

Techniques for avoidance of long-term impacts on nationally significant grasslands during pipeline construction

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What's the project?

The Gippsland Water Factory will be an innovative wastewater treatment and recycling system located in the Gippsland region of Victoria. The system includes 78 kilometres of new pipeline, three new pump stations and five upgraded pump stations.

The pipelines are primarily located within both road and rail reserves that contain areas of native vegetation. In particular, a section of the pipeline located approximately 4 kilometres west of Rosedale was designed to traverse across an area of road and rail reserve that contains native grasslands of national and state significance. This includes the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) listed threatened species Matted Flax-lily, *Dianella amoena* and the Victorian *Flora and Fauna Guarantee Act 1988* (FFG Act) listed vegetation community, 'Central Gippsland Plains Grassland'.

What we aimed to achieve

The construction of the pipeline aimed to have no long-term impacts, particularly on the area containing native grasslands of national and state significance, thereby meeting the provisions of the relevant legislation. This aim was achieved through a combination of detailed planning, transparent communication and on-site management techniques.



Stockpiling on geofabric material adjacent to trench



Directional drilling under native vegetation – equipment placed on plyboards

What we did

Detailed planning

The concept design planning phase included detailed flora and fauna assessments, providing an opportunity to input into the pipeline design alternatives 'options analysis'. During the detailed design phase, environmental management plans, a vegetation protection plan and specific construction methodology for the area were developed.

Communication

Throughout the process, communication between the design team, construction crews, environmental staff and regulators (DSE and Council) was facilitated through on-site meetings.

On-site management techniques

On-site management techniques that were developed to avoid long-term impacts to the native vegetation, included the following:

- directional drilling and installation of pipe under areas of sensitivity
- clearly marking 'no go' areas with high visibility fencing, including the demarcation of access points, parking and stockpile locations
- temporarily removing 'blocks' of native vegetation from a location where subsoil access for the connection of directionally drilled pipeline was required. These 'blocks' were placed in a small area (3x4m) to one side for up to 2 weeks.
- temporarily stockpiling sub-surface soil on geofabric material
- placement of plant and equipment on temporary hardstands such as plyboard timber panels
- management of foot traffic and other minor works through areas of native grass.

What were the outcomes

Application of these planning, communication and on-site management techniques resulted in no significant impacts to the native grasslands of national significance. All impacts associated with the construction of the pipeline were limited to either, areas outside those classified as nationally significant or only temporary minor impacts.

Where unavoidable, the temporary minor impacts on the native grassland involved the careful cutting, removal and subsequent replacement of 'blocks' of grass/topsoil to allow subsoil access for pipeline connection. Other measures included the temporary placement and movement of soil and plant/equipment on geofabric and plyboard timber panels. These measures ensured minimal disturbance to the soil profile and seed bank.

Supervision of all works by the environmental officer on-site ensured that construction crews conducted works in accordance with the prescribed management techniques.

The outcome achieved the expectations of the regulators (DSE and Council), with site inspections of the site both during and after construction works confirming this.



Temporary removal of native vegetation 'blocks'



Temporary location of native vegetation 'blocks'



Placement of stockpile of geofabric material and equipment on plyboard



Replacement of native vegetation 'blocks'

Lessons learnt

When all feasible design alternatives for avoidance of native grasslands have been exhausted during the concept design phase of an infrastructure project, careful planning and identification of potential impacts early in the planning stage result in significant impacts being avoided. Transparent communication between the project team and regulators also allows issues to be identified at an early stage and implemented effectively.



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