

Land use and the proposed Western Outer Ring Main high pressure gas pipeline

ISSUE DATE: MARCH 2021



The proposed Western Outer Ring Main (WORM) Project includes a high pressure, buried gas transmission pipeline, approximately 51 kilometres long that will provide a new connection between existing pipelines at Plumpton in Melbourne's west and Wollert in the north.

This will provide improved reliability in the network by increasing the amount of gas that can be stored for times of peak demand and ensuring that sufficient volumes of gas can be moved to where it is needed most.

High Pressure Gas Pipelines (HPGPs) are located in many growth areas in Victoria. As both new and proposed HPGPs increasingly come into closer proximity with urbanising areas (both current and forecast), more parties are asking questions about both pipeline industry terminology and the practical implications of developing land proximate to a HPGP.

This factsheet provides information on pipeline terminology within the context of land use and development with urban growth areas.



WORM Pipeline Statistics

Length	Approximately 51km
Material	Epoxy coated high strength steel line pipe
Diameter	500mm
Burial Depth	Minimum 750mm
Design Principles	In accordance with the latest version of Australian Standard (AS) AS2885 Pipelines Gas and Liquid Petroleum
Easement Width	15m (typical)
Construction Right of Way	30m (typical) Plus Temporary Spaces for construction access

How is land use classified?

Pipelines are designed in accordance with Australian Standard AS2885 Pipelines – Gas and liquid petroleum. AS2885 requires APA to take account of the current and reasonably foreseeable land uses along the proposed pipeline corridor, for the design life of the pipeline, as a central input to pipeline design.

In reviewing reasonably foreseeable land use, APA activities typically include such things as:

- review land zoning;
- review planning scheme provisions;
- Review longer term land use plans held by State and local governments;
- meet with State and Local government planning authorities;
- meet with impacted landowners to understand both current land use and any future plans they may hold.

AS2885 sets out land use classifications. The above research informs what land use classification is applied to land within the proposed pipeline corridor.

Land use classifications include:

- R – Rural
- R1 – Rural Residential
- T1 – Suburban
- T2 – High Density Urban

In addition to the core land use classifications above, AS2885 sets out subclasses including:

- I – Industrial
- S – Sensitive

How are land use classifications used?

A core process to inform the design of the pipeline is a Safety Management Study (SMS). This study uses the above land use classifications applied within the pipeline Measurement Length (ML) to inform both direct threats to the pipeline and the consequence of a pipeline failure to existing and foreseeable land uses.

What is the Pipeline Measurement Length (ML)?

The area of land around the pipeline where APA must consider the existing and reasonably foreseeable land uses is referred to as the Measurement Length (ML).

The ML is the area where risks associated with the pipeline are assessed and consequently designed out to be as low as reasonably practical.

The ML is determined primarily by the Maximum Allowable Operating Pressure (MAOP) and the pipeline diameter. The ML for the WORM pipeline is 526 metres either side of the pipeline.

The ML is the area of consequence in the extremely unlikely event of a full loss of containment of the gas (full bore rupture) plus the gas being ignited. The ML defines the area where location classes must be identified and the geographical extent of the SMS considerations. The ML is not a 'buffer' in the sense that all land use must be kept a distance from the pipeline. It is the area of study and assessment for the proposed pipeline.



Western Outer Ring Main Pipeline design

The proposed pipeline design adopts the design criteria consistent with a T1 location class environment, regardless of the actual land use classification applied to any given area. This means the pipeline is designed as if it were traversing a suburban environment (T1) even where an R or R1 land use classification is applicable.

What is the Area of Consequence?

In planning for WORM, APA has reviewed credible threats and has designed the pipeline to respond to the existing and reasonably foreseeable environments identified in the ML. As a result of this, an event resulting in the full loss of containment (a full bore rupture) is not considered to be a credible scenario. In this circumstance, the worst case scenario is a puncture. In a similar way to establishing the ML for a full bore rupture, an assessment is done on a likely puncture size, gas escaping and igniting. The area potentially impacted in this scenario is known as the Area of Consequence and is typically significantly smaller than the ML.

The Area of Consequence for the WORM pipeline has been determined to be 65 metres each side of the pipeline.

The Notification Area, within which APA seeks ongoing visibility of Sensitive Use related planning applications to assess if they are compatible with the pipeline design matches the Area of Consequence (65 metres).

What are the impacts on land use?

The proposed pipeline will have no ongoing impact on land use within the ML and outside the Notification Area. This is because the proposed pipeline is designed to respond to reasonably foreseeable land uses – so that those land uses can proceed unimpeded.

The only scenario in which there is potential for the proposed pipeline to influence future land uses is the case of Sensitive Uses proposed within the Notification Area.

Any planning applications for Sensitive Uses within the Notification Area (65 metres either side of the pipeline) should be referred to APA.

The assessment and determination of such applications would be undertaken on a case by case basis. Applications for Sensitive Uses are likely to require an SMS be undertaken at the time.

What are Sensitive Uses?

AS2885 defines Sensitive Uses as those that may increase the consequence of a pipeline failure due to its use by members of the community that may be unable to protect themselves from the consequence of a pipeline failure. AS2885 requires the pipeline alignment and the associated ML to avoid Sensitive land uses in the first instance. If avoidance cannot be achieved, the proponent must design the pipeline appropriately.

APA's position is that the land uses listed below, as defined in the Victorian Planning Provisions, should be located outside of the Notification Area on account of being Sensitive Uses:

- Aged Care Facilities;
- Retirement villages;
- Child care / family day care centres;
- Cinema based entertainment facility;
- Schools or other educational establishments;
- Prisons / corrective institutions;
- Hospitals and medical centres;
- Place of assembly or worship; and
- Higher density residential uses (above 50 dwellings per hectare).

Continued overleaf...

Conclusion

The proposed WORM pipeline has been designed to significantly reduce the area of land use interest from the full ML of 526 metres, to a Notification Area of 65 metres either side of the pipeline.

APA will not object to Sensitive Uses if they are proposed outside the 65 metre Notification Area.

A case by case assessment of any proposed Sensitive Uses or Land Use Classification change within the Notification Area would be required at the time of their consideration. If acceptable management of risk cannot be achieved through an SMS process, APA may resist the change in land use from being permitted by planning authorities.

If you have an interest in potential future Sensitive Uses or development generally, you are encouraged to discuss your plans with the respective APA Land Access Officer or provide these to the project team via the Western Outer Ring Main inbox (worm@apa.com.au).



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