

Minimising Capital Cost of Pipelines

Capital cost is the primary consideration for most construction projects. However, Designers and Contractors often fail to account for all the costs relating to a pipeline installation by focusing only on the cost of the pipe.

This can lead to missed opportunities as significant installed cost savings can be made by properly addressing the structural design and constructability of the installation.

Rigid or Flexible Wall

Pipelines of different materials can be considered structurally as rigid or flexible systems.

Concrete is a rigid system and as such, the strength and structure of the pipeline comes mainly from the pipe itself, achieved in a controlled factory environment.

In contrast, a flexible pipe acts only mainly as a conduit and the construction of the supporting structure takes place on site where the integrity of the system is heavily reliant on the design and quality of the installation.

Bedding Options for Concrete Pipe

There are several alternative bedding design options for concrete pipes and unlike flexible wall systems, a full granular surround is not required. This can result in several cost advantages:

- Excavated native material can be re-used as backfill.
- Less imported granular material required.
- Time saved during the trench filling and compaction cycle.
- Reduced disposal of excavated material to landfill or elsewhere.

Cost Variability

As for the pipes themselves, estimating future costs of concrete pipe is reliable given the relative price stability of concrete, particularly when compared with resins (oil derivatives) which can be affected by surges in crude oil prices.

Cost of Handling

OH&S practices in Australia and New Zealand requires employers to undertake risk assessment of maximum mass of objects that can be lifted manually. This leads to best practice for lifting of flexible wall pipes over DN300 being mechanical handling. On this basis, costs associated with mechanical lifting plant are comparable with rigid wall pipe materials.

PipeClass Structural Design Calculator

Designers can use the CPAA PipeClass Concrete Pipe Structural Design Calculator to determine what class of pipe and bedding support can be utilised for a project.

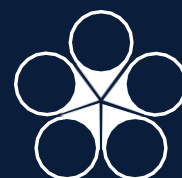
Comparing alternative designs of high proof strength pipe and low bedding factors with lower proof strength pipe and higher bedding factors to estimate the installed cost (and most sustainable solution) can easily be done.

PipeClass simplifies the design calculations for loads on buried Concrete Pipes and provides all the basic values for:

- pipe and trench geometry (including volume of materials required),
- design loads and bedding factors
- required pipe factory proof loads and
- class of pipe to use in conjunction with the chosen pipe support type.

Good reasoning equals smart choices.

The smart choice: steel reinforced concrete pipe.



Concrete Pipe
Association of
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