PROPOSED LAUDERDALE QUAY DEVELOPMENT

Draft Integrated Impact Statement

Resource Planning and Development Commission

Hearing: 17 June – 10 July 2009

RESPONSE PROOF OF EVIDENCE

Dr Ruth Eriksen

Water and sediment quality (heavy metals)

On behalf of Save Ralphs Bay Inc

10 June 2009

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Lauderdale Quay Draft IIS – Response Proofs

Dear Jess

In response to your letter dated June 2, 2009 I have read the following Proofs of Evidence:

- Anthony Howard (Cardno) – Engineering
- Neil Collins (Gilbert and Sutherland) – Water and Sediment Quality
- Dr Chris Cuff (C & R Consulting) – Water and Sediment Quality
- Dr Rundi Larsen (GeoCoastal Australia) – Sediment Quality and Stratigraphy

I have the following comments, based on the information contained in the above proofs:

- There appears to be some inconsistency in the approaches being advocated by the experts in relation to the management of tailings arising from the sediment ponds associated with the dry excavation. For example:
    - Anthony Howard indicates that tailings will be placed within the over-excavated areas of the constructed waterways;
    - Neil Collins suggests flocculants or pH adjustments may be required to optimise settlement and water quality;
    - Dr Larsen states that contaminated sediments accumulated in dewatering ponds will not be removed and placed in waterways;
    - Dr Cuff explicitly states that treated bottom sediment from dewatering ponds should not be disposed of by placement into the channels, due to risk associated with contaminant release.

  More information is required about the current proposal to manage these sediments.

- Dr Larsen also states that mercury contaminated sediments may now be removed and placed in dedicated contained areas within the development footprint for remediation (see B1 of his proof). This is a marked difference from the methodology proposed in the DIIS of diluting contaminated sediments by mixing with other sediments prior to use as fill for the bund wall.

  More information is required about this proposal, including proposed treatment methods, efficacy, disposal methods and any impact on the volume of material disturbed to create the bund and islands.

- Dr Larsen notes (at A2 of his proof) that statistical comparison of the 95% UCL of the mean with the NODGDM screening levels was appropriate. Dr Graeme Batley (CSIRO researcher and major contributor to the ANZECC Sediment Quality Guidelines) has advised that the case for sediments and waters are that the 95th percentile (rather than the 95% upper confidence limit of the mean) is the appropriate statistic to compare to the trigger values (pers comm, November 17, 2008).

  This is more conservative that the mean, or the 95% UCL of the mean, because a much higher proportion of values need to be low to buffer against the effect of one high value. This is because the trigger values refer to toxicants, and a single value exceeding the guidelines warrants further investigation.

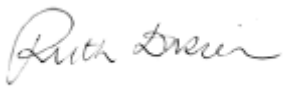
- At B2 of his proof, Dr Larsen advises that silt curtains are considered best practice by the US Army Corps of Engineers. However, there is limited information and monitoring data available regarding the efficacy of silt curtains, and dredging practice reviews indicate ongoing concerns about their effectiveness in a range of circumstances. Silt curtains are identified as being problematic as a control measure in *Contaminated Sediments in Ports and Waterway* (National Research Council, National Academy Press 1997, p.112). *Silt curtains as a dredging project management practice* (Francingues, N.R., and Palermo, M.R., DOER Technical Notes Collection ERDC TN-DOER-E21 US Army Engineer Research and Development Centre 2005) indicates that silt curtains should not be considered a "one solution fits all" type of best practice management.

  Relevant extracts from these papers are attached.

- Dr Larsen further states (at B3) that in-line dosing of the dredge stream with calcium hydroxide may be considered. More information about this proposed strategy is required, including whether it is intended to apply to the construction of the bund wall. The strategy should also be considered in light of the evidence of Dr Cuff that treated sediments should not be disposed in the channel due to the risk of metal remobilisation.

Please do not hesitate to contact me if you have any further enquiries.

Kind regards



Dr Ruth Eriksen, PhD, B.App Sci(Hons)

Attach: *Contaminated Sediments in Ports and Waterway* (extract)
Silt curtains as a dredging project management practice