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To whom it may concern

Re: Draft Swan urban growth corridor drainage and water management plan

The Urban Development Institute of Australia (WA) thanks the Department of Water for the opportunity to provide comment on the *Draft Swan urban growth corridor drainage and water management plan* (June 2008). UDIA (WA) is the peak body representing the property industry in Western Australia with members engaged in a range of disciplines including land development, planning, architecture, urban design, infrastructure and engineering.

UDIA (WA) offers the following points for your consideration.

Groundwater resources for irrigation (page 9)

- Obtaining a groundwater allocation for irrigation of public open space (POS) is becoming a major challenge for developers in the Perth metropolitan area. In some areas, all groundwater allocations have been exhausted, posing major issues with obtaining approvals for groundwater licences for irrigation. It is critical that the existing groundwater allocation for the region be identified in detail in the DWMP, and that some demand forecasting be undertaken for the ~215 ha of proposed POS in the subregional structure plan area and any neighbouring sites, so that all potential issues and risks are clearly identified to enable appropriate planning.
- Other potential irrigation sources and contingencies should be identified at this phase in the planning process if it is likely that there will be an inadequate allocation for POS irrigation.

Urban Water Use (page 17)

- The draft guidance document 'Better Urban Water Management' (Essential Environmental Services, 2008) requires the following to be undertaken at the region planning phase:

... assess water sources for drinking water and other water needs, identifying any existing or future proclaimed water source catchments. Consider synergies with management of stormwater, groundwater and wastewater for supply of fit-for-purpose needs. Identify options for water re-use and commence feasibility assessment. Assess major infrastructure needs to maximise the opportunities for achieving integrated water cycle management. Work together with the relevant water service provider when undertaking water supply and wastewater planning. For further guidance see Developing Alternative Water Supplies in the Perth Metropolitan Area Series (Water Corporation, 2007) (p.21);

Information needed to develop a regional water management strategy as outlined in the draft guidance document includes catchment level water balance modelling to:

Determine pre-development sub-catchment water balance to inform the land use scenario assessment, and identification of options for reducing the need to import drinking water (p.22).

Ensure linkages with infrastructure planning programs to optimise opportunities for fit-for-purpose water usage(p.22).

The *draft Swan urban growth corridor DWMP* does not provide any details on the anticipated demands for potable and non-potable water in the subregion area. There is reference to potential lot-scale water conservation initiatives and the state water recycling strategy (potential use of recycled wastewater etc), however, there is no assessment on whether these initiatives alone will achieve the consumption targets and any potential risks with future approvals.

Note that it is acknowledged that satisfying this requirement is a significant challenge, particularly for a site of this scale. However, guidance from the DoW is required so that the appropriate studies are undertaken in the subsequent stages of planning (i.e. a non-potable 3rd pipe system).

Surface water management (page 23)

- Stormwater modelling in the DWMP assumes that runoff from roads and lots will be retained at source for the 1 year 1 hr ARI event (modelled by applying a 10mm initial loss over impervious areas such as road pavements and roofs) and therefore, these volumes are currently not included in the indicative flood storage volumes presented in Table 6.1. Based on the geology and scale of the site, and given that additional investigations will be undertaken for subsequent stages in the planning process, a conservative approach may be considered more appropriate to determine the size of the storage areas, as this will clearly identify worst case land-take required for flood storage. Note that an

opportunity to review and refine these storages will be available in subsequent local structure planning, during which investigations will be undertaken to verify the assumptions made in the DWMP. This approach will ensure that planning and engineering feasibility studies for the site are not undertaken based on an incorrect lot yield for the site (i.e. this approach decreases the risks of later having to reduce the developable area, which in some cases could be detrimental to the feasibility of the project).

- We were unable to locate details on the floodway/waterway cross-section dimensions in the report. It is important that the same floodway assumptions are used in subsequent studies, particularly for major links.

Overflow into resource enhancement wetlands (page 26)

- It is proposed that overland flows from the post-development 5 year and 100 year ARI events be directed into RE category wetlands on the basis that the resulting water levels remain consistent with the predevelopment water levels. This criterion may be considered acceptable for Conservation Category wetlands (e.g. Horse Swamp) due to their significance. However, given the potential increase in development costs due to loss of land and increase in fill levels, it seems unreasonable to impose this criterion for an RE category wetland, particularly for the 100 year ARI event.

Surface Water Quality Management (page 28)

- Maintaining the predevelopment discharge volumes will be extremely difficult to achieve given the geology of the site. It is expected that there will be a net increase in runoff volume from the site following urbanisation. Rainwater tanks may reduce the total outflow volume into the drainage systems if in-house non-potable water use is permitted. However, this has proven difficult in the past due to health requirements.

Surface Water Quality Management (page 29)

- The requirement to ensure a minimum clearance of 500mm between the finished floor level and the 100 year ARI should only be imposed on developments located in the flood fringe within floodplain areas. For developments located outside the extent of the floodplain, a clearance of 300mm between the finished floor level and the 100 year ARI flood level is required on the condition that a 100 year ARI overland flow path is provided to direct stormwater away from the subdivision and into the flood conveyance waterways (in accordance with Australian Rainfall and Runoff).

Groundwater Quantity Management (page 33)

- It appears that CGL has been defined by modelling the predevelopment groundwater behaviour during an average rainfall scenario, and it is assumed that proposed CGL contours represented are the maximum groundwater level during an average rainfall year. If so, this may be conservative and comparable to AAMGL. We acknowledge that it is difficult to define a CGL for a site of this scale, and an alternative approach may be to identify areas where a CGL will be critical due to the location of wetlands etc.

- Further to the above, the text in Section 7.2 implies that subsoil drainage cannot be placed below the CGL reported in Figure A-6. This should be reworded to allow the CGL to be refined based on further investigations at structure planning.

Groundwater Quantity Management (page 34)

- The increase in groundwater levels by up to 4m following urbanisation seems excessive. This would require an additional 1000mm of recharge into the groundwater for sandy soils (based on specific yield of 0.25). It is unclear what assumptions were used to determine this increase.
- It is also unclear how many bores were used to calibrate the predevelopment model and how this was translated to the post development scenario.

Monitoring (page 42)

- Monitoring duration of 3 years pre-development and 5 years post-development seems excessive. The general monitoring requirement is 2 years pre-development and 2 to 3 years post-development.

Figure A-11.1b Whiteman Park south

- A 100 year ARI flood level of 27.95m AHD has been reported which equates to a flood depth of 5m? Referring to figure A9, this is a significant volume of water given the size of the inundation area. It is recommended that the results are confirmed as they may greatly impact the downstream areas if incorrect assumptions have been made.

We trust you will find these comments instructive and look forward finalisation of the plan.

Yours sincerely



Debra Goostrey
Chief Executive Officer