



OUR REF: 4541

Gold Coast & Logan Office
76 Business Street
Yatala QLD 4207

11 May 2016

Wayne DiBartolo
c/- Pacific Reef Fisheries
Lot 1 Trent Road
ALVA 4807

Submitted via email: wayne@pacificreef.com.au

Dear Wayne,

**RE: COMPLIANCE WITH CONDITION 11 OF COMMONWEALTH DECISION NOTICE
EPBC 2001/402 IN RELATION TO ALVA BEACH AQUACULTURE EXPANSION**

Property: LOT 1, TRENT ROAD, ALVA (LOT 1 ON RP804106)

Please find below a response to the following condition outlined in the abovementioned decision notice issued by the Commonwealth of Australia on 19th August, 2003.

- 11 *Pacific Reef Fisheries (Australasia) Pty Ltd must ensure that an independent survey of channel cross sections of Little Alva Creek is conducted to the satisfaction of the Minister. This survey must include sediment composition analysis within the channel and in the depositional areas outside the channel to establish whether the ecosystem is being impacted by geomorphologic processes which may result from Aquaculture Waste discharge. A baseline survey is to be conducted prior to construction and further surveys are to be undertaken annually for 3 years following commencement of operations and a report submitted to the Minister within 3 months of each survey to allow an assessment of the impact of Aquaculture Waste discharge.*

Response

On the 20th and 21st April, 2016, an ecologist and two surveyors from Gassman Development Perspectives (GDP) undertook site work to fulfil the requirements of this condition. This monitoring occasion represented the second of three (3) subsequent years of monitoring to be undertaken following the baseline data collected in April, 2014.

The same three (3) locations within Little Alva Creek and one (1) location in the depositional areas outside of Little Alva Creek were used as sites for this study, consistent with locations selected for the baseline study. These locations are shown in Figure 1.

Level datum on AHD_{DER} was established on the site and horizontal control base to ensure future readings were observed in the same locations.

At each site, detailed cross sections of the channel were surveyed by licensed and appropriately qualified surveyors. The results of these cross sections are also illustrated in Figure 1.

This data will be retained and illustrated on all future surveys to ensure an accurate representation.

Additionally, at each of these corresponding sites three (3) samples of benthic sediments were collected from across the channel, one from close to each bank and one from the middle of the channel. These samples were collected and sent to Australian Laboratory Supplies (ALS) for a particle size distribution analysis. The average values of these analyses were calculated and graphed. The graph for all sites is included in Figure 2 and data included in Appendix 1. A reference comparison from the 2015 results is included in Figure 3 and the baseline monitoring results is included in Figure 4.

Whilst some fluctuations can be observed between the three graphs, the general concentration of the bell curve is consistent with the previous years' results. There is a notable increase in fine sediments at Crossing 2 which may be attributable to a year of lower rainfall which has led to a higher accumulation of finer sediments at the edges of the bend in the creek.

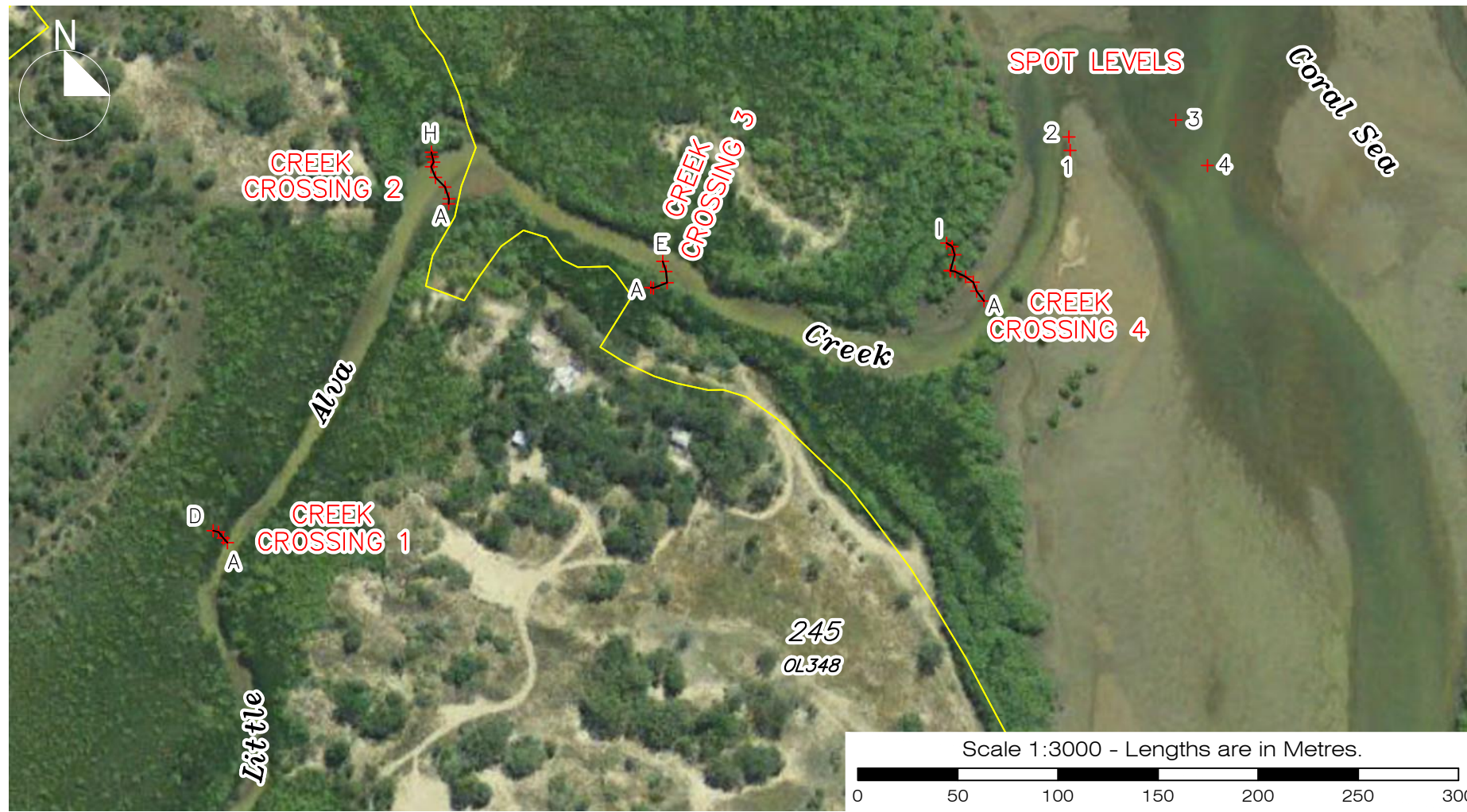
As discussed earlier in this letter, the results of this study represent the second of three years of data collected following the baseline collected in April 2014. It is intended that further surveys in this format will be undertaken annually for one (1) more year to ensure that no impacts to the Little Alva Creek system are attributable to the expansion of aquaculture operations at Pacific Reef Fisheries.

Yours faithfully,

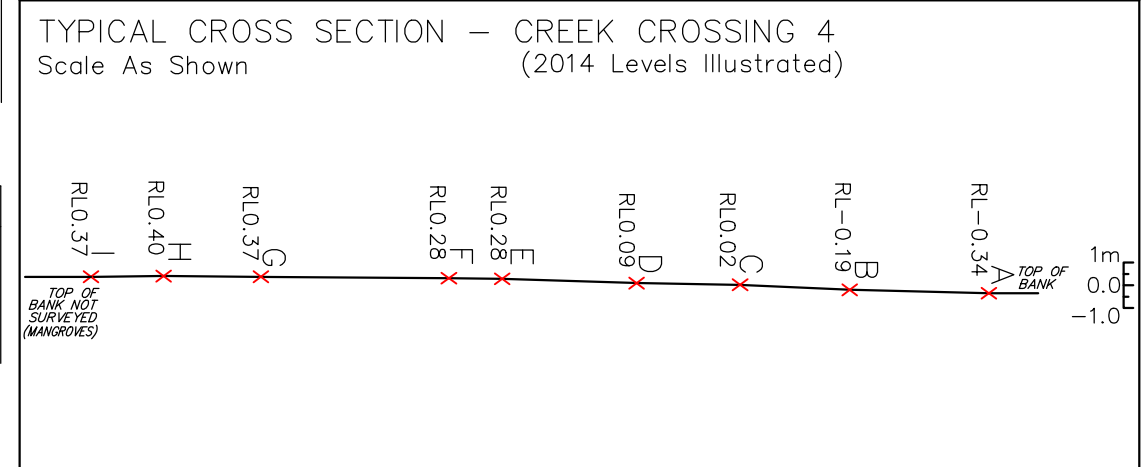
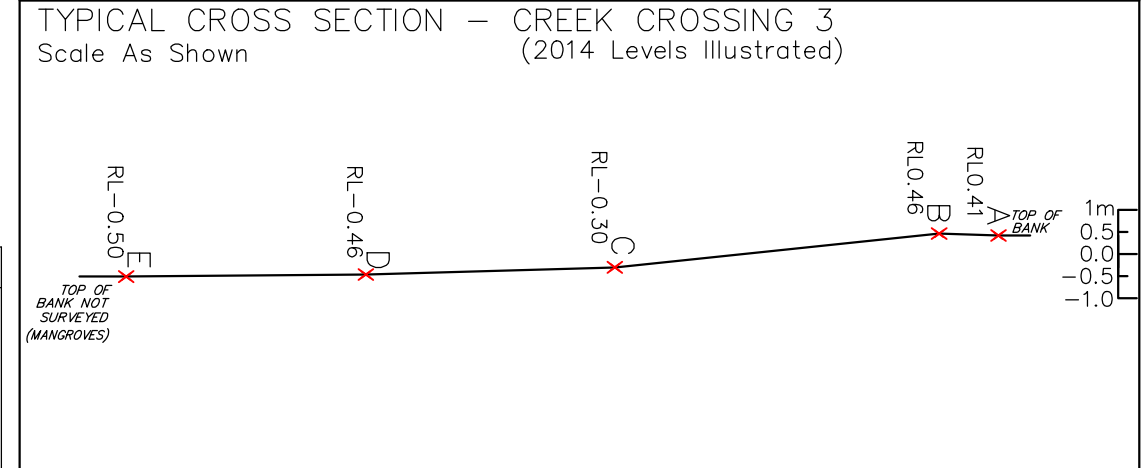
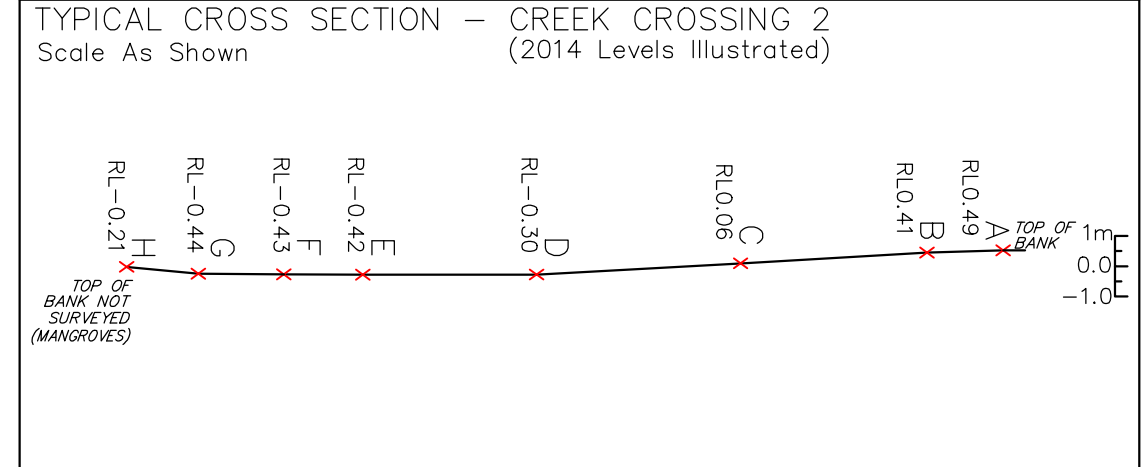
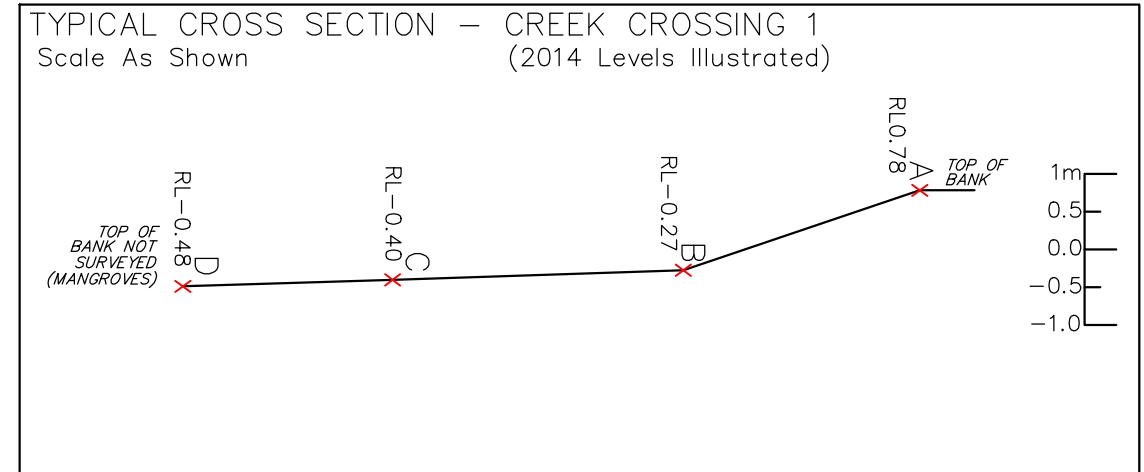
GASSMAN DEVELOPMENT PERSPECTIVES

A handwritten signature in black ink that reads "M. Spears". The letters are cursive and somewhat stylized.

MARK SPEARS



LOCALITY



CREEK CROSSING 1

STN	EASTING	NORTHING	Level 2014	Level 2015	Level 2016
A	551 027	7 847 419	0.78	0.52	0.58
B	551 018	7 847 422	-0.27	-0.25	-0.26
C	551 016	7 847 425	-0.40	-0.58	-0.59
D	551 013	7 847 425	-0.48	-0.28	-0.30

CREEK CROSSING 2

STN	EASTING	NORTHING	Level 2014	Level 2015	Level 2016
A	551 131	7 847 589	0.49	0.38	0.41
B	551 131	7 847 591	0.41	0.27	0.26
C	551 129	7 847 597	0.06	0.19	0.20
D	551 124	7 847 602	-0.30	-0.33	-0.35
E	551 120	7 847 607	-0.42	-0.49	-0.45
F	551 123	7 847 610	-0.43	-0.37	-0.40
G	551 123	7 847 612	-0.44	-0.44	-0.41
H	551 122	7 847 615	-0.21	-0.37	-0.34

CREEK CROSSING 3

STN	EASTING	NORTHING	Level 2014	Level 2015	Level 2016
A	551 232	7 847 547	0.41	0.49	0.52
B	551 233	7 847 547	0.46	0.57	0.61
C	551 240	7 847 549	-0.30	-0.57	-0.52
D	551 240	7 847 555	-0.46	-0.54	-0.50
E	551 238	7 847 560	-0.50	-0.45	-0.42

CREEK CROSSING 4

STN	EASTING	NORTHING	Level 2014	Level 2015	Level 2016
A	551 398.970	7 847 540.753	-0.34	-0.66	-0.69
B	551 395.235	7 847 545.630	-0.19	-0.60	-0.55
C	551 393.542	7 847 550.153	0.02	-0.34	-0.37
D	551 389.816	7 847 552.786	0.09	-0.12	-0.19
E	551 384.481	7 847 555.371	0.28	0.70	0.72
F	551 382.176	7 847 555.816	0.28	0.81	0.79
G	551 384.308	7 847 563.826	0.37	0.06	0.01
H	551 382.970	7 847 567.858	0.40	0.06	0.02
I	551 380.294	7 847 569.610	0.37	0.25	0.31

SPOT LEVELS

STN	EASTING	NORTHING	Level 2014	Level 2015	Level 2016
1	551 441	7 847 615	0.02	-0.03	-0.02
2	551 441	7 847 622	0.08	-0.22	-0.27
3	551 494	7 847 631	-0.30	-0.19	-0.20
4	551 510	7 847 608	-0.36	-0.30	-0.28

gassman development perspectives | planning design environment surveying

Brisbane Office Level 8 97 Creek Street Brisbane Q. 4000
 t: (07) 32216732 f: (07) 32217908 e: mail@gassman.com.au

Gold Coast and Logan Office Access Business Park 76 Business Street Yatala Q. 4207
 t: (07) 38073333 f: (07) 32875461 w: www.gassman.com.au

Issue	Date	Description	DRN	CHK
-	20-04-16	ORIGINAL ISSUE	SJH	BFG
-	3-07-15			

Project: **Trent Road, Alva Beach Lot 1 on RP804106**

Client: **Pacific Reef Fisheries**

©2012 Gassman Development Perspectives
 All rights reserved. No part of this document may be reproduced or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the written permission of Gassman Development Perspectives.

The details of this plan have been prepared based on the most current Digital Cadastral Data Base (DCDB) information available from Queensland Department of Natural Resources and Mines and is subject to survey.

Creek Survey points have been surveyed by GPS methods.

Scale at A3: **1:4,000**

Date: **20-04-2016**

Design: **MDS**

Drawn: **SJH**

Checked: **MDS**

Drawing Title: **Surveyed channel cross sections of Little Alva Creek**

Drawing No: **4541 S CD 03**

Revision No:

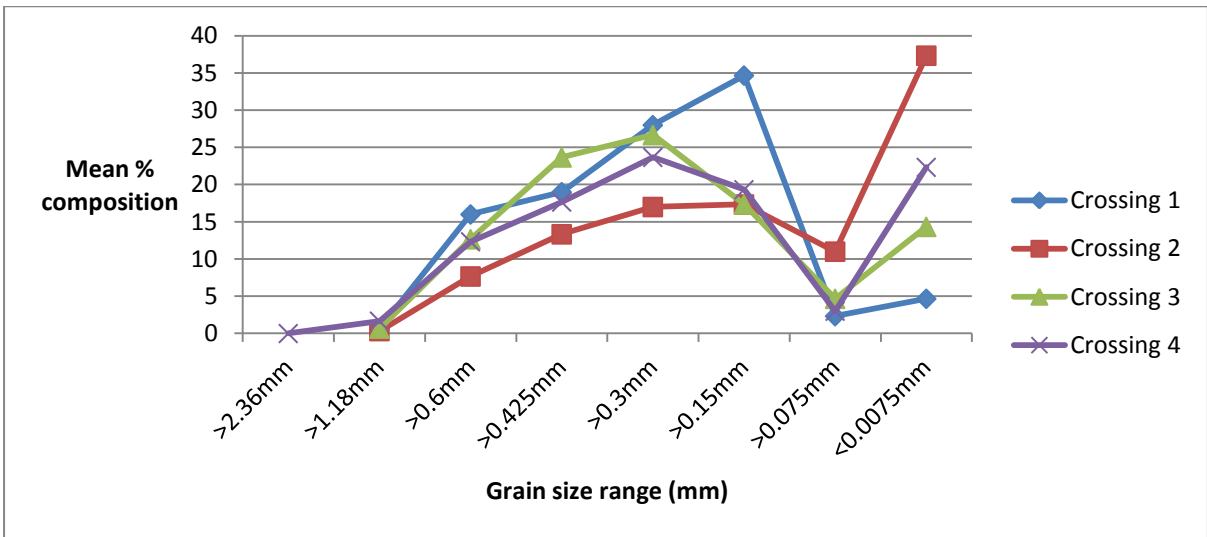


Figure 2 – Mean grain size distribution for creek crossings (comparison from monitoring undertaken in April 2015)

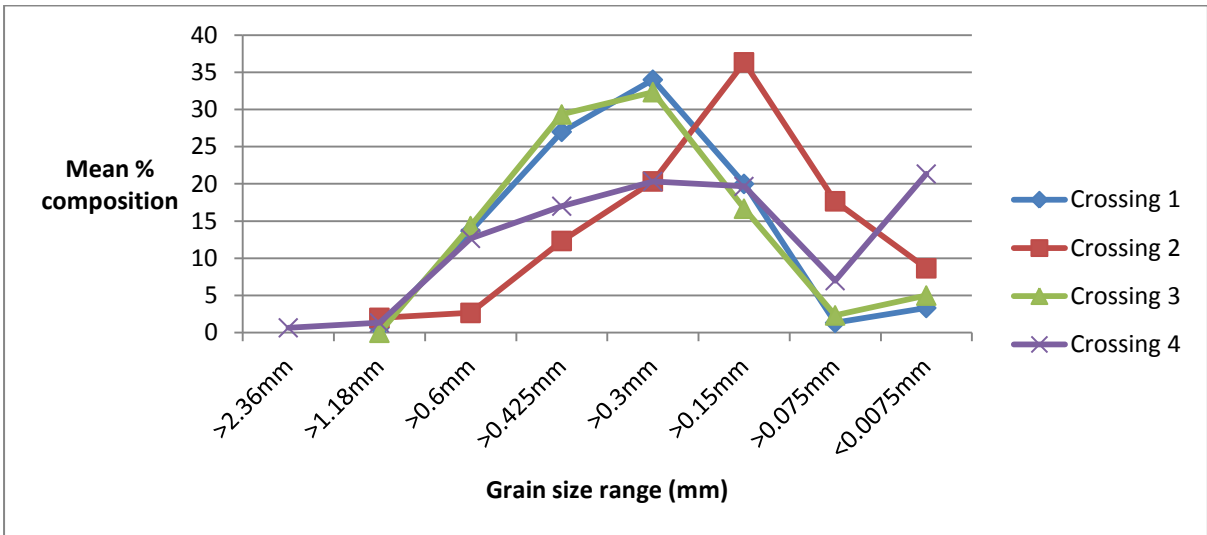


Figure 3 – Mean grain size distribution for creek crossings (comparison from monitoring undertaken in April 2015)

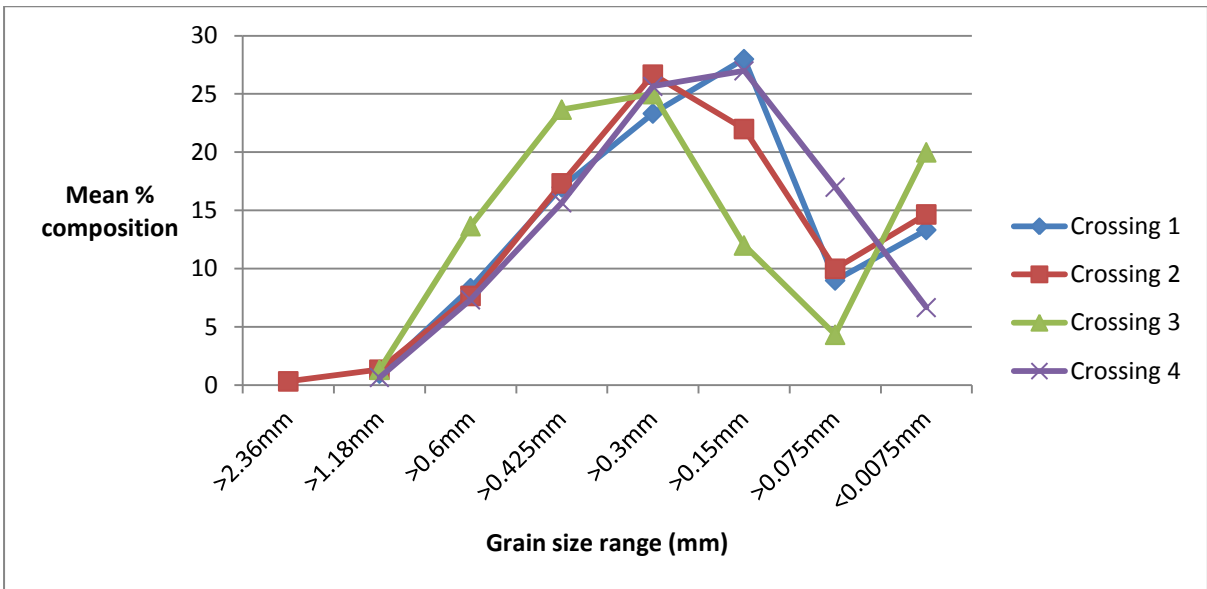


Figure 4 – Mean grain size distribution for creek crossings (comparison from baseline monitoring undertaken in April 2014)

Appendix 1 – Data used for particle size distribution

	Crossing 1a	Crossing 1b	Crossing 1c	Ave	Crossing 2a	Crossing 2b	Crossing 2c	Ave	Crossing 3a	Crossing 3b	Crossing 3c	Ave	Crossing 4a	Crossing 4b	Crossing 4c	Ave
>2.36mm																
>1.18mm	2	0	0	0.6666667	0	1	0	0.3333333	1	0	1	0.6666667	2	0	3	1.6666667
>0.6mm	26	6		16	7	14	2	7.6666667	13	15	10	12.6666667	7	8	22	12.3333333
>0.425mm	31	21	5	19	11	26	3	13.3333333	25	26	20	23.6666667	9	17	27	17.6666667
>0.3mm	23	39	22	28	18	28	5	17	28	29	23	26.6666667	11	31	29	23.6666667
>0.15mm	13	28	63	34.6666667	20	19	13	17.3333333	20	18	14	17.3333333	11	32	15	19.3333333
>0.075mm	1	2	4	2.3333333	16	4	13	11	5	4	5	4.6666667	5	3	1	3
<0.0075mm	4	4	6	4.6666667	40	8	64	37.3333333	8	8	27	14.3333333	55	9	3	22.3333333