5 Environmental risk analysis

The DGRs for the GGP required a general environmental risk analysis. They stipulated that the analysis identify potential environmental impacts, proposed mitigation measures and potentially significant residual environmental impacts after application of the mitigation measures. The DGRs state:

> where additional key environmental impacts are identified through this environmental risk analysis, an appropriately detailed impact assessment of this additional key environmental impact must be included in the EA.

Consistent with these DGRs, a general qualitative environmental risk analysis was undertaken for the proposed modification to assist in identifying key matters to consider in its planning and assessment and to facilitate an appropriately tailored EA.

Potential environmental impacts were identified and ranked as either low, moderate or high risk, depending on their possible likelihood of occurrence and consequences of the impact if it occurred. This initial impact identification and analysis was for a hypothetical unmitigated scenario. That is, it did not consider the environmental safeguards and measures AGL has committed to implementing to address these impacts. It was based on knowledge of the existing environment, impact assessments already prepared by AECOM (2009a) for the approved pipeline and HDS, and the proposed modification's footprint and activities without mitigations applied.

The qualitative environmental risk analysis results for the unmitigated scenario are provided in Table 5.1. These results together with consultation with government agencies and other stakeholders enabled key aspects to be identified and targeted for further assessment.

The risk ratings in Table 5.1 relate only to the proposed modified sections of pipeline corridor and TRS, not the modified GGP in its entirety. It is also noted that the risk analysis process only considers adverse, unmitigated impacts however the proposed modification will have a number of environmental benefits, which are also identified in this EA.

Table 5.1 General qualitative environmental risk analysis results – unmitigated scenario

Aspect	Rating
Flora and fauna	
Impact on an EEC	Moderate
Impact on threatened or migratory species	Low
Impact on groundwater dependent ecosystems	Low
Impact on ecological values of the Hunter Estuary Wetlands Ramsar site and/or a national park	Low
Impact on koala habitat and/or wildlife corridors	Low
Impact on wetlands protected under state environmental planning policy	Low
Aboriginal cultural heritage	
Construction impact on Aboriginal cultural heritage	Moderate
Noise and vibration	
Noise and/or vibration impacts during construction	Moderate
Noise impacts during operations	Moderate
Road traffic noise impacts during construction and/or operations	Low

Table 5.1 General qualitative environmental risk analysis results – unmitigated scenario

Aspect	Rating
Hazard and risk	
Fire from natural gas loss of containment and ignition	Moderate
Soils	
Erosion and sedimentation during or following construction	Moderate
Impacts from disturbance of ASS	Moderate
Localised soil contamination	Low
Surface water	
Impact on drainage lines/watercourses from construction of the pipeline's crossings.	Moderate
Impact on surface water quality	Moderate
Impact on surface flow patterns	Low
Flooding impacts	Low
Groundwater	
Localised impact on groundwater quality	Moderate
Impact on groundwater users	Moderate
Localised impact on groundwater levels or flow regimes	Low
Air quality	
Air quality impacts during construction	Low
Air quality impacts during operations	Low
Socio-economic	
Increased pressure on social and community infrastructure during construction	Low
Amenity impact during construction	Moderate
Increased pressure on social and community infrastructure during operation	Low
Non-Aboriginal cultural heritage	
Construction impact on nearby sites of non-Aboriginal cultural heritage significance	Low
Visual	
Visual amenity impact	Low
Greenhouse gas	
Increased greenhouse gas emissions	Low
Traffic	
Increased traffic on regional and/or local road network during construction	Low
Increased traffic on regional and/or local road network during operation	Low
Bushfire	
Risk of incident that causes a bushfire	Low

All the identified (unmitigated) potential environmental impacts associated with the proposed modification are considered to be low or moderate risk.

Environmental assessments of each aspect have been undertaken, commensurate with their risk ratings, and are presented in Chapters 6 to 10 and Appendices C to F of this EA. The environmental management, mitigation and monitoring measures set out in the existing Project approval conditions and AECOM (2009a) EA provide an environmental management framework for the proposed modification to address impacts.

The assessments were finalised taking into account the mitigation and management measures proposed. Accordingly, all of the technical assessments consider and assess any residual impacts following application of the mitigation measures.

In summary, it was found that once AGL's existing committed mitigations are applied to each of the aspects listed in the environmental risk analysis, all the potential environmental impacts identified in Table 5.1 became **low risk**.

The EA did not identify any significant residual environmental risks associated with the proposed modification.