

BMT WBM Pty Ltd  
Level 8, 200 Creek Street  
Brisbane 4000  
Queensland Australia  
PO Box 203 Spring Hill 4004

Tel: +61 7 3831 6744  
Fax: + 61 7 3832 3627

ABN 54 010 830 421

[www.bmtwbm.com.au](http://www.bmtwbm.com.au)

Our Ref: :

20 July 2012

NSW Department of Planning and Infrastructure  
GPO Box 39  
Sydney NSW 2001

Attention: Stuart Withington

Dear Stuart

**RE: RIVERSIDE AT TEA GARDENS RESIDENTIAL SUBDIVISION REVISED CONCEPT PLAN**

Thank you for your recent request to review the revised concept plan regarding the Riverside development, as submitted by Martens on 3rd July 2012.

I have reviewed the material as submitted and offer the following comments. The revised concept plan has outlined the updated approach proposed for stormwater management on the Riverside site and is meant to be more consistent with the findings of our recent review of previous work. The consultant has summarised some of the recommendations from the reviews, however there are some minor differences in the stated requirements and the wording has been changed such that the intent may not be consistent with the review. Specifically, the review noted the need to develop MUSIC models that were consistent with the NSW MUSIC Modelling Guidelines, or if other parameters were to be used, these were to be appropriately justified. The author of the revised concept has simply noted that the modelling has to be best practice. While this is a desirable goal, it does not provide definitive assurance that the modelling will be appropriate for the site. The proponent must ensure that the modelling utilises parameters appropriate for the site, whether they are developed through local calibration or the MUSIC guidelines. This is what would be considered best practice.

Another difference is that the proponent has stated that groundwater conditions are to be maintained, however it would be better to state that Neutral or Beneficial Effect for groundwater quality will be demonstrated at the property boundary and/or at the boundary of the site and the SEPP14 wetlands. This would ensure that groundwater modelling and monitoring will indicate the quality of groundwater where it is of greatest importance, rather than to simply assume if water is infiltrated to the groundwater interface anywhere onsite in accordance with the stated groundwater concentrations in the revised concept (which will need to be justified in any final report) the NorBE for groundwater will be achieved.

Overall, the revised concept is a far better approach than that which has been received previously for the proposed development and is generally consistent with the intent of previous review recommendations. It is difficult to assess any more of the strategy without further documentation and modelling. Fundamental to the revised approach is the need to preserve the existing surface and groundwater quality to the downstream receiving environments, in addition to the maintenance of the existing hydrologic regime for the SEPP14 wetlands and the proponent states this is the intent of the revised concept. The use of dedicated recharge beds is supported, as is the use of distributed biofilters within the streetscape. The only real concern with the use of the recharge beds is that the proponent will need to demonstrate how the recharge beds will maintain their infiltration capacity over the life of the development. It is also not clear how the proponent will ensure that water infiltrating through these beds will be of sufficient quality to ensure NorBE is met at the SEPP14

wetlands. Another concern is that the recharge beds are within major flow channels, so some assessment of scour/erosive velocities through the beds will need to be undertaken. It is also suggested that biofilters which discharge into the underlying sand dominated regions of the site be maximised to ensure sufficient treatment of surface water occurs before any infiltration into groundwater. This may be in conflict with the Office of Water's requirements to line all systems, however it is felt that using biofilters should be sufficient to protect groundwater quality, though this will need to be confirmed through modelling.

The proposed biofilters as drawn appear to be acceptable, however the extent of these will need to be confirmed through modelling and underflow drains will not be required in areas of sandy soils.

When undertaking MUSIC modelling of the revised concept, care will need to be taken that any infiltrated water and associated constituents are accounted for, i.e. if the water and constituents is modelled using the exfiltration parameter, MUSIC calculations assume this is lost and doesn't reappear downstream. Given the shallow groundwater tables onsite, this is not likely to occur, so the load of infiltrated water is brought back into the model and accounted for in exported loads from the site. The proponent may wish to consider the latest release of MUSIC (v5.1) which has split flows and allows the reincorporation of infiltrated water and constituents quite easily.

I trust that the above is satisfactory for your current requirements

Yours Faithfully  
**BMT WBM Pty Ltd**

A handwritten signature in blue ink, appearing to be 'Tony Weber', with a stylized flourish at the end.

**Tony Weber**  
National Practice Leader – Water Quality  
Associate