Department of Primary Industries
Office of Water

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Our ref ER21370
Your ref S07/01027

Major Development Assessments
Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attention: Felicity Greenway

Dear Ms Greenway

Environ Road Quarry and Landfill Project (08_0067 – Concept Plan and 08_0068 – Project approval)

I refer to your letter dated 30 November 2011 regarding the exhibition of the Environ Road Quarry and Landfill Project (08_0067 – Concept Plan and 08_0068 – Project approval) environmental assessment.

The NSW Office of Water (Office of Water) provides the following advice on the basis that the former legislative provisions under Part 3A of the *Environmental Planning and Assessment Act 1979* apply to this proposal.

The Office of Water has reviewed the environmental assessment (EA) and notes that the majority of the EA has been dedicated to the Concept Plan and Stage 1 Landfill of Quirks Quarry. There has only been a preliminary assessment prepared for the West Valley Quarry for which project approval is also sought.

The EA has failed to address the legislative requirements of the *Water Act 1912* and *Water Management Act 2000* and the associated Water Sharing Plan rules which apply to the water source that the Project area is located.

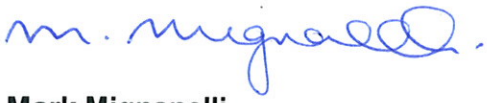
The Office of Water does not object to the concept plan and the project approval for the Quirks Quarry Landfill. However, given the lack of detailed assessments for the proposed West Valley Quarry the Office of Water is unable to complete its assessment of this proposal and cannot recommend project approval.

Given the degree of insufficient data acknowledged in the EA, the Office of Water is unable to assess the EA to determine if the proposed risks to the groundwater resource and the users have been adequately addressed for the West Valley Quarry for project approval. Currently the EA has only done an assessment for concept plan only.

Specific comments on each section and technical report are provided in Attachment A, and recommended conditions and information required are provided in Attachments B and C respectively.

If you require further information please contact Dr Jodie Dabovic, Planning and Assessment Coordinator on (02) 4904 2571.

Yours sincerely



Mark Mignanelli
Manager Major Projects, Mines and Assessment
19 January 2012

Office of Water's Comments for the Environ Road Quarry and Landfill Project (08_0067 – Concept Plan and 08_0068 – Project approval) EA

1. Legislation/Licensing

Water sharing plans are legally enforceable statutory plans under the *Water Management Act 2000.*

Water sharing plans provide rules for the sharing of water between the environment and water users, the granting of access licences to account for the take of water and the protection of high priority groundwater dependent ecosystems.

The proposed project is located in the Tweed Estuary Water Source under the *Water Sharing Plan for the Tweed River Area Unregulated and Alluvial Water Sources 2010* (the Water Sharing Plan). The EA fails to address the application of this water sharing plan to the proposed project. The EA must demonstrate how the proposed project complies with the rules for the water source in the Water Sharing Plan.

In water sharing plan areas, the taking of water must be licensed under the *Water Management Act 2000.* For the project area this applies to the taking of water from surface and alluvial groundwater sources.

Any interception and/or use of the hard rock groundwater require a licence under Part 5 of the *Water Act 1912* in relation to this development. All proposed groundwater works including bores for the purpose of investigation, extraction, dewatering, testing or monitoring must be identified and approval obtained from THE OFFICE OF WATER prior to their installation.

The EA does not address statutory licence requirements for the proposed project in respect of these water sources under the *Water Management Act 2000* and *Water Act 1912.* The EA must detail the licence requirements to enable assessment of all surface water extraction, including any incidental taking of water from the water courses in the project area. The EA must also detail the licence requirements to enable assessment of all groundwater extraction, including any incidental taking of groundwater from the alluvium aquifer in the Tweed Estuary Water Source and hard rock aquifers.

2. Groundwater

The EA states that the bore construction logs were not available; however the geological logs for some of the monitoring bores suggested bores intercepted either the hard rock (bedrock) or alluvium. These geological logs for these bores however were not presented in the EA.

The EA states that "*falling head permeability tests have been carried at GW5, GW6 and GW8*" with a reference to Gilbert and Sutherland 2007. *"Interpretation of the bore logs, by GHD, suggests that the permeability of the alluvial deposits was tested at GW6 and GW8 and that alluvial deposits and bed rock may have been tested at GW5."*

It appears from the above statements that GHD conducted permeability tests. However, no actual results were produced for presentation in the EA. The Office of Water requires clarification on what assessment was actually undertaken, and presentation of data from which K and permeability assessment figures were estimated for the EA.

The EA states that *"the shallow alluvial deposits will be recharged directly from rainfall and also potentially by upwelling flow from the underlying bedrock; however no data to support this second recharge mechanism are net yet available". "The majority of groundwater flow within the bedrock in the area is considered likely to discharge to the overlying alluvial deposits in the Tweed valley floodplain. However, no information on groundwater levels within the bedrock beneath the alluvial deposits is available."*

The impact assessment of the proposed development on groundwater has only been done for the concept plan not for project approval. The EA states that it is "*In assessing the potential impacts of the overall concept plan it has been assumed that the development of the quarry site will involve dewatering of the bedrock to enable safe and efficient quarrying of the material....Unfortunately there are currently insufficient data to confirm bedrock groundwater levels at the site to assess whether this assumption is appropriate."*

Given that the groundwater levels across the site range from 45 m AHD to 0 m AHD and that the proposed quarry is to go to a depth of 4 m AHD, the likelihood that groundwater will be intercepted is high and the volumes of groundwater which would be needed to be dewatered by the quarry operations has not been identified or quantified, therefore any impact to the users of this resource has not been assessed.

Limited water quality and level data was collected for the project with sporadic sampling. From the methods provided, water levels and quality appear to have been collected at differing times and with only a summary of quality data and quarterly water level data any responses to climatic conditions by the groundwater have not been established.

Given the EA acknowledges insufficient data was collated and presented in the environmental impact assessment, the Office of Water is unable to assess the EA to determine if the proposed risks to the groundwater resource and the users have been adequately addressed for the West Valley Quarry for project approval. Currently the EA has only done an assessment for concept plan only. Significantly more data must be collated and presented in the EA for the Office of Water to assess.

There has been no attempt to identify and assess groundwater dependent ecosystems within and adjacent to the project area.

3. Site water balance

No site water balance for the current Quirks Quarry was presented in the EA to provide information on the current impacts to surrounding users, site water requirements and the amount of groundwater being intercepted by the operation.

There was no attempt to present a predicted site water balance for the West Valley. Without predictive water balance for the proposal, the Office of Water in unable to complete its assessment of the EA. The site water balance is an essential element of the predictive environmental impact assessment for the application, and must be provided in any environmental impact assessment.

End Attachment A
19 January 2012

Recommended Conditions for Quirks Quarry Landfill

1. Legislation/Licensing

a) A search of the Office of Water licensing database indicated a dewatering bore on Lot 602 which lapsed in February 2007. The Office of Water requires that all licences for the current quarry operation to be finalised and applications for any water requirements for the landfill to be submitted and discussed with the Office of Water.

b) All works that intersect the aquifer should be licensed by the Office of Water prior to any work being carried out. This includes groundwater excavations within the groundwater aquifer, which includes but is not necessary limited to, excavations for on-site detention basins, recharge pits, all monitoring and dewatering bores. All form A's associated with the construction bores must be submitted to the Office of Water at the time drilling is undertaken.

c) For all areas on the site requiring dewatering, water licences under the relevant legislation must be obtained prior to commencement of work.

2. Water management plan

The Proponent shall prepare and implement a Water Management Plan to the satisfaction of the Office of Water. This Plan must:

a) be prepared in consultation with the Office of Water by a suitably qualified expert whose appointment has been approved by the Director–General for the Department of Planning & Infrastructure (DP&I);

b) be submitted to the Director-General (DP&I) for approval within 3 months of project approval or otherwise agreed by the Director General; and

c) include:

i. A site water balance, which includes but is not limited to details of water sources and security of water supply, site water use and management, off site water transfers, measures to minimise water use and maximises reuse of contaminated waters.

ii. A surface water monitoring program that includes:

- Detailing ongoing monitoring of surface water flows and water quality in the watercourses that could be affected by the project and associated baseline data;
- Surface water impact assessment criteria, including trigger levels for investigating potentially adverse surface water impacts of the project; and
- A program to monitor surface water quality in the watercourses that could be affected by the project;

iii. A groundwater monitoring program that includes:

- Detailing ongoing monitoring of groundwater levels and quality in the aquifers that could be affected by the project and associated baseline data.
- Groundwater impact assessment criteria, including trigger levels for investigating any potentially adverse groundwater impacts of the project; and
- A program to monitor impacts of the project on the region's aquifers, any groundwater bores, and surrounding watercourses.

iv. A surface and groundwater response plan which describes the measures and/or procedures that would be implemented to:

- Respond to any exceedances of the surface and groundwater assessment criteria;

- Account for any unpredicted adverse impacts on groundwater and surface water resources caused by the landfill operations.

3. Stormwater

a) To aid in the protection of receiving water source quality, all stormwater runoff must be adequately treated at its source and/or diverted through the stormwater treatment process designed for the site, prior to the stormwater being discharged to surface and groundwater sources.

b) All dams associated with the project must be in accordance with any Harvestable Right Order published under Section 54 of the *Water Management Act 2000*.

4. Landfill Environment management plan

a) The development and finalisation of the Landfill Environment Management Plan is done in consultation with the Office of Water.

b) An Acid-Sulfate Soil management plan is included in the Landfill Environment Management Plan.

End Attachment B
19 January 2012

Attachment C

Information Required Enabling Water Assessment for the West Valley Quarry

1. Site water balance

A site water balance for the current and proposed quarry operations is to include, but is not limited to, details of water sources and security of water supply, site water use and water management, off-site water transfers, measures to minimise water use and maximises reuse of contaminated waters.

2. Hydrogeology

Additional groundwater investigations need to be undertaken to the satisfaction of the Office of Water and submitted to the Office of Water for assessment prior to project approval. The groudnwater investigations are to include:

a) Installation of additional monitoring bores within the hard rock aquifers adjacent to alluvium peizometers to form nested peizometers for the assessment of groundwater levels, flow direction and quality within the alluvium Tweed River flood plain.

b) Presentation of bore logs showing bore construction details and geological units present.

c) Further baseline monitoring of groundwater levels and water quality of fortnightly sampling to allow the adequate analysis of temporal trends.

d) Assessment of connectivity between the alluvial and hard rock aquifers

e) Pump testing to determine hydraulic conductivity and yield for the alluvium and hard rock aquifers.

f) Model preparation to determine to the extent of groundwater depressurisation and impacts to surrounding users including ecosystems.

g) Groundwater dependant ecosystem assessment including groundwater level and quality requirements for terrestrial, aquatic and stygofauna communities.

End Attachment C
19 January 2012