

Mr Andrew Wilson
AW Planning

Level 14
56 Berry Street
NORTH SYDNEY NSW 2060
T +61 (0)2 8854 5000
F+61 (0)2 9929 0960
www.royalhaskoningdhv.com
ABN 66 153 656 252

email: awplanning@outlook.com

Our reference: PA1042-100-100_gwb300315-sediment quality.docx
Date: 8 April 2015

**Subject: CATTLE BAY MARINA – RESPONSE TO SUBMISSIONS ON EIS
SEDIMENT QUALITY (SEDIMENT CONTAMINATION)**

Dear Andrew

The submission by the Environment Protection Authority (EPA) on the EIS (letter to Bega Valley Shire Council dated 16 December 2014), under the subject of Environment Management Plan (EMP), noted that Section 21 of the EMP, Contaminated Sediments, is confusing as it contradicts other sections of the EIS. Section 21 is indeed confusing and clarification is required, as set out below.

The draft EMP included in the EIS was prepared by Advanced Marina Management Pty Ltd (AMM). In Section 21 it refers to the existence of contaminated sediments and a former slipway at the proposed marina site. These statements are not correct, a slipway has never existed at the site and the sediments are not contaminated, as outlined below.

Surface sediment samples were collected within the general proposed marina area at five sites by Marine Pollution Research Pty Ltd (MPR) during a diver inspection conducted as part of aquatic ecology studies for the EIS. The sites of the sediment sampling are shown in **Figure 1**.

Testing of the sediment samples was carried out for particle size grading and for a range of organic and inorganic substances. The concentrations of the substances were compared to the sediment guidelines included within the Australian and New Zealand (ANZECC) Guidelines for Fresh and Marine Water Quality (ANZECC, 2000).

The results of the testing were included in the MPR Aquatic Ecology Assessment (April 2013; Appendix 5 of the EIS). They are reproduced in **Table 1** and **Table 2** below. It is apparent that the sediments comprise silty fine to medium grained sands and, importantly, are not contaminated (all concentrations are below the ANZECC Interim Sediment Quality Guideline [ISQG]).



Figure 1 Sediment sampling sites (from MPR, 2013)

Table 1 Cattle Bay Surface Sediments Particle Size Analysis							
Fraction Size	Detect Limit	Sample Site					
		1	2	2a	3	4	5
<75µm		6	16	14	16	9	15
+75µm	0.01	22	26	26	21	45	15
+150µm	0.01	40	50	54	40	34	24
+300µm	0.01	15	6	4	12	8	7
+425µm	0.01	9	1	1.5	7	3	7
+600µm	0.01	6	0.5	0	3	0.5	31
+1180µm	0.01	1.5	0	0	0	0	0.5
+2.36mm	0.01	0	0	0	0	0	0
+4.75mm	0.01	0	0	0	0.5	0	0
+9.5mm	0.01	0	0	0	0	0	0
+19.0mm	0.01	0	0	0	0	0	0
+37.5mm	0.01	0	0	0	0	0	0
+75.0mm	0.01	0.5	0.5	0.5	0.5	0.5	0.5
Sample Depth (mLAT)		5.6	6	6.1	7	6.8	7.8
% Silt		6	16	14	16	9	15
% Fine Sand		62	76	80	61	79	39
% Fine to Medium Sand		24	7	5.5	19	11	14
% Med to Coarse Sand		7.5	0.5	0	3	0.5	31.5
% Residual		0.5	0.5	0.5	1	0.5	0.5

Table 2 Cattle Bay Sediment Concentrations									
Analyte	units	PQL	ANZECC ISGQ low	ANZECC ISGQ high	Min	Median	Mean	SE of Mean	Max
Moisture	content %	1	-	-	24.8	27.1	26.8	0.6	27.9
TOC	%	0.02	-	-	0.46	0.50	0.50	0.01	0.55
Aluminium	mg/kg	50	-	-	2120	2670	2730	218	3310
Iron	mg/kg	50	-	-	5840	7285	7743	941	11700
Antimony	mg/kg	0.5	2	25			<0.5		
Arsenic	mg/kg	1	20	-	5.02	5.29	6.63	1.07	10.70
Cadmium	mg/kg	0.1	1.5	10			<0.1		
Chromium	mg/kg	1	80	370	7.1	7.7	8.1	0.6	10.4
Copper	mg/kg	1	-	-	3.2	4.4	4.5	0.5	6.2
Cobalt	mg/kg	0.5	65	270	1.2	1.5	1.5	0.1	1.9
Lead	mg/kg	1	50	220	4.0	4.8	5.3	0.6	7.5
Manganese	mg/kg	10	-	-	19	23.5	24.0	1.8	31
Nickel	mg/kg	1	21	52	3.1	3.8	3.9	0.3	5.1
Selenium	mg/kg	0.1	-	-			<0.1		
Silver	mg/kg	0.1	1	3.7			<0.1		
Vanadium	mg/kg	2	-	-	11.8	14.2	15.3	2.0	23.4
Zinc	mg/kg	1	200	410	13.7	16.4	18.2	2.2	25.2
Mercury	mg/kg	0.01	0.15	1	0.01	0.010	0.016	0.004	0.03
TPHs	mg/kg	3	550	-			<3		
TBT*	µgSn/kg	0.5	9	70	<0.5	<0.5	0.7	0.3	2.0
PAHs*	µg/kg	4	10,000	50,000	7.7	130.2	97.9	30.1	152.9

Note* Values for TBT and PAH were normalised for TOC prior to calculations

Please contact the undersigned should you require any clarification or additional information.

Yours faithfully
Haskoning Australia Pty Ltd



G W Britton
Resident Director