

The Consultant shall make an assessment of these impacts and report findings to DMAT for review. Design shall not proceed until the agreement of DMAT Dewatering Section has been given.

Water quality

The drainage assessment shall consider the chemical properties of water that will be drawn into the drainage system. This is because it may cause migration of existing contamination and/or affect the structural integrity of below ground infrastructure (e.g. foundations, piles, pipelines). In particular, where drainage systems are installed within or adjacent to areas of potential contamination, or have the potential to draw water from areas that may have different chemical properties to the native groundwater (e.g. close to the sea, natural and artificial wetlands), a risk assessment shall be provided and appropriate mitigation measures adopted by the Developer. The risk assessment shall consider the potential for all relevant risks including but not necessarily limited to:

- Changes to aquifer properties (e.g. dissolution or precipitation)
- Changes to groundwater chemistry
- Mobilisation of contamination
- Saline intrusion
- Detrimental effects on the drainage network (e.g. corrosion of pipes)
- Detrimental effects on infrastructure (e.g. corrosion of existing foundations / piles).

Pipe Bed and Surround

All pipes shall be laid with bed and surround in order to:

- prevent or restrict soil particles from entering the pipe
- provide good drainage permeability
- assist with accurate laying of the pipe
- provide structural support to the pipe

The pipe trench shall be 150mm wider than the pipe on each side for open trench installation with minimum pipe trench width of 600mm to allow sufficient bedding to support the pipe.

For Projects in Al Ain Region, pipe bedding and surround details provided in Al Ain Municipality standard drawings and specification to be used.

Gravel Bed and Surround

Where gravel bed and surround is provided, the depth beneath the pipe shall be a minimum of 100mm, and above the pipe shall be a minimum of 180mm. However, the depth of gravel above the pipe shall be increased where necessary to connect with permeable ground.

Where required, well-graded gravel shall be used for bed and surround. The measures of grading are given by the coefficients of uniformity and curvature from the following formulae:

$$\text{Coefficient of uniformity} \quad C_u = \frac{D_{60}}{D_{10}}$$

$$\text{Coefficient of curvature} \quad C_c = \frac{(D_{30})^2}{(D_{10})(D_{60})}$$