



Government of **Western Australia**  
Department of **Water**

# DRAFT: Assessing the need for and setting the controlled groundwater level (CGL)

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## Current situation:

- Stormwater management manual for WA:
  - maintain or improve surface and groundwater quality and the total water cycle balance
  - protect the built environment
  - public health, water quality, water quantity, ecosystem health, water conservation
- Decision process for stormwater management in WA:
  - a controlled groundwater level (CGL) may be used to control seasonal/long-term levels
  - the CGL is the invert at which open or piped groundwater drainage is set, where:
    - local and regional environmental impacts must be managed adequately
    - no acid sulfate soils should be further exposed to the air



## Purpose:

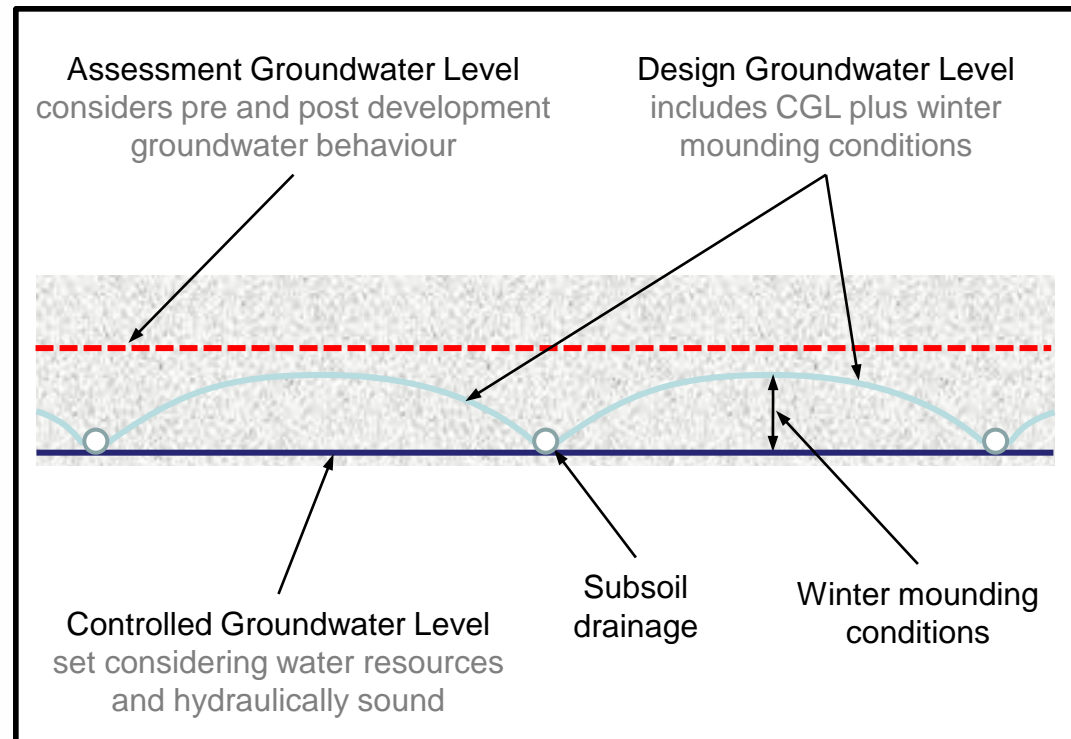
- documenting the process for assessing the need for and setting the CGL, and aligning the process with Better Urban Water Management

## Three stage process:

- assessing the need (AGL)
- setting the CGL and DGL
- subsoil design considerations

## Context:

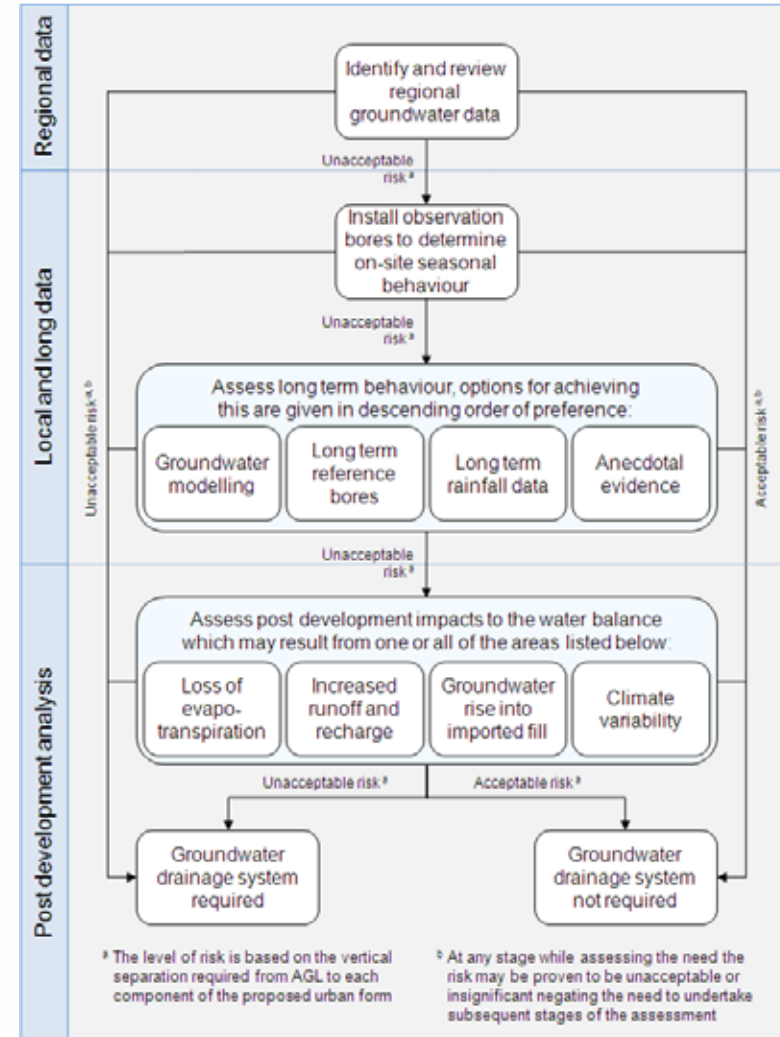
- how does this align with Better Urban Water Management





## Stage 1 - Assessing the need:

- investigate groundwater behaviour:
  - pre-development on-site observed data
  - pre-development relevant long term data
  - pre-development anecdotal evidence
  - post-development changes
- assess what vertical separations need to be considered
- assess if the vertical separations can be achieved from the assessment groundwater level (AGL)



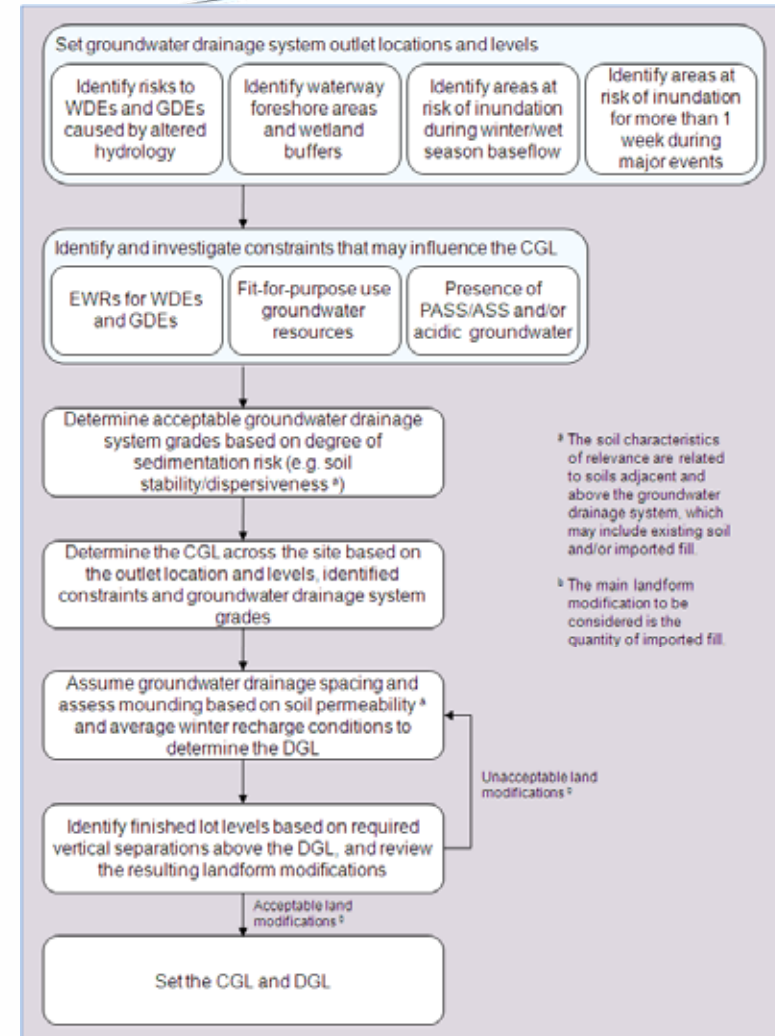


## Stage 2a - Setting the CGL:

- manage environmental assets and water resources
- prevent or manage mobilisation of contaminants
- free flowing outlet during winter baseflow

## Stage 2b - Calculating the DGL:

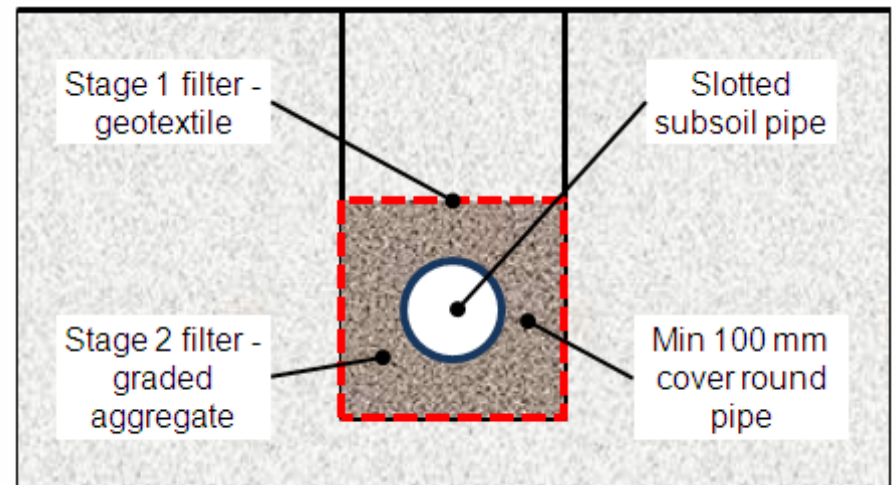
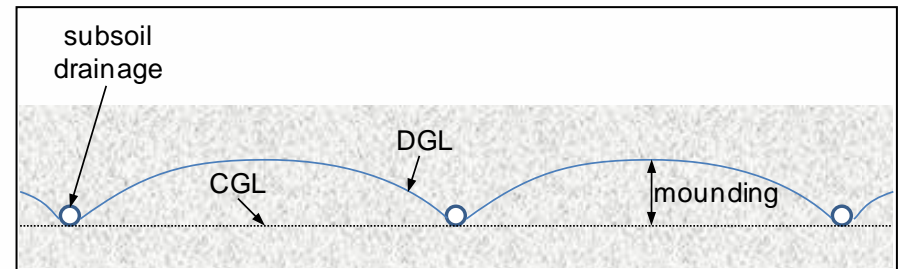
- horizontal distance between drainage lines:
  - reducing installation costs
  - ensuring maintenance access
- winter mounding conditions





## Stage 3 – Sub-soil design considerations:

- focuses on subsoil drainage
- protecting water resources:
  - managing discharge (quantity and quality)
- standard industry requirements:
  - pipes (e.g. grade/slope)
  - filter (e.g. type)
- maintenance plan

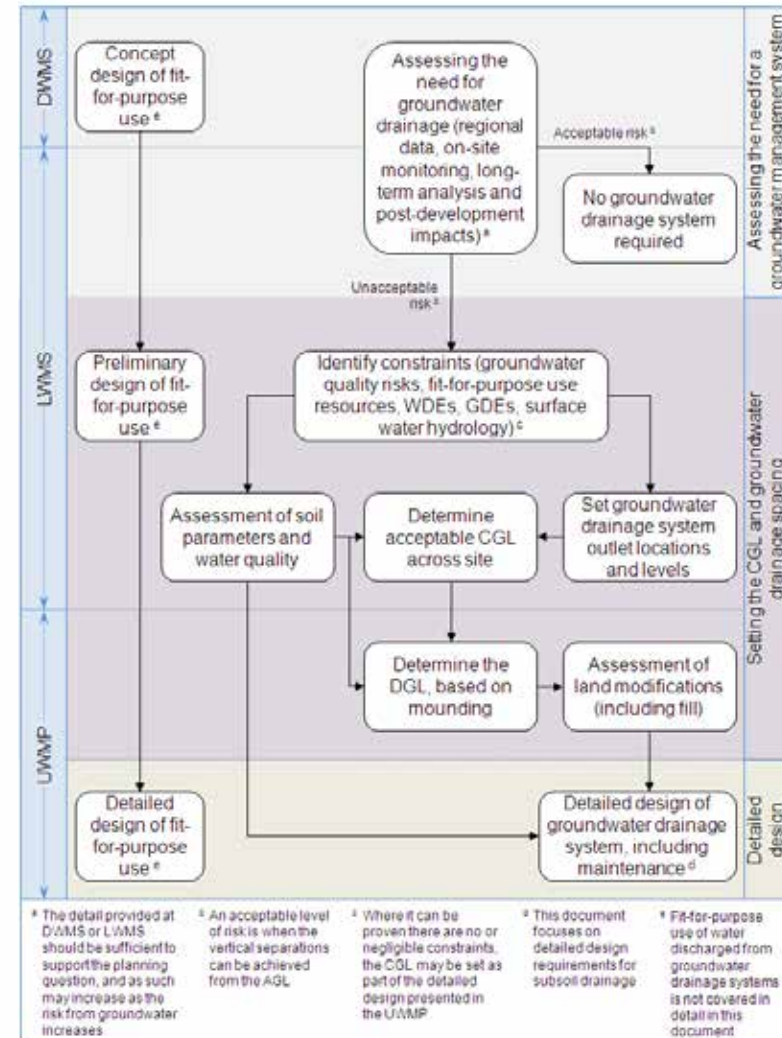






## Alignment with the land use planning process:

- breakdown into DWMS, LWMS, UWMP requirements
- enables flexibility based on risk





## Summary:

### **Assessment groundwater level (AGL):**

- level from which the risk from groundwater is assessed:
  - based on available and relevant pre and post development data

### **Controlled groundwater level (CGL):**

- invert the drainage system is set at ensuring:
  - adequately manage environmental assets and water resources
  - prevent or manage contaminants
  - free flowing during winter baseflow conditions

### **Design groundwater level (DGL):**

- post development groundwater behaviour





## Implementation / what next:

### **Draft for comment:**

- the draft guidelines will be released for comment

### **Industry working group:**

- review of vertical separations
  - various components of the urban form (foundations, roads, utilities, etc)
  - what risks are the separations managing (groundwater behaviour, soil types, etc)

### **On-going assessment of water management documents:**

- no change in the department's position as outlined in:
  - the *Stormwater management manual for WA*, and
  - *Decision process for stormwater management in WA*



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# Questions