coffey geotechnics
SPECIALISTS MANAGING THE EARTH

29 January 2009

Hopkins Consultants Pty Ltd
PO Box 1556
PORT MACQUARIE NSW 2444

Attention: Andrew Lister

Dear Andrew,

RE: LE CLOS VERDUN RURAL SUBDIVISION

RESPONSE TO WASTEWATER REPORT COMMENTS

Andrew,

With regards to the comments on Coffey report GEOTPMAQ00054AA-AC raised by the Department of Primary Industries (DPI) for the Part 3A Application (MP06-0212) for the proposed Le Clos Verdun Rural subdivision our response is detailed below;

- It is stated that the design and location of on-site disposal systems must be appropriate to ensure that OISAS water quality objectives are met. Coffey's recommendations that the all units include secondary treatment systems would reduce the risk of a potential reduction in nearby surface water quality. The DPI's recommendations that all wastewater disposal units include disinfection (chemical or UV) and that irrigation areas only use subsurface irrigation would further reduce the potential risk of impacts on nearby water quality.
- The summary sentence in page i of the report should read "….The preferred option for treatment and disposal would be treatment by AWTS, sand filter or similar system that produces effluent of a secondary treated quality, preferably with nitrogen reducing technology. Secondary treated wastewater can then be disposed of by means of surface or subsurface irrigation or amended soil mound…."
- Primary treated wastewater is that derived from a primary treatment system, which typically consists of septic tanks or primary settling chambers. Other systems which treat water to a higher water quality, known as secondary treatment systems, include such systems as AWTS, some sand filter systems, self contained amended soil mound systems, and some other system types. The DPI is incorrect in stating that the sand filter and amended soil mound systems are disposal systems. These systems are specifically designed to treat effluent to a secondary treatment level but are not to be confused with soil mound disposal systems that do not additionally treat the effluent. Secondary treatment systems were proposed for all sites at Le Clos Verdun.

- The DPI recommends that all primary treatment systems include disinfection (either chemical or UV). It is Coffey's experience that the disinfection systems are typically part of the secondary treatment systems, rather than the primary. It is agreed that disinfection will reduce risk of a potential reduction in nearby surface water quality and should be part of all systems, however it should be noted that treatment of this typetypically takes place in the secondary treatment systems, not the primary. It is agreed that restricting irrigation areas to subsurface irrigation will further reduce the risk of a potential reduction in nearby surface water quality. It is noted that this is beyond the requirement of general guidelines, but in this instance with the proximity of the Priority Aquaculture Oyster Leases it may be a suitable precaution.
- It is not agreed that Lot Group 4 should use a subsurface disposal system. As stated in the report, disposal of secondary treated wastewater in Lot Group 4 should be into an amended soil mound that has been modified to accept secondary treated. This reduces the required area for wastewater disposal and the additional water treatment by the amended soil mound will further reduce the risk of a potential reduction in nearby surface water quality. It is noted that this will add to the cost of the development of Lot Group 4 but was discussed at the time with Council and Hopkins Consultants.

If you have any questions regarding this matter, please do not hesitate to contact the undersigned.

For and on behalf of Coffey Geotechnics Pty Ltd

Tim Morris

Port Macquarie Office Manager – Engineering Geologist

Attachments: Important Information about Your Coffey Report

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Important information about your **Coffey** Report

As a client of Coffey you should know that site subsurface conditions cause more construction problems than any other factor. These notes have been prepared by Coffey to help you interpret and understand the limitations of your report.

Your report is based on project specific criteria

Your report has been developed on the basis of your unique project specific requirements as understood by Coffey and applies only to the site investigated. Project criteria typically include the general nature of the project; its size and configuration; the location of any structures on the site; other site improvements; the presence of underground utilities; and the additional risk imposed by scope-of-service limitations imposed by the client. Your report should not be used if there are any changes to the project without first asking Coffey to assess how factors that changed subsequent to the date of the report affect the report's recommendations. Coffey cannot accept responsibility for problems that may occur due to changed factors if they are not consulted.

Subsurface conditions can change

Subsurface conditions are created by natural processes and the activity of man. For example, water levels can vary with time, fill may be placed on a site and pollutants may migrate with time. Because a report is based on conditions which existed at the time of subsurface exploration, decisions should not be based on a report whose adequacy may have been affected by time. Consult Coffey to be advised how time may have impacted on the project.

Interpretation of factual data

Site assessment identifies actual subsurface conditions only at those points where samples are taken and when they are taken. Data derived from literature and external data source review, sampling and subsequent laboratory testing are interpreted by geologists, engineers or scientists to provide an opinion about overall site conditions, their likely impact on the proposed development and recommended actions. Actual conditions may differ from those inferred to exist, because no professional, no matter how qualified, can reveal what is hidden by earth, rock and time. The actual interface between materials may be far more gradual or abrupt than assumed based on the facts obtained. Nothing can be done to change the actual site conditions which exist, but steps can be taken to reduce the impact of unexpected conditions. For this reason, owners should retain the services of Coffey through the development stage, to identify variances, conduct additional tests if required, and recommend solutions to problems encountered on site.

Your report will only give preliminary recommendations

Your report is based on the assumption that the site conditions as revealed through selective point sampling are indicative of actual conditions throughout an area. This assumption cannot be substantiated until project implementation has commenced and therefore your report recommendations can only be regarded as preliminary. Only Coffey, who prepared the report, is fully familiar with the background information needed to assess whether or not the report's recommendations are valid and whether or not changes should be considered as the project develops. If another party undertakes the implementation of the recommendations of this report there is a risk that the report will be misinterpreted and Coffey cannot be held responsible for such misinterpretation.

Your report is prepared for specific purposes and persons

To avoid misuse of the information contained in your report it is recommended that you confer with Coffey before passing your report on to another party who may not be familiar with the background and the purpose of the report. Your report should not be applied to any project other than that originally specified at the time the report was issued.

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Important information about your **Coffey** Report

Interpretation by other design professionals

Costly problems can occur when other design professionals develop their plans based on misinterpretations of a report. To help avoid misinterpretations, retain Coffey to work with other project design professionals who are affected by the report. Have Coffey explain the report implications to design professionals affected by them and then review plans and specifications produced to see how they incorporate the report findings.

Data should not be separated from the report*

The report as a whole presents the findings of the site assessment and the report should not be copied in part or altered in any way.

Logs, figures, drawings, etc. are customarily included in our reports and are developed by scientists, engineers or geologists based on their interpretation of field logs (assembled by field personnel) and laboratory evaluation of field samples. These logs etc. should not under any circumstances be redrawn for inclusion in other documents or separated from the report in any way.

Geoenvironmental concerns are not at issue

Your report is not likely to relate any findings, conclusions, or recommendations about the potential for hazardous materials existing at the site unless specifically required to do so by the client. Specialist equipment, techniques, and personnel are used to perform a geoenvironmental assessment.
Contamination can create major health, safety and environmental risks. If you have no information about the potential for your site to be contaminated or create an environmental hazard, you are advised to contact Coffey for information relating to geoenvironmental issues.

Rely on Coffey for additional assistance

Coffey is familiar with a variety of techniques and approaches that can be used to help reduce risks for all parties to a project, from design to construction. It is common that not all approaches will be necessarily dealt with in your site assessment report due to concepts proposed at that time. As the project progresses through design towards construction, speak with Coffey to develop alternative approaches to problems that may be of genuine benefit both in time and cost.

Responsibility

Reporting relies on interpretation of factual information based on judgement and opinion and has a level of uncertainty attached to it, which is far less exact than the design disciplines. This has often resulted in claims being lodged against consultants, which are unfounded. To help prevent this problem, a number of clauses have been developed for use in contracts, reports and other documents. Responsibility clauses do not transfer appropriate liabilities from Coffey to other parties but are included to identify where Coffey's responsibilities begin and end. Their use is intended to help all parties involved to recognise their individual responsibilities. Read all documents from Coffey closely and do not hesitate to ask any questions you may have.

* For further information on this aspect reference should be made to "Guidelines for the Provision of Geotechnical information in Construction Contracts" published by the Institution of Engineers Australia, National headquarters, Canberra, 1987.