

19. Other environmental issues

This Chapter provides an assessment of the potential impact of the SWRL concept on the ‘other’, non-key environmental issues identified in the environmental risk analysis in Chapter 9. The level of assessment of these issues reflects that they can be managed through the application of best practice environmental management and proposed management measures and safeguards. Management commitments to address these issues are detailed in Chapter 21 (Draft Statement of Commitments).

19.1 Air quality and greenhouse gases

Ambient air quality may be temporarily affected as a result of particulate emissions during construction of the proposed SWRL (Connell Wagner 2003g; PB 2006b). This may affect the amenity of nearby sensitive land uses, particularly at Glenfield. Particulate emissions (dust) could exceed the relevant criteria. However, the implementation of a comprehensive dust control strategy throughout the construction period as part of the Air Quality Subplan (see below) would address these potential impacts.

During construction of the SWRL, dust would be generated, especially during earthworks. The amount of dust generated during the construction phase would depend on the soil properties (silt and moisture content) and on the activities undertaken. Dust generating operations would include loading of aggregate material on trucks; operation of bulldozers, scrapers and excavators; movement of vehicles on unsealed roads; and wind erosion from exposed surfaces. Dust emissions would be expected to be higher during unfavourable weather conditions (such as dry, windy conditions). During such conditions, specific corrective measures would need to be employed. The potential impact of dust at potentially affected receptors would decrease with increased distance from dust generating sources.

The dust load generated over a typical construction day would be small and is not expected to result in reduced local air quality at the nearest potentially affected receptors with the implementation of best practice management and mitigation measures, such as sealing of unsealed roads, installation of wheel-washes or other dust removal procedures and modification of construction procedures during periods of high wind.

An increase in other emissions, primarily carbon dioxide, would also occur during construction with the operation of road vehicles transporting and removing materials from the site, and operation of site plant and machinery (particularly from the movement of spoil by heavy vehicles and construction machinery). Greenhouse gas emissions would be managed and minimised during construction through the implementation of energy and resource saving measures. Contractors would be required to maintain construction plant in good working order to minimise emissions.

An Air Quality Sub-plan would be prepared as part of the overall Construction Environmental Management Plan (CEMP), which would address the management of dust during construction, emissions from construction plant and vehicles and other fugitive emissions.

In the long-term, operation of the proposed SWRL would be expected to benefit local/regional air quality through the provision of public transport into an area that would otherwise be heavily reliant on private passenger vehicles. The commencement of operations on the SWRL is likely to generate a mode shift from private cars to public transport. This would subsequently result in reduced combustion of diesel and petrol fuels and consequently reduce the production of greenhouse gases.

19.2 Hazard and risk

Risks and hazards associated with the construction phase of the proposed SWRL can be categorised as:

- environmental hazards: including potential discharge of hazardous or other material to the environment
- occupational health and safety hazards: including any activity our outcome that may affect the health and/or safety of site personnel and visitors to the site, and which may arise due to failure of health and safety procedures. (In the case of the proposed SWRL, works would be conducted over/under major arterial roads/freeway and within the operating railway corridor.)
- construction hazards: including operation and maintenance of plant and machinery and the materials required for construction. (Hazards associated with hazardous materials handling may include the loss of containment of hazardous materials resulting in potential impacts to people and the environment.)

The abovementioned construction hazard and risk issues would be addressed through a Hazards and Risk Management Sub-plan, which would be developed by the construction contractor prior to construction as part of the overall CEMP.

The SWRL would be designed to achieve RailCorp's operational safety standards and would be operated in accordance with all standard RailCorp safety, signalling and operating procedures. Freight, including dangerous goods, would not be transported on the SWRL. The main hazards of operation for the SWRL include:

- station or train fire
- train accident (including derailment, collision or impact)
- structural failure (bridge or flyover collapse)
- utility failure (power, communication or air conditioning failure)
- natural events (including flood and bushfire)
- external events (events occurring at adjacent facilities).

The above operational hazards would be managed/mitigated through RailCorp's standard procedures for hazard and risk that are in place across the entire rail network.

At the proposed train stabling facility, train crews would have to walk to and from trains stabled at the sidings at the commencement of each shift or on completion of the operations for each train. The access track walkways for train crews would be designed to meet occupational health and safety requirements for safe access (e.g. warning lights, trip-free walking surfaces, adequate lighting, the provision of safe places, etc).

19.3 Public safety

There is the potential for security/public safety issues to arise for passengers on trains and in and around station facilities and the stabling facility, particularly at night or during off-peak periods, where there is limited opportunity for passive surveillance. In order to manage these potential safety issues, crime prevention through environmental design (CPTED) principles,

including appropriate lighting, fencing of the railway corridor, security measures, installation of surveillance cameras, and help points at stations, would be applied to all new facilities to be installed as part of the SWRL project. These would be included as part of the design development process and would be based on similar precautions adopted at existing railway stations in the Sydney railway network. Public safety design considerations are covered in more detail in Technical Paper 4 (Urban Design Analysis). Appropriate security arrangements for the Stations and stabling facility (including CCTV coverage) would be implemented.

There is also potential for public safety issues during construction of the SWRL. In particular, there are a number of schools (including special schools) close to the proposed work sites at Glenfield Junction and Station. All construction compounds and work areas would be fenced to limit public access during construction. Where necessary public facilities would be relocated and/or replaced (e.g. bus shelters, footpaths). Safety issues would also be addressed in the Traffic Management Plans to be prepared (see Chapter 11).

The Sydney Water Supply Canal is a critical component of catchment infrastructure for the supply of raw drinking water to Prospect Treatment Plant. The Canal would be crossed by the proposed SWRL. In the vicinity of the proposed SWRL crossing, the Canal comprises an open channel. There is a potential risk to public safety should any member of the public enter onto the land on which the Canal is located. In addition to public safety, the Sydney Catchment Authority has identified the need to secure the Canal from trespassers and pollution to preserve the water quality. Adequate fencing along the boundary between the SWRL corridor and the Sydney Catchment Authority land would be maintained throughout construction and operation of the project in order to reduce the potential for trespass and ensure public safety. TIDC would continue to consult with the Sydney Catchment Authority to ensure its requirements are met in relation to potential impacts on drinking water and the canal infrastructure.

Consultation has been undertaken with emergency services departments as part of the Environmental Assessment preparation. The need to continue liaison with emergency services (including the NSW Fire Service, NSW Police and NSW Ambulance Service) is recognised and would be undertaken as part of future design development and environmental assessment.

19.4 Services and utilities

As discussed in Section 7.8, there are a number of above and below ground services and utilities running across the proposed SWRL corridor. New facilities are also planned as part of the development of the areas surrounding the proposed SWRL corridor. Excavation could potentially result in damage to existing services and utilities, causing disruption to services, inconvenience or potentially hazardous situations. The Sydney Water Supply Canal is a critical piece of infrastructure that would require specialised protection measures as described in Section 19.3 and Chapter 15.

In order to minimise and mitigate any potential impacts on services and utilities, the relevant utility owners would be consulted prior to construction commencement (regarding necessary protection measures), and appropriate design measures and standard construction and occupational health and safety procedures would be adopted. In addition, a Services and Utilities Disruption Sub-plan would be developed as part of the CEMP.

In addition, maintenance access for Sydney Catchment Authority staff to the Sydney Water Supply Canal would be maintained at all times through the construction and operation of the proposed SWRL.

At present, much of the South West Growth Centre area is unsewered. In the short-term, therefore, pump out systems are likely to be required at the operating Leppington Station and the stabling facility. On-site sewerage facilities would be further investigated during future design work.

19.5 Soils, water quality and groundwater

19.5.1 Sedimentation, erosion and water quality impacts

Soil erosion and associated sedimentation of creeks and watercourses could occur along the SWRL route, particularly during the construction phase. Activities during construction that may result in erosion and sedimentation include clearing of vegetation, construction of access paths, excavation for cuttings and foundations, stockpiling of soils and construction of fill embankments. As the proposed SWRL will be an entirely new rail corridor, extensive clearing and ground disturbance would be required during construction. As a result of this, there is potential for exposure of previously protected soil layers during clearing, grubbing and excavation. Potential impacts of erosion and sedimentation include erosion of topsoil and exposure of buried structures, reduction of air and water quality, sedimentation of creeks and rivers and increased turbidity levels in creeks and rivers.

Erosion and sedimentation may occur during operation of the proposed SWRL due to increased run-off from hard/sealed surfaces and/or as a result of the presence of any exposed surfaces. The train stabling facility would be located close to Kemps Creek and would include a train washing facility. Suitable environmental controls, such as the provision of bunds, would be provided to avoid interference with and run-off of contaminants into the Creek in accordance with RailCorp's *Design Guidelines for the Upgrade and Construction of New and Existing Train Stabling Yards and Turnback Sidings* (Final Version 1.0, June 2006). Controls for waste from the facility, including wastewater, are discussed in Section 19.6.

There is also potential for the quality of the water in the Sydney Water Supply Canal to be affected by construction and operation of the proposed SWRL through:

- erosion and sedimentation run-off during construction
- public pollution of the Canal during and post-construction
- rubber, heavy metals and hydrocarbons from the train system once the SWRL is operational
- stormwater pollution entering the Upper Canal via disturbance of culverts or surrounding land.

A number of measures would be implemented to control soil erosion and sedimentation. These would be detailed in a Soil and Water Management Sub-plan to be incorporated into the overall CEMP prior to construction. The Sub-plan would be prepared in consultation with relevant government departments and councils, and would be consistent with the principles and practices outlined in LandCom's (2004) *Managing Urban Stormwater: Soils and Construction*. The sub-plan would address all areas where significant disturbance of land or stockpiling of soils is likely to occur.

Potential erosion and sedimentation impacts during operation would be mitigated through the implementation of RailCorp's operational and maintenance procedures. Special controls required to avoid contamination of water in the Sydney Water Supply Canal would be developed and implemented in consultation with the Sydney Catchment Authority.

19.5.2 Soil/groundwater salinity impacts

Saline soil/groundwater conditions would be expected to be encountered at crossings of major creeks or in large cuttings. Much of the proposed SWRL alignment is underlain by shale, so the general likelihood of shallow saline groundwater would need to be considered when selecting construction materials and disposal of groundwater may require special consideration.

Saline groundwater can contribute to the corrosion of building materials. Sulfate resistant cement could be used in areas where concrete structures would be placed in contact with groundwater.

Given the low permeability of bedrock along the SWRL route, minimal saline groundwater would be expected in most cuttings. Furthermore, creek and floodplain crossings would generally be on fill or structure, so no saline groundwater interaction would be expected. Further investigation and characterisation of groundwater salinity levels and their extent would be undertaken along the corridor during the future design stage in order to allow for the use of salt resistant building materials and the design of structures with appropriate durability as required.

In areas where saline groundwater is considered likely to affect structures and foundations associated with the SWRL, general construction measures (as outlined in Western Sydney Regional Organisation of Councils' (2004) *Western Sydney Salinity Code of Practice* and Department of Infrastructure, Planning and Natural Resource's (2003) *Building in a Saline Environment*) would be employed to assist construction design. These would be detailed in the Soil and Water Management Sub-plan to be incorporated into the overall CEMP prior to construction.

The primary issues associated with groundwater would occur during construction. However, the design would need to ensure that the construction of structures would not have any potential ongoing impacts on groundwater. In conjunction with geotechnical investigations during the further design of the project, groundwater levels and quality would be assessed to determine the risk to groundwater resources and the proposed structures.

19.6 Waste, energy and demand on resources

The SWRL construction would generate various types of construction wastes, increased energy use and increased demand on local and regional resources. It is unlikely that development of the project would result in any resource becoming scarce or in short supply.

Wastewater from train washing activities and waste collected from trains during train preparation at the train stabling facility would be managed in accordance with management measures detailed in RailCorp's *Design Guidelines for the Upgrade and Construction of New and Existing Train Stabling Yards and Turnback Sidings* (Final Version 1.0, June 2006). This would include provision for waste separation, storage and handling facilities.

Standard environmental mitigation measures to manage construction waste would be included in the CEMP prior to construction. Any wastewater collected would be appropriately treated prior to discharge in accordance with current standards. Opportunities would be investigated to maximise re-use of construction spoil, including cut/fill balance during design and potential reuse/recycling of other construction and demolition waste.

Energy consumption during operation of the SWRL would be associated with the operation of passenger trains, station facilities and stabling yard and with vehicles, trains and equipment used for maintenance of the line and of passenger trains. It is anticipated that the project would result in a mode shift away from private vehicles to public transport, thus resulting in energy savings. Energy consumption associated with maintenance activities is expected to be low.

19.7 Contaminated land and hazardous materials

The primary source of concern regarding contaminated land and hazardous materials would be Landcom and Commonwealth land within the Edmondson Park release area, which was formerly occupied by the Ingleburn Military Camp. As described in Section 5.2.4, there is the potential for unexploded ordnance (artillery) and other ammunition and contaminants to be buried in this area.

LandCom is currently preparing a remediation action plan for its current landholdings in the Edmondson Park release area. This would be used as a basis for further sampling and remediation investigations on non-Landcom land to be crossed by the SWRL corridor. Any necessary remediation would be completed prior to construction of the main SWRL works. Following site remediation, a site validation report and/or long-term Environmental Management Plan would be developed. TIDC would also liaise with Landcom in order to ensure that all necessary site remediation works and (appropriate sign-off of these works) have been completed on Landcom's landholdings prior to commencement of construction in the SWRL corridor portion of this site.

At Glenfield North Junction, the SWRL crosses land that comprises the Glenfield Waste Facility (see Figure 5-1). The facility is currently licensed to L.A. Kennett Enterprises Pty Ltd for 'solid waste landfilling' and 'crushing, grinding or separating works'. It is understood that Kennett has filled close to the top of the embankment on which the East Hills Line sits as it approaches the Junction. Further assessment and consultation with the facility operator is required to confirm the type of wastes existing in the landfill (see Chapter 19), and whether the waste comprises inert matter or contaminated/hazardous materials. Potential impacts of the works are expected to be able to be managed through design and other management measures.

19.8 Cumulative impacts

As described in Section 5.3 of this document, a large number of projects are proposed within the vicinity of the SWRL as part of the planned South West Growth Centre developments. The timing of many of these developments is yet to be determined; although it is likely that some works at Edmondson Park would overlap with the SWRL construction. The SSFL works at Glenfield are expected to be completed prior to construction commencement of the SWRL. The potential cumulative impacts of the SWRL construction would be further

considered as the design develops and mitigation measures developed and implemented as appropriate.

Operational potential cumulative impacts are expected to be manageable as the SWRL would continue to be considered in future planning for the area. The noise assessment described in Chapter 12 considered potential operational noise impacts from operation of the proposed SSFL project at Glenfield.



PART E – THE CONCEPT PLAN

