Ocean Pier / North Quay extension) for zinc and PAH, while lead, cadmium, mercury and TBT+DBT are also present at class 2 levels. The results for this sample reflect the high proportion of fine sediment. Sample DP5 (east side of Ocean Pier / North Quay extension) has class 3 levels contamination for TBT, which is not influenced by grain size. Sample DP6 (west side of Alex Basin East) demonstrates class 2 concentration for TBT+DBT.

Levels of contaminants in samples 3 and 5 are particularly low, reflecting the low proportion of fine grained material.

In general in Irish sediments, arsenic and nickel tend to be in or around the lower action level, and often above the lower level even in areas where no source of contamination exists. These can be interpreted as reflecting natural background levels for fine sediment. The concentrations of cadmium, copper, lead and zinc reflect inputs from urban sources and would be considered above background for similar grained material.

The levels of contamination in these samples are lower than have previously been seen in this area. This is most likely a result of previous dredging campaigns in removing contaminated sediment from the port area. It is noted, however, that very high levels of contamination exist in areas upstream of the port and these may be transported downstream into the port area and beyond, thus acting as a source of contaminants in future.

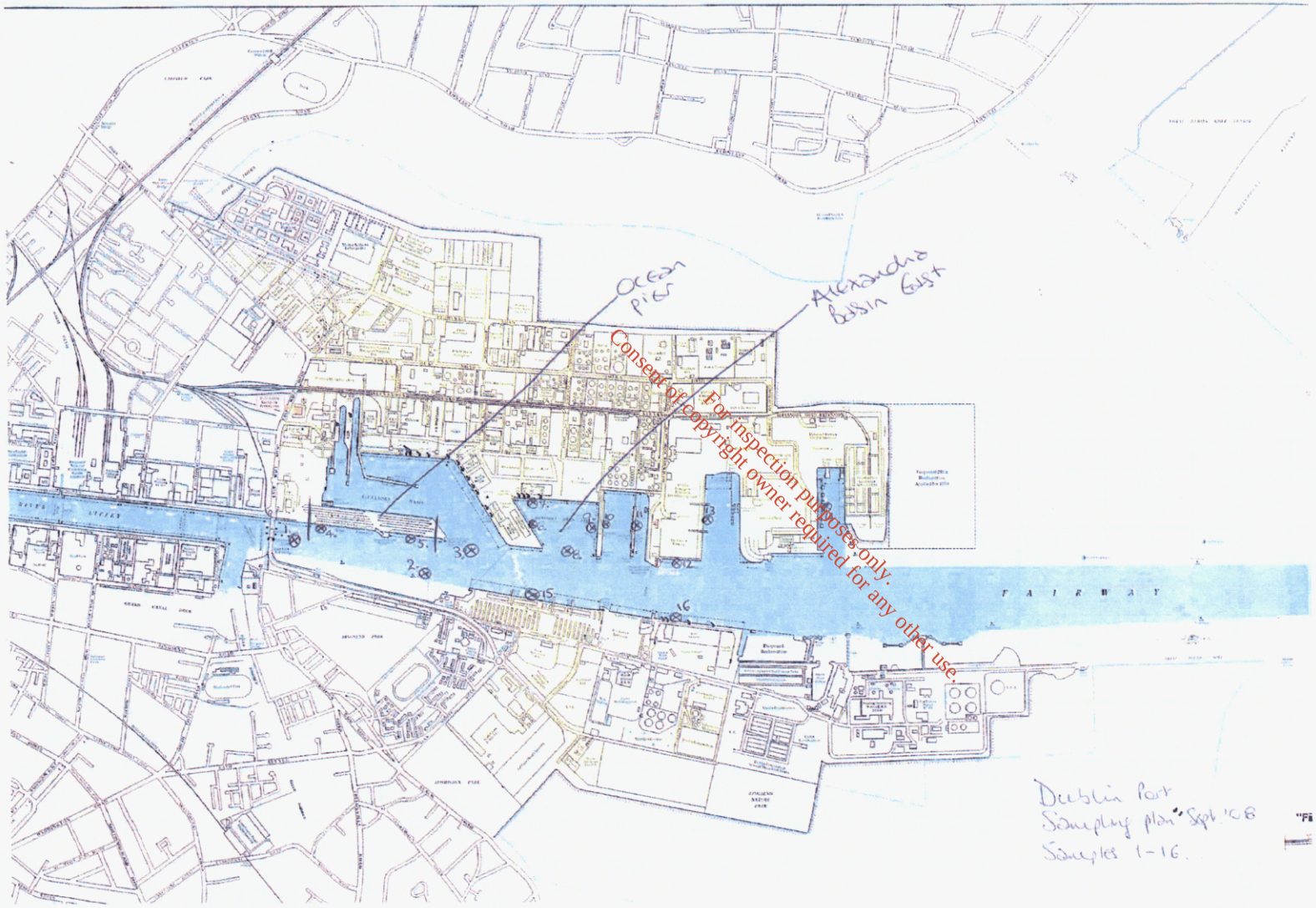
Recommendations:

- The sediment at ocean Pier should be dredged early in the campaign, followed by the sediment at Alex Basin East and the Oil Berths, thus allowing a capping effect from the remaining cleaner sediment.
- Dredging for the Ocean Pier sediment should take place on an incoming tide.

- Dumping of early sediment should take place within 30 mins either side of slack water, within 2 days either side of neap tide.
- Binding the above sediment may work as an alternative to the above conditions
- Clean coarse fairway sediment should be used, in effect, to cap the earlier finer grained sediment.
- Monitoring at the dumpsite should be continued on an interim basis in order to confirm the condition of the previous cap, as per the previous monitoring programme agreed with Dublin Port Company.

Margot Cronin
Marine Institute
04 October 2010

Sample	OC : DW as C	Particle size	Dry Matter : %	Hg	Al	As	Cd	Cr	Cu	Pb	Li	Ni	Zn	Microtox 30 Min EC50	PAH Σ16	Σ7 PCB	Sum DBT&TBT
	%	<63um	%	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/l		ug/kg	mg/kg
	0.40			0.00	0.40	0.10	0.01	0.05	0.10	0.20	0.10	0.30	0.20	1.00			
	None		UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	UKAS	None			
D.P. 1	3.03	74.10	37.60	0.21	12300	18.00	1.25	28.40	49.30	69.50	33.30	31.70	245	1180	4899	2.27	0.05
D.P. 2	1.93	73.40	49.10	0.17	11300	12.80	1.14	32.30	43.40	66.10	29.70	27.50	251	804	5429	4.60	0.09
D.P. 3	3.54	1.02	99.30	0.00	179	<LoD	0.09	3.65	1.31	1.94	0.55	0.95	9	69400	5	0.00	0.00
D.P. 4	2.17	84.40	55.40	0.54	22500	19.00	2.32	47.40	68.80	192.00	32.50	38.50	470	1180	12509	0.00	0.13
D.P. 5	2.42	5.84	96.00	0.01	630	1.51	0.12	4.90	3.42	14.20	1.88	1.52	17	1130	292	0.00	0.66
D.P. 6	2.09	75.60	45.90	0.17	12200	9.71	0.81	27.80	33.90	46.20	23.70	21.50	171	550	4472	0.60	0.22
D.P. 7	1.67	37.10	70.30	0.15	13600	9.69	0.88	31.60	39.80	61.20	26.50	24.70	384	864	4452	8.17	0.05
D.P. 8	1.56	74.80	48.40	0.16	11900	9.89	0.87	28.50	33.30	50.90	27.30	24.20	165	775	5732	7.71	0.04
D.P. 9	1.63	71.20	45.10	0.19	15500	11.90	0.89	35.60	41.10	58.10	31.50	26.40	202	881	4684	4.22	0.08
D.P. 10	1.56	71.00	43.00	0.14	13400	9.47	0.65	29.30	32.50	40.70	27.00	21.80	150	327	3863	1.60	0.05
D.P. 11	1.69	85.50	39.30	0.19	14500	12.80	0.84	35.30	44.00	57.50	35.10	27.50	195	761	5059	2.21	0.07
D.P. 12	1.75	59.70	49.90	0.09	9820	8.36	0.50	23.70	28.90	32.20	23.00	19.60	117	201	2736	0.00	0.04
D.P. 13	0.98	7.78	83.20	0.03	5050	5.51	0.58	13.40	11.60	14.70	10.20	15.10	91	14100	242	0.77	0.01
D.P. 14	1.06	23.60	67.10	0.12	9860	7.76	0.43	23.90	20.60	34.90	20.10	17.00	98	762	2883	0.00	0.05
D.P. 15	3.34	60.20	51.50	0.14	13900	8.40	0.77	29.40	29.40	44.80	24.50	21.20	153	637	4536	1.52	0.05
D.P. 16	1.39	57.10	55.50	0.08	16000	7.15	0.45	21.80	22.50	29.70	25.50	15.40	104	303	2194	2.76	0.02
D.P. 17	1.81	0.00	83.50	0.01	2560	4.23	0.14	9.23	2.34	3.90	5.84	7.94	21	757000	0	0.00	<LoD
D.P. 18	0.54	58.30	72.20	0.01	10100	5.20	0.12	20.30	6.67	8.84	18.70	14.20	38	2740	47	0.00	<LoD
D.P. 19	1.22	0.00	93.30	0.02	6520	4.69	0.21	13.00	8.19	6.11	9.56	8.43	15	7260	297	0.00	<LoD



Sample location plan, Sept 2008.
(samples 17 – 19 on fairway are not shown)