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Report to Environment Committee
from Andrew Jones, Groundwater Scientist

Moera Gravel Investigation Update

1. Purpose

To inform the Committee of follow-up work undertaken since the completion of the Moera Gravel investigation bore.

2. Work Programme for 2000/2001

Since reporting the completion of the bore to the committee in July, a work programme has been developed and implemented to redefine the sustainable yield of the Lower Hutt Groundwater Zone. The sustainable yield is the maximum abstraction rate that can be maintained without compromising the high quality of this groundwater through seawater intrusion. The Regional Freshwater Plan requires that the volume of water allocated from the groundwater system should not exceed the sustainable yield. Any change in the sustainable yield will either provide additional water for allocation or require a review of existing water permits to reduce the allocated volume.

The first stage in redefining the sustainable yield is the refinement of our conceptual model of the Lower Hutt Groundwater Zone. The information collected from the investigation bore will be crucial for the completion of this task. In particular the bore has confirmed that the Waiwhetu Artesian Aquifer is actually two distinct aquifers separated by an aquiclude rather than a single layer.

Following refinement of the conceptual model using data from the bore and the recently updated Hutt Valley borehole database, our existing numerical groundwater model will be reconfigured to better represent the features of the aquifer system, especially the Moera Gravels.

The updated numerical model is programmed for completion before the commencement of the proposed Waterloo wellfield pump test in March 2001. Data from this pump test will be used to confirm the calibration of the model. Re-

calibration will be undertaken if necessary and the model will be used to redefine a sustainable yield for the Lower Hutt Groundwater Zone.

3. **Work Programme for 2001-2003**

Following redefinition of the sustainable yield of the Lower Hutt Groundwater Zone the numerical model will be further refined to allow contaminant transport predictions.

Refinement of the model will also assist in the redefinition of the minimum foreshore water level required to prevent seawater intrusion into the Waiwhetu Artesian Aquifer.

4. **Communications**

Redefinition of the sustainable yield of the Lower Hutt Groundwater Zone will be communicated to the Utility Services Division who require the updated sustainable yield for a review of the abstraction rate authorised by their water permits to take water from the Waiwhetu Artesian Aquifer.

The updated safe yield will also be passed to the Resource Policy Department for inclusion into the Regional Freshwater Plan. Final derivation of an updated minimum foreshore water level for the Waiwhetu Artesian Aquifer will also require an amendment to the Freshwater Plan.

5. **Recommendation**

That the report be received and the contents noted.

Report Prepared by:

Approved for submission:

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