16. Environmental management and mitigation

This chapter provides a summary of the measures that are included in the project to minimise impacts on the existing and future environment. The chapter also summarises environmental mitigation measures previously provided in the Concept Plan Environmental Assessment (EA).

16.1 Overview of environmental management system

The construction phase of the project would be managed using Transport Infrastructure Development Corporation's (TIDC) Management System. This Management System, which includes environmental elements, would provide a single, consistent framework for implementing the environmental management measures set out in the Minister's Conditions of Approval (MCoA) and other licences or permits, and proposed in this Environmental Assessment. RailCorp's Management System would be implemented during the operation phases of the project.

16.1.1 Minister's Conditions of Approval

The SWRL was granted Concept Plan Approval, under Section 75O of the EP&A Act, on 29 August 2007. Conditions 5.1 to 5.4 of the MCoA detail environmental management measures relevant to the project (refer Appendix C).

16.2 Construction environmental management plan

A Construction Environmental Management Plan (CEMP) would be prepared for the construction phase of the project. The CEMP would provide a centralised mechanism through which all potential environmental impacts relevant to the project would be managed. It would outline a management framework of procedures and controls for managing environmental impacts during construction.

The CEMP would outline how environmental mitigation measures identified in this Environmental Assessment (refer Table 16-1) would be incorporated in the project and would document mechanisms for demonstrating compliance with the MCoA, the Statement of Commitments (SoCs) and relevant concept and project approvals, licences and permits.

The plan would be prepared by the TIDC-endorsed Managing Contractor and endorsed by the appointed project Environmental Management Representative (EMR) to the satisfaction of the Director-General of the NSW Department OF Planning (DoP). Monitoring and auditing of performance in relation to the CEMP would be undertaken by the Managing Contractor, the appointed EMR and TIDC. The Plan would contain a number of sub-plans including, but not limited to, the following:

- Construction Traffic Management Plan
- Construction Noise and Vibration Management Plan
- Construction Water and Soil Management Plan
- Flora and Fauna Management Plan (including vegetation clearing protocols and weed management measures)
- Historic Heritage Management Plan
- Landscape and Rehabilitation Plan (for worksites)
- Air quality and Dust Management Plan

- Community and Stakeholder Management Plan
- Community Liaison Plan
- Salinity Management Plan
- Waste Management Plan
- Occupational Health and Safety Plan
- Hazard and Risk Management Plan
- Spoil Management Plan.

These management plans would outline the mitigation and monitoring measures that would be implemented to minimise environmental impacts; and establish the environmental performance objectives and targets for each issue aspect.

The CEMP would also outline objectives and targets for environmental performance, in the form of measurable Key Performance Indicators (KPIs). The KPIs for environmental management would reflect the environmental Key Result Area of *Exceptional Urban and Environmental Outcomes* and would be audited on an annual basis.

In addition to the CEMP, Environmental Work Procedures and Environmental Control Maps (ECMs), containing site specific details, would be prepared, endorsed by the EMR, and implemented during construction.

The on-going management of environmental issues associated with the operation and maintenance of the project would be undertaken through RailCorp's Environmental Management System and standard operation procedures.

16.3 Compliance monitoring

A compliance tracking program would be developed and implemented by TIDC to manage the requirements of the MCoA, the SoCs and any related project approvals, permits and licences. The Program would enable the periodic review of the compliance status of the project and a program for independent environmental auditing would be established. Audits would occur once a year during the construction phase and one year after the commencement of operation. The Program would establish procedures to re-establish compliance, should any non-compliance be found during reviews or audits.

The Director-General would be notified prior to the commencement of construction or operation of the project and the results of any audits would be made available to the Director-General on request.

16.4 Summary of mitigation measures

The mitigation measures that are proposed to be implemented during the project are summarised in Table 16-1.

Table 16-1 Summary of proposed mitigation measures

Chapter/ Section	Environmental issue	Mitigation measures
7.0	Land use, property and infrastructure planning	To minimise land take during construction, the following measures would be implemented: ▪ approaches to restoration and future use of temporary construction sites would be considered during the detailed design and construction stages of the project and as part of the preparation of the broader project Land Asset Management Plan ▪ TIDC would liaise with agencies responsible for precinct planning in the SWGC so that the detailed design of the project makes allowance for: ▸ measures to improve connectivity across the corridor to manage severance impacts, including opportunities for pedestrian bridges and other access, where feasible ▸ potential collocation of utilities or other beneficial land uses of the rail corridor ▪ acquisition of land would be by agreement or compulsory process in accordance with the requirements of the *Land Acquisition (Just Terms Compensation) Act 1991* ▪ TIDC would continue to work with the Strategic Land Release Project Office of DoP so that impacts on future sensitive land uses within the SWGC are managed through a combination of land use planning controls (i.e. future land uses being appropriately designed or separated from the proposed corridor by roads and/or other buffers, industrial areas or recreational use areas) and the incorporation of appropriate impact mitigation measures into the detailed design of the project in accordance with the commitments made in this EA ▪ severance of community linkages would be minimised during construction by ensuring that all pedestrian and traffic crossings are upgraded prior to removal of existing structures.
8.0	Traffic, transport, parking and access	▪ In order to minimise any construction and operational impacts of the project on traffic, transport, parking and access in the project area, TIDC and/or RailCorp would: ▸ continue to liaise with the Strategic Land Release Project Office of DoP, NSW T&I and the Edmondson Park and Leppington masterplanners to assist the coordinated delivery of land use developments in relation to station functions, parking and mode of access provisions ▸ develop a construction staging plan to maximise construction vehicle access along the rail corridor and hence minimise any earth haulage requirements by public roads ▸ develop a construction traffic management sub-plan to minimise construction vehicle impacts on the surrounding road network ▸ continue to consult with the RTA, relevant local councils, the Strategic Land Release Project Office of DoP and the town centre masterplanners regarding planned road upgrades. ▪ Further, liaison would be undertaken with the RTA regarding the Bringelly Road/Edmondson Avenue/Rickard Road intersection. This intersection would need to be upgraded to traffic signal control by 2021 to manage projected traffic. Also, Bringelly Road would need to be upgraded by RTA to two lanes per direction with dual right-turn lanes from the western approach into Rickard Road. ▪ Further consideration would be given to the following during the detailed design and construction stages of the project: ▸ working collaboratively as part of the town centre masterplanning processes for Leppington and Edmondson

Chapter/ Section	Environmental issue	Mitigation measures
		Park to provide effective wayfinding systems that maximise access to the train stations from locations throughout the new town centres and surrounding communities (e.g. urban information systems) ▸ providing shelter for bicycle storage facilities to encourage their use and making allowances for further expansion of these facilities in the future, depending on demand, as well as providing off-road bicycle access to the stations and appropriate intersection treatments to meet the needs of cyclists and dedicated bicycle facilities for staff ▸ providing bicycle links and bicycle storage facilities and staff showers at the proposed Leppington Train Stabling Facility to enable staff to cycle to work in accordance with TIDC's *Sustainable Design Guideline*, Maintenance Facilities Section 6.5-6.7 (2009).
9.0	Noise and vibration	*Construction noise* ▪ The suite of standard mitigation measures described in TIDC's *Construction Noise Strategy* must be implemented on all rail construction projects. These include: ▸ community consultation measures ▸ site inductions covering noise and vibration ▸ behavioural practices ▸ equipment selection and usage. ▪ Construction activities would be restricted to the following hours (where possible): ▸ 7 am to 6 pm Monday to Friday ▸ 8 am to 1 pm Saturdays ▸ No work on Sundays or public holidays. ▪ For any work not possible during the above construction hours, the following approach would be taken: ▸ detailed noise impact assessment would be undertaken for specific activities ▸ surrounding noise sensitive receivers would be provided with appropriate notice of all out of hours work ▸ noisiest construction activities would take place before 10 pm whenever feasible, with as much preparation work and noise-intensive work as feasible undertaken during daytime hours ▸ feasible and reasonable impact mitigation measures would be identified and implemented in accordance with TIDC's *Construction Noise Strategy*. ▪ Construction activities should consider the potential cumulative air-borne noise impacts of other construction projects in the vicinity including road upgrades to Campbelltown Road, Camden Valley Way and Bringelly Road, urban development of the Edmondson Park and Leppington North precincts and utility projects being undertaken by Sydney Water, It is proposed that TIDC and the construction contractor will liaise with relevant parties including, Councils, the RTA and Sydney Water to reduce any potential cumulative impacts during the detailed design phase and the preparation of the CEMP. ▪ Where the noise management levels are exceeded, DECCW's *Interim Construction Noise Guideline* requires all feasible and reasonable mitigation measures to be applied. Feasible and reasonable measures would include the following: ▸ the construction contractor(s) would prepare and implement a site-specific construction noise and vibration management plan (CNVMP)

Chapter/ Section	Environmental issue	Mitigation measures
		▸ noise intensive construction works would be carried out during normal construction hours, wherever practical ▸ where works involving the existing operating rail line need to be carried out during weekend possessions, noise intensive activities would be scheduled to occur during the daytime, where possible ▸ surrounding noise sensitive receivers would be provided with appropriate notice of all out of hours work ▸ the noisiest construction activities would take place before 10 pm wherever feasible, with as much preparation work as feasible undertaken during daytime hours ▸ the quietest available plant suitable for the relevant tasks would be used ▸ the duration of noise intensive activities would be minimised, as far as possible ▸ where appropriate and effective, site hoardings or temporary noise barriers would be used to provide acoustic shielding of noise intensive activities or fixed plant items ▸ rock breakers would be of the 'Vibro-silenced' or 'City' type, where feasible and reasonable ▸ activities resulting in highly impulsive or tonal noise emission (e.g. rock breaking) would be limited to 8 am to 12 pm Monday to Saturday, and 2 pm to 5 pm Monday to Friday (except where essential during track possessions and subject to additional approvals where required) ▸ high noise generating activities would run for no longer than three continuous hours with a minimum respite of one hour where necessary ▸ noise awareness training would be included in inductions for site staff and contractors ▸ noise generating plant would be orientated away from sensitive receivers, where possible ▸ notification would be provided to residents to advise of the nature and timing of works and how to obtain more information ▸ discussions would be undertaken with nearby schools regarding possible noise management measures, such as the scheduling of noisy construction activities outside of exam periods, wherever possible ▸ noise monitoring would be carried out periodically to confirm that noise levels do not significantly exceed the predictions and that noise levels of individual plant items do not significantly exceed the typical levels ▸ deliveries would be carried out within standard construction hours, except as directed by the Police or NSW Roads and Traffic Authority (RTA), or as required for possession work ▸ non-tonal reversing beepers or equivalent would be fitted and used on all construction vehicles and mobile plant regularly used on site and other vehicles where possible ▸ trucking routes would be via nominated construction access routes and major roads, where possible ▸ trucks would not be permitted to queue with engines running near residential dwellings, unless no feasible or reasonable alternatives exist ▸ the simultaneous use of more than one noisy plant item adjacent to sensitive receivers would be avoided to the greatest extent possible ▸ the offset distance between noisy plant items and nearby sensitive receivers would be maximised.

Chapter/ Section	Environmental issue	Mitigation measures
		▪ The CNVMP would address Section 49 of the *Occupational Health and Safety Regulations 2001*.
		Construction vibration
		▪ Any vibration generating plant and equipment would be located within the site in a manner that minimises vibration impacts, as far as practical.
		▪ The hours of operation of major vibration generating plant and equipment would be scheduled to minimise vibration impacts, as far as practical.
		▪ Lower vibration generating items of construction plant and equipment (such as smaller vibratory rollers hydraulic rock breakers and bored piles) would be used, where feasible.
		▪ Consecutive works in the same locality would be avoided, where feasible and reasonable.
		▪ High vibration generating activities would only be carried out in continuous blocks not exceeding three hours each, with a minimum respite period of one hour between each block where required.
		▪ Vibration monitoring would be undertaken at the commencement of vibration generating activities to confirm compliance with vibration criteria.
		▪ To avoid structural damage to buildings, the safe working distances listed in Table 9-5 would be implemented as part of the project.
		▪ Safe operating parameters are to be established for vibration producing construction equipment in the vicinity of the Upper Canal and the Ingleburn Army Camp.
		▪ Attended vibration monitoring should undertaken to set operating limits for equipment to be used in the vicinity of the Upper Canal and the Army Camp to monitor any vibration caused by construction works in the vicinity.
		▪ Bridge piling near the Upper Canal should be undertaken using boring techniques rather than pile driving, and size limits for vibratory rollers and rock breakers.
		▪ The cumulative vibration impacts of other construction works not associated with the project will be considered in the staging of works, especially around the Upper Canal and Ingleburn Army Camp.
		Operational noise and vibration
		▪ All reasonable and feasible noise and vibration mitigation measures would be examined and finalised during detailed design. These measures would include the use of earth mounds and the use of additional measures such as noise walls. Treatments to buildings or property fences would only be used as a last resort where appropriate and effective. Building treatments would only be considered for existing buildings.
		▪ A noise sharing approach to noise mitigation would also be considered during detailed design. This would involve (in addition to the physical measures proposed as part of the project) the application of appropriate land use planning controls to provide buffers between future sensitive receivers and the rail corridor, and the application of feasible and effective source control measures, where available. TIDC would continue to work with the Strategic Land Release Project Office of DoP and Landcom to assist with the development of an appropriate land use strategy for areas potentially impacted by operational noise.
		▪ TIDC would continue to work with the Strategic Land Release Project Office of DoP and other stakeholders so that appropriate land uses are used to isolate sensitive land uses from areas

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		along the proposed SWRL corridor where the $L_{Aeq(9\ hour)}$ noise levels are 55 dBA or greater. Other mitigation options, such as noise barriers, could be used where reasonable and feasible land use solutions are not available. ▪ Compliance monitoring would be undertaken at receiver locations listed in Table 9-11. Subject to the agreement of the residents concerned, compliance measurements, in accordance with the IGANRIP would also be undertaken at previously unattended representative receiver locations including: ▸ 25 Cassidy Street, Denham Court ▸ 135 Croatia Avenue, Edmondson Park. A strategy for compliance monitoring would be determined prior to commissioning of the SWRL. ▪ A noise barrier around the train stabling facility could be built around six metres above rail level on three sides to mitigate noise impacts associated with the Leppington Train Stabling Facility, excluding horn noise. Land use options and measures could be used to further mitigate noise impacts on potential future development around the facility. The possibility of enclosing the stabling facility in a shed with open doors would not be precluded by the current concept design, if deemed to be required following further consultation with DoP on future land uses and further consultation with RailCorp on the options for horn noise mitigation. ▪ Substation noise would be mitigated to the greatest extent possible during detailed design through the application of design measures within the substation sites. Further noise assessment would be undertaken during detailed design to confirm the noise impacts and identify any additional noise mitigation requirements for potential future land uses.
10.0	Water quality and hydrology	*Construction* ▪ For each construction compound and stockpile site, the recommended mitigation measures described in Table 10-5 would be adopted. ▪ Hazardous and/or contaminating materials would not be stored adjacent to waterways or within drainage areas. ▪ Spills would be contained immediately and bunded areas used for storage of potentially hazardous and/or contaminating materials and activities. ▪ A Construction Water and Soil Management Sub-plan would be prepared to address water quality, flooding and soil salinity issues during the construction phase. The Construction Water and Soil Management Sub-plan would incorporate measures to manage erosion and sedimentation for each component of work in accordance with *Managing Urban Stormwater Soils and Construction* (Landcom 2004). ▪ The Construction Water and Soil Management Sub-plan would also include a monitoring program to assess water quality upstream and downstream of the project. The monitoring program would be established prior to construction to develop an appropriate base condition and continue for a period after construction. ▪ Measures to control erosion and sedimentation would include: ▸ appropriate staging of works to minimise the extent of disturbance at any one time ▸ mitigation/control of onsite soil erosion through surface stabilisation and minimisation of slope length and gradient ▸ control of the movement of water onto, through, and off the site such as diversion drains to direct upstream run-off

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		around the site and collection and treatment of run-off prior to discharge from the site. ▪ Treatment of run-off prior to discharge would include the provision of sediment ponds to minimise the dispersion of sediments into downstream watercourses. ▪ In relation to the impacts associated with siting of construction of sediment basins, the following mitigation measures would apply: ‣ the exact location and sizing of sediment basins would be finalised by the construction contractor during detailed design. Design would be in accordance with Section 6 of *Managing Urban Stormwater Soils and Construction* (Landcom, 2004) (commonly referred to as the Blue Book) ‣ sediment basins would be located in areas of low ecological and heritage conservation value ‣ sediment basins would be designed and maintained in a manner consistent with the above mitigation measures ‣ at sensitive environmental areas, temporary sediment basins may be retained as permanent spill containment structures during operation of the project ‣ the remaining temporary basins would be removed and rehabilitated upon opening of the project. Determination of which temporary sediment basins used during construction would be retained as permanent sediment basins for use during operation of the project would be considered during the construction phase of the project ‣ where sediment basins are deemed to be required outside the assessed project footprint (in particular, basins S13, S14, S15, N18, S16, N19, N20, S18, N21 and L11 as shown in Figure 6-18), an impact assessment would be undertaken prior to construction. *Operation* ▪ Water quality measures would be incorporated into the design in accordance with all statutory and environmental protection requirements. ▪ The presence of soil salinity would be confirmed and appropriate mitigation measures adopted in accordance with the Edmondson Park Precinct – Development Control Plan (Liverpool City Council 2008). ▪ Recommended measures at each waterway crossing are outlined in Table 10-9 to address environmental considerations and floodplain management requirements. ▪ The design of bridges would consider the location of piers and abutments in accordance with *Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge 2003*)* to minimise impacts on the existing creek bed. ▪ The design of culverts would incorporate measures to promote fish and fauna passage and riparian connectivity. These include setting the invert of the culverts lower than the creek invert to minimise any vertical barriers and make provision for a natural bed to the base of the culvert and providing a lower central cell for low flows and fish passage while allowing dry fauna passage through higher cells. ▪ Scour protection would be provided around bridge piers and abutments and at the outlet to culvert crossings. ▪ Adverse impacts on adjacent land would be managed through the design of inlet treatments and surface drains during future design stages. The design and extent of such measures would be confirmed through flood modelling during the detailed design stage.

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		▪ Future design of inlet works would include a refinement of the preliminary culvert sizings presented in Table 10-9. ▪ Diversion of flows from Crossing 2 to Crossing 1 has been proposed. A more detailed assessment of flood impacts on Bunbury Curran Creek would be undertaken as part of the assessment of Crossing 1 using Campbelltown City Council's flood model and revised viaduct/embankment design. ▪ Crossing 3 would be sized during detailed design so that there is no impact on Campbelltown road for flood events up to and including the 1% AEP (1 in 100 year) storm. The final sizing would be subject to detailed design. ▪ Due to the consequences of overflows at Crossings 4 and 6 on Edmondson Park Station, flood mitigation measures shall include bunding of the inlet of Crossing 6 to provide 500 mm freeboard above the 1% AEP flood level; and debris control devices upstream of Crossings 4 and 6. ▪ As the potential flood risk in events that exceed the design standard is high in the vicinity of Crossings 4, 5 and 6, a Flood Risk Management Plan at Edmondson Park Station would be prepared to address the potential risk to operation of trains and damage to rail infrastructure for floods in excess of the 0.5% AEP (1 in 200 year) storm. ▪ The underside of the proposed bridge at Crossing 7a would be at least 500 mm above the 1% AEP (1 in 100 year) flood level to minimise the likelihood for blockage of the bridge. ▪ Provision would be made so that the drainage system would safely divert the run-off flow from Crossing 7b to 7a along the rail corridor to discharge into Cabramatta Creek for all events up to the 1% AEP (1 in 100 year) design event. ▪ Provision would be made in the vicinity of Crossings 8, 9 and 10a to provide for the conveyance of floodwaters along the rail corridor to manage impacts on adjacent properties. This may require widening of the rail corridor. ▪ The underside of the proposed bridge for Crossing 11 would be at least 500mm above the 1% AEP (1 in 100 year) flood level to minimise the likelihood for blockage of the bridge. ▪ Provision would be made at Crossing 12 to convey flows up to the 1% AEP (1 in 100 year) design storm along the rail corridor to discharge at Crossing 13. ▪ The underside of the proposed bridges at Crossings 13 and 14 would be at least 500mm above the 1% AEP (1 in 100 year) flood level to minimise the likelihood for blockage of the bridge. ▪ For crossings that are proposed to be bridged (Crossings 7a, 11, 13 and 14), further hydraulic assessment would be undertaken during future design stages to guide channel works upstream and downstream of the crossing and final pier and span arrangements. ▪ For crossings where the proposed rail embankment encroaches on the existing floodplain (Crossings 8, 9 and 10a) adequate drainage works would be required for the conveyance of flood water along the rail corridor to manage adverse flood impacts on adjacent properties. ▪ Water reuse would be maximised through the capture, treatment and recycling of wash down water from the proposed train stabling facility and stations. ▪ Mitigation measures would be implemented to control pollutants entering the downstream creek and scouring at drainage outlets as a result of the proposed train stabling facility.

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		▪ The shallow interpass proposed for the Hume Highway would maintain the drainage capacity and function of the existing open drain on the highway. ▪ All track drainage would be diverted away from the Upper Canal, which supplies water to the Prospect Reservoir. A suitable design standard would be adopted in consultation with the Sydney Catchment Authority (SCA).
11.0	Flora and fauna	Prior to construction, detailed flora and fauna mitigation measures would be developed as part of the Flora and Fauna Management Sub-plan addressing the following mitigation measures. *Environmental management training and inductions* ▪ Environmental management and training induction – Staff and contractor inductions, in particular the location of sensitive biodiversity and roles and responsibilities relating to protection of all native biodiversity, would be undertaken prior to commencement of work. *Vegetation and habitat loss* ▪ The limit of vegetation clearing in environmentally sensitive areas would be clearly identified and marked, both on Environmental Control Maps and on the ground. ▪ Sensitive areas would be clearly identified during the construction process as 'no-go' areas. These would be marked on maps provided to contractors, as well as on the ground using high visibility fencing (such as barrier mesh). No direct disturbance, including disturbance from vehicle access, would occur in these areas. ▪ To minimise disturbance a trained ecologist would accompany clearing crews in environmentally sensitive areas. ▪ Clearing protocols, including translocation, would be put in place for clearing of vegetation in environmentally sensitive areas. ▪ Where possible, areas disturbed by construction activities would be revegetated to restore the habitat value and visual amenity of the area. Revegetation would be undertaken in accordance with a Landscape and Rehabilitation Plan to be developed for the project. *Direct mortality* ▪ A vegetation clearing protocol would be developed and put in place to minimise fauna mortality. This protocol would include: ▸ all habitat trees to be cleared would be identified (by survey) and marked ▸ large habitat trees that are to be removed would be shaken prior to removal in an attempt to encourage animals roosting in hollows to leave the tree. A 24-hour waiting period would be observed prior to the removal of the tree ▸ after the 24-hour waiting period, standing habitat trees and corridors would be felled, commencing with the trees most distant from secure habitat ▸ clearing would be undertaken in the winter, where possible, to facilitate survival of displaced animals ▸ if habitat trees are in short supply, artificial nest sites (nest boxes) would be installed in adjacent (secure) habitat before clearing. This would be undertaken in consultation with the relevant agencies and with the direction of a qualified ecologist ▸ all contractors would have the contact numbers of wildlife rescue groups should animals be injured during clearing ▸ to minimise disturbance and to assist native fauna injured or at risk of injury as a result of the vegetation clearing a trained

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		ecologist would accompany vegetation clearing crews in environmentally sensitive areas. *Weed control* ▪ Weed management measures would be developed as part of the CEMP and would include measures for: ▸ weed control focusing on noxious species, weeds of national significance and environmental weeds ▸ management of soil stockpiles ▸ preventing the spread of weeds through construction activities. *Biodiversity offsets* ▪ Development of the Biodiversity Offset Strategy for the project (i.e. impact on "non-certified areas" to the acceptance of NSW Department of Planning (DoP) and Department of Environment, Climate Change and Water (DECCW)) prior to the commencement of clearing during the detailed design phase. The offset strategy would include identification of the residual impacts of the project that are being offset (as identified in this assessment), lands and/or actions that would be used to offset the impacts, the long term maintenance and management requirements for offsets and a monitoring program to assess the effectiveness of the offsets package. ▪ TIDC will develop an offset strategy that addresses the loss of the 5 ha of vegetation in non certified areas (both inside and outside the growth centre). The identification of suitable properties for this offset will be undertaken in consultation with the DoP, the DECCW and local Councils. The offsets will be presented in an overall strategy that may include direct purchase and conservation of land (to be managed by others) or rehabilitation/revegetation of degraded lands that are important in the local or regional conservation network. As part of the overall strategy, management of the land would be agreed to as would monitoring requirements. Management may include control of weeds, natural regeneration and replanting of select species. Monitoring would include setting clear and measureable success thresholds (e.g. cover of weeds) and clear processes to measure the variables. The exact nature of both management and monitoring measures will depend on the agreed offset package. Such a strategy has been developed for the works completed at Glenfield Junction and this would form a template for the offset strategy.
12.0	Aboriginal heritage	*Construction* ▪ All construction personnel and contractors would be briefed on the statutory requirements of the *National Parks and Wildlife Act 1974* and obligations regarding the protection of Aboriginal places/objects prior to commencement of works. ▪ Should any previously unidentified Aboriginal object be discovered, all work would cease immediately in the immediate area and the Cultural Heritage Unit of DECCW would be informed. ▪ Should there be any modifications or alterations to the current footprint, the project team would consult with the appropriate Aboriginal heritage specialists and local Aboriginal community. ▪ A program of test excavation would be undertaken throughout the impact zone of the project route, site compound and stockpile areas on the slope and ridge between MFH#2 and the Hume Highway, to systematically sample these landforms

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		between Bunbury Curran and Maxwells Creeks, and to obtain a representative sample of artefacts across the landscape. ▪ Aboriginal communities would be offered the opportunity to relocate artefacts at site SW1 and SWRL site 7 and 10 outside of the construction impact area. ▪ Locations of DD1, SW2 and SWRL Sites 1–4, 6 and 8 (all of which are located outside of the construction impact area) would be clearly demarcated with high visibility temporary fencing to prevent accidental impacts. ▪ Any impacts on land outside of the project construction area, such as access routes or temporary structures, should avoid sites DD1, SW2 and SWRL Sites 1–4, 6 and 8. These sites should be clearly demarcated with high visibility temporary fencing. Should any unavoidable impacts be proposed to sites DD1 and SWRL Sites 1–2, then they would be included in the proposed test excavations. ▪ A program of test excavation would be undertaken throughout the impact zone of the project in the area where it proposes to cross Kemps Creek, to determine the density and type of archaeological deposits in this area of high archaeological sensitivity. ▪ A program of test excavation would be undertaken throughout the impact zone of the project where it crosses Ingleburn and Landcom land, and at EPCS7, to systematically sample the various landforms of this area around Cabramatta and Maxwells creeks, and to obtain a representative sample of the higher density of artefacts expected. ▪ A program of test excavation would be undertaken throughout the impact zone of the access track between Bringelly Road and the stabling facility, in the elevated area above a tributary of Kemps Creek to determine the density and type of archaeological deposit in this area. *Operation* ▪ No measures are considered necessary to mitigate operational impacts of the project.
13.0	Historic heritage	*Construction* ▪ The following mitigation measures would be incorporated into the project: ▸ *Landscaping* – to reduce the long-term impacts of construction sites, lands affected by construction activities should be rehabilitated and landscaped. Landscaping should acknowledge the local environment and the visual impact of the Project on the landscape. An appropriate mix of native species; low-scale shrubs and trees, should be planted intermittently to provide screening, but not obscure views across the landscape. Bunya Pines should be used sparingly, and only at significant locations, if at all. ▸ *Vibration impacts* ─ To minimise impacts from vibration from construction activities on the original fabric of the Upper Canal and the historic buildings of the Ingleburn Army Camp, vibration monitoring would be undertaken. Monitoring would be undertaken on a regular basis and in accordance with heritage best practice standards. ▸ *Change in landscape* ─ An archival recording would be prepared to record the pre-construction landscape of significant elements — particularly the Macquarie Fields House home paddocks, the Upper Canal, Ingleburn Army Camp and historic road alignments. The recording would include images of the construction process and any changes brought about on the landscape.

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		▸ *Archaeological relics* – Should any archaeological relics be discovered during construction activities, works in the immediate area would cease until an archaeologist has made an assessment to determine the appropriate management strategy. Care should be taken in the establishment and post-works rehabilitation of stockpile areas to minimise the potential disturbance of archaeological relics. An excavation director whose experience complies with the Heritage Branch requirement criteria should be employed to brief contractors on the heritage significance and supervise excavation works; particularly in the sensitive areas of the Upper Canal, Cowpasture Road, Quarter Sessions Road and the Ingleburn Army Camp. Excavation works should be undertaken in accordance with heritage best practice. ▸ *Row of Bunya Pines* – The row of Bunya Pines along Bringelly Road, adjacent to the Upper Canal, would be protected from damage in accordance with advice from an arborist. A Statement of Heritage Impact should be prepared to guide the construction works in this area. ▸ *Heritage Management Plan* – To address the impacts on the SHR listed Macquarie Field House, the Upper Canal and Ingleburn Army Camp a Heritage Management Plan (HMP) is to be prepared in conjunction with the Construction Environmental Management Plan (CEMP). The HMP would provide appropriate management measures to mitigate or minimise impacts based on detail designs for the Project. *Operation* ▪ The following measures would be implemented to minimise impacts on the visual amenity of the identified heritage items: ▸ the design of the project would incorporate landscape measures (i.e. plantings) to mitigate impacts on the heritage value of the landscape ▸ endemic native species would be planted at intervals along the project corridor ▸ interpretive signage would be placed at Quarter Sessions Road, Edmondson Park Station, Upper Canal and Cowpasture Road bridge.
14.0	Visual and landscape	*Construction* ▪ To avoid unnecessary visual impacts during the construction of the project, the following mitigation measures would be adopted: ▸ construction zones, accessways and compound sites would be located to minimise impacts on sensitive receivers and vegetation ▸ work and compound sites would be kept in a tidy condition and within clearly defined boundaries ▸ additional screening of security fencing would be provided to minimise views of the site from sensitive receivers ▸ stockpiling of construction materials and waste would not be permitted outside of the designated construction compounds and stockpile sites ▸ the parking/storing of construction vehicles/plant and equipment would not be permitted outside of the designated construction compounds and stockpile sites ▸ sites, particularly the construction compound sites, would be restored to their pre-construction condition or better as quickly as possible.

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		Operation
		▪ Landscape and visual mitigation measures to be implemented through construction would be documented in a Landscape and Rehabilitation Sub-plan.
		▪ Prior to the commencement of construction works and removal of vegetation, seed collection would take place throughout the proposed corridor and the surrounding woodland areas. Propagation of these seeds would be staged so that plants are a suitable size for planting when required.
		▪ Plantings would be undertaken prior to rail construction, where these works would not interfere with construction activities, to allow maximum time for the establishment of the new plantings.
		▪ All areas of the corridor outside of the central 14 metre-wide rail shoulder, drainage areas, and maintenance and rail system access would be planted, where possible.
		▪ Views would be opened up to the corridor at key locations and within proposed high density town centres.
		▪ Embankments would have a minimum slope of 2.5H:1V, using at least 300 millimetres of existing top soil.
		▪ A mulch layer, derived from cleared vegetation, would be placed at all planting sites. Any additional mulch would be obtained from recycled waste timber.
		▪ The proposed planting mix would be informed by the existing Cumberland Plain species. Species would be chosen based on past success in large-scale revegetation projects and low maintenance requirements.
		▪ Large-scale seed collections would be undertaken and suitable species would be grown to obtain individuals for plantings.
		▪ Ongoing maintenance costs would be reduced through the use of mulch through planted areas.
		▪ Areas which have been planted should be inspected at intervals not exceeding 14 days to monitor the health of any plantings and the effectiveness of any maintenance. A more regular monitoring interval may be required during adverse weather conditions.
		▪ Bridges would have smooth, clean lines and have a minimum structural depth consistent with their spans and method of construction.
		▪ Bridge approaches, embankments, noise walls and abutments would be treated as part of the bridge design process.
		▪ Abutments would incorporate high-quality finishes and detailing.
		▪ The visual treatment of the Camden Valley Way underbridge would reflect its higher historic heritage significance in comparison to the other proposed bridge structures.
		▪ Retaining walls would fully integrate with surrounding structures and landscapes and would be screened by vegetation, where possible.
		▪ Large noise walls would be avoided, where possible and would instead use:
		  ▸ earth mounding
		  ▸ low barriers
		  ▸ detailed planning measures for proposed surrounding land uses.
		▪ In areas where noise walls are required, they will be appropriately landscaped to reduce any visual impacts.

Chapter/ Section	Environmental issue	Mitigation measures
		▪ All proposed urban design measures would comply with relevant crime prevention through environmental design (CPTED) requirements. Bridge underpasses would provide clear and unobstructed views in and out. There would be wide voids under bridges and allowances for lighting. ▪ Light spill from all urban structures would be reduced as much as possible. Lighting would be designed by a specialist lighting consultant and would comply with relevant Australian Standards. ▪ Public artwork would be developed during detailed design and incorporated into the stations. ▪ In linking the local neighbourhoods and open spaces the public domain would: ‣ connect the station with the surrounding public roads and spaces ‣ respect and reinforce desire lines to proposed adjacent developments and local communities ‣ address visual corridors to and from proposed property developments ‣ incorporate safe pedestrian, bicycle and vehicular links ‣ orientate the entrance to the stations to streets and public routes wherever possible, to maximise passive surveillance from adjacent land uses. ▪ To integrate with adjacent developments, the public domain would: ‣ consider relationships to surrounding proposed land uses ‣ optimise commercial opportunities adjacent to stations ‣ encourage higher density development opportunities adjacent to stations ‣ improve the quality of the adjacent natural and built environment. ▪ To provide an appropriate urban character, the public domain would use low maintenance, robust, quality materials. The urban character would: ‣ be to the best landscape architectural and engineering practice ‣ use similar materials and treatments at all stations to achieve consistent visual coordination ‣ design furniture and facilities to be part of a coordinated suite of urban elements for each station ‣ be selected from a minimal and consistent palette of materials ‣ provide for maintenance, emergency and service vehicle access requirements ‣ provide for below-ground access to services requirements ‣ provide for cleaning requirements ‣ use best-practice materials and provide best-value solutions based on life-cycle costing criteria. ▪ The public domain would use appropriate plant species, sizes and densities. In particular the domain would: ‣ use trees with un-vegetated trunks (i.e. trees without bushy vegetation growth around the trunk of the tree) to address sight line and surveillance issues ‣ use shrubs and ground cover at appropriate densities to minimise weed invasion and maintenance ‣ retain and protect existing significant trees, where possible and appropriate

Chapter/ Section	Environmental issue	Mitigation measures
		▸ locate landscape elements to maintain clear sight lines at intersection ▸ provide an integrated, automatic and even system of water supply and drainage to the landscaped and grassed areas. ▪ The design of stations would adopt the following principles: ▸ an architectural expression informed by construction methodology and materials ▸ consistency of architectural expression to create line identity but with local variations to create civic identity ▸ innovative design and technological responses to achieve passenger comfort and environmental goals (including low embodied energy, air and water recycling and natural ventilation) ▸ rational architectural forms, spatial arrangements and material selection to optimise cost effectiveness and environmental benefits ▸ memorable public places that are accessible and robust and provide public amenity and safety.
15.1	Air quality and greenhouse gases	*Construction* ▪ An Air Quality and Dust Management Sub-plan would be prepared prior to construction. ▪ Consultation with affected communities would be undertaken throughout the construction of the project. Newsletters and other communications tools would be used to distribute information to the community about work progress, consultation activities, upcoming works and all project contact points. ▪ All equipment would be inspected before use to prevent against the release of smoke and contravention of the NSW *Protection of the Environment Operations Act 1997* and the *Protection of the Environment Operations (Clean Air) Regulation 2002*. ▪ The use of existing sealed surfaces on all construction sites would be maximised. ▪ Site speed limits would be implemented to prevent any unnecessary generation of fugitive dust emissions. ▪ Site movements would be kept to a minimum. ▪ All plant machinery would be regularly maintained and comply with all applicable standards and guidelines. ▪ All vehicles transporting material to and from sites would be covered immediately after loading to prevent wind blown dust emissions and spillages. ▪ Tailgates would be securely fixed prior to loading and immediately after unloading. ▪ Stockpiles would be located away from sensitive receptors where possible. ▪ Rumble grids would be installed at the main construction site and pre-cast yard exits to remove any dirt or dust from vehicles. ▪ Appropriate dust control measures would be implemented as required to minimise dispersion of dust from construction areas. ▪ The concurrent undertaking of multiple dust generating activities in proximity to each other would be minimised when site activities are generating dust. ▪ Handling of 'dusty' materials would be minimised and drop heights to lorries and/or skips would be kept to a minimum. ▪ All on-site conveyors would be either enclosed or partially enclosed to reduce fugitive dust emissions.

Chapter/ Section	Environmental issue	Mitigation measures
		▪ All site vehicles and machinery would be well maintained and switched off when not in use to eliminate the generation of any unnecessary emissions. ▪ On-site burning of waste at any of the construction sites, depots or pre-cast yards would not be permitted. ▪ All waste would be disposed of at registered waste facilities. ▪ All odorous or potentially odorous sources would be removed off-site. ▪ Construction procedures would be modified during periods of high wind and in dry conditions. ▪ Observation of the local meteorological conditions for the area would be undertaken on a daily basis. ▪ A mobile dust suppression system would be used to dampen vehicle route ways and unpaved areas (the extent and number of times would depend on the prevailing weather conditions). ▪ Activities that potentially generate high levels of dust may be curtailed, suspended or postponed in situations where the wind direction and speed is causing adverse impacts on nearby sensitive receptors. ▪ All stockpiles would be covered, enclosed on three (3) sides or kept moist using rotary sprinklers, particularly during dry or windy conditions. ▪ All construction sites and exposed areas would be appropriately rehabilitated once construction works are complete. ▪ Energy (fuel/electrical) efficiency would be considered when selecting equipment. ▪ Equipment would be regularly maintained to retain fuel efficiency. ▪ Where feasible, biofuels would be used (biodiesel, ethanol, or blends such as E10 and B80), to reduce greenhouse gas emissions from construction plant and equipment. ▪ Vegetation clearance would be minimised and revegetation would be undertaken where feasible. ▪ Energy efficient work practices would be adopted to limit energy use, including conducting energy conservation awareness programs for all site personnel and undertaking energy audits to identify and address energy waste. ▪ Plant and office-based equipment (including lights and computers) would be operated in an efficient manner and would be regularly maintained. ▪ If available and feasible, electrical energy derived from a renewable energy source would be used to supplement the supply of the on-site electrical energy required during construction. ▪ Locally-sourced materials and staff would be used wherever possible, to reduce transport-related emissions. ▪ Recycled materials, such as replacement of cement with fly ash, recycled aggregate, and recycled content in steel, would be used to minimise the lifespan impact of greenhouse gas emissions in production. ▪ Low greenhouse-intensity materials would be substituted where appropriate.
15.2	Economic and business impacts	▪ There are no additional mitigation measures that would be implemented for business impacts. The current measures listed in Section 15.2.1 remain relevant.

Chapter/ Section	Environmental issue	Mitigation measures
15.3	Groundwater and salinity	*Construction* ▪ Groundwater levels and quality would be assessed during detailed design to determine the risk to groundwater resources and the proposed structures. ▪ Detailed geotechnical investigation to guide the detailed design and construction of the project (this work has already commenced). ▪ Construction materials would be selected based on the likelihood of shallow groundwater and effects of salinity. ▪ Groundwater encountered during construction would be managed and disposed of in accordance with DECCW requirements, including the *Waste Classification Guidelines* (DECC 2008). ▪ Drainage blankets would be installed in locations where groundwater is to be intersected during construction to transport groundwater away from the infrastructure and prevent groundwater mounding. ▪ Contact between structures and groundwater would be minimised where possible. ▪ Further assessment of salinity conditions would be undertaken along the proposed SWRL alignment during detailed design, including a desktop review, a site inspection and subsurface investigations. ▪ A Salinity Management Sub-plan specific to the proposed development area would be provided for locations where salinity has the potential to pose a risk to infrastructure. ▪ The duration of exposure of sodic and saline soils would be minimised as far as possible throughout construction. ▪ Concrete that would be in contact with highly saline ground/groundwater would be blended with cement in order to provide better resistance against sulfate attack. ▪ General construction measures would be employed to assist construction design where saline groundwater has the potential to affect structures and foundations, such as those outlined in *Western Sydney Salinity Code of Practice* (Western Sydney Regional Organisation of Councils, 2004) and *Building in a Saline Environment* (Department of Infrastructure, Planning and Natural Resources, 2003). ▪ Where groundwater is above the level of the project foundations, detailed design must include measures to prevent the development of instability of foundation structures. ▪ For any areas in cut where perched groundwater is exposed, drainage at the toe of the slope and on the slope itself would be provided to protect the slope from erosion from surface flows of emerging groundwater. This would be considered further during detailed design. ▪ A Construction Water and Soil Management Sub-plan would be incorporated into the overall CEMP.
15.4	Soils, contaminated land and hazardous materials	*Construction* ▪ Ground improvement and/or deeper foundation systems would be undertaken where weaker alluvial layers are present. ▪ Depth and degree of weathering would be assessed through subsurface investigation to assess excavatability, batter slopes and founding characteristics. ▪ Heavily loaded structures would be founded on the weathered bedrock or better. ▪ Lightly loaded structures would be founded at shallow depth.

Chapter/ Section	Environmental issue	Mitigation measures
		▪ Further assessment of the reactivity of clays would be undertaken during detailed design. ▪ Vegetation of cut barriers would be required. ▪ Cut slopes would be excavated at 2.5H: 1V as agreed with TIDC in current Concept Design, space permitting. ▪ Surface drains would be provided at the crest and toe of cuttings. ▪ Further investigation of deeper cuts would be undertaken to assess the potential to stand up the lower sections of the cuts if required. ▪ Where soft soil is encountered, the surface would be excavated and replaced with engineered fill. ▪ If the soft soil profile is deep, preloaded or piled embankments would be used. ▪ Bored or driven piled foundations would be used for heavy load structures and where there is very soft soil within alluvial deposits. ▪ Piled or shallow footings would be used for structures founded on residual soil, depending on the anticipated loads and bearing pressures of the soil encountered. ▪ Piled or shallow footings would be used for structures founded on rock, depending on the strength and characteristics of the encountered rock. ▪ Methods for dealing with soft ground would be implemented during construction of embankments where alluvial deposits are expected so that ground settlement is not excessive and that embankment slopes are stable. ▪ Design considerations would include drainage measures, where groundwater is above the proposed formation level. ▪ Groundwater conditions encountered during construction would be reviewed to confirm that design measures are appropriate. ▪ Re-use of residual soils as engineered fill material would be limited to non-structural elements of embankments and landscaping. ▪ An assessment would be undertaken at the detailed design phase to assess the contamination risks and identify any potential areas of concern across the proposed rail corridor. *Operation* ▪ Potential erosion and sedimentation issues associated with project operation would be avoided to the greatest extent possible through project design. Remaining erosion and sedimentation risks would be managed through RailCorp's standard operational and maintenance procedures. Measures to manage water quality impacts are discussed further in Section 10.7. ▪ Where possible, the quantity of hazardous materials stored would be minimised. ▪ All hazardous materials storage facilities would be bunded so that any spillages are contained within a confined area, particularly during construction.
15.5	Public safety	*Construction* ▪ Public safety and security: ▸ All construction compounds and work areas would be fenced and secured when not in use to limit public access during construction.

Chapter/ Section	Environmental issue	Mitigation measures
		▸ Potential pedestrian and traffic safety issues would be addressed by way of traffic management measures. These measures would be detailed in the Construction Traffic Management Sub-plan that would be prepared as part of the CEMP. *Operation* ▪ Public safety and security: ▸ Crime prevention through environmental design (CPTED) principles would be applied to all elements of the project. Such measures would include appropriate lighting, fencing of the rail corridor, and installation of surveillance cameras and help points at stations. These measures would be developed during the detailed design phase of the project. ▸ Other measures may include implementing hazard signs to alert rail workers and commuters of potential hazards.
15.6	Disposal of waste	*Construction* ▪ Waste would be managed and disposed of in accordance with the *Waste Classification Guidelines* (DEC 2008). ▪ Standard environmental mitigation measures to manage construction waste would be detailed in a Waste Management Sub-plan which would be prepared as part of the CEMP prior to construction. These measures would include: ▸ ensuring that any wastewater collected is appropriately treated prior to discharge in accordance with current standards ▸ exploration of opportunities for onsite water reuse during construction and employment on site where appropriate ▸ investigating opportunities to maximise re-use of construction spoil, including cut/fill balance during design ▸ investigating opportunities for potential reuse or recycling of other construction and demolition waste ▸ chipping leaf material and small branches of native vegetation for use as mulch in revegetation or landscaping works ▸ disposing of all other green waste from vegetation removal to a green waste recycling facility ▸ maintaining a tidy work site and ensuring that all general litter (such as food scraps) is disposed of appropriately. *Operation* ▪ Rubbish bins would be provided with lockable lids to prevent animals accessing the bins, if required.
15.7	Services and utilities	*Construction* ▪ The locations of current and planned utility infrastructure would be determined during detailed design in consultation with relevant utility agencies. ▪ The construction contractor would confirm the locations of existing underground utilities and services prior to commencing works. ▪ Construction works would be carried out in accordance with the following guidelines: ▸ AS 4799-2000 Installation of underground utility services and pipelines within the railway boundaries ▸ RailCorp Standard G5000-G5007-2001 Management Systems for Pipe, Electrical Telephone Crossings Under and Over Railway Property ▸ RailCorp Standard ESC540 v1.1 Utility Service Crossings.

Chapter/ Section	Environmental issue	Mitigation measures
		Gas ▪ The concept description of the work and construction process would be provided to Alinta and the APA group. ▪ Should any handling or modification to the gas pipeline be required, the relevant authority would carry out the proposed works. ▪ All work in the vicinity of the gas pipeline would be undertaken in accordance with Alinta and APA requirements. ▪ Work permits would be obtained prior to any construction around pipelines. ▪ Vehicle access would be provided to the pipeline provider, where feasible. ▪ Pipelines would be covered using reinforced concrete slabs, approximately two metres wider than the pipeline in both directions. ▪ The relevant authority would be notified four weeks prior to construction commencing, allowing time to service the pipeline prior to burial. *Water and sewer* ▪ Works would be undertaken in accordance with the Water supply code of Australia WS-A-03, Sydney Water Standard WAT-1213-V and Sewerage Code of Australia WSA-02. ▪ Water and sewer mains affected by the proposed work would be checked for the minimum cover requirements. ▪ A water servicing coordinator (WSC) would be employed to handle all correspondence to SWC and supervise construction work. ▪ SWC would be notified of all proposed works. ▪ All works would be undertaken in accordance with the SWC 'notice of requirements'. ▪ Any water or sewer main modifications would be approved by SWC. ▪ Approved modifications would be undertaken by SWC contractors. ▪ Access to the Upper Canal would be provided at all times (via Cowpasture Road), to allow for daily inspections by SCA. ▪ The proposed rail bridge over the Upper Canal would have walkway access down each side. Details of the walkways and associated infrastructure such as anti-throw screens would be assessed at detailed design. ▪ Drainage from the SWRL corridor would be designed so that run-off diverts to either side of the canal and is not deposited into the canal. *Telstra* ▪ Telstra would be notified of proposed works and construction timing. ▪ Conceptual description of the works and construction processes that may impact transmission lines would be provided to Telstra. ▪ The required modification would be progressed in liaison with Telstra. ▪ Modification would be carried out by Telstra, in coordination with the SWRL construction contractor. *Overhead power transmission lines* ▪ Integral Energy would be notified of the proposed works and construction timing.

Chapter/ Section	Environmental issue	Mitigation measures
		▪ Conceptual description of the works and construction processes that may impact transmission lines would be provided to Integral Energy. ▪ The required modification would be progressed in liaison with Integral Energy. ▪ Modification would be carried out by Integral Energy, in coordination with the SWRL construction contractor.
15.8	Bush fire risk	*Construction* ▪ Potential bushfire risks would be addressed by way of a Hazard and Risk Management Sub-plan which would be prepared by the construction contractor as part of the CEMP prior to construction. *Operation* ▪ If required, a Bushfire Risk Assessment would be undertaken during the detailed design phase to identify the risks, associated management requirements.
15.9	Cumulative impacts	*Construction* ▪ The potential cumulative construction impacts associated with the project would be further considered as the design develops and as further information regarding development plans for the South West Growth Centre (SWGC) are released. Mitigation measures would be developed and implemented as appropriate. ▪ TIDC would also liaise with asset owners and service providers during the development of the detailed design and CEMP to determine whether scheduled project works coincide with other non-project related works. In such circumstances, measures would be developed to minimise cumulative construction impacts. *Operation* ▪ The potential adverse cumulative impacts associated with the operation of the proposed SWRL are expected to be manageable as the project would continue to be considered in future planning for the area.
	Community Impacts	▪ A Community Liaison Plan and Community and Stakeholder Management Plan would be prepared prior to construction. ▪ Every effort would be made to minimise the impacts associated with the project on the community. The community would be kept informed about construction impacts through regular notification. ▪ A 24 hour complaints and enquiries contact telephone number has been established for the duration of the project as well as an email address and internet site, which would contain periodic updates of work progress, consultation activities and upcoming works. The internet site would provide details of all project contact points.

17. Draft Statement of Commitments

The Environmental Assessment (EA) for the Glenfield to Leppington Rail Line project (this document) has identified a range of environmental impacts and recommended management measures to avoid or reduce the impacts of the project (refer Chapters 7 – 16). These measures have also informed the draft Statement of Commitments (SoC) that Transport Infrastructure Development Corporation (TIDC) intends to implement as part of the construction phase of the project, and during the operation of the project (refer Table 17-1).

The draft SoC specifies certain environmental outcomes to be sought. In some instances, greater detail as to how those outcomes would be achieved is provided in the mitigation and management measures in Chapters 7 to 16. As required by Concept Plan Minister's Condition of Approval (MCoA) no. 2.4(c), Table 17-1 distinguishes those SoCs that are carried over unchanged from the Concept Plan, those SoC that have been amended from the Concept Plan, and new SoCs that have been developed as part of this EA.

Importantly, the SoC from the Concept Plan EA (presented in the Submissions Report for the Concept Plan (Parsons Brinckerhoff 2007) and Appendix B of this document) has been considered in the preparation of this draft SoC. Appendix D of this EA demonstrates how those earlier commitments have been addressed to date and, where these are still to be implemented (i.e. where they relate to future stages of the project), how these have been incorporated into the current draft SoC. The commitments from the Concept Plan that have not been included in the current draft SoC are documented in Table 17-2 below, with justification as to why these measures have not been included.

As such, the draft SoC below supersedes the SoC associated with the Concept Plan EA and approval. It details those commitments that TIDC now proposes to manage the potential environmental impacts associated with the construction phase of the project, as well as relevant commitments for the future operation of the project.

The draft SoC may be revised in response to public submissions to this EA and/or design changes made before final submissions to the NSW Department of Planning (DoP). The final SoC will be considered by the DoP in assessing the project. Should approval be granted by the Minister for Planning, approval conditions would take into account the final SoC.

Following project approval, the finalised commitments would guide subsequent phases of the project. Any consortium, contractor or organisation undertaking further planning, design, construction and/or operation phases of the project would be required to undertake all works in accordance with the final SoC and subsequent MCoA, or to seek separate approval for any alternative design or construction method.

Table 17-1 Draft Statement of Commitments (SoC)

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
Sustainability principles				
Outcome: *Project development and delivery based around core sustainability principles;*				
Demonstration of sustainability best practice to deliver the sustainability principles throughout construction and operation				
Action				
1.	Resource-efficient construction methods, including post-tension concrete slab construction and prefabrication construction techniques, where practicable, would be used to minimise waste and resource consumption.			✓
2.	Spoil would be reused in embankments and earth mounds for noise mitigation where suitable. Topsoil would be reused on-site or for beneficial use elsewhere as appropriate.			✓
3.	Measures such as free-cooling ventilation systems and skylights would be considered for 'back of house' and office areas to maintain internal thermal comfort while reducing energy demand.			✓
4.	Subject to further cost benefit analysis and resolution of maintenance issues, renewable energy would be generated using photovoltaic cells on station roofs.			✓
5.	Station roof rainwater would be harvested for use at the stations and surrounding landscaping.			✓
6.	Energy management systems would be installed in all buildings to monitor the use of energy consumption.			✓
7.	All cleared vegetation would be recycled as mulch for landscaped areas on-site and elsewhere as appropriate.			✓
8.	Interpretive signage that provides information on the heritage of the area would be used at the stations.			✓
9.	The contract procurement process would recognise: a) construction contractors with good sustainability performance b) contractors with apprenticeship schemes, who employ local people and disadvantaged people and/or represent small to medium sized businesses, or who use small to medium sized businesses c) the efficient use of water during construction to help reduce construction water demand d) seeking the efficient use of resources, including further reducing construction volumes and reducing the embodied energy of construction materials, particularly concrete and steel to reduce greenhouse gas emissions e) the extent of use of recycled materials (e.g. fly-ash) f) the use of healthy and safe construction materials and surface treatments and coatings.			✓

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
10.	Detailed design and construction of the project would be undertaken in accordance with TIDC's Sustainable Design Guidelines, including report updates and monitoring.			✓
Design and construction strategies				
Outcome: *Minimisation of environmental impacts by integrating assessment of environmental issues with development of design and construction strategies*				
Action				
11.	A Construction Strategy would be developed to inform planning for, and confirm localities of, construction sites. Construction methodologies would also be developed at each of the construction sites taking into account: a) surrounding sensitive land uses; b) existing environmental constraints/sensitivities; and c) ease of access to the arterial road network.	✓ (SoC no. B2)		
Land use, property and infrastructure planning				
Outcome: *Integration of transport and land use*				
Action				
12.	Liaise with the Department of Planning (Sydney Region West) and Campbelltown City Council about the land use implications of the project for the Glenfield area.	✓ (SoC no. B6)		
Communication processes & stakeholder management				
Outcome: *A clear framework for the effective delivery of community and stakeholder involvement*				
Action				
13.	A Community and Stakeholder Involvement Plan would be established prior to construction commencing. The plan would then be implemented throughout the delivery of the project. The plan would include, but not be limited to: a) identification of community and other stakeholders to be informed/consulted as part of the project b) details of procedures and mechanisms that would be used to regularly inform the community and other stakeholders of the progress of the project and issues of interest to the community c) details of how directly affected property owners would be consulted throughout the project d) processes to receive and manage feedback and complaints e) project phone, email and mail contact details (including a 24 hour contact number for urgent enquiries/complaints) f) details of community based forums that would be held to address key community and environment issues of interest/concern to the community. The community would be encouraged to participate in community based		✓ (SoC no. B3)	

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
	forums to assist in identifying further opportunities to improve project outcomes and/or reduce the impacts associated with the project.			
Environmental management systems				
Outcome: *Project development and delivery to a high level of environmental compliance and performance*				
Action				
14.	The design and construction of the works would be undertaken in accordance with ISO 14001, an Environmental Management System (EMS) consistent with TIDC's EMS, or a formally recognised equivalent.			✓
15.	A Pre-Construction and Pre-Operation Compliance Report would be prepared prior to the commencement of construction and operations respectively, and submitted to TIDC and the Director-General of the DoP. During construction, a Construction Compliance Report would be prepared at 6 monthly intervals and submitted to TIDC and the Director-General of the DoP.			✓
16.	An Environmental Impact Audit Report (Construction) would be prepared and submitted to the Director-General within 3 months of completion of construction. This report would provide a comparison of the impacts predicted in the EA and the actual impacts that arise from the construction of the project, and any lessons learned during the construction phase.			✓
17.	A Construction Environmental Management Plan (CEMP) would be prepared prior to construction, which would outline the proposed processes and procedures and temporary environmental protection measures to mitigate the impact of construction activities. The CEMP would be consistent with the SoC and the MCoA and include the conditions of any licences issued by government authorities.			✓
Land use, property and infrastructure planning				
Outcome: *Integration of transport and land use*				
Action				
18.	Consultation would be undertaken with councils, DoP, RailCorp and other relevant agencies responsible for locality and precinct planning regarding implementation of appropriate development controls and appropriate zoning within the vicinity of the rail line and the stabling facility.	✓ (SoC no. B5)		
19.	TIDC, RailCorp and DoP would work together to produce a site masterplan for the long-term development of the Leppington Train Stabling Facility that addresses the following issues: a) existing and future access (McCann Road / Bringelly Road), including car parking for staff and visitors and bus drop-offs (staff) b) landscaping and tree planting c) materials storage areas			✓

	Management/ mitigation measures	SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
	d) any proposed future extension of the South West Rail Link (SWRL) e) opportunities for noise attenuation through noise mitigation measures and appropriate land use planning around the stabling facility.			
20.	Land use and property impacts of temporary construction sites and facilities would be further assessed in consultation with DoP, councils and surrounding land owners and incorporated as part of the CEMP prior to the commencement of construction.		✓ (SoC no. B7)	
21.	A Land Asset Management Plan to address land surplus to use, post-construction, would be developed jointly with DoP (and councils where relevant). This plan would investigate opportunities for land amalgamation of parcels severed by the SWRL and identify opportunities for development that are consistent with land use planning, in particular the South West Growth Centre Structure Plan.	✓ (SoC no. B9)		
22.	Liaison with DoP, councils, RailCorp and land owners involved in future precinct planning in the South West Growth Centre would be undertaken with an aim of ensuring the design of the project can: a) be consistent with and may inform the development of precinct planning, particularly around stations and the stabling facility b) facilitate connectivity across the corridor to mitigate severance impacts, including future opportunities for pedestrian, cycleway and vehicular crossings c) accommodate any planned co-location of utilities within the rail corridor, where feasible d) accommodate future planned utility crossings of the corridor.		✓ (SoC no. B10)	
23.	The proponent shall develop and implement a strategy for undertaking relevant building condition surveys prior to the commencement of construction. A copy of building condition surveys undertaken shall be provided to respective property owners.			✓
	Traffic, transport, parking and access			
	Outcome: *Stations (including interchanges, commuter parking and other facilities) are planned to provide for short - medium term future traffic, transport and access requirements. Future assessment to minimise traffic and transport impacts during construction and operation*			
	Action			
24.	Measures to mitigate impacts of the various work sites on pedestrians and cyclists would be incorporated into the Traffic Management and Traffic Control Plans.			✓
25.	Any change to construction traffic access routes as identified in this EA would be subject to further assessment by TIDC, in consultation with the NSW Roads and Traffic Authority (RTA) and councils.			✓
26.	Vehicle access to properties not being wholly resumed for construction of the project would be maintained throughout construction.			✓

	Management/ mitigation measures	SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
27.	A detailed construction methodology for the crossing of the Hume Highway, Campbelltown Road and Camden Valley Way would be developed in consultation with the RTA with the aim of minimising traffic disruptions.	✓ (SoC no. B18)		
28.	Ongoing consultation would be carried out with DoP, NSW Transport & Infrastructure (T&I), councils, RailCorp, RTA and Landcom (at Edmondson Park) regarding the planned transport provision at the station interchanges (parking, bus, taxi, kiss and ride) and future demand requirements. Specifically, any revised precinct planning information or demand forecasting released by these agencies would be evaluated to determine its impact on interchange facilities being provided by TIDC.			✓
29.	The final location of the proposed commuter car parking at Leppington and Edmondson Park stations would be determined during detailed design in consultation with DoP (at Leppington), Landcom (at Edmondson Park), RailCorp, T&I and councils. Any change to the car park locations as presented in this EA would be subject to further assessment, and based on the following location criteria: a) The distance between the proposed car parking and stations is to be minimised. b) Parking must integrate appropriately with the adjacent town centre and transport interchange. c) Parking sites are to be selected to minimise impacts in relation to biodiversity, water resources and heritage.			✓
30.	Parking provision at Edmondson Park and Leppington stations would be determined with consideration of bus service provision and land use development patterns in consultation with DoP, Landcom, RailCorp, T&I and Councils.		✓ (SoC no. B12)	
31.	Edmondson Park and Leppington stations would incorporate bicycle storage facilities at each station. Pedestrian and cycle access across the project corridor would also be provided at each road crossing.		✓ (SoC no. B13)	
32.	Integration of the project with future pedestrian and cycle networks would be incorporated into the detailed design stage following consultation with DoP, NSW T&I, Councils, RailCorp, RTA and Landcom (at Edmondson Park).			✓
33.	Maintenance access points would be further developed and refined during the detailed design process in consultation with RailCorp, DoP and Councils.		✓ (SoC no. B15)	
34.	Prior to the commencement of construction, a spoil management strategy would be prepared detailing final construction spoil quantities, spoil movements and opportunities for beneficial reuse within the project and other local construction projects and town centre developments.			✓

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
Hydrology and surface water				
Outcome: *Further assessment of hydrology and surface water to inform future design development and deliver good environmental outcomes*				
Action				
35.	A Floodplain Risk Management Plan would be prepared to address the potential impacts of flooding to rail infrastructure and operations at Edmondson Park Station.			✓
36.	Campbelltown City Council would be consulted on the design of Waterway Crossing 1 to achieve compatibility with Council's potential plans to construct a flood detention basin and/or to be compatible with the existing flood behaviour.			✓
37.	Track drainage, including cross drainage, in the vicinity of the Sydney Water Supply Canal would be designed to the satisfaction of the Sydney Catchment Authority.			✓
38.	Where the rail alignment crosses the floodplain, diversion drains would be provided to manage flood impacts on adjacent land.			✓
39.	The reliability and security of available flood evacuation routes and other flood emergency measures during construction and operation would be evaluated as part of detailed design in consultation with the RTA and local councils.			✓
40.	Flood mitigation for the project would be finalised during detailed design, taking into consideration the assumptions on future rainfall contained within *Climate change in Australia: impacts, adaptation and vulnerability* (CSIRO, 2007) or any successive Australian Government –endorsed climate change data.			✓
Flora and fauna				
Outcome: *Assessment and management of biodiversity impacts is consistent with the regional approach to biodiversity management within the South West Growth Centre (i.e. to maintain or improve biodiversity values).*				
Action				
41.	A Flora and Fauna Management Plan would be prepared prior to construction and incorporated into the CEMP. As a minimum, the plan would address: a) staff and contractor inductions to address the location of sensitive biodiversity b) vegetation clearing and fauna relocation protocols c) a revegetation program d) weed control and pest management e) a monitoring program.			✓

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
42.	Detailed design of waterway crossings and structures would be undertaken with reference to the *Guidelines for Design of Fish and Fauna Friendly Waterway Crossings* (Fairfull and Witheridge, 2003) and *Fish Passage Requirements for Waterway Crossings* (Fairfull and Witheridge, 2003) and considering the quality of riparian habitat present, in consultation with Industry and Investment NSW (the former Department of Primary Industries (NSW Fisheries)) and other relevant government agencies.	✓ (SoC no. B21)		
43.	TIDC would work with DoP, the Department of Environment, Climate Change and Water (DECCW) and the Commonwealth Department of Environment, Water, Heritage and the Arts (DEWHA) to ensure that construction of the project is undertaken in accordance with the provisions of the Conservation Agreement for the Edmondson Park Defence lands.			✓
44.	Prior to detailed design, a biodiversity offsets strategy would be developed in consultation with the DoP and DECCW in consideration of the impacts identified in this EA. The strategy would be consistent with the Biodiversity Certification of the *State Environmental Planning Policy (Sydney Region Growth Centres 2006)* and the strategic assessment for the South West Growth Centre currently being undertaken by DEWHA and DoP.			✓
Heritage				
Outcome: *Future design development and assessment minimise impacts on Aboriginal and historic heritage; and proposed management measures are consistent with established protocols and guidelines*				
Action				
45.	A Heritage Management Plan would be prepared prior to construction and incorporated into the CEMP. The Heritage Management Plan would address: a) the impact mitigation and management requirements for Aboriginal and historic heritage b) details of any additional archaeological investigations to be undertaken and any associated licences or approvals required c) procedures to be implemented if previously unidentified Aboriginal or historic objects are discovered during construction d) an education program for construction personnel on their obligations for Aboriginal cultural materials and historic items.			✓
46.	A Heritage Interpretation Plan would be developed for the project in consultation with the Aboriginal community and local councils, and incorporated into architectural elements or urban design treatments.			✓
47.	An Aboriginal Participation Plan would be developed and implemented for the project in accordance with the NSW Government's *Aboriginal Participation in Construction Guidelines* (applicable to all projects commencing after 1 January 2007).			✓
48.	Further assessment would be undertaken for the Sydney Water Upper Canal (near Cowpasture Road) during detailed design to confirm impact mitigation and management requirements. This assessment would inform the		✓	

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
	measures incorporated in the Heritage Management Plan and would take into consideration the *Conservation Management Plan for the Upper Canal, Pheasant's Nest to Prospect Reservoir* (Higginbotham 2002).		(SoC no. B27)	
49.	Further assessment would be undertaken for Macquarie Field House and the Ingleburn Army Camp during detailed design to confirm impact mitigation and management requirements. This assessment would inform the measures incorporated in the Heritage Management Plan.			✓
50.	A program of test excavation would be undertaken throughout the impact zone of the project in the area where it would cross Kemps Creek, to determine the density and type of archaeological deposits in this area of high archaeological sensitivity.			✓
51.	A program of test excavation would be undertaken throughout the impact zone of the project where it crosses Ingleburn and Landcom land, and at EPCS7, to systematically sample the various landforms of this area around Cabramatta and Maxwells creeks, and to obtain a representative sample of the higher density of artefacts expected.			✓
Noise and vibration				
Outcome: *Design development and assessment adopt best practice measures, to minimise construction and operational noise and vibration impacts*				
Action				
52.	Construction noise and vibration management would be addressed as part of the Construction Noise and Vibration Management Plan (CNVMP), based on the principles in *Construction Noise Strategy (Rail Projects)* (TIDC, November 2007), as amended, for construction noise management and consistent with relevant NSW construction noise guidelines.			✓
53.	Compliance monitoring of operational noise predictions would be undertaken at properties where the LAeq(9hour) 55 dBA level is predicted to be exceeded (with the recommended in-corridor noise mitigation options) as listed in Table 14 of Technical Paper 1. This would be undertaken three to six months after opening and following the introduction of the SWRL train timetable to determine if actual operational noise levels match the predicated levels. A further assessment of potential mitigation measures outside the corridor (e.g. measures at dwellings) would be undertaken in consultation with affected property owners, and agreed solutions commenced within 12 months of operations.			✓
54.	Final reasonable and feasible operational noise mitigation measures would be implemented to achieve compliance with established project–specific goals that have been determined with referent to the *Interim Guidelines for the Assessment of Rail Infrastructure Projects* (Department of Environment and Climate Change, 2007). These would be determined prior to the commencement of operation, taking into account the role of structural and land use planning solutions (including zoning and building design controls), in consultation with RailCorp, DoP, Landcom, DECCW and local councils.			✓
55.	In regard to train stabling operational noise, the following would be undertaken: a) determine the extent of any physical noise mitigation measures in consultation with the DECCW and RailCorp; and		✓ (SoC no. B33)	

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
	b) review the results of investigations by TIDC and RailCorp on options for reducing the impacts of horn noise.			
56.	CNVP for the project would incorporate measures for protecting heritage features from the impacts of construction vibration including the Upper Canal, where required.			✓
Visual impacts, landscape and urban design				
Outcome: *Future design development and assessment are informed by best practice landscape and urban design principles and minimise visual impacts*				
Action				
57.	Where construction compounds and access roads would be visible from surrounding areas, visual screening would be implemented, as appropriate.			✓
58.	A Landscape Plan would be prepared for the commuter car parking at Edmondson Park and Leppington and would include the retention of existing trees where possible.			✓
59.	TIDC's Design Review Panel would guide the application of urban design principles throughout detailed design.		✓ (SoC no. B38)	
60.	Public art and heritage interpretation would be incorporated into architectural elements or urban design treatments and would be assessed and implemented with design themes and urban design criteria (e.g. graffiti management).	✓ (SoC no. B40)		
61.	The following architectural, landscape and urban design principles would be used to guide the detailed design of the stations and transport interchanges, civil works (such as noise walls, substations, embankments and bridge crossings) and the stabling facility concepts: a) The role of the stations and transport interchanges would be reinforced within their existing surrounding neighbourhood as principal transport and community facilities within the locality. b) Stations and the stabling facility would be designed in the context of the scale, character and image of the existing surrounding areas and to enhance the presentation of the areas to visitors, residents and travellers. c) The design would maintain or improve the links across the project and to surrounding areas and activities. Where a connection between adjacent areas is desirable, pedestrian bridges or underpasses would be considered in the design and not precluded for future construction. d) Easy access facilities would be incorporated into the station designs and integrated with the associated transport interchanges. e) Movement networks should improve existing, or establish new comfortable and inviting pedestrian environments, including equitable access within the railway stations and adjoining areas. f) A design theme would be established for bridges and the Glenfield Southern Flyover to link the overall rail design together. The design would ensure that the structures are simple, integrated with the surrounding area		✓ (SoC no. B37)	

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
	and finished to a high quality. Fencing, parapets and any railing on the bridges would also be integrated with the overall design.			
	g) Public transport and other non-car based travel should be given priority connection to the railway stations and their adjoining areas where possible.			
	h) Station precinct design should facilitate new development that reflects the highest standards of design.			
62.	TIDC would liaise with Landcom to achieve an interchange and future town centre design that integrates with the concourse level at Edmondson Park Station. In addition, TIDC would liaise with Landcom to confirm future road crossings (constructed by others) to the east and west of the station can be integrated with the project.			✓
63.	Measures to mitigate visual impacts and deliver high quality design outcomes would be applied through detailed design and would include:		✓ (SoC no. B39)	
	a) Where noise walls are proposed, potential visual impacts would be minimised by implementation of urban design measures, to be developed in consultation with adjacent land owners. (Mitigation might include plantings and high quality facings near residential areas and the planned town centres.)			
	b) Earth mounding would be considered where space allows and where significant vegetation would not be lost.	✓ (SoC no. B39(b))		
64.	Light spill would be minimised where feasible to reduce impacts on surrounding existing and future residents in accordance with relevant standards.		✓ (SoC no. B39(d))	
Air quality				
Outcome: *Construction and operation adopt best practice measures, to minimise construction and operational air quality impacts*				
Action				
65.	Air quality management measures would be incorporated into the CEMP prior to construction to address management of dust during construction, emissions from construction plant and vehicles and any other fugitive emissions.			✓

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
Public safety and security				
Outcome: *Crime Prevention Through Environmental Design (CPTED) guidelines are adopted in future design development to address potential impacts on public safety and security*				
Action				
66.	All construction compounds and work areas would be fenced off to prevent public access during construction.			✓
67.	NSW Police CPTED and RailCorp guidelines would be applied to all elements of the project to guide the design of appropriate lighting, fencing of the railway corridor, security measures (including surveillance cameras), graffiti management, help points at stations and other issues.		✓ (SoC no. B43 and B39)	
Services and utilities				
Outcome: *The project addresses potential impacts on utilities and services*				
Action				
68.	A Services and Utilities Sub Plan would be developed prior to construction and would: a) identify existing services and utilities around the work sites and provide guidance in the event of an unexpected disruption to utilities and services b) be developed in consultation with relevant utility owners to ensure that any re-locations are undertaken in accordance with relevant requirements and/ or guidelines.			✓
69.	Appropriate protection and risk management procedures would be established to protect utilities (such as the Sydney Water Supply Canal and Moomba Gas pipelines).	✓ (SoC no. B44)		
Groundwater, salinity, erosion and sediment control				
Outcome: *Further assessment is completed to inform future design development and minimise potential risks associated with saline soils and groundwater*				
Action				
70.	Measures to control soil erosion and run-off would be detailed as part of the CEMP. The plan would be consistent with the principles and practices outlined in *Managing Urban Stormwater: Soils and Construction* (Landcom 2006).			✓
71.	Detailed geotechnical investigations would assess groundwater levels and groundwater and soil quality to identify risks to the durability and stability of subsurface structures associated with perched groundwater, high groundwater levels, saline groundwater and saline soils. Detailed geotechnical investigations would also address potential contamination sources associated with grenade unexploded ordinance and munitions.		✓ (SoC no. B45)	

Management/ mitigation measures		SoC from Concept Plan[1]	Amended SoC from Concept Plan[1]	New SoC
72.	The location, sizing, and design of sediment basins for use during construction would be confirmed during detailed design, in consultation with DoP, Councils, Industry and Investment NSW, and DECCW, prior to the commencement of construction. Any sediment basins required for permanent operation would be confirmed with DoP prior to the commencement of operations.			✓
Contaminated land and hazardous materials				
Outcome: *Assessment of potential contamination within the SWRL corridor and, where appropriate, identification of mitigation and management measures*				
Action				
73.	Contamination assessment would be undertaken to determine the nature, extent and degree of any contamination or hazardous materials within the area of works. These assessments would be prepared in consultation with DECCW, RailCorp and relevant councils. They would be prepared in accordance with relevant DECCW guidelines, and would include a contingency plan to be implemented in the case of the unanticipated discovery of contaminated material during construction.		✓ (SoC no. B46)	
74.	Contaminated material identified during any detailed assessment would be managed, classified and disposed of appropriately in accordance with all relevant legislation and guidelines, including the *Protection of the Environment Operations Act 1997*, the *Waste Avoidance and Resource Recovery Act 2001* and Waste Classification Guidelines (DECC 2008).			✓
Environmental hazards and risks				
Outcome: *To minimise environmental hazards and risk associated with the project*				
Action				
75.	Environmental hazards and risk management (including bushfire risk) would be incorporated into the CEMP prior to construction.			✓

Note 1: The Concept Plan SoC is provided in Appendix B.

Table 17-2 Concept Plan commitments not included in the draft SoC

Concept Plan commitment	Justification for omission from draft SoC
Sustainability principles	
Outcome: *Project development and delivery based around core sustainability principles*	
B1 ***Action*** Core sustainability principles would be developed for the project covering the following themes: a) energy b) greenhouse emissions c) water d) community and stakeholder involvement e) biodiversity f) resource recycling/ minimisation. To develop the principles a benchmarking exercise would be undertaken to enable clear Sustainability Goals and Objectives to be determined which would provide clear result areas and targets under each theme.	SoC B1 is superseded by SoC No. 1 to 10 (refer Table 17-1).
Land use, property and infrastructure planning	
Outcome: *Integration of transport and land use*	
B8 Consultation would be undertaken with the Department of Planning to ensure the rail line can be integrated with planning for sub-precincts 9.6 and 9.7 of the Western Sydney Parklands and, where relevant, appropriate measures would be implemented to minimise the visual, noise, flora and fauna (habitat corridors) and access impacts of the project on these sub-precincts.	The project has been designed in consultation with DoP so that it addresses planning requirements for this part of the corridor (refer to Section 3.4.1). The project would not affect the Western Sydney Parklands as discussed in Section 2.2.2. Measures to minimise the visual, noise, flora and fauna (habitat corridors) and access impacts of the project are described in Chapters 8 (*Traffic, transport, parking and access*), 9 (*Noise and vibration*), 11 (*Flora and fauna*) and 14 (*Visual impact, landscaping and urban design*).
Traffic, transport, parking and access	
Outcome: *(i) Stations (including interchanges, commuter parking and other facilities) are planned and delivered to meet current and future traffic, transport and access requirements* *(ii) Future assessment to ensure minimisation of traffic and transport impacts during construction and operation*	
B11 Design development and assessment of stations and transport interchanges would be undertaken to ensure the integration of the station with the local area and the predicted patronage and mode of access are catered for during operations. The assessment would include consideration of local connectivity requirements; pedestrian modelling (including emergency access); traffic impacts on surrounding road networks; parking requirements and the integration of bus services with the new rail stations. These investigations would be undertaken in consultation with Growth Centres Commission, Councils, RailCorp, Ministry of Transport, Roads and Traffic Authority and Landcom (at Edmondson Park).	Further design development and assessment of stations and transport interchanges has been undertaken as required by SoC B11 and is documented in this EA, notably in Chapters 5, 6 and 8.

Concept Plan commitment		Justification for omission from draft SoC
B14	Assessment of existing and planned pedestrian and cycleway linkages, including crossing of the project would be undertaken in consultation with Growth Centres Commission, RailCorp, Councils and surrounding landowners. Where pedestrian and cycleways can be reasonably accommodated within or immediately adjacent to the rail corridor and link to existing or planned cycleway networks, consideration would be given to their provision in association with the project.	SoC B14 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 8 (*traffic, transport, parking and access*; refer specifically Sections 8.5 – 8.7) and Technical Paper 4 in Volume 2b of this EA.
B16	Traffic modelling and traffic management analysis would be undertaken for the roads and intersections impacted by the project during construction and operation. This analysis would consider existing and planned road upgrades.	SoC B16 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 8 (*Traffic, transport, parking and access*; refer specifically Sections 8.5 – 8.7) and Technical Paper 4 in Volume 2b of this EA.
B17	The design of construction works and staging at Glenfield Station would ensure safe access to the Station and across the rail line.	SoC B17 is not applicable to this project (as it applies to the Glenfield Transport Interchange project, which was approved by TIDC in April 2009).
Hydrology and surface water		
Outcome: *Further assessment of hydrology and surface water to inform future design development and deliver good environmental outcomes*		
B19	A detailed flood assessment would be undertaken in accordance with appropriate NSW Government guidelines and in consultation with Councils and relevant Government agencies. The assessment would confirm the extent of flooding impacts and inform future design development, in particular the type, location and size of drainage structures along the project corridor.	SoC B19 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 10 (*Hydrology and surface water quality, erosion and soils*; refer specifically Section 10.4) and Technical Paper 3 in Volume 2b of this EA.
B20	Additional flooding assessment to that undertaken in the Environmental Assessment and vertical rail alignment design work would be undertaken at Edmondson Park Station and surrounds and coordinated with Landcom, the Growth Centres Commission and Councils.	SoC B20 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 10 (*Hydrology and surface water quality, erosion and soils*) and Technical Paper 3 in Volume 2b of this EA. WMA Water undertook the original Edmondson Park Flood Study for Landcom and the Strategic Land Release Project Office of Strategic Land Release Project Office of DoP. During the last phase of the project, consultation was undertaken by WMA Water with Council. The model developed for that study was adopted for use in the modelling of Crossings 3-10 for this EA, including all assumptions made in the Development Control Plan.
Flora and fauna		
Outcome: *Assessment and management of biodiversity impacts is consistent with the regional approach to biodiversity management within the South West Growth Centre i.e. maintain or improve biodiversity values.*		

Concept Plan commitment		Justification for omission from draft SoC
B22	A detailed ecological assessment would be undertaken at all construction sites and along the project corridor. The assessment would identify areas to be avoided (construction sites only), construction related impacts and how these would be managed; and where required, describe measures to offset impacts on threatened species and/or endangered ecological communities. This assessment would be undertaken in consultation with the DECC, the Growth Centres Commission, RailCorp and the Commonwealth Department of Environment and Water Resources as appropriate.	SoC B22 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 11 (*Flora and fauna*) and Technical Paper 2 in Volume 2a of this EA. The ecological assessment undertaken for the project discusses the impacts of the proposed construction sites and permanent footprint on threatened species and mitigation measures to be implemented to minimise this impact where relevant. The ecological assessment involved consultation with DECC (now DECCW), DoP, RailCorp and the Commonwealth DEWHA. Relevant mitigation measures include avoidance of sensitive native vegetation where possible through careful siting of construction sites and facilities. Sections 6.4.2 and 6.4.4 provide a description of the construction sites proposed for the project.
B23	'Improve or maintain' assessments on biodiversity values would be undertaken to identify potential impacts of the project and benefits from protection measures to be implemented. The methodology adopted for all parts of the project would be consistent with the draft *Growth Centres Conservation Plan* (GCC, 2007) and DEC's *Draft guidelines for biodiversity certification of Environmental Planning Instruments* (2007).	SoC B23 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 11 (*Flora and fauna*) and Technical Paper 2 in Volume 2a of this EA. Sections 11.5, 11.6, 11.11 and Technical Paper 2 (Volume 2a) discuss compliance with this commitment.
Heritage		
Outcome: *Future design development and assessment minimises impacts on Indigenous and non Indigenous heritage; and proposed management measures are consistent with established protocols and guidelines.*		
B24	Indigenous heritage assessment would be undertaken in accordance with the *Protocol for Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres'* (Context Pty Ltd. 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd. 2006b), in consultation with DECC.	SoC B24 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 12 (*Aboriginal heritage*; specifically, Sections 12.3 and 12.4), Section 3.4.1 and Technical Paper 6 in Volume 2b of this EA.
B25	Subject to property owner approval, areas that were not surveyed in relation to the assessment of non-Indigenous heritage (as included in the EA and Concept Plan) would be inspected as part of the further assessment.	SoC B25 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 13 (*Historic heritage*; specifically, sections 13.2 and 13.3) and Technical Paper 7 in Volume 2b of this EA.

Concept Plan commitment		Justification for omission from draft SoC
B26	Corridor design development through the former Ingleburn Military Camp would consider the relevant policies and procedures outlined within the *Heritage Analysis of Ingleburn Defence Site (*Godden Mackay Logan, 2001*)*. If required a referral would be submitted to the Commonwealth Department of the Environment and Water Resources.	SoC B26 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 12 (*Aboriginal heritage*) and Technical Paper 6 in Volume 2b of this EA. The *Heritage Analysis of Ingleburn Defence Site* has been considered in assessing impacts on items within the Ingleburn Army Camp. Refer 5.3.2 of Technical Paper 7 (Volume 2b). The project may require approval under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) due to impacts on the environment of the Ingleburn Army Camp as Commonwealth land. The historic heritage assessment for the project (refer Chapter 13) notes that the impacts of the project on the Ingleburn Army Camp are potentially significant, notwithstanding that the land is likely to be transferred from Commonwealth to State Government ownership, with the intention of wholesale redevelopment. The project may need to be referred to the Minister for a determination as to whether or not the project is a controlled action under the EPBC Act.
B28	Future design development in the vicinity of Denham Court, Hurlstone Agricultural High School and Macquarie Fields House view sheds would take into consideration the heritage values of the landscape.	SoC B28 is applicable to the environmental assessment stage of the project and, as such, sections 13.3, 13.4 and Technical Paper 7 (Volume 2b) discuss the proposed view sheds in consideration of heritage values and landscape.
B29	Design of road crossings at Old Cowpasture, Cowpasture Road and Camden Valley Way would be carried out in consultation with the Roads and Traffic Authority to deal sympathetically with and minimise potential impact to the heritage values and view sheds.	SoC B29 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 14 (*Visual impact, landscaping and urban design*) and Technical Paper 5 in Volume 2b of this EA. The design of road crossings has been undertaken considering the heritage values and view sheds. Refer to Sections 13.3-5, Technical Paper 7 (Volume 2b) and Technical Paper 8. Section 3.4.1 identifies that the RTA has been consulted in the design of the project.

Concept Plan commitment		Justification for omission from draft SoC
B30	Off-sets would be developed in consultation with the Aboriginal community in regard to any unavoidable disturbance to Aboriginal heritage sites and places. The adopted approach to off-sets would be consistent with the *Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres'* (Context Pty Ltd. 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres*.	SoC B30 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 12 (*Aboriginal heritage*; specifically, Section 12.7) and Technical Paper 6 in Volume 2b of this EA. As shown in Section 3.4.1, consultation was undertaken with the Aboriginal community. The approach adopted for offsets is consistent with this commitment.
Noise and vibration		
Outcome: *Design development and assessment, adopts best practise measures, to minimise construction and operational noise and vibration impacts.*		
B31	Construction noise and vibration assessment and review would be undertaken as part of the future design development and assessment, in accordance with relevant policies and guidelines.	SoC B31 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 9 (*Noise and vibration*; specifically, Section 9.3) and Technical Paper 1 in Volume 2a of this EA.
B32	In regard to operational noise, the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (DEC, 2007) would be utilised and where appropriate any other relevant guideline to implement the following activities: a) modelling of operational noise impacts (including ground borne noise) in more detail as part of the design development; and b) identification of reasonable and feasible acoustic mitigation measures to meet the design goals c) select representative locations for the project at which it is appropriate to later assess compliance.	SoC B32 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 9 (*Noise and vibration*) and Technical Paper 1 in Volume 2a of this EA.
B34	Investigate feasible and reasonable mitigation measures for operational vibration in consultation with local Councils, the DECC and RailCorp.	SoC B34 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 9 (*noise and vibration*) of this EA. Consultation has been undertaken with local councils, DECCW and RailCorp on noise and vibration issues on the SWRL project.
B35	Design development and assessment would include assessment of potential construction and operational vibration impacts on the Sydney Water Canal, in consultation with the Sydney Catchment Authority.	SoC B35 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 9 (*Noise and vibration*) of this EA. Section 3.4.1 confirms that the Sydney Catchment Authority has been consulted with regard to the project.

Concept Plan commitment		Justification for omission from draft SoC
Visual impacts, landscape and urban design		
Outcome: *Future design development and assessment is informed by best practice landscape and urban design principles and minimises visual impacts.*		
B36	Visual impact assessment would be undertaken as part of design development. This would be undertaken considering both the existing and future urban environment to identify and mitigate the impacts with architectural, landscape and/or urban design treatments. Additional assessments would apply to pedestrian and cycle facilities, proposed bridging structures; cutting and embankment treatments; landscape treatment projects; design of the stations and stabling facility; proposed acoustic treatments; and any visual buffer areas as required.	SoC B36 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapter 14 (*Visual impact, landscaping and urban design*) and Technical Paper 5 in Volume 2b of this EA.
Social		
Outcome: *Future design development and assessment ensures minimisation of impacts on adjoining sensitive land uses.*		
B41	Measures would be developed to minimise impacts on sensitive adjacent land uses (e.g. Forest Lawn Memorial Gardens Cemetery), including consideration of cultural sensitivities and particularly visual and noise impacts.	SoC B41 is applicable to the environmental assessment stage of the project and, as such, has been addressed in Chapters 5 (*Development of the project since the Concept Plan*), 9 (*Noise and vibration*), 12 (*Aboriginal heritage*), 13 (*Historic heritage*) and 14 (*Visual impact, landscaping and urban design*) of this EA.
Economic and business		
Outcome: *Potential for economic and business impacts and benefits of the project are given consideration in the future assessment.*		
B42	An assessment of the potential impacts and benefits of construction and operation on adjacent businesses would be undertaken in consultation with business owners during the design phase.	SoC B42 is applicable to the environmental assessment stage of the project and, as such, has been addressed in this EA. An assessment of the potential impacts and benefits of the project on adjacent businesses is provided in Section 15.2.6. Consultation has been undertaken with business owners as discussed in Section 3.4.2.

18. Conclusions

This chapter provides a conclusion to this Environmental Assessment (EA). It discusses the merits and, therefore, the need for the project. The main benefit of the project is that it would provide new infrastructure to service the South West Growth Centre (SWGC) and the Greater Sydney Metropolitan Area. The chapter summarises the key sustainability initiatives included in the project. The chapter also provides a summary of the key environmental impacts likely to occur during the construction and operational phases of the project. It concludes by listing the next steps required for project approval.

18.1 Need for the project

The project is required to meet a range of NSW Government strategic, operational and environmental objectives (refer Sections 1.1.2 and 2.4). The project supports the NSW Government's aim to provide an integrated and sustainable transport network that can cater for Sydney's forecasted population growth. The project objectives are closely linked with the objectives of the Sydney Metropolitan Strategy (NSW Government 2005a) (refer Section 2.4), particularly the objectives and initiatives of the 'Centres and Corridors' and 'Transport' Strategies (Parts B and D of the Strategy, respectively).

The project is also required to service future growth within the SWGC. This growth is guided by both the Sydney Metropolitan Strategy and the draft South West Subregional Strategy (Department of Planning 2007). The project would facilitate development of the SWGC by providing increased access to the greater Sydney Greater Metropolitan Region. Overall, the project (as part of the overall South West Rail Link (SWRL)) would increase the frequency and reliability of public transport for existing customers and provide essential infrastructure for the future increases in population in Sydney's SWGC. The proposed stations at Edmondson Park and Leppington would serve as transport nodes that would be connected to economic gateways within the Greater Metropolitan Region. The proposed train stabling facility at Rossmore is needed to provide additional train stabling capacity for the SWRL and the wider Sydney rail network.

The project would provide an opportunity to provide transport choice and accessibility, and to support sustainable land release within the developing SWGC. It creates an opportunity for public transport to be attractive by allowing for the development of an integrated public transport network within the SWGC. The provision of an accessible public transport link for existing and future residents in this area would help to reduce the already high reliance on private cars as the main mode of transport for journeys to and from the area. In promoting integrated transport and land use planning in the SWGC, the project would aid in achieving the appropriate levels of urban consolidation and commercial development around transport nodes as higher density development is more attractive and, therefore, more viable, around established and reliable transport nodes.

The anticipated key regional benefits of the project would include:

- improved access to public transport for existing and future residents of the SWGC
- improved access to employment within the Global Arc centres, educational and cultural facilities
- reduced road congestion/pressure on regional roads (such as Narellan Road) as growth in the SWGC increases the number of commuters wishing to access the Main South Line between Macarthur and Glenfield

- facilitation of sustainable land release by establishing a mass transit corridor early, to serve a planned regional centre; thereby making higher density development more attractive and viable
- removal of the need for residents of new developments in the area to travel to existing network stations, thereby reducing congestion on the Main South Line
- reduced motor vehicle costs (fuel and operating costs) due to less reliance on cars
- reduced negative externalities such as accidents, noise/air pollution, greenhouse gas emissions and energy consumption due to the reduction in car usage
- increased stabling capacity for trains in the outer metropolitan area.

Overall, the project is considered a vital infrastructure project that would support both the immediate SWGC and the wider Sydney Metropolitan Region.

18.2 Sustainable development considerations

The SWRL would be a key piece of transport infrastructure serving the SWGC. Fundamentally important to the sustainability of the new communities within the SWGC, the SWRL would:

- maximise accessibility to key employment regions, community services, places of interest, family and friends
- provide opportunities to reduce greenhouse gas emissions through reducing the community's reliance on private motor vehicles use
- provide opportunities to reduce air pollution from private motor vehicles, and the health impacts associated with this pollution
- enhance the economic viability of the new town centres by supporting higher density development around the proposed stations at Leppington and Edmondson Park.

The SWRL could also act as a catalyst for sustainable development in the sub-region by establishing a benchmark for the quality of new development.

Transport Infrastructure Development Corporation (TIDC) is seeking to develop and deliver the project around core sustainability principles covering the themes set out in the Concept Plan SoC (refer Appendix D), as well as some additional themes. In response to these, the project would provide for particularly high levels of design standard in terms of promoting healthy living, access and connectivity, community safety, and economic vitality. The project would also include some key initiatives such as water harvesting, energy efficient design and renewable energy to deliver significant sustainability benefits (refer project SoC included as Table 17-1).

Combined with ongoing assessment against the sustainability principles and objectives, there is scope for future detailed design activities to enhance the sustainability of the project. Continued sustainability benchmarking of successive design proposals using TIDC's Sustainability Design Guidelines throughout the life of the project would also assist in carrying the design initiatives through to implementation.

18.3 Key impacts of the project

18.3.1 Key construction impacts

In summary, the key potential construction impacts of the project comprise:

- *Construction phase impacts on adjacent land uses* — These would include impacts on noise and vibration amenity (refer Chapter 9), visual amenity (refer Chapter 14), traffic and transport amenity (refer Chapter 8) and business impacts (refer Section 15.2). These issues are considered to be manageable with the effective implementation of standard construction environmental management measures.
- *Construction phase impacts on local and regional traffic* — Impacts to traffic would be associated with heavy vehicle traffic and increased traffic on local roads. These impacts would be managed through the development of a construction staging plan, which would maximise access along the rail corridor (refer Section 8.9).
- *Noise and vibration* — Short-term impacts would be associated with general earthworks, trackworks, site specific works and construction traffic, with exceedances in noise criteria goals expected at the nearest receivers (refer Section 9.3). Construction noise and vibration impacts are considered to be manageable with the application of standard noise mitigation measures and the development of a Construction Noise and Vibration Management Plan.
- *Water quality*— Water quality may be impacted by the pollution of stormwater run-off with sediments, fuels and other hazardous materials from construction sites, and the uncovering of soils, particularly within the Edmondson Park Release Area. These impacts are considered to be manageable through the implementation of the proposed mitigation measures (refer Section 10.7).
- *Impacts to threatened biodiversity* — The impacts on threatened ecological communities (Cumberland Plain Woodland and River-Flat Eucalypt Forest on Coastal Floodplains) and habitat for threatened species (Cumberland Plain Land Snail, Grey-headed Flying-fox and Microbats) are considered to be manageable through the implementation of the proposed mitigation measures, which includes the adoption of biodiversity offsets (refer Section 11.11).
- *Direct and indirect impacts on Aboriginal heritage items* — The project would have direct impacts on eight sites (MFH#2, SW1. SWRL Site 7, EPCS4, EPCS7, EPCS8, EPCS10, SWRL Site 5). These impacts are considered to be manageable with the implementation of the proposed mitigation measures (refer Section 12.7).
- *Direct and indirect impacts on historic heritage items* — The project may have vibration impacts on the Upper Canal and Ingleburn Army Camp, the understanding of the original James Meehan Macquarie Fields grant, the rarity of the street layout within Ingleburn Village, the historical and aesthetic values of the Bunya Pines and the historic and technical significance of several local roads. These impacts are generally considered to be manageable with the implementation of the proposed mitigation measures, with the exception of the impacts to the Ingleburn Army Camp where the impacts are considered to be significant (refer Section 13.6).
- *Direct and indirect impacts on the visual environment* — Construction may affect visual amenity for surrounding residents and occupants of vehicles using nearby roads during construction. These impacts are considered to be manageable with the implementation of the proposed mitigation measures (refer Section 14.8).

18.3.2 Key operational impacts

In summary, the key potential operational impacts of the SWRL would comprise:

- *Permanent impacts on directly affected properties and land uses* — The proposed Edmondson Park and Leppington Stations and associated trackworks outside the approved rail corridor (in the Concept Plan) would impact on rural-residential property in Edmondson Park, Leppington and Rossmore, and properties under government ownership (refer Chapter 7). These properties would be acquired (in full or in part) at market rates in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. These impacts are not considered to be significant in the context of the proposed future development of the area.
- *Operational phase impacts on local and regional traffic* — The growth in traffic volumes in the vicinity of the proposed stations at Leppington and Edmondson Park would be caused by the progressive release and development of land, including the development at the proposed stations. The growth in traffic near both railway station precincts would largely be a result of the increased use of rail as a transport mode (refer Sections 8.3 and 8.4). Measures to manage these impacts would be considered further during the detailed design stage of the project.
- *Noise and vibration* — Adverse noise impacts would be associated with train operations on the SWRL, station operations at Edmondson Park and Leppington and activities at the Leppington Train Stabling Facility (refer Section 9.4). These impacts are considered to be manageable with the application of noise mitigation measures (earth mounds/noise walls) and planning controls (such as parks, roads and commercial development planned to separate sensitive users from rail corridor).
- *Water quality* — The project has the potential to cause erosion and sedimentation from cuttings and embankments, scouring downstream of waterway crossings and run-off generated pollutants such as oils, greases and gross matter. These impacts would be manageable through the incorporation of water quality measures into the design of the drainage system, such as the use of grassed swales in lieu of concrete or bitumen lining.
- *Hydrology* — A number of locations have been identified where there is the potential for significant flood risks in storms larger than the 1% annual exceedance probability (1 in 100 year) event and/or overflows due to a substantial culvert blockage. This is especially relevant to the area around the proposed Edmondson Park Station (Crossings 4 to 6). However, the project works would be unlikely to significantly affect flooding within the project area.
- *Historic heritage* — Operational impacts would include detrimental impact on the visual amenity of the local environment and the view corridors, especially around the Glenfield Southern Flyover. Mitigation measures such as appropriate landscaping and interpretive signing (refer to Section 13.7.2) would minimise these impacts.
- *Direct and indirect impacts on the visual environment* — The rail corridor, stations, stabling facility and new overbridges have the potential to be visually dominant features in the landscape. Visual impacts would be managed through design development by the implementation of urban design and landscape management measures. Visual impacts are also expected to be reduced in the long term as the area is developed.

18.3.3 Significance of the environmental impacts

As discussed above, the project is expected to have environmental, social and economic benefits for both the south west region of Sydney and the wider metropolitan region. Notwithstanding this, some adverse impacts (including some impacts which would be significant if not subject to the mitigation measures outlined in this EA), would be experienced, including some that would be unavoidable due to the nature of the project.

A significant impact on the historic heritage value of the Ingleburn Army Camp, specifically the on the form and layout of the Camp, is likely even with mitigation measures, although redevelopment of the Ingleburn Army Camp is planned to occur for the development of the Edmondson Park Town Centre regardless of the construction of the project. The key potential impacts that are likely to be associated with the construction and/or operation of the project are discussed in Sections 18.3.1 and 18.3.2.

These impacts would be minimised through the implementation of the proposed impact mitigation measures described in Chapters 7-15 (and summarised in Chapter 16) as well as management commitments, mitigation measures and safeguards detailed in the draft project approval Statement of Commitments (SoC) (refer Chapter 17). With the adoption of these measures, the benefits of the project are considered to outweigh the adverse impacts.

Other non-key environmental issues associated with the project are described in Chapter 15. These impacts are not likely to be significant and would be managed through the application of standard environmental management and the proposed management measures and safeguards. Management commitments to address these issues are detailed in the draft project approval SoC (refer Chapter 17).

18.4 Key conclusions

This EA has confirmed that the project has a strong justification for proceeding, considering the significant regional transport, social and economic benefits it would produce in a key growth area in Sydney.

A number of impact assessments were undertaken to address key issues not addressed in detail at the Concept Plan stage. Specifically, this EA addresses the issues identified in the Minister's Conditions of Approval (MCoA) for the Concept Plan, in conjunction with additional assessment requirements outlined in the SoC for the Concept Plan. This EA has also addressed all relevant environmental planning instruments, plans and strategies (refer Chapter 2). Substantial additional community and agency consultation has also been undertaken during the preparation of this EA (refer Chapter 3).

The project forms part of the Metropolitan Transport Plan (NSW Government 2010a), which aims to effectively link Sydney's land use planning with its transport network (refer Section 2.4. The project seeks project approval for the construction and operation of Glenfield to Leppington Rail Line component of the SWRL, which would service the expected 110,000 new homes and approximately 300,000 residents in the SGWC, and provide access to 8,000 new jobs in the planned Leppington Major Centre, as set out in the Metropolitan Transport Plan.

The project would support transport growth to the region (a high demand corridor) by providing for additional services to operate on the Main South and East Hills Lines and additional stabling facilities for Sector 2 of the Sydney metropolitan rail network (the Airport and East Hills Line, Main South Line (via Granville), Bankstown Line, and the Inner West Line).

The project would also provide transport infrastructure, including new stations at Leppington and Edmondson Park, to facilitate sustainable development in Edmondson Park, Leppington and the SWGC by providing a framework for early transit-oriented development. The delivery of this infrastructure in the early masterplanning stages for the Edmondson Park and Leppington town centres would promote integrated transport and land use planning in the SWGC, thereby aid in achieving the appropriate levels of urban consolidation and commercial development around transport nodes ─ as higher density development is more attractive and, therefore, more viable, around established and reliable transport nodes.

Similarly, the project is likely to encourage patronage of public transport by future residents and visitors to the area; and thus would maximise the benefits of the project. Public transport patronage would likely be lower if the project was delivered during the later stages of the development of the growth centre at which time private vehicle use would likely have become the dominant mode of transport in the absence of other options. Once the community has become reliant on private vehicle use as their primary mode of transport, it would be difficult to change the community's travel behaviour patterns.

Not proceeding with the project would avoid short to medium-term localised amenity (i.e. noise and visual impacts), social and property impacts. However, in the long term, the consequences of not proceeding with the project are likely to outweigh the short to medium-term environmental, social and economic impacts associated with the project's construction and operation. Long-term adverse consequences of not proceeding with the SWRL would include:

- rail congestion
- use of private cars would dominate increasingly more as the main mode of transport journeys to and from the SWGC, leading to a significant increase in traffic congestion, vehicle kilometres travelled and major impacts on accessibility and air quality as the SWGC develops
- poor accessibility to educational, cultural and employment opportunities potentially resulting in disadvantaged populations
- potentially unsustainable land release and development within the SWGC.

Further, it is expected that noise, visual and social operational phase impacts from the project would reduce in the long term as the area is developed and land use planning integrates with the project. Other direct impacts of the project, such as biodiversity and land use/property impacts, should be considered in the context of the wider development planned for the SWGC.

Various measures and commitments are recommended to avoid, remedy and manage the identified impacts associated with the SWRL, as part of the overall Construction Environmental Management Plan, and as the design for the project is developed further. This is reflected in TIDC's draft SoC in Chapter 17 (refer Table 17-1) which supersede the previous Concept Plan SoC. Provided that the measures and commitments specified in Chapters 7 – 17 are applied during the construction and operational phases of the project, the project could proceed without significant environmental, social or economic impacts (other than impacts on the Ingleburn Army Camp).

18.5 Next steps

The next steps for the project are as follows:

- exhibition of the Environmental Assessment for a minimum of 30 days and invitation for the community and stakeholders to make submissions
- preparation of a Submissions Report and, if required, a Preferred Project Report and final SoC
- Director-General of the NSW Department of Planning (DoP) provides an Assessment Report on the project EA to the Minister
- the Minister for Planning makes a decision on the project and the modifications sought to conditions 1.1 and 1.2 of the Concept Plan Approval and the Stage A Approval and, if approved, sets conditions of approval.

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Appendix A

Concept Plan Approval

Concept Plan Approval

Section 75O of the *Environmental Planning and Assessment Act 1979*

I, the Minister for Planning, under the *Environmental Planning and Assessment Act 1979* determine:

a) pursuant to section 75O of the *Environmental Planning and Assessment Act 1979,* to grant concept plan approval for the proposal referred to in Schedule 1, subject to the modifications in Schedule 2;

b) pursuant to section 75P(1)(c) of the *Environmental Planning and Assessment Act 1979*, that the Stage A (Glenfield rail corridor) project referred to in Schedule 1, requires no further environmental assessment;

c) pursuant to section 75P(1)(b) of the *Environmental Planning and Assessment Act 1979*, the further environmental assessment requirements for approval to carry out the Stage B1 (Glenfield Station) project, referred to in Schedule 1, under Part 5 of the *Environmental Planning and Assessment Act 1979*; and

d) pursuant to section 75P(1)(a) of the *Environmental Planning and Assessment Act 1979*, the further environmental assessment requirements for approval to carry out the Stage B2 (remaining works) project(s), referred to in Schedule 1, under Part 3A of the *Environmental Planning and Assessment Act 1979.*

Frank Sartor MP
Minister for Planning

Sydney 29th Aug 2007 File No: 9040497

SCHEDULE 1

Application No:	06_0158
Proponent:	Transport Infrastructure Development Corporation
Approval Authority:	Minister for Planning
Land:	Land required for the construction and operation of the proposal, generally between East Rossmore and Glenfield, including land within and adjacent to the existing rail corridor at Glenfield.
Proposal:	The South West Rail Link, being the construction and operation of a new dual-track electrified rail line, between East Rossmore and Glenfield, comprising the: • Stage A (Glenfield rail corridor) project: • the full construction and operation of Glenfield North Flyover (and associated track reconfigurations) independent of Stage B projects, if required;

- the partial construction of the Glenfield South Flyover; and
- establishment of temporary construction sites, generally at the locations shown in Figure 4-5 of the *South West Rail Link Submissions Report*, dated May 2007, prepared by Parsons Brinkerhoff;

- Stage B1 (Glenfield Station) project: the construction and operation of the Glenfield station upgrade and associated ancillary infrastructure; and
- Stage B2 (remaining works) project(s): the construction and operation of the remainder of the South West Rail Link and associated ancillary infrastructure, including:
  - the remainder of the Southern Flyover;
  - a new dual-track electrified rail line between the existing rail corridor at Glenfield and East Rossmore;
  - two new stations at Edmondson Park and Leppington; and
  - a stabling facility at East Rossmore.

Part 3A Project: On 7 April 2006, the Minister for Planning formed the opinion that the proposed South West Rail Link is of State and regional environmental planning significance and declared that Part 3A of the *Environmental Planning and Assessment Act 1979* applies to the proposal.

Concept Plan Authorisation: On 12 July 2006, the Minister for Planning authorised the submission of a concept plan for the proposal.

KEY TO CONDITIONS

SCHEDULE 2

DEFINITIONS

Ancillary Infrastructure	Other infrastructure required for the construction and operation of the South West Rail Link, including supporting infrastructure such as provisions for bus, taxi, kiss and ride, parking, pedestrians and cyclists; and temporary construction sites.
Concept Plan	The South West Rail Link proposal described in Schedule 1.
Conditions of Approval	The conditions of approval detailed in this, the Minister of Planning's concept plan approval for the South West Rail Link.
Construction	All pre-operation activities associated with the projects related to the concept plan approval **other than** survey, acquisitions, fencing, investigative drilling or excavation, building/road dilapidation surveys or other activities determined by the Environmental Representative to have minimal environmental impact such as minor access roads, minor adjustments to services / utilities, establishing temporary construction sites (in accordance with the requirements of this concept plan approval or related project approvals), or minor clearing (except where threatened species, populations or ecological communities would be affected).
DECC	Department of Environment and Climate Change.
Director-General, the	Director-General of the Department of Planning (or delegate).
DWE	Department of Water and Energy.
DPI	Department of Primary Industries.
GCC	Growth Centres Commission.
MoT	Ministry of Transport.
Operation	When trains commence operating on any project related to this concept plan approval but excluding commissioning activities.
Project	The Stage A (Glenfield rail corridor) project, the Stage B1 (Glenfield Station) project, and the Stage B2 (remaining works) project(s) as described in Schedule 1.
Project Approval	Unless specified, 'project approval' refers to an approval to construct granted under either Part 3A or Part 5 of the *Environmental Planning and Assessment Act 1979*.
Proponent	Transport Infrastructure Development Corporation.
Reasonable and Feasible	Consideration of best practise taking into account the benefit of proposed measures and their technological and associated operational application in the NSW and Australian context. **Feasible** relates to engineering considerations and what is practical to build. **Reasonable** relates to the application of judgement in arriving at a decision, taking into account: mitigation benefits, cost of mitigation versus benefits provided, community views and nature and extent of potential improvements.
Relevant Council(s)	Campbelltown City Council, Liverpool City Council, Camden Council.
RTA	NSW Roads and Traffic Authority.
SoC	Statement of Commitments

1. ADMINISTRATIVE CONDITIONS

Terms of Concept Approval

1.1 The Proponent shall carry out the concept plan and all related projects generally in accordance with the:
   a) Major Project Application 06_0158;
   b) *South West Rail Link Environmental Assessment and Concept Plan*, dated November 2006, and prepared by Parsons Brinkerhoff;
   c) *South West Rail Link Submissions Report*, dated May 2007, and prepared by Parsons Brinkerhoff; and
   d) the conditions of approval.

1.2 In the event of an inconsistency between:
   a) the conditions of approval and any document listed in condition 1.1a) to 1.1c) inclusive, the conditions of approval shall prevail to the extent of the inconsistency; and
   b) any documents listed in condition 1.1a) to 1.1c) inclusive, the most recent document shall prevail to the extent of the inconsistency.

1.3 If there is any inconsistency between this concept plan approval and any related project approvals, this concept plan approval shall prevail to the extent of the inconsistency.

1.4 The Proponent shall comply with any reasonable requirement(s) of the Director-General arising from the Department of Planning's assessment of:
   a) any reports, plans or correspondence that are submitted in accordance with this concept plan approval or the Stage B1 or Stage B2 project approvals; and
   b) the implementation of any actions or measures contained in these reports, plans or correspondence.

Limits of Approval

1.5 To avoid any doubt, this concept plan approval does not permit the construction of any South West Rail Link projects described in Schedule 1, which will be subject to separate project approval(s).

2. PROJECT APPLICATIONS AND SPECIFIC REQUIREMENTS

Stage B1 (Glenfield Station) Project

Note: The Minister has formed the view that the Stage B1 (Glenfield station) project is unlikely to result in significant impact to the environment and should be assessed and determined under Part 5 of the *Environmental Planning and Assessment Act 1979*.

2.1 Pursuant to section 75P(2)(c) of the *Environmental Planning and Assessment Act 1979,* the following environmental assessment requirements apply with respect to Stage B1 (Glenfield Station):
   a) a detailed project description, including the design and location of relevant ancillary infrastructure;
   b) a demonstration that the project is consistent with the requirements of this concept plan approval and generally consistent with the scope and intent of the concept plan outlined in the documents under condition 1.1 of this approval;
   c) a detailed project-specific statement of commitments, consistent with the statement of commitments prepared for the concept plan, clearly identifying any new or amended commitments relating to the project;
   d) an updated assessment of statutory matters, where the project affects land that has not already been identified in the documents referred to in conditions 1.1 (a) to (c);
   e) assessment of Matters of National Environmental Significance (where relevant);

f) assessment of the following key issues for the project (including relevant ancillary infrastructure) in consultation with relevant agencies including (but not limited to) RailCorp, MoT, DECC, RTA and Campbelltown City Council:

- **Property and Landuse:** confirm the footprint of the project, identifying any additional land required for ancillary infrastructure not identified in the documents referred to in conditions 1.1 (a) to (c), and describe the landuse impacts of any additional land take to existing and planned future landuse.
- **Traffic and Transport:**
  - review patronage and mode-share predictions for Glenfield Station taking into account planned landuse change and transport infrastructure provisions (such as strategic bus corridors and road improvements) within and surrounding Glenfield.
  - describe any existing transport and mode-of-access provisions at the Station (including existing parking and cycle provisions on Railway Parade) that would be directly impacted or lost as a result of the project.
  - describe how the design of kiss and ride, taxi, bus, parking, pedestrian and cycle provisions at Glenfield station address the dual objectives of catering for predicted mode-of-access demand and mitigating identified transport and mode-of-access impacts. Specifically:
    - analyse the cost and benefits of alternative park and ride locations (both on the western and eastern side of the rail corridor) to meet the above objectives, including consideration of economic impacts to businesses on Railway Parade;
    - describe how the design of cycle and pedestrian provisions would maximise access and connectivity to the Station and across the rail corridor. Consideration should be given to retaining or expanding existing provisions and connection to planned future measures (e.g. Council cycle programs); and
    - describe interchange provisions for connection to existing and planned bus networks including the Liverpool to Campbelltown strategic bus corridor;
  - review the operational traffic impacts of the project including:
    - the impacts of the changes to Railway Parade on peak time operational efficiency, including traffic congestion and displacement of impacts to surrounding local streets; and
    - the peak time operational impacts of traffic generated by additional parking provisions on local and arterial roads.
  - review construction traffic impacts of the project considering cumulative impacts from surrounding development (including the construction of other South West Rail Link projects), haulage routes, and disruptions to traffic and access (including peak congestion and intersection impacts at local and arterial roads).
- **Noise and Vibration**: describe the operational noise and construction noise and vibration impacts of the project, considering all reasonable and feasible mitigation measures (where relevant).
- **Flora and Fauna**: for all aspects of the project (as relevant):
  - describe the ecological impacts of the project including (as relevant): impacts on threatened species, populations and ecological communities; riparian and stream ecology; and existing or planned biodiversity corridors.
  - describe measures to offset impacts including opportunities for conserving/ enhancing riparian and biodiversity corridors.
  - describe how the effectiveness of the offset measures would be monitored and what actions shall be taken if measures are identified to be ineffective; and
  - describe the maintenance responsibilities and timing of implementation of offset measures.
- **Indigenous Heritage**: for all aspects of the project (as relevant), describe the indigenous heritage impacts of the project in accordance with Steps 1 to 4 of the *Protocol for Aboriginal Stakeholder Involvement in the assessment of Aboriginal cultural heritage in the Sydney Growth Centres* (Context Pty Ltd, 2006a) and the

Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres (Context Pty Ltd, 2006a), identifying mitigation priorities with consideration to the regional significance of impacts. The assessment must consider cumulative impacts associated with other projects related to this concept plan approval and of surrounding development.

- **Visual and Urban Design**:
  - describe the visual and urban design impacts and mitigation requirements for the project in accordance with Statement of Commitments B36 to B40 and B43.
  - Describe the timing of implementation of urban design and landscaping measures, how the effectiveness of landscaping measures would be monitored and maintenance responsibilities for relevant urban design and landscape measures.

g) assessment at an appropriate level of detail the impacts and mitigation measures associated with any additional issues of relevance to the project, identified during further design development, that are not specifically identified in this concept plan approval, in consultation with relevant agencies.

2.2 The Proponent shall ensure that the environmental impact assessment prepared for the Stage B1 (Glenfield Station) project is publicly exhibited for a minimum of 30 days (excluding public holidays) and issues raised in submissions are considered during the assessment and determination of the project.

2.3 The Proponent shall as part of the environmental impact assessment exhibition period for the Stage B1 (Glenfield Station) project seek comments from the Department of Planning, relevant agencies (including but not limited to RailCorp, MoT, DECC, RTA) and Campbelltown City Council and ensure that issues raised are considered during the assessment and determination of the project.

Stage B2 (Remaining Works) Projects

2.4 Pursuant to section 75P(1)(a) of the *Environmental Planning and Assessment Act 1979,* the following environmental assessment requirements apply with respect to the Stage B2 (remaining works) project(s):

a) a detailed project description, including the design and location of ancillary infrastructure;

b) a demonstration that the project is consistent with the requirements of this concept plan approval and generally consistent with the scope and intent of the concept plan outlined in the documents under condition 1.1 of this approval;

c) a detailed project-specific statement of commitments, consistent with the statement of commitments prepared for the concept plan, clearly identifying any new or amended commitments relating to the project;

d) an updated assessment of statutory matters, where the project affects land that has not already been identified in the documents referred to in conditions 1.1 (a) to (c);

e) assessment of Matters of National Environmental Significance in relation to flora and fauna, heritage and Commonwealth land;

f) assessment of the following key issues for the project(s) (including relevant ancillary infrastructure), in consultation with relevant agencies including (but not limited to) RailCorp, MoT, GCC, Landcom, DECC, DPI (Fisheries), DWE, RTA and relevant Councils:

- **Property and Landuse:**
  - confirm the footprint of the project, identifying any additional land required for operational noise mitigation measures, flood mitigation measures and ancillary infrastructure not identified in the documents referred to in conditions 1.1 (a) to (c), and describe the landuse impacts of any additional land take to existing and planned future use.
  - Specifically, identify whether the design solution for flood mitigation at Edmondson Park station, would impact on land reserved under the *National Parks and Wildlife Act 1974.*

- **Traffic and Transport:**
  - for Edmondson Park and Leppington Stations, review patronage and mode-share predictions, taking into account planned progressive land use change, and describe how the design of kiss and ride, taxi, bus, parking, pedestrian and cycle provisions at each station, accommodates the predicted demand;
  - for Leppington station prepare a park and ride strategy detailing how park and ride levels implemented at the commencement of operation would be transitioned to a longer term outcome, with consideration to the requirements of SoC B12;
  - for the rail corridor and stations, describe provisions for maximising pedestrian and cycle connectivity: across the rail corridor (at station precincts and other locations), between stations and respective town centres, and stations and the Western Sydney Parklands. Consideration should be given to retaining or expanding existing provisions and connecting to future provisions to be developed as part of the South West Growth Centres, the Western Sydney Parklands or relevant Council programs;
  - for all aspects of the project (as relevant) describe construction traffic impacts considering cumulative impacts from surrounding development, haulage routes, and disruptions to traffic and access (including peak congestion and intersection impacts at local and arterial roads);
- **Noise and Vibration**:

  Operational Noise
  - for the stabling facility, review operational noise impacts in accordance with the *Industrial Noise Policy* (EPA, 2000), considering all reasonable and feasible mitigation options (including full enclosure and the feasibility of low volume horn tests) at existing and planned future receivers;
  - for the rail corridor, review operational noise impacts in accordance with the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (DECC, 2007), considering all reasonable and feasible mitigation options at existing and planned future receivers. At Glenfield this shall involve confirming noise impacts for the long-term scenario (the '2017' scenario described in the report referred to in condition 1.1 c), or equivalent), based on further design development;
  - for all other aspects of the project, describe operational noise impacts where a facility/ activity is deemed to be an intrusive noise source, considering all reasonable and feasible mitigation options for existing and planned future receivers; and
  - for all aspects of the project, describe regenerated noise impacts where proposed mitigation options for airborne noise have the potential to result in regenerated noise levels becoming perceptible at existing or planned future receivers, with consideration to all reasonable and feasible mitigation options.

  Operational Vibration
  - for the rail corridor and stabling facility, review operational vibration impacts in accordance with *Assessing Vibration: A Technical Guideline* (DECC, 2006), considering all reasonable and feasible mitigation options for existing and planned future receivers;

  Construction Noise and Vibration
  - for all aspects of the project (as relevant), describe construction noise and vibration impacts, considering cumulative impacts from surrounding development and potential vibration impacts on sensitive items such as the Sydney Water Supply Canal and other heritage items, considering all reasonable and feasible measures for minimising impacts.
- **Hydrology:** for all aspects of the project (as relevant), confirm flood impacts on existing and planned future receivers and infrastructure based on modelling of the full range of flood sizes up to and including the PMF at each waterway crossing in accordance with the *Floodplain Development Manual* (2005). Describe the impacts of flow alterations at each crossing, on upstream and downstream ecology and riparian zones;

- **Flora and Fauna**: for all aspects of the project (as relevant):
  - describe the ecological impacts of the project including (as relevant): impacts on threatened species, populations and ecological communities; riparian and stream ecology; and existing or planned biodiversity corridors, including the regional corridors identified in the *Edmondson Park Ecological Assessment* (Eco Logical Australia Pty Ltd, 2003).
  - describe measures to offset impacts including opportunities for conserving/ enhancing riparian and biodiversity corridors, including the opportunity to develop the buffer area between the South West Rail Link alignment and Denham Court, as a biodiversity corridor.
  - Where relevant, offset measures should clearly distinguish between measures to be provided as part of the draft *Growth Centres Conservation Management Plan* (GCC, February 2007) and measures for land not covered by the plan (such as for land outside of the rail corridor at Glenfield; the James Meehan Estate; relevant land within the Edmondson Park Release Area; land subject to *Sydney Regional Environmental Plan No. 31 - Regional Parklands*; and land defined as Flood Prone and Major Creek Land under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*).
  - describe how the effectiveness of the offset measures would be monitored and what actions shall be taken if measures are identified to be ineffective.
  - describe the maintenance responsibilities and timing of implementation of offset measures.
- **Indigenous Heritage**: for all aspects of the project (as relevant), describe the indigenous heritage impacts of the project in accordance with Steps 1 to 4 of the *Protocol for Aboriginal Stakeholder Involvement in the assessment of Aboriginal cultural heritage in the Sydney Growth Centres* (Context Pty Ltd, 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd, 2006a), identifying mitigation priorities with consideration to the regional significance of impacts. The assessment must consider cumulative impacts associated with other projects related to this concept plan approval and of surrounding development.
- **European Heritage**: for all aspects of the project (as relevant), review impacts to European Heritage items and describe measures to minimise and/ or appropriately manage impacts (including heritage view sheds).
- **Visual and Urban Design**:
  - describe the visual and urban design impacts and mitigation requirements for the project in accordance with Statement of Commitments B36 to B40 and B43.
  - describe the timing of implementation of urban design and landscaping measures, how the effectiveness of landscaping measures would be monitored and maintenance responsibilities for relevant urban design and landscape measures.

g) assessment at an appropriate level of detail the impacts and mitigation measures associated with any additional issues of relevance to the project, identified during further design development, that are not specifically identified in this concept plan approval, in consultation with relevant agencies.

2.5 The Proponent may choose to submit separate project applications under Part 3A of the *Environmental Planning and Assessment Act 1979* for any one or a combination of the Stage B2 (remaining works) projects described in condition 2.4 (Edmondson Park Station, Leppington Station, stabling facility or rail corridor). In this case, each Stage 2 project application shall demonstrate that all relevant environmental assessment requirements specified in condition 2.4 have been addressed.

3. COMPLIANCE MONITORING AND TRACKING

3.1 The Proponent shall develop and implement a **Compliance Tracking Program** to track compliance with the requirements of this concept plan approval and any related project

approvals, Statement of Commitments, permits and licences. The Program shall aim to provide a single, consistent compliance tracking framework to be applied to each project and across projects, and shall include but not necessarily be limited to:

a) provisions for periodic review of the compliance status of the projects against the requirements of this concept plan approval and any related project approvals, Statement of Commitments, permits and licences;
b) provisions for the notification of the Director-General prior to the commencement of construction and prior to the commencement of operation of projects related to this concept plan;
c) a program for independent environmental auditing of construction works in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing* at least annually, from the commencement of construction of any project related to this concept plan approval, or as otherwise directed by the Director-General. The results of the audits shall be provided to the Director-General on request;
d) a program for independent environmental auditing of operation works in accordance with *ISO 19011:2003 - Guidelines for Quality and/ or Environmental Management Systems Auditing* at least one and five years after the commencement of operation of any project related to this concept plan approval or in accordance with an existing auditing system agreed to by the Director-General. The results of the audits shall be provided to the Director-General on request; and
e) procedures for rectifying any non-compliance identified during environmental auditing or review of compliance.

3.2 The Proponent shall report on compliance to the Director-General, prior to the commencement of construction and operation of projects related to this concept plan, and as otherwise requested by the Director-General:

a) in the case of a Part 5 project, the Proponent shall report on compliance with this concept plan approval and related Statement of Commitments; and
b) in the case of a Part 3A project, the Proponent shall report on compliance with this concept plan approval, relevant project approvals and related Statement of Commitments.

Nothing in this approval restricts the Proponent from reporting on the compliance of multiple projects associated with this concept plan approval

4. COMMUNITY INFORMATION, CONSULTATION AND INVOLVEMENT

Stakeholder Involvement

4.1 The Proponent shall develop and implement a **Stakeholder Involvement Strategy** to engage with Government agencies, relevant Councils, landowners, community members and other stakeholders (such as utility and service providers, bus companies and businesses), as relevant, as part of ongoing design development and construction. The strategy shall aim to provide a single, consistent consultation framework to be applied to each project and across projects. The strategy shall include, but does not necessarily be limited to:

a) identification of issues to be consulted on, and parties to be consulted with in relation to each issue;
b) procedures and mechanisms through which parties can discuss or provide feedback to the Proponent in relation to design and construction matters;
c) procedures and mechanisms through which the Proponent can field enquiries in relation to design and construction matters and respond to such enquiries;
d) procedures and mechanisms through which the Proponent can notify parties of construction matters;
e) procedures and mechanisms to resolve any disputes arising between parties at any stage; and
f) procedures and mechanisms to document consultation undertaken and how issues raised have been addressed.

The Strategy shall incorporate the requirements of conditions 4.2 to 4.5 and be made available to the Director-General on request.

Provision of Information

4.2 Prior to the commencement of construction of any project related to this concept plan approval, the Proponent shall establish and maintain a new website, or dedicated pages within its existing website, to provide electronic information related to the concept plan and all associated projects (or details of where hard copies of this information may be accessed by members of the public) until at least five years after the commencement of operation of all projects related to this approval, unless otherwise agreed to by the Director-General. The proponent shall, subject to confidentiality, publish and maintain up-to-date information on this website or dedicated pages including, but not necessarily limited to:

a) a copy of the documents referred to under condition 1.1 a) to c) of this approval and any documentation supporting modifications to this concept plan approval or related project approvals that may be granted in the future;
b) a copy of this concept plan approval and all related project approvals, including modifications to these approvals that may be granted in the future;
c) a copy of each relevant licence or permit required and obtained in relation to any project;
d) a copy of each current strategy, plan and program required under this concept plan approval or any related project approval; and
e) the outcomes of compliance tracking (including independent audit results) in accordance with condition 3.1 of this approval.

4.3 Subject to confidentiality, the proponent shall make all documents required to be provided under condition 4.2 of this approval available for public inspection on request.

Complaints Procedure

4.4 Prior to the commencement of construction of any project associated with this concept plan approval, the Proponent shall ensure that the following are available for community complaints and enquiries, for the duration of construction of each of the projects:

a) a single telephone number on which complaints and enquiries about the construction of any of the projects related to this concept plan approval (or two dedicated numbers, one to handle complaints and one for enquires), may be registered;
b) a postal address to which written complaints and enquiries about the construction of any of the projects related to this concept plan approval, may be sent; and
c) an email address to which electronic complaints and enquiries about the construction of any of the projects related to this concept plan approval may be transmitted.

The telephone number(s), the postal address and the email address shall be published in a newspaper circulating in the local area prior to the commencement of construction for each project and at regular intervals during the construction of each project. The above details shall also be provided on the website (or dedicated pages) required by this approval.

4.5 The Proponent shall develop a Construction Complaints Management System consistent with *AS 4269 Complaints Handling* prior to the commencement of construction of any of project associated with this concept plan approval and implement the system for the duration of construction of each of the project(s). The strategy shall aim to provide a single, consistent complaints management framework to be applied to each project and across projects.

Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, must be maintained by the Proponent.

5. ENVIRONMENTAL MANAGEMENT

Environmental Representative

5.1 Prior to the commencement of construction of any project related to this concept plan approval, or as otherwise agreed by the Director-General, the Proponent shall nominate for the approval of the Director-General a suitably qualified and experienced Environmental Representative independent of the design and construction personnel of that project. The Proponent shall employ the Environmental Representative for the duration of construction of the project, or as otherwise agreed to by the Director-General. The Environmental Representative shall be the Proponent's principal point of advice in relation to the environmental performance of the project and shall have responsibility for:

a) overseeing the implementation of all environmental management plans and monitoring programs required under this concept plan approval, related project approval or Statement of Commitments, and advising the Proponent upon the achievement of the outcomes of these plans/ programs;

b) advising the Proponent on its compliance obligations against all relevant requirements of this concept plan approval and any related project approvals, Statement of Commitments, permits and licences; and

c) have the authority and independence to require reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts.

5.2 The Proponent may choose to nominate an Environmental Representative to be responsible for a number of projects related to the concept plan. In doing so, the proponent shall demonstrate to the Director-General that the nominated Environmental Representative is capable to carrying out the required duties across multiple projects

Environmental Management System

5.3 Prior to the commencement of construction and operation, respectively of any project related to this concept plan approval the Proponent shall ensure that a **Environmental Management System** prepared and accredited in accordance with *ISO14001:2004 – Environmental Management Systems* is developed. The System shall provide a single, consistent environmental management framework that shall be implemented during the construction and operation, respectively of each project associated with this concept plan.

5.4 Nothing in this approval restricts the Proponent from implementing an existing environmental management system administrated by the Proponent which can be demonstrated to address the requirements of condition 5.3.

6. SPECIFIC ENVIRONMENTAL CONDITIONS

Property and Land Use

6.1 The Proponent shall, in consultation with relevant agencies including (but not necessarily limited to) the GCC, MoT, the Department of Planning, Landcom, and relevant Councils, ensure that the detailed design of any projects related to this concept plan approval, is consistent with State Government landuse objectives and policy, specifically that:

a) those project components affecting land subject to *Sydney Regional Environmental Plan No. 31 - Regional Parklands* are consistent with planned future landuse for that land;

b) park-and-ride facilities to be provided at Glenfield, Edmondson Park and Leppington stations are consistent with relevant parking and transit-oriented development policy;

c) Glenfield, Edmondson Park and Leppington stations are integrated with planned transport provisions for South Western Sydney (including strategic bus corridors and road improvements), to maximise accessibility and patronage to the stations; and

d) Edmondson Park and Leppington stations and the stabling facility are integrated with the precinct planning for the Edmondson Park and Leppington town centre, and the Rossmore precinct, respectively.

6.2 The Proponent shall in consultation with affected landowners and the relevant acquisition authority, ensure that all projects related to this concept plan approval, are designed to minimise property impacts where this would not reasonably compromise project design or existing or planned future land use on the residual property.

Traffic and Transport

6.3 The Proponent shall ensure that all projects related to this concept plan approval incorporates easy access provisions consistent with the *Commonwealth Disability Standards for Accessible Public Transport 2002* as part of construction and operation, including parking provisions within easy walking distance of stations.

6.4 The Proponent shall ensure that there is no net loss of existing parking levels at Glenfield Station during the construction or operation of any project associated with this concept plan approval.

Surface Water and Hydrology

6.5 The Proponent shall ensure that the detailed design of any project related to this concept plan approval does not preclude Campbelltown City Council's plans to construct a flood detention basin at James Meehan Estate, unless otherwise agreed to by Campbelltown City Council and the Director-General.

Biodiversity and Landscaping

6.6 The Proponent shall ensure that the biodiversity impacts associated with all projects related to this concept plan approval are offset to ensure a net neutral or beneficial biodiversity outcome, consistent with the draft *Growth Centres Conservation Plan (GCC, 2007)* and draft *Guidelines for Biodiversity Certification of Environmental Planning Instruments (DECC, 2007)* and in consultation with the DECC.

6.7 The Proponent shall ensure that landscaping measures implemented as part of all projects related to this concept plan approval are consistent with biodiversity conservation principles.

Appendix B

Statement of Commitments for the Concept Plan

Appendix B
Concept Plan Statement of Commitments

The Environmental Assessment of the SWRL project and this Submissions Report identify a range of potential environmental impacts and recommended management measures to avoid or reduce the potential impacts of the SWRL. The Concept Plan in Chapter 20 of the EA and Concept Plan and Section 5 of the Submissions Report have identified what TIDC is seeking approval for and where further design and assessment is required.

This Appendix contains a Statement of Commitments (SoC) for the project. The draft SoC in the EA was revised as a result of submissions received and the additional investigations completed. These commitments would be implemented as part of the subsequent phases of project development.

The SoC is provided in two parts (Tables A and B). Table A identifies commitments relating to Stage A and, in particular, commitments relating to the environmental management during construction and operation of these works. Table B identifies commitments relating to Stage B and focuses on the further design and assessments that would be undertaken.

General

In relation to Stage B works, all future design development and assessment identified in Section 20.5 of the *SWRL Environmental Assessment and Concept Plan (November, 2006)* and as proposed within the following SoC would be informed by the recommendations and mitigation measures outlined within the *SWRL Environmental Assessment and Concept Plan* (November 2006) and the SWRL Submissions Report.

Table A Revised SoC: Stage x B

Environmental Management Systems ***Outcome:*** *An environmental management framework for the Stage A works to minimise environmental impacts during construction.*
Action
A1. The construction of the Stage A works would be undertaken in accordance with an Environmental Management System(s) (EMS) to the standard of ISO 14001 or equivalent.
A2. A Pre-Construction Compliance Report would be prepared and submitted to the Director General of DoP (Director General) at least four weeks before construction commences (or within any other time agreed to by the Director General). The Pre-Construction Compliance Report would include: a. details of how the SoCs and Conditions of Approval required to be addressed before construction were complied with; b. the time when each relevant SoC and Condition of Approval was complied with, including dates of submission of any required reports and/or approval dates; and c. details of any approvals or licences required to be issued by relevant Government Agencies before construction commences.
A3. A Pre-Operation Compliance Report would be prepared and submitted to the Director General at least four weeks before Operation commences (or within any other time agreed to by the Director General). The Pre-Operation Compliance Report would include: a. details of how the SoC and Conditions of Approval required to be addressed before Operation were complied with; b. the time when each relevant SoC and Condition of Approval was complied with, including dates of submission of any required reports and/or approval dates; and

c. details of any approvals or licences required to be issued by relevant Government Agencies for the Project's operation.

A4. Construction Compliance Reports would be prepared and provided at six monthly intervals during construction to the Director General & relevant Councils and any other Government Agencies nominated by the Director General. The Construction Compliance Reports would include information on:

a) compliance with the CEMP, relevant SoCs and the Conditions of Approval;
b) compliance with any approvals or licences issued by relevant Government Agencies;
c) the implementation and effectiveness of environmental controls. The assessment of effectiveness should be based on a comparison of actual impacts against performance criteria identified in the CEMP;
d) environmental monitoring results, presented as a results summary and analysis;
e) the number and details of any complaints, including a summary of main areas of complaint, action taken, response given and intended strategies to reduce recurring complaints;
f) details of any review and amendments to the CEMP during the reporting period; and
g) any other matter relating to compliance with the SoCs and Conditions of Approval or as requested by the Director General.

A5. A Construction Environmental Management Plan (CEMP) would be prepared prior to construction and submitted to the Director General, which would outline the environmental protection measures to mitigate the impact of construction activities. The CEMP would be consistent with ISO14001, the SoCs and any Conditions of Approval including the conditions of any approvals or licences issued by Government Agencies.

A6. *Environmental Control Maps* (ECMs) would be prepared for each construction site and include site specific management measures identified in the management plans and as required by the SoC or conditions of approval.

A7. An *Environmental Impact Audit Report (construction)* would be prepared and submitted to the Director General a maximum of three months after construction is complete (or at any other time interval agreed to by the Director General). The Environmental Impact Audit Report (construction) would also be submitted to other Government agencies upon the request of the Director General. The *Environmental Impact Audit Report (construction)* would*:*

a) Identify the major environmental controls used during construction and assess their effectiveness;
b) Summarise the main environmental management plans and processes implemented during construction and assess their effectiveness
c) Identify any innovations in construction methodology used to improve environmental management; and
d) Discuss the lessons learnt during construction, including recommendations for future developments.

A8. An independent Environmental Management Representative (EMR) would be appointed prior to construction to advise the Director General and the proponent on compliance with the SoC and conditions of approval.

Communication processes & Stakeholder Management

Outcome*: A clear framework for community and stakeholder involvement through the project development and construction.*

Action

A9. A Community Liaison Plan would be established and submitted to the Director General prior to construction to facilitate liaison with the local community and stakeholders. This would outline communication processes to be developed and implemented including:

a) opportunities to input into the design process, where appropriate;
b) methods to inform the community, and stakeholders of the progress and performance of the project and issues of interest
c) processes to receive and manage complaints
d) consultation with affected property owners and local businesses
e) protocols to notify community & stakeholders of relevant activities and any incidents should they occur
f) opportunities for consultation meetings and methods for selection of community stakeholder representation.

A10. Ongoing consultation would occur with Government agencies regarding issues raised during previous consultation and as identified within the Environmental Assessment and Concept Plan and the SWRL Submissions Report.

Land use, property and infrastructure planning

Outcome: *Management of interfaces with ARTC infrastructure*

Action

A11. Consultation would be undertaken with the Australian Rail Track Corporation (ARTC) and RailCorp to ensure the SWRL Stage A works are consistent with the approved Southern Sydney Freight Line project and minimise cumulative impacts.

Traffic, transport, parking and access

Outcome: *Minimisation and management of traffic, transport and access impacts*

Action

A12. Site-specific Traffic Management Plans would be prepared for construction work sites and where works are proposed in the road or that would affect trafficable areas. The Traffic Management Plan would be incorporated into the CEMP/ ECM. These plans would be prepared in consultation with the Roads and Traffic Authority, Ministry of Transport, and Campbelltown City Council.

A13. Measures to mitigate impacts of the various work sites around the Glenfield Junctions on pedestrians and cyclists would be incorporated into the Traffic Management and Traffic Control Plans.

A14. Prior to construction commencing, intersection counts would be undertaken at the Glenfield Road roundabout in the morning and afternoon peaks to profile existing traffic flows. This data would be used to forecast the impacts on traffic flows through the intersection associated with the proposed additional car park at Glenfield, and clarify the need for any traffic management measures.

A15. As part of the design development the need to implement a turning circle at the southern end of the Glenfield Station access road to improve the circulation of vehicles would be considered.

Flora and fauna

Outcome: *Management of biodiversity impacts*

Action

A16. Prior to construction at the site of the Glenfield additional car park, a biodiversity survey would be completed in accordance with the draft *Threatened Biodiversity Survey and Assessment Guidelines for Developments and Activities* (National Parks and Wildlife Service 2004). This would include targeted surveys for threatened species that have the potential to occur on-site. The site would be surveyed at a time of year suitable for the detection of a range of threatened species (e.g. *Pimelea spicata*). If threatened or rare species are found on-site then suitable mitigation measures would be included in the Flora and Fauna Management Plan.

A17. A Flora and Fauna Management Plan would be prepared as part of the CEMP/ECM in consultation with relevant Government Departments and Campbelltown City Council.

Hydrology and surface water

Outcome: *Management of hydrology and surface water during construction*

Action

A18. Worksite planning on the James Meehan Estate (JME) site would take account of flooding issues in consultation with Campbelltown City Council.

Heritage

Outcome: *Management framework for Indigenous and non-Indigenous heritage*

Action

A19. A Heritage Management Plan would be prepared prior to construction and incorporated into the CEMP/ECM. The Heritage Management Plan would address:

a) details of any additional archaeological investigations to be undertaken and any associated licences or approvals required;

b) procedures to be implemented if previously unidentified Aboriginal or Non-Indigenous objects are discovered during construction; and

c) an education program for construction personnel on their obligations for Aboriginal cultural materials and Non-Indigenous items.

A20. Prior to establishment of the construction sites at James Meehan Estate and the commuter car park, a detailed assessment, consistent with the *GCC Precinct Assessment Methodology for Aboriginal Cultural Heritage* would be undertaken.

Noise and vibration

Outcome :*Management of noise and vibration during construction and operation*

Action

A21. The detailed design of the Glenfield North Fly-over would incorporate measures to minimise any increases in operational noise levels.

A22. Prior to construction, a site-specific Construction Noise and Vibration Management Plan (CNVMP) would be prepared as part of the CEMP/ECM. The CNVMP would be developed based on the principles in the TIDC draft Construction Noise Strategy (Rail Projects) for construction noise management and in consultation with DECC (Department of Environment and Climate Change).

A23. Compliance monitoring of operational noise predictions would be undertaken after opening and following the introduction of the SWRL train timetable.

Visual impacts, landscape and urban design

Outcome: *Management of visual impacts, landscape and urban design issues*

Action

A24. Where construction compounds and access roads are visible from surrounding areas, visual screening would be implemented, as appropriate.

A25. A landscape plan would be prepared for the additional car park and would include the retention of existing trees where possible.

A26. The proponent would liaise with ARTC to ensure that the tree plantings alongside Hurlstone Agricultural College required by the SSFL approval are not affected by the Glenfield Junction works.

Air quality

Outcome: *Management of Air Quality impacts during construction*

Action

A27. An Air Quality Management Plan would be prepared and incorporated into the CEMP/ECM prior to construction to address management of dust during construction, emissions from construction plant and vehicles and any other fugitive emissions.

Hazard and risk

Outcome: *Management of Hazards and Risks during construction*

Action

A28. A Hazards and Risk Management Plan would be prepared and incorporated into the CEMP/ECM prior to construction.

Public safety

Outcome: *Safeguarding public safety during construction*

Action

A29. All construction compounds and work areas would be fenced off to prevent public access during construction.

Services and utilities

Outcome: *Minimisation of disruption to services and utilities*

Action

A30. A Services and Utilities Sub Plan would be developed and incorporated into the CEMP/ECM prior to construction and would:

a) identify existing services and utilities around the work sites and provide guidance in the event of an unexpected disruption to utilities and services; and

b) be developed in consultation with relevant utility owners to ensure that any re-locations are undertaken in accordance with relevant requirements and/ or guidelines.

Soils, water quality and groundwater

Outcome: *Minimisation of impacts on soils, water quality and groundwater*

Action

A31. Measures to control soil erosion and runoff would be detailed in a Soil and Water Management Plan as part of the CEMP/ECM. The Plan would be prepared in consultation with relevant Government Agencies and Campbelltown City Council, and be consistent with the principles and practices outlined in Landcom's (2004) *Managing Urban Stormwater: Soils and Construction*.

A32. Geotechnical investigations undertaken prior to construction would include an assessment of groundwater levels and groundwater and soil quality to minimise risks

associated with construction works.

Waste, energy and demand on resources

Outcome: *Management of waste*

Action

A33. A Waste Management Plan would be prepared as part of the CEMP/ECM and would identify requirements for

a) the application of waste minimisation hierarchy principles of avoid/reduce/ re-use/ recycle/ dispose; and

b) waste handling and disposal.

Contaminated land and hazardous materials

Outcome: *Early identification and management of any potential contamination*

Action

A34. A Contamination and Hazardous Materials Investigation Report would be prepared in consultation with the Department of Environment and Climate Change (DECC), RailCorp and Campbelltown City Council to determine the nature, extent and degree of any contamination within the area of works. This would:

a) be prepared in accordance with relevant DEC Guidelines; and

b) include a contingency plan to be implemented in the case of the unanticipated discovery of contaminated material during construction.

Table B Revised Statement of Commitments - Stage B

Sustainability principles

Outcome: *Project development and delivery based around core sustainability principles*

Action

B1. Core sustainability principles would be developed for the project covering the following themes:

a) Energy

b) Greenhouse emissions

c) Water

d) Community and Stakeholder Involvement

e) Biodiversity

f) Resource Recycling/ minimisation

To develop the principles a benchmarking exercise would be undertaken to enable clear Sustainability Goals and Objectives to be determined which would provide clear result areas and targets under each theme.

Design and Construction Strategies

Outcome: *Minimisation of environmental impacts by integrating assessment of environmental issues with development of design and construction strategies*

Action

B2. A Construction Strategy would be developed to inform planning for and confirm localities of construction sites and construction methodologies would also be developed at each of the construction sites taking into account:

a. surrounding sensitive land uses;

b. existing environmental constraints/sensitivities; and

c. ease of access to the arterial road network.

Communication processes & Stakeholder management

Outcome: *A clear framework for community and stakeholder involvement*

Action

B3. Communications processes for the community and stakeholders would be developed and implemented throughout design development and further environmental impact assessment for the project. These would include:

a) opportunities to input into design process such as station precincts and structures and proposed mitigation measures (e.g. noise barriers) for construction and operations;

b) methods to inform the community of the progress and performance of the project and issues of interest to the community;

c) processes to receive and manage complaints; and

d) consultation with affected property owners.

B4. Ongoing consultation would occur with Government agencies regarding issues raised during previous consultation and as identified within the Environmental Assessment and Concept Plan and the SWRL Submissions Report

Land use, property and infrastructure planning

Outcome: *Integration of transport and land-use*

Action

B5. Consultation would be undertaken with Councils, the Growth Centres Commission, RailCorp and where relevant other agencies responsible for locality and precinct planning regarding implementation of appropriate development controls and appropriate zoning within the vicinity of the rail line and stabling facility.

B6. Liaise with the Department of Planning (Sydney Region West) and Campbelltown City Council about the land use implications of the project for the Glenfield area.

B7. Land use and property impacts of all elements of the project, including construction sites and all ancillary facilities, would be further assessed in consultation with the Growth Centres Commissions, Councils and surrounding landowners.

B8. Consultation would be undertaken with the Department of Planning to ensure the rail line can be integrated with planning for sub-precincts 9.6 and 9.7 of the Western Sydney Parklands and, where relevant, appropriate measures would be implemented to minimise the visual, noise, flora and fauna (habitat corridors) and access impacts of the project on these sub-precincts.

B9. A Land Asset Management Plan to address 'land surplus to use', post construction would be developed jointly with the Department of Planning (Land Management Branch) in consultation with Growth Centres Commission (and Councils where relevant). This plan would investigate opportunities for land amalgamation of parcels severed by the SWRL and identify opportunities for development that is consistent with land use planning, in particular the South West Growth Centre Structure Plan.

B10. Liaise with Growth Centres Commission, Councils, RailCorp, MoT and land owners involved in future precinct planning in the South West Growth Centre to ensure the design of the project can:

a) be consistent with and may inform the development of precinct planning, particularly around stations and the stabling facility;

b) facilitate connectivity across the corridor and mitigate severance impacts, including opportunities for pedestrian, cycleway and vehicular crossings;

c) accommodate any planned collocation of utilities within the rail corridor, where feasible; and

d) allow for planned utility crossings of the corridor.

Traffic, transport, parking and access

Outcome:

(i) Stations (including interchanges, commuter parking and other facilities) are planned and delivered to meet current and future traffic, transport and access requirements

(ii) Future assessment to ensure minimisation of traffic and transport impacts during construction and operation

Action

B11. Design development and assessment of stations and transport interchanges would be undertaken to ensure the integration of the station with the local area and the predicted patronage and mode of access are catered for during operations. The assessment would include consideration of local connectivity requirements; pedestrian modelling (including emergency access); traffic impacts on surrounding road networks; parking requirements and the integration of bus services with the new rail stations. These investigations would be undertaken in consultation with Growth Centres Commission, Councils, RailCorp, Ministry of Transport, Roads and Traffic Authority and Landcom (at Edmondson Park)

B12. Park-and-ride facilities would be planned and developed with reference to relevant parking policies. Long-term parking provision would be determined with consideration to bus services provision and land use development patterns

B13. Glenfield, Edmondson Park and Leppington Stations would incorporate bicycle facilities, and pedestrian and cycle access across the project corridor.

B14. Assessment of existing and planned pedestrian and cycleway linkages, including crossing of the project would be undertaken in consultation with Growth Centres Commission, RailCorp, Councils and surrounding landowners. Where pedestrian and cycleways can be reasonably accommodated within or immediately adjacent to the rail

corridor and link to existing or planned cycleway networks, consideration would be given to their provision in association with the project.

B15. Maintenance access points would be identified and planned in consultation with RailCorp, the Growth Centres Commission and Councils.

B16. Traffic modelling and traffic management analysis would be undertaken for the roads and intersections impacted by the project during construction and operation. This analysis would consider existing and planned road upgrades.

B17. The design of construction works and staging at Glenfield Station would ensure safe access to the Station and across the rail line.

B18. A detailed construction methodology for the crossing of the Hume Highway, Campbelltown Rd and Camden Valley Way would be developed in consultation with the Roads and Traffic Authority with the aim of minimising traffic disruptions.

Hydrology and surface water

Outcome: *Further assessment of hydrology and surface water to inform future design development and deliver good environmental outcomes*

Action

B19. A detailed flood assessment would be undertaken in accordance with appropriate NSW Government guidelines and in consultation with Councils and relevant Government agencies. The assessment would confirm the extent of flooding impacts and inform future design development, in particular the type, location and size of drainage structures along the project corridor.

B20. Additional flooding assessment to that undertaken in the Environmental Assessment and vertical rail alignment design work would be undertaken at Edmondson Park Station and surrounds and coordinated with Landcom, the Growth Centres Commission and Councils.

Flora and fauna

Outcome: *Assessment and management of biodiversity impacts is consistent with the regional approach to biodiversity management within the South West Growth Centre i.e. maintain or improve biodiversity values.*

Action

B21. Design of waterway crossings and structures would be undertaken with reference to the *Guidelines for Design of Fish and Fauna Friendly Waterway Crossings* (Fairfull and Witheridge 2003) and *Fish Passage Requirements for Waterway Crossings* (2003) and considering the quality of riparian habitat present, in consultation with the Department of Primary Industries (NSW Fisheries) and other relevant Government agencies.

B22. A detailed ecological assessment would be undertaken at all construction sites and along the project corridor. The assessment would identify areas to be avoided (construction sites only), construction related impacts and how these would be managed; and where required, describe measures to offset impacts on threatened species and/or endangered ecological communities. This assessment would be undertaken in consultation with the DECC, the Growth Centres Commission, RailCorp and the Commonwealth Department of Environment and Water Resources as appropriate.

B23. 'Improve or maintain' assessments on biodiversity values would be undertaken to identify potential impacts of the project and benefits from protection measures to be implemented. The methodology adopted for all parts of the project would be consistent with the *draft Growth Centres Conservation Plan* (GCC, 2007) and DEC's *Draft guidelines for biodiversity certification of Environmental Planning Instruments* (*2007*).

Heritage

Outcome: *Future design development and assessment minimises impacts on indigenous and non indigenous heritage; and proposed management measures are consistent with established protocols and guidelines.*

Action

B24. Indigenous heritage assessment would be undertaken in accordance with the *Protocol for Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres'* (Context Pty Ltd. 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd. 2006b), in consultation with DECC.

B25. Subject to property owner approval, areas that were not surveyed in relation to the assessment of Non-Indigenous heritage (as included in the EA and Concept Plan) would be inspected as part of the further assessment.

B26. Corridor design development through the former Ingleburn Military Camp would consider the relevant policies and procedures outlined within the *Heritage Analysis of Ingleburn Defence Site (*Godden Mackay Logan, 2001*)*. If required a referral would be submitted to the Commonwealth Department of the Environment and Water Resources.

B27. Where works have the potential to affect the Sydney Water Upper Canal and associated row of Bunya Pines, the design development would consider the relevant policies and procedures outlined in the *Conservation Management Plan for the Upper Canal, Pheasant's Nest to Prospect Reservoir* (Higginbotham 2002) in consultation with the Sydney Catchment Authority.

B28. Future design development in the vicinity of Denham Court, Hurlstone Agricultural High School and Macquarie Fields House view sheds would take into consideration the heritage values of the landscape.

B29. Design of road crossings at Old Cowpasture, Cowpasture Road and Camden Valley Way would be carried out in consultation with the Roads and Traffic Authority to deal sympathetically with and minimise potential impact to the heritage values and view sheds.

B30. Off –sets would be developed in consultation with the Aboriginal community in regard to any unavoidable disturbance to Aboriginal heritage sites and places. The adopted approach to off-sets would be consistent with the *Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres'* (Context Pty Ltd. 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres.*

Noise and Vibration

Outcome: *Design development and assessment, adopts best practise measures, to minimise construction and operational noise and vibration impacts.*

Action

B31. Construction noise and vibration assessment and review would be undertaken as part of the future design development and assessment, in accordance with relevant policies and guidelines.

B32. In regard to operational noise, the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (DEC*, 2007) would be utilised and where appropriate any other relevant guideline to implement the following activities:

a) Modelling of operational noise impacts (including ground borne noise) in more detail as part of the design development; and
b) Identification of reasonable and feasible acoustic mitigation measures to meet the design goals.
c) Select representative locations for the project at which it is appropriate to later assess compliance

B33. In regard to train stabling operational noise, the following would be undertaken:

a) determine the extent of any physical noise mitigation measures in consultation with the DECC and RailCorp; and
b) review the results of RailCorp's investigations into addressing horn noise and consider the feasibility in consultation with RailCorp in implementing a low volume horn test.

B34. Investigate feasible and reasonable mitigation measures for operational vibration in consultation with local Councils, the DECC and RailCorp.

B35. Design development and assessment would include assessment of potential construction and operational vibration impacts on the Sydney Water Canal, in consultation with the Sydney Catchment Authority.

Visual Impacts, Landscape and urban design

Outcome: *Future design development and assessment is informed by best practise landscape and urban design principles and minimises visual impacts.*

Action

B36. Visual impact assessment would be undertaken as part of design development. This would be undertaken considering both the existing and future urban environment to identify and mitigate the impacts with architectural, landscape and/or urban design treatments. Additional assessments would apply to pedestrian and cycle facilities, proposed bridging structures; cutting and embankment treatments; landscape treatment projects; design of the stations and stabling facility; proposed acoustic treatments; and any visual buffer areas as required.

B37. The following architectural, landscape and urban design principles would be used to

guide the design of the stations and transport interchanges, civil works (such as noise walls, embankments, bridge crossings) and the stabling facility concepts:

a) reinforce the role of the station and transport interchange within its surrounding neighbourhood as the principal transport and community facility within the locality;
b) stations would be designed in the context of the scale, character and image of the surrounding area and enhance the presentation of the area to visitors, residents and travellers;
c) maintain or improve the links across the project and to surrounding areas and activities. Where a connection between adjacent areas is desirable, pedestrian bridges or underpasses would be considered;
d) easy access facilities would be incorporated into the station designs and integrated with the associated transport interchanges;
e) movement networks should establish comfortable and inviting pedestrian environments and should ensure equitable access within the railway station and associated facilities.
f) a design theme would be established for bridges and flyovers to link the overall rail design together. The design would ensure that the structures are simple, integrated with the surrounding area and finished to a high quality. Fencing, parapets and any railing on the bridges would also be integrated with the overall design;
g) establish a hierarchy of access to stations consistent with NSW Government policy package "*Integrating land –use and transport"* (i.e. prioritise public transport and other non-car based access to the rail stations and adjoining areas where possible); and
h) station precinct design should facilitate new development that reflects the highest standards of design.

B38. TIDC's Design Review Panel would guide the application of urban design principles throughout the design development.

B39. Measures to mitigate visual impacts and deliver high quality design outcomes would include:

a) where noise walls are proposed, potential visual impacts would be minimised by implementation of urban design measures, to be developed in consultation with adjacent land owners (mitigation might include plantings and high quality facings near residential areas, Glenfield Station and the planned town centres);
b) earth mounding would be considered where space allows and where significant vegetation would not be lost;
c) the design of any underpasses would adopt CPTED principles, including the need for unobstructed views into and outside of the underpass, effective drainage and ventilation, wide corridors and good lighting; and
d) light spill would be minimised as much as possible to reduce impacts on surrounding existing and future residents in accordance with relevant standards.

B40. Public art and interpretation would be incorporated into architectural elements or urban design treatments and would be assessed and implemented with design themes and urban design criteria (e.g. graffiti management).

Social

Outcome: *Future design development and assessment ensures minimisation of impacts on adjoining sensitive land-uses.*

Action

B41. Measures would be developed to minimise impacts on sensitive adjacent land uses (e.g. Forest Lawn Memorial Gardens Cemetery), including consideration of cultural sensitivities and particularly visual and noise impacts.

Economic and business

Outcome: *Potential for economic and business impacts and benefits of the project are given consideration in the future assessment.*

Action

B42. An assessment of the potential impacts and benefits of construction and operation on adjacent businesses would be undertaken in consultation with business owners during the design phase.

Public safety and security

Outcome: *Potential impacts on public safety and security would be addressed through adoption of Crime Prevention Through Environmental Design (CPTED) guidelines in future design development.*

Action

B43. NSW Police CPTED guidelines would be applied to all elements of the project to guide the design of appropriate lighting, fencing of the railway corridor, security measures (including surveillance cameras), graffiti management, help points at stations and other issues.

Services and utilities

Outcome: *To ensure the project addresses potential impacts on utilities and services*

Action

B44. Appropriate protection and risk management procedures would be established to protect utilities (such as the Sydney Water Supply Canal and Moomba Gas pipelines).

Groundwater and salinity

Outcome: *Further assessment is completed to inform future design development and minimise potential risks associated with saline soils and groundwater.*

Action

B45. Geotechnical investigations undertaken would assess groundwater levels and groundwater and soil quality to identify risks associated with saline groundwater and saline soils.

Contaminated land and hazardous materials

Outcome: *Assessment of potential contamination within the SWRL corridor and where appropriate identification of mitigation and management measures.*

Action

B46. Further assessment of potential contamination would be undertaken, to assess the extent or presence of contamination or hazardous materials along the length of the project corridor.

Appendix C

Compliance of the project with the Concept Plan Minister's Conditions of Approval

Appendix C

Compliance of the project with the Concept Plan Minister's Conditions of Approval MCoA

Condition number	Details of condition	Comment (regarding compliance of project with condition)
1. Administrative conditions		
Terms of concept approval		
1.1	The Proponent shall carry out the concept plan and all related projects generally in accordance with:	TIDC has requested that condition 1.1 be modified by including a new 1.1e) which list this EA and a new 1.1f) which lists any further submissions report prepared in relation to this project.
a)	Major Project Application 06_0158	Noted.
b)	the *South West Rail Link Environmental Assessment and Concept Plan*, dated November 2006, and prepared by Parsons Brinckerhoff	The project is generally in accordance with the scope and intent of the SWRL EA and Concept Plan as shown in Section 2. 2 subject to the relatively minor changes outlined in Section 6.1.2.
c)	the *South West Rail Link Submissions Report*, dated May 2007, and prepared by Parsons Brinckerhoff	Refer to above comment.
d)	the conditions of approval.	The project is generally in accordance with the conditions of approval as shown in Section 5.2.1.
1.2	In the event of an inconsistency between:	TIDC has requested that condition 1.2 be modified so as to additionally refer to new conditions 1.1 (e) and 1.1 (f).
a)	the conditions of approval and any document listed in condition 1.1(a) to 1.1(c) inclusive, the conditions of approval shall prevail to the extent of the inconsistency, and	Noted.
b)	any documents listed in condition 1.1(a) to 1.1(c) inclusive, the most recent document shall prevail to the extent of the inconsistency.	Noted.
1.3	If there is any inconsistency between this concept plan approval and any related project approval, this concept plan approval shall prevail to the extent of the inconsistency.	Noted.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
1.4	The Proponent shall comply with any reasonable requirement(s) of the Director-General arising from the Department of Planning's assessment of:	
a)	any reports, plans or correspondence that are submitted in accordance with this concept plan approval or the Stage B1 or Stage B2 project approvals, and	Noted.
b)	the implementation of any actions or measures contained in these reports, plans or correspondence.	Noted.
Limits of approval		
1.5	To avoid any doubt, this does not permit the construction of any South West Rail Link projects described in Schedule 1, which will be subject to separate project approval(s).	Noted.
2. Project applications and specific requirements		
Stage B2 (Remaining Works) Project		
2.4	Pursuant to section 75P(1)(a) of the *Environmental Planning and Assessment Act 1979*, the following environmental assessment requirements apply with respect to the Stage B2 (Remaining Works) project(s): [referred to as Stage 2 in this EA]	
a)	a detailed project description, including the design and location of ancillary infrastructure	Chapter 6 of this EA provides a description of the project for which project approval is sought.
b)	a demonstration that the project is consistent with the requirements of this concept plan approval and generally consistent with the scope and intent of the concept plan outlined in the documents under condition 1.1 of this approval	Section 5.2 and Table 5-1 provides a summary on how the project is consistent with the requirements of the Concept Plan Approval and generally consistent with the scope and intent of the Concept Plan. A number of minor changes are documented in Section 6.1.2;
c)	a detailed project-specific statement of commitments (SoC), consistent with the statement of commitments prepared for the concept plan, clearly identifying any new or amended commitments relating to the project	Chapter 17 of this EA includes a detailed SoC for project approval identifying SoCs from the concept plan and any new or amended commitments.
d)	an updated assessment of statutory matters, where the project affects land that has not already been identified in the documents referred to in conditions 1.1 (a) to (c)	Section 7.3 lists the properties that would be affected by the project. An assessment of statutory matters where the project affects previously unaffected land is provided in Section 2.2.2.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
e)	assessment of Matters of National Environmental Significance in relation to flora and fauna, heritage and Commonwealth land	The project may require approval under the EPBC Act due to impacts on the environment of the Ingleburn Army Camp as Commonwealth land. The Historic Heritage Impact Assessment for the project (refer Chapter 13) notes that the impacts of the project on the Ingleburn Army Camp are potentially significant, notwithstanding that the land is due shortly to be transferred from Commonwealth to State Government with the intention of wholesale redevelopment. On this basis the project will be referred to the Minister for a determination as to whether or not the project is a controlled action under the EPBC Act.
f)	assessment of the following issues for the project(s) (including relevant ancillary infrastructure), in consultation with relevant agencies including (but not limited to) RailCorp, MoT, GCC, Landcom, DECC, DPI (Fisheries), DWE, RTA and relevant Councils.	Consultation with these agencies has occurred as detailed in Chapter 3.
	Property and land use:	
	▪ confirm the footprint of the project, identifying any additional land required for operational noise mitigation measures, flood mitigation measures and ancillary infrastructure not identified in the documents referred to in conditions 1.1 (a) to (c), and describe the land use impacts of any additional land take to existing and planned future use	Sections 6.1.1 and 6.1.2 identify additional land required for the project and Section 7.3 provides a description of the land use impacts on this additional land. Additional land requirements for operational noise mitigation would be confirmed during detailed design, however these are generally envisaged to be located within the 40 metre rail corridor.
	▪ specifically, identify whether the design solution for flood mitigation at Edmondson Park Station would impact on land reserved under the *National Parks and Wildlife Act 1974*.	Section 7.8, Chapter 10 and Technical Paper 3 (Volume 2b) conclude that the proposed flood mitigation for Edmondson Park Station would not impact on land reserved under this Act.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	Traffic and transport:	
	▪ for Edmondson Park and Leppington Stations, review patronage and mode-share predictions, taking into account planned progressive land use change and describe how the design of kiss and ride, taxi, bus, parking, pedestrian and cycle provisions at each station accommodates the predicted demand	Sections 8.3,8.4 and Technical Paper 4 (Volume 2b) review patronage and mode-share predictions and discuss how each of the provided options would facilitate future rail passengers. Section 6.2.3 provides detail on the interchange facilities to be provided as part of the project. SoC 27 provides commitment to incorporate modern bicycle facilities at Edmondson Park and Leppington Station and to provide pedestrian and cycle access across the project corridor at each road crossing.
	▪ for Leppington Station prepare a park and ride strategy detailing how park and ride levels implemented at the commencement of operation would be transitioned to a longer term outcome, with consideration to the requirements of SoC B12 [SoC B12 refers to the commitment to plan and develop park-and-ride facilities with reference to relevant parking policies and the development of long-term parking provision with consideration of bus services provision and land use development patterns.]	Section 8.4.4 and Technical Paper 4 (Volume 2b) provide a park-and-ride strategy for Leppington Station with consideration of the requirements of SoC B12. Section 6.2.3 provides detail on the interchange facilities to be provided as part of the project.
	▪ for the rail corridor and stations, describe provisions for maximising pedestrian and cycle connectivity: across the rail corridor (at station precincts and other locations), between stations and respective town centres, and stations and the Western Sydney Parklands. Consideration should be given to retaining or expanding existing provisions to be developed as part of the South West Growth Centres, the Western Sydney Parklands or relevant Council programs	Sections 8.3.5, 8.4.5 and Technical Paper 4 (Volume 2b) state that the design of the project provides for future cycle and pedestrian access across the SWRL corridor at key road crossings and station concourses which would enhance and link with future proposed cycle routes within the South West Growth Centre (SWGC). Opportunities for retention or expansion of existing provisions under the SWGC, and relevant Council programs would be considered further during detailed design.
	▪ for all aspects of the project (as relevant) describe construction traffic impacts considering cumulative impacts from surrounding development, haulage routes and disruptions to traffic and access (including peak congestion and intersection impacts at local and arterial roads).	Section 8.5 and Technical Paper 4 (Volume 2b) describe the construction traffic impacts, including cumulative impacts, in accordance with this MCoA.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	Noise and vibration:	
	Operational noise:	
	▪ for the stabling facility, review operational noise impacts in accordance with the *Industrial Noise Policy* (EPA, 2000), considering all reasonable and feasible mitigation options (including full enclosure and the feasibility of low volume horn tests) at existing and planned future receivers	Section 9.5 and 9.7.2 and Technical Paper 1 (Volume 2a) provide an assessment of the noise impacts of the proposed stabling facility in accordance with the *Industrial Nose Policy*. A range of different scenarios have been modelled including full enclosure. The draft project approval SoC (Chapter 17) also requires TIDC to work with DoP to provide a planning solution to minimise noise impacts on land uses located near the train stabling facility. Future land use planning of the SWGC also provides an opportunity to reduce noise impacts from the project.
	▪ for the rail corridor, review operational noise impacts in accordance with the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (IGANRIP)(DECC, 2007), considering all reasonable and feasible mitigation options at existing and planned future receivers. At Glenfield Station this shall involve confirming noise impacts for the long-term scenario (the '2017' scenario described in the report referred to in condition 1.1 (c), or equivalent), based on further design development	Section 9.4 and Technical Paper 1 (Volume 2a) provide a review of operational noise impacts and consideration of reasonable and feasible mitigation measures. It concluded that in relation to IGANRIP criteria, noise emitted would not cause disturbance at planned or existing receivers provided that mitigation measures are implemented. The Glenfield Station works are already approved as part of Glenfield Transport Interchange Review of Environmental Factors assessment.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	▪ for all other aspects of the project, describe operational noise impacts where a facility/activity is deemed to be an intrusive noise source, considering all reasonable and feasible mitigation options for existing and planned future receivers	Section 9.5 and Technical Paper 1 (Volume 2a) provide a review of the operational noise impacts from the stabling facility and substations and consideration of reasonable and feasible mitigation measures. It concluded that noise emitted may cause disturbance at planned or existing receivers in the vicinity of the stabling facility and for planned receivers within 50metres of the substatations. TIDC would work with DoP to provide a planning solution to minimise noise impacts on land uses located near the train stabling facility and substations.
	▪ for all aspects of the project, describe regenerated noise impacts where proposed mitigation options for airborne noise have the potential to result in regenerated noise levels becoming perceptible at existing or planned future receivers, with consideration to all reasonable and feasible mitigation options.	Technical Paper 1 (Volume 2a) provides a review of the regenerated noise impacts. It was concluded that no locations were identified where regenerated noise impacts would cause annoyance.
	Operational vibration	
	▪ for the rail corridor and stabling facility, review operational vibration impacts in accordance with *Assessing Vibration: A Technical Guideline* (DECC, 2006), considering all reasonable and feasible mitigation options for existing and planned future receivers.	Section 9.4.4and Technical Paper 1 (Volume 2a) reviewed operational vibration impacts, considered reasonable and feasible mitigation measures and concluded that there would be no adverse vibration impacts on surrounding receivers provided that mitigation measures are implemented. Future land use planning of the SWGC also provides an opportunity to reduce vibration impacts from the SWRL.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	Construction noise and vibration:	
	▪ for all aspects of the project (as relevant), describe construction noise and vibration impacts, considering cumulative impacts from surrounding development and potential vibration impacts on sensitive items such as the Sydney Water Supply Canal and other heritage items, considering all reasonable and feasible measures for minimising impacts.	Technical Paper 1 (Volume 2a) assesses the potential construction noise and vibration impacts in accordance with DECCW's *Interim Construction Noise Guideline* and DECCW's *Assessing Vibration: a technical guideline*. Technical Paper 1 (Volume 2a) also outlines mitigation measures to minimise any adverse impacts. Sections 13.4and Technical Paper 7 (Volume 2b) provide discussion on the specific impacts of potential vibration during construction on the Upper Canal and other heritage items and mitigation measures to minimise this impact.
	Hydrology:	
	▪ for all aspects of the project (as relevant), confirm flood impacts on existing and planned future receivers and infrastructure based on modelling of the full range of flood sizes up to and including the PMF at each waterway crossing in accordance with the *Floodplain Development Manual* (2005). Describe the impacts of flow alterations at each crossing on upstream and downstream ecology and riparian zones.	Flood modelling was undertaken for the 50%, 5%, 1% and 0.5% annual exceedance probability (AEP) events and the probable maximum flood (PMF) and is outlined in Sections 3 and 4 of Technical Paper 3 (in Volume 2b). Considerations and requirements of the flood assessment undertaken (including the NSW Floodplain Development Manual (2005) are outlined in Section 2.5.2 of that report. This assessment is summarised in Section 10.6 of this EA. Section 11.5.6 and Technical Paper 2 (Volume 2a) describe the impacts of flow alterations on stream ecology, concluding that proposed crossings are not likely to adversely affect ecology within crossed watercourses.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	Flora and fauna:	
	For all aspects of the project (as relevant):	
	▪ describe the ecological impacts of the project including (as relevant): impacts on threatened species, populations and ecological communities; riparian and stream ecology; and existing or planned biodiversity corridors, including the regional corridors identified in the *Edmondson Park Ecological Assessment* (Eco Logical Australia Pty Ltd, 2003)	Sections 11.5 to 11.8 and Technical Paper 2 (Volume 2a) describe the ecological impacts of the project on threatened species, populations and ecological communities; riparian and stream ecology; and existing or planned biodiversity corridors in accordance with this condition. As described in Section 6.1.3 of Technical Paper 2 and 11.5.3 of the EA, the regional corridor network identified in the Edmondson Park Ecological Assessment (Eco Logical Australia Pty Ltd 2003b) included the proposed rail corridor. Although the project will present a barrier within this corridor network this is unlikely to be significant given the proposed development within the local area.
	▪ describe measures to offset impacts including opportunities for conserving/enhancing riparian and biodiversity corridors, including the opportunity to develop the buffer area between the South West Rail Link alignment and Denham Court as a biodiversity corridor	Section 11.11 and Technical Paper 2 (Volume 2a) detail mitigation measures for offsetting impacts of the project on flora and fauna. Specifically, Section 7.5 of Technical Paper 2 (Volume 2a) states that *any revegetation included in the offset package should aim to enhance existing vegetation patches or else enhance connectivity (e.g. along riparian corridors or along the rail corridor itself).* As described in Section 14.8.2, landscape strategies (in the form of a landscape design strategy) have been developed as a response to the existing landscape framework and the future land use proposals in the area. The project provides the opportunity to create over 30 hectares of revegetation and landscape treatments. All areas of the corridor outside of the central 14 metre-wide rail shoulder, drainage areas, and maintenance and rail system access would be planted.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	▪ where relevant, offset measures should clearly distinguish between measures to be provided as part of the draft *Growth Centres Conservation Management Plan* (GCC, February 2007) and measures for land not covered by the plan (such as for land outside of the rail corridor at Glenfield; the James Meehan Estate; relevant land within the Edmondson Park Release Area; land subject to *Sydney Regional Environmental Plan No. 31 - Regional Parklands*; and land defined as Flood Prone and Major Creek Land under *State Environmental Planning Policy (Sydney Region Growth Centres) 2006*	Section 11.11 and Technical Paper 2 (Volume 2a) identify mitigation measures and distinguish between those measures provided in relevant and current legislation and plans.
	▪ describe how the effectiveness of the offset measures would be monitored and what actions shall be taken if measures are identified to be ineffective	Section 11.11 and Technical Paper 2 (Volume 2a) discuss ongoing monitoring of the proposed offset mitigation measures.
	▪ describe the maintenance responsibilities and timing of implementation of offset measures.	Section 11.11 and Technical Paper 2 (Volume 2a) assign a general timing for the implementation of offset mitigation measures. Responsibilities and more specific timings would be determined during detailed design stage in consultation with DoP and DECCW and in accordance with relevant strategies, SEPP and/or Conservation Agreements..
	Indigenous heritage:	
	▪ for all aspects of the project (as relevant), describe the Indigenous heritage impacts of the project in accordance with Steps 1 to 4 of the *Protocol for Aboriginal Stakeholder Involvement in the assessment of Aboriginal cultural heritage in the Sydney Growth Centres* (Context Pty Ltd, 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd, 2006b), identifying mitigation priorities with consideration to the regional significance of impacts. The assessment must consider cumulative impacts associated with other projects related to this concept plan approval and of surrounding development.	Sections 12.4 and12.5 and Technical Paper 6 (Volume 2b) describe the impacts of the project on Indigenous heritage in accordance with this condition.
	European heritage	
	▪ for all aspects of the project (as relevant), review impacts to European heritage items and describe measures to minimise and/or appropriately manage impacts (including heritage view sheds).	Sections 13.4 and 13.5 and Technical Paper 7 (Volume 2b) discuss the impacts of the project on European heritage items in accordance with this condition.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
	Visual and urban design	
	▪ describe the visual and urban design impacts and mitigation requirements for the project in accordance with Statement of Commitments B36 to B40 and B43 [SoCs B36 to B40 and B43 relate to future design development and assessment which is informed by best practice landscape and urban design principles, minimises visual impacts and the application of NSW Police Crime Prevention Through Environmental Design (CPTED) guidelines to all elements of the project.]	Chapter 14 and Technical Paper 5 (Volume 2b) discuss the visual and urban design impacts and mitigation requirements in accordance with these commitments.
	▪ describe the timing and implementation of urban design and landscaping measures, how the effectiveness of landscaping measures would be monitored and maintenance responsibilities for relevant urban design and landscape measures.	Section 14.8 and Technical Paper 5 (Volume 2b) provide a description of the urban design landscape measures and how these would be monitored and managed in the future.
g)	assessment at an appropriate level of detail the impacts and mitigation measures associated with any additional issues of relevance to the project identified during further design development that are not specifically identified in this concept plan approval, in consultation with relevant agencies.	Chapters 7, 15 and 16 all provide discussion on additional land use and environmental impacts of the project and, where relevant, mitigation measures to minimise any impact. Agency consultations were undertaken, and agency responses, are documented in Chapter 3.
2.5	The Proponent may choose to submit separate project applications under Part 3A of the *Environmental Planning and Assessment Act 1979* for any one or a combination of the Stage B2 (remaining works) projects described in condition 2.4 (Edmondson Park Station, Leppington Station, stabling facility or rail corridor). In this case, each Stage 2 project applications shall demonstrate that all relevant environmental assessment requirements specified in condition 2.4 have been addressed.	This EA provides all relevant assessments for the Stage B2 works (Glenfield to Leppington Rail Line).
3. Compliance monitoring and tracking		
3.1	The Proponent shall develop and implement a Compliance Tracking Program to track compliance with the requirements of this concept plan approval and any related project approvals, Statement of Commitments, permits and licences. The Program shall aim to provide a single, consistent compliance tracking framework to be applied to each project and across projects, and shall include but not necessarily be limited to:	TIDC, as part of the Glenfield Transport Interchange works, has established a compliance tracking program for the SWRL project (PECOMS) that would address those matters provided in this condition. This would be expanded to include the Glenfield to Leppington Rail Line section should project approval be granted.
a)	provisions for periodic review of the compliance status of the projects against the requirements of this concept plan approval and any related project approvals, Statement of Commitments, permits and licences	
b)	provisions for the notification of the Director-General prior to the commencement of construction and prior to the commencement of operation of projects related to this concept plan	

Condition number	Details of condition	Comment (regarding compliance of project with condition)
c)	a program for independent environmental auditing of construction works in accordance with *ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing* at least annually from the commencement of construction of any project related to this concept plan approval, or as otherwise directed by the Director-General. The results of the audits shall be provided to the Director-General on request	
d)	a program for independent environmental auditing of operation works in accordance with *ISO 19011:2003 - Guidelines for Quality and/or Environmental Management Systems Auditing* at least one and five years after the commencement of operation of any project related to this concept plan approval or in accordance with an existing auditing system agreed to by the Director-General. The results of the audits shall be provided to the Director-General on request, and	
e)	procedures for rectifying any non-compliance identified during environmental auditing or review of compliance.	
3.2	The Proponent shall report on compliance to the Director-General prior to the commencement of construction and operation of projects related to this concept plan, and as otherwise requested by the Director-General:	TIDC would report on compliance based on the Compliance Tracking Program developed in accordance with Condition 3.1.
a)	in the case of a Part 5 project, the Proponent shall report on compliance with this concept plan approval and related Statement of Commitments, and	N/A
b)	in the case of a Part 3A project, the Proponent shall report on compliance with this concept plan approval, relevant project approvals and related Statement of Commitments.	Chapter 2 discusses compliance with the Concept Plan Approval and confirms that the EA is compliant with the relevant aspects of the Concept Plan Approval ,and related SoCs, where relevant to the project EA stage. Compliance monitoring would continue following project approval. This would have the purpose of achieving ongoing compliance at the detailed design, construction and operational stages.
	Nothing in this project approval restricts the Proponent from reporting on the compliance of multiple projects associated with this concept plan approval.	Noted

Condition number	Details of condition	Comment (regarding compliance of project with condition)
4. Community information, consultation and Involvement		
Stakeholder involvement		
4.1	The Proponent shall develop and implement a Stakeholder Involvement Strategy to engage with Government agencies, relevant Councils, land owners, community members and other stakeholders (such as utility service providers, bus companies and businesses), as relevant, as part of ongoing design development and construction. The strategy shall aim to provide a single, consistent consultation framework to be applied to each project and across projects. The strategy shall include, but does not necessarily be limited to:	TIDC has developed a Community Stakeholder Involvement Plan which would be implemented for the detailed design and construction stages of the project. Chapter 3 of this EA summarises the stakeholder involvement strategy and activities implemented during preparation of this EA.
a)	identification of issues to be consulted on, and parties to be consulted with in relation to each issue	
b)	procedures and mechanisms through which parties can discuss or provide feedback to the Proponent in relation to design and construction matters	
c)	procedures and mechanisms through which the Proponent can field enquiries in relation to design and construction matters and respond to such enquiries	
d)	procedures and mechanisms through which the Proponent can notify parties of construction matters	
e)	procedures and mechanisms to resolve any disputes arising between parties at any stage, and	
f)	procedures and mechanisms to document consultation undertaken and how issues raised have been addressed.	
	The Strategy shall incorporate the requirements of conditions 4.2 to 4.5 and be made available to the Director-General on request.	
Provision of information		
4.2	Prior to the commencement of construction of any project related to this concept plan approval, the Proponent shall establish and maintain a new website, or dedicated pages within an existing website, to provide electronic information related to the concept plan and all associated projects (or details of where hard copies of this information may be accessed by members of the public) until at least five years after the commencement of operation of all projects related to this approval, unless otherwise agreed to by the Director-General. The Proponent shall, subject to confidentiality, publish and maintain up-to-date information on this website or dedicated pages including, but not necessarily limited to:	TIDC has an established area within its website for the overall SWRL project which would be updated throughout the detailed design and construction stages of the project.
a)	a copy of the documents referred to under condition 1.1 (a) to (c) of this approval and any documentation supporting modifications to this concept plan approval or related project approvals that may be granted in the future	
b)	a copy of this concept plan approval and all related project approvals, including modifications to these approvals that may be granted in the future	

Condition number	Details of condition	Comment (regarding compliance of project with condition)
c)	a copy of each relevant licence or permit required and obtained in relation to any project	
d)	a copy of each current strategy, plan and program required under this concept plan approval or any related project approval, and	
e)	the outcomes of the compliance tracking (including independent audit results) in accordance with condition 3.1 of this approval.	
4.3	Subject to confidentiality, the Proponent shall make all documents required to be provided under condition 4.2 of this approval available for public inspection on request.	Noted.
Complaints procedure		
4.4	Prior to the commencement of construction of any project associated with this concept plan approval, the Proponent shall ensure that the following are available for community complaints and enquiries, for the duration of construction of each of the projects:	This has already been established by TIDC and would be further implemented during the project construction stage.
a)	a single telephone number on which complaints and enquiries about the construction of any of the projects related to this concept plan approval (or two (2) dedicated numbers, one to handle complaints and one for enquiries), may be registered	
b)	a postal address to which written complaints and enquiries about the construction of any of the projects related to this concept plan approval may be sent, and	
c)	an email address to which electronic complaints and enquiries about the construction of any of the projects related to this concept plan approval may be transmitted.	
	The telephone number(s), the postal address and the email address shall be published in a newspaper circulating in the local area prior to the commencement of construction for each project and at regular intervals during the construction of each project. The above details shall also be provided on the website (or dedicated pages) required by this approval.	
4.5	The Proponent shall develop a Construction Complaints Management System consistent with *AS 4269 Complaints Handling* prior to the commencement of construction of any project associated with this concept plan approval and implement the system for the duration of construction of each of the project(s). The strategy shall aim to provide a single, consistent complaints management framework to be applied to each project and across projects.	This would be implemented during construction.
	Information on all complaints received, including the means by which they were addressed and whether resolution was reached and whether mediation was required or used, must be maintained by the Proponent.	

Condition number	Details of condition	Comment (regarding compliance of project with condition)
5. Environmental management		
Environmental representative		
5.1	Prior to the commencement of construction of any project related to this concept plan approval, or as otherwise agreed by the Director-General, the Proponent shall nominate for the approval of the Director-General a suitably qualified and experienced Environmental Representative independent of the design and construction personnel of that project. The Proponent shall employ the Environmental Representative for the duration of construction of the project, or as otherwise agreed to by the Director-General. The Environmental Representative shall be the Proponents principal point of advice in relation to the environmental performance of the project and shall have responsibility for:	This would be addressed prior to construction.
a)	overseeing the implementation of all environmental management plans and monitoring programs required under this concept plan approval, related project approvals or Statement of Commitments, and advising the Proponent upon the achievement of the outcomes of these plans/programs	
b)	advising the Proponent on its compliance obligations against all relevant requirements of this concept plan approval and any related project approvals, Statement of Commitments, permits and licences, and	
c)	have the authority and independence to require reasonable steps to be taken to avoid or minimise unintended or adverse environmental impacts.	
5.2	The Proponent may choose to nominate an Environmental Representative to be responsible for a number of projects related to the concept plan. In doing so, the Proponent shall demonstrate to the Director-General that the nominated Environmental Representative is capable to carry out the required duties across multiple projects.	This would be addressed prior to construction.
Environmental Management system		
5.3	Prior to the commencement of construction and operation, respectively of any project related to this concept plan approval the Proponent shall ensure that an Environmental management System prepared and accredited in accordance with *ISO 14001:2004 - Environmental Management Systems* is developed. The system shall provide a single, consistent environmental management framework that shall be implemented during the construction and operation, respectively of each project associated with this concept plan.	RailCorp has an accredited Environmental Management System (EMS), which would be implemented prior to construction commencement and once again prior to commencement of operations.
5.4	Nothing in this approval restricts the Proponent from implementing an existing environmental management system administrated by the Proponent which can be demonstrated to address the requirements of condition 5.3.	Noted.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
6. Specific environmental conditions		
Property and land use		
6.1	The Proponent shall, in consultation with relevant agencies including (but not necessarily limited to) the GCC, MoT, the Department of Planning, Landcom, and relevant Councils, ensure that the detailed design of any projects related to this concept plan approval is consistent with State Government land use objectives and policy, specifically that:	TIDC has consulted with a number of agencies so that the concept design of the project is consistent with State Government land use planning objectives. Refer to Section 3.3.2. TIDC proposes to work further with relevant government agencies during the detailed design and construction stages to address relevant land use planning issues.
a)	those project components affecting land subject to *Sydney Regional Environmental Plan No. 31 - Regional Parklands* are consistent with planned future land use for that land	In August 2008, DoP advised TIDC that the Western Sydney Parklands will not extend south of Camden Valley Way and Bringelly Road. Land to the south and west of Camden Valley Way may eventually be used for employment or educational uses.
b)	park-and-ride facilities to be provided at Glenfield, Edmondson Park and Leppington stations are consistent with relevant parking and transit-oriented development policy	Park-and-ride facilities for the Edmondson Park and Leppington stations have been developed in consultation with NSW Transport & Infrastructure (T&I), Strategic Land Release Project Office of Department of Planning (formerly GCC) and Landcom where relevant and are consistent with relevant parking and transit-oriented development policy.
c)	Glenfield, Edmondson Park and Leppington stations are integrated with planned transport provisions for South Western Sydney (including strategic bus corridors and road improvements), to maximise accessibility and patronage to the stations	The Glenfield, Edmondson Park and Leppington station interchanges have been designed to be integrated with planned transport provisions in consultation with T&I, Strategic Land Release Project Office of Department of Planning (formerly the GCC), local councils and Landcom where relevant.
d)	Edmondson Park and Leppington stations and the stabling facility are integrated with the precinct planning for the Edmondson Park and Leppington town centre, and the Rossmore precinct, respectively.	The Edmondson Park and Leppington station interchanges and Leppington Train Stabling Facility have been developed to enable integration with the precinct planning for Edmondson Park Town Centre, in consultation with T&I, DoP, local councils and Landcom where relevant. This is addressed further in Section 5.2.3.

Condition number	Details of condition	Comment (regarding compliance of project with condition)
6.2	The Proponent shall in consultation with affected land owners and the relevant acquisition authority, ensure that all projects related to this concept plan approval, are designed to minimise property impacts where this would not reasonably compromise project design or existing or planned future land use on the residual property.	TIDC and DoP have been working with affected land owners on the proposed property acquisition for the SWRL to reduce potential property impacts, as far as practicable.
Traffic and transport		
6.3	The Proponent shall ensure that all projects related to this incorporate easy access provisions consistent with the *Commonwealth Disability Standards for Accessible Public Transport 2002* as part of construction and operation, including parking provisions within easy walking distance of stations.	Sections 8.3, 8.4, 6.3.4 and Technical Paper 4 (Volume 2b) describe the easy access provisions included in the project. The project meets with the requirements of the Act.
6.4	The Proponent shall ensure that there is no net loss of existing parking levels at Glenfield Station during the construction or operation of any project associated with this concept plan approval.	This issue was addressed in the Glenfield Transport Interchange REF, which was determined by TIDC in April 2009.
Surface water and hydrology		
6.5	The Proponent shall ensure that the detailed design of any project related to this concept plan approval does not preclude Campbelltown City Council's plans to construct a flood detention basin at James Meehan Estate, unless otherwise agreed to by Campbelltown City Council and the Director-General.	TIDC has been in discussion with Campbelltown City Council regarding the potential impacts of the project and their plans to construct a detention basin on the James Meehan Estate. Council is currently completing a hydrological assessment. The findings of this study would be considered in the detailed design. The current SWRL design does not preclude the option to provide a detention basin on the James Meehan Estate.
Biodiversity and landscaping		
6.6	The Proponent shall ensure that the biodiversity impacts associated with all projects related to this are offset to ensure a net neutral or beneficial biodiversity outcome, consistent with the draft *Growth Centres Conservation Plan* (GCC, 2007) and draft *Guidelines for Biodiversity Certification of Environmental Planning Instruments* (DECC, 2007) and in consultation with the DECC.	Section 11.11 and Technical Paper 2 (Volume 2a) provide mitigation measures so that the project results in a net neutral or beneficial biodiversity outcome.
6.7	The Proponent shall ensure that landscaping measures implemented as part of all projects related to this concept plan approval are consistent with biodiversity conservation principles.	Sections 6.2.8 and 11.11 and Technical Paper 2 (Volume 2a) identify proposed landscaping measures that would be implemented in accordance with biodiversity conservation principles.

[1] Conditions 2.1 – 2.3 relate to Stage B1 works.

Appendix D

Compliance of the project with the Concept Plan Statement of Commitments

Appendix D

Compliance of the project with the Concept Plan SoC

Commitment reference number	Details of commitment	Comments (regarding compliance of project with SoC)
Sustainability principles ***Outcomes:*** *Project development and delivery based around core sustainability principles.*		
Action		
B1	Core sustainability principles would be developed for the design and construction of the project covering the following themes: a) Energy b) Greenhouse emissions c) Water d) Community and Stakeholder Involvement e) Biodiversity f) Resource recycling/ minimisation. To develop the principles a benchmarking exercise would be undertaken to enable clear sustainability goals and objectives to be determined which would provide clear result areas and targets under each theme.	Sustainability specialists (Arup) were engaged to provide sustainability input as part of the design, construction and operation of the SWRL. This included the incorporation of sustainability principles included in the project. Sustainability is assessed in Chapter 5, which provides an outline of the key sustainability principles adopted in design development. Specific sustainability outcomes are addressed through Chapters 7 to 15 where relevant. Incorporation of sustainability into detailed design, construction and operation would continue to be monitored. This Plan would include the need to comply with TIDC's Sustainable Design Guidelines. SoC B1 is superseded by SoC No. 1 to 10 in the draft SoCs (refer Table 17-1). To be addressed at detailed design stage.

Design and construction strategies ***Outcomes:*** *Minimisation of environmental impacts by integrating assessment of environmental issues with development of design and construction strategies.*		
Action		
B2	A Construction Strategy would be developed to inform planning for and confirm localities of construction sites and construction methodologies would also be developed at each of the construction sites taking into account: a) surrounding sensitive land uses b) existing environmental constraints/sensitivities c) ease of access to the arterial road network.	Section 6.4 of this EA provides a preliminary construction strategy for the project. This would be refined during the detailed design stage and would address contamination issues and licensing and/or exemptions required for material stockpiling. The options for reuse and/or disposal of these materials would also be addressed as required. SoC B2 has been carried over unchanged into the draft SoCs (refer SoC no. 11 in Table 17-1).
Communication processes & stakeholder management ***Outcome:*** *A clear framework for community and stakeholder involvement.*		
Action		
B3	Communications processes for the community and stakeholders would be developed and implemented throughout design development and further environmental impact assessment for the project. These would include: a) opportunities to input into design process such as station precincts and structures and proposed mitigation measures (e.g. noise barriers) for construction and operations b) methods to inform the community of the progress and performance of the project and issues of interest to the community c) processes to receive and manage complaints d) consultation with affected property owners.	Further consultation has been undertaken with the community and stakeholders as discussed in Section 3.3. Further community consultation would be undertaken once the project is on exhibition. TIDC has provided a freecall 1800 number and email to contact the project team if required. See above comment. See above comment. Already established and in use. Consultation with property owners has been ongoing. Further consultation would occur during the public exhibition period (Refer to Chapter 3).
B4	Ongoing consultation would occur with Government agencies regarding issues raised during previous consultation and as identified within the Environmental Assessment and Concept Plan and the SWRL Submissions Report.	Ongoing consultation has been undertaken with government agencies to resolve previously raised issues as discussed in Sections 3.3.2 and 3.4.1.

Land use, property and infrastructure planning ***Outcome:*** *Integration of transport and land use.*		
Action		
B5	Consultation would be undertaken with Councils, the Growths Centres Commission (GCC), RailCorp and where relevant other agencies responsible for locality and precinct planning regarding implementation of appropriate development controls and appropriate zoning within the vicinity of the rail line and stabling facility.	Consultation has been undertaken with Councils, DoP (in its capacity as successor to GCC), RailCorp and other agencies as discussed in Section 3.4.1. Consultation is still being undertaken with DoP to discuss suitable land uses adjacent to the project (refer to Section 8.5), as much of the land use planning is at a formative stage.
B6	Liaise with the DoP (Sydney Region West) and Campbelltown City Council about the land use implications of the project for the Glenfield area.	DoP has been consulted to discuss and mitigate land use impacts of the project in accordance with this commitment. Refer to Section 3.4.1. SoC B6 has been carried over unchanged into the draft SoCs (refer SoC no. 12 in Table 17-1).
B7	Land use and property impacts of all elements of the project, including construction sites and ancillary facilities, would be further assessed in consultation with the Growth Centres Commission, Councils and surrounding land owners.	Land use and property impacts are addressed in Chapter 7. Consultation has been maintained with local councils, the Strategic Land Release Project Office of the DoP (formerly the Growth Centres Commission) and Landcom regarding the planning and future use of land within and adjacent to the corridor as documented in Chapter 3.
B8	Consultation would be undertaken with the DoP to ensure the rail line can be integrated with planning for sub-precincts 9.6 and 9.7 of the Western Sydney Parklands and, where relevant, appropriate measures would be implemented to minimise the visual, noise, flora and fauna (habitat corridors) and access impacts of the project on these sub-precincts.	The project has been designed in consultation with DoP so that it addresses planning requirements for this part of the corridor. Refer to Section 3.4.1. The project would not affect the Western Sydney Parklands as discussed in Section 2.2.2. Measures to minimise the visual, noise, flora and fauna (habitat corridors) and access impacts of the project are described in Chapters 8 (*Traffic, transport, parking and access*), 9 (*Noise and vibration*), 11 (*Flora and fauna*) and 14 (*Visual impact, landscaping and urban design*).
B9	A Land Asset Management Plan to address 'land surplus to use', post construction would be developed jointly with the DoP) Land Management Branch) in consultation with Growth Centres Commission (and Councils where relevant). This plan would investigate opportunities for land amalgamation of parcels severed by the SWRL and identify opportunities for development that is consistent with land use planning, in particular the SWGC Structure Plan.	A Land Asset Management Plan would be developed with the Strategic Land Release Branch of DoP and the DoP Land Management Division following construction of the SWRL. This would establish a land divestment strategy that would address land surplus to long-term (operational) requirements. SoC B9 has been carried over unchanged into the draft SoCs (refer SoC no. 21 in Table 17-1).

B10	Liaise with Growth Centres Commission, Council, RailCorp, MoT and land owners involved in future precinct planning in the SWGC to ensure the design of the project can: a)be consistent with and may inform the development of precinct planning, particularly around stations and the stabling facility b) facilitate connectivity across the corridor and mitigate severance impacts, including opportunities for pedestrian, cycleway and vehicular crossings c) accommodate any planned collocation of utilities within the rail corridor, where feasible, and d) allow for planned utility crossings of the corridor.	As part of the preparation of this EA, TIDC has consulted with NSW Transport and Infrastructure (T&I), Landcom, Strategic Land Release Project Office of DoP , Councils and RailCorp on the implementation of the SWGC Structure Plan, including in regard to the masterplanning of the Leppington and Edmondson Park town centres. TIDC has consulted with relevant utility service providers. TIDC would continue to work with Strategic Land Release Project Office of DoP regarding the planning and design of future land uses near the train stabling facility. SoC B10 been amended to form the basis of SoC no. 22 in the draft SoCs (refer Table 17-1).

Traffic, transport, parking and access

Outcome:

(i) Stations (including interchanges, commuter parking and other facilities) are planned and delivered to meet current and future traffic, transport and access requirements.

(ii) Future assessment to ensure minimisation of traffic and transport impacts during construction and operation.

Action

B11	Design development and assessment of stations and transport interchanges would be undertaken to ensure the integration of the station with the local area and the predicted patronage and mode of access are catered for during operations. The assessment would include consideration of local connectivity requirements; pedestrian modelling (including emergency access); traffic impacts on surrounding road networks; parking requirements and the integration of bus services with the new rail stations. These investigations would be undertaken in consultation with Growth Centres Commission, Councils, RailCorp, MoT, Roads and Traffic Authority and Landcom (at Edmondson Park).	Design integration and assessment of stations and interchanges have been undertaken to address the issues raised by SoC B11, as discussed in Chapter 8 and Technical Paper 4 (Volume 2b). Emergency access arrangements have not been developed and assessed. This would be undertaken during detailed design. Throughout the EA preparation, TIDC has been working closely with Strategic Land Release Project Office of DoP and other stakeholders regarding the station interchanges and master planning of town centres and land use planning around the Leppington Train Stabling Facility. These key agencies, along with TIDC, are involved in a Transport Steering Group to oversee the development of the stations and key land areas within the SWGC. Consultation would be ongoing through detailed design so that stations are integrated, as precinct planning (at Leppington) and masterplanning (at Edmondson Park) are further developed.

B12	Park-and-ride facilities would be planned and developed with reference to relevant parking policies. Long-term parking provision would be determined with consideration to bus services provision and land use development patterns.	Parking provisions have been determined in accordance with this commitment, as discussed in Sections 8.3.4, 8.4.4 and Technical Paper 4 (Volume 2b). Long-term parking provisions would be determined by Council, Landcom and RailCorp as part of the Masterplanning for the Edmondson Park and Leppington town centres and would be subject to further assessment. SoC B12 has been amended to form the basis of SoC no. 30 in the draft SoCs (refer Table 17-1).
B13	Glenfield, Edmondson Park and Leppington Stations would incorporate bicycle facilities, and pedestrian and cycle access across the project corridor.	With respect to this project scope, Edmondson Park and Leppington stations, would include bicycle facilities and access across the SWRL corridor for cycling purposes, as discussed in Sections 8.3.5, 8.4.5 and Technical Paper 4 (Volume 2b). SoC B13 has been amended to form the basis of SoC no. 31 in the draft SoCs (refer Table 17-1).
B14	Assessment of existing and planned pedestrian and cycleway linkages, including crossing of the project would be undertaken in consultation with Growth Centres Commission, RailCorp, Councils and surrounding land owners. Where pedestrian and cycleways can be reasonably accommodated within or immediately adjacent to the rail corridor and link to existing or planned cycleway networks, consideration would be given to their provision in association with the project.	Initial consultation has been undertaken with relevant agencies on the design of pedestrian and cycleway linkages and crossings. Further consultation during the detailed design phase would be undertaken with relevant agencies and surrounding landowners to confirm arrangements for pedestrian and cycleway crossings at proposed road crossings of the rail corridor. Section 8.3.5, 8.4.5 and Technical Paper 4 (Volume 2b) provide detail on the provisions of pedestrian and cycleway networks proposed as part of the project. TIDC would aim to achieve integration with future plans.
B15	Maintenance access points would be identified and planned in consultation with RailCorp, the Growth Centres Commission and Councils.	Maintenance access points have been identified. Consultation with relevant agencies would occur during detailed design stage. Refer to Section, 6.3.5 for detail on the proposed maintenance access points. SoC B15 has been amended to form the basis of SoC no. 33 in the draft SoCs (refer Table 17-1).
B16	Traffic modelling and traffic management analysis would be undertaken for the roads and intersections impacted by the project during construction and operation. This analysis would consider existing and planned road upgrades.	Sections 8.5 - 8.7 and Technical Paper 4 (Volume 2b) provide details on the traffic modelling analysis undertaken for the project.
B17	The design of construction works and staging at Glenfield Station would ensure safe access to the Station and across the line.	Not relevant to this EA as this issue has been dealt with in the Glenfield Transport Interchange REF, which was approved by TIDC in April 2009.

B18	A detailed construction methodology for the crossing of the Hume Highway, Campbelltown Road and Camden Valley Way would be developed in consultation with the Roads and Traffic Authority with the aim of minimising traffic disruptions.	The RTA has been consulted regarding the proposed design of the Hume Highway, as discussed in Section 6.2.5. TIDC and the RTA are continuing to work together on the design and construction methods for major regional road crossings included in the project. A detailed Construction Management Plan would be prepared prior to the commencement of construction. SoC B18 has been amended to form the basis of SoC no. 27 in the draft SoCs (refer Table 17-1).

Hydrology and surface water		
Outcome: *Further assessment of hydrology and surface water to inform future design development and deliver good environmental outcomes.*		
Action		
B19	A detailed flood assessment would be undertaken in accordance with appropriate NSW Government guidelines and in consultation with Councils and relevant Government agencies. The assessment would confirm the extent of flooding impacts and inform future design development, in particular the type, location and size of drainage structures along the project corridor.	A Hydrology Report (WMA Water; Technical Paper 3 in Volume 2b) has been prepared based on consultations with relevant councils and government agencies (DECCW and Industry and Investment NSW) to minimise the hydrological impact of the SWRL. A detailed flood assessment has been undertaken in accordance with this commitment as discussed in Section 10.4 and Technical Paper 3 (Volume 2b).
B20	Additional flooding assessment to that undertaken in the Environmental Assessment and vertical rail alignment design work would be undertaken at Edmondson Park Station and surrounds and coordinated with Landcom, the Growth Centres Commission and Councils.	Additional flooding assessment has been undertaken by WMAwater; refer to Chapter 10 and Technical Paper 3 (Volume 2b). WMAwater undertook the original Edmondson Park Flood Study for Landcom and the Strategic Land Release Project Office of Strategic Land Release Project Office of DoP . During the last phase of the project, consultation was undertaken by WMAwater with Council. The model developed for that study was adopted for use in the modelling of Crossings 3-10 for this EA, including all assumptions made in the Development Control Plan.
Flora and fauna		
Outcomes: *Assessment and management of biodiversity impacts is consistent with the regional approach to biodiversity management within the SWGC i.e. maintain or improve biodiversity values.*		
Action		
B21	Design of waterway crossings and structures would be undertaken with reference to the *Guidelines for Design of Fish and Fauna Friendly Waterway Crossings* (Fairfull and Witheridge 2003) and *Fish Passage Requirements for Waterway Crossings* (2003) and considering the quality of riparian habitat present, in consultation with the Department of Primary Industries (NSW Fisheries) and other relevant Government agencies.	Section 6.2.6 provides a description of the proposed waterway crossings and structures. Section 11.5.6 and Technical Paper 2 (Volume 2a) show that the waterway crossing designs have been undertaken in accordance with this commitment. Section 3.4.1 identifies the agencies that have been consulted in the design of the project. Detailed design would be undertaken in accordance with the commitment requirements. SoC B21 has been carried over unchanged into the draft SoCs (refer SoC no. 42 in Table 17-1).

B22	A detailed ecological assessment would be undertaken at all construction sites and along the project corridor. The assessment would identify areas to be avoided (construction sites only), construction related impacts and how these would be managed; and where required, describe measures to offset impacts on threatened species and/or endangered ecological communities. This assessment would be undertaken in consultation with DECC, the Growth Centres Commission, RailCorp and the Commonwealth Department of Environment and Water Resources as appropriate.	A Biodiversity Assessment (Technical Paper 2 of Volume 2a) has been prepared and is summarised in Chapter 11, discussing the impacts of the proposed construction sites and permanent footprint on threatened species and mitigation measures to be implemented to minimise this impact where relevant. The ecological assessment involved consultations with DECC (now DECCW), the DoP, RailCorp and the Commonwealth DEWHA. Relevant mitigation measures include avoidance of sensitive native vegetation where possible through careful siting of construction sites and facilities. Sections 6.4.2 and 6.4.4 provide a description of the construction sites proposed for the project.
B23	'Improve or maintain' assessments on biodiversity values would be undertaken to identify potential impacts of the project and benefits from protection measures to be implemented. The methodology adopted for all parts of the project would be consistent with the *draft Growth Centres Conservation Plan* (GCC, 2007) and DEC's *Draft guidelines for biodiversity certification of Environmental Planning Instruments* (2007).	Sections 11.5, 11.6, 11.11 and Technical Paper 2 (Volume 2a) discuss compliance with this commitment.

Heritage ***Outcome:*** *Future design development and assessment minimises impacts on Indigenous and non-Indigenous heritage; and proposed management measures are consistent with established protocols and guidelines.*		
Action		
B24	Indigenous heritage assessment would be undertaken in accordance with the *Protocol for Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd 2006b), in consultation with DECC.	An Aboriginal Heritage Assessment has been undertaken in accordance with this commitment. Refer to Sections 12.3, 12.4, Technical Paper 6 (Volume 2) and also Section 3.4.1.
B25	Subject to property owner approval, areas that were not surveyed in relation to the assessment of non-Indigenous heritage (as included in the Environmental Assessment and Concept Plan) would be inspected as part of further assessment.	The preparation of the Historic Heritage Assessment surveyed additional areas in accordance with this commitment. Refer to Sections 13.2, 13.3 and Technical Paper 6 (Volume 2b).
B26	Corridor design development through the former Ingleburn Military Camp would consider the relevant policies and procedures outlined within the *Heritage Analysis of Ingleburn Defence Site* (Godden Mackay Logan 2001). If required a referral would be submitted to the Commonwealth Department of the Environment and Water Resources.	The *Heritage Analysis of Ingleburn Defence Site* has been considered in assessing impacts on items within the Ingleburn Army Camp Refer 5.3.2 of. Refer to Technical Paper 7 (Volume 2b). The project may require approval under the EPBC Act due to impacts on the environment of the Ingleburn Army Camp as Commonwealth land. The Historic Heritage Assessment for the Project (refer Chapter 13) notes that the impacts of the project on the Ingleburn Army Camp are potentially significant, notwithstanding that the land is due shortly to be transferred from Commonwealth to State Government with the intention of wholesale redevelopment. On this basis the project may need to be referred to the Minister for a determination as to whether or not the project is a controlled action under the EPBC Act.
B27	Where works have the potential to affect the Sydney Water Upper Canal and associated row of Bunya Pines, the design development would consider the relevant policies and procedures outlined in the *Conservation Management Plan for the Upper Canal, Pheasant's Nest to Prospect Reservoir* (Higginbotham 2002) in consultation with the Sydney Catchment Authority.	The project considers the relevant policies and procedures for the Upper Canal and Bunya Pines. Refer to Sections 13.3, 13.4 and Technical Paper 7 (Volume 2b). Detailed design development would consider the relevant policies and procedures outlined in the *Conservation Management Plan for the Upper Canal, Pheasant's Nest to Prospect Reservoir* (Higginbotham 2002) in consultation with the Sydney Catchment Authority. SoC B27 has been amended to form the basis of SoC no. 48 in the draft SoCs (refer Table 17-1).

B28	Future design development in the vicinity of Denham Court, Hurlstone Agricultural High School, and Macquarie Fields House view sheds would take into consideration the heritage values of the landscape.	Sections 13.3, 13.4 and Technical Paper 7 (Volume 2b) discuss the proposed view sheds in consideration of heritage values and landscape.
B29	Design of road crossings at Old Cowpasture Road and Camden Valley Way would be carried out in consultation with the Roads and Traffic Authority to deal sympathetically with and minimise potential impact to the heritage values and view sheds.	The design of road crossings has been undertaken having consideration to the heritage values and view sheds. Refer to Sections 13.3-5, Technical Paper 7 (Volume 2b) and Technical Paper 8. Section 3.4.1 identifies that the RTA has been consulted in the design of the project.
B30	Offsets would be developed in consultation with the Aboriginal community in regard to any unavoidable disturbance to Aboriginal heritage sites and places. The adopted approach to offsets would be consistent with the *Aboriginal Stakeholder involvement in the assessment of Aboriginal Cultural Heritage in the Sydney Growth Centres* (Context Pty Ltd 2006a) and the *Precinct Assessment Method for Aboriginal Cultural Heritage in the Sydney Growth Centres.*	As shown in Section 3.4.1, consultation was undertaken with the Aboriginal community. The approach adopted for offsets is consistent with this commitment. Refer to Section 12.7 and Technical Paper 6 (Volume 2b).
Noise and vibration ***Outcome:*** *Design development and assessment adopts best practice measures to minimise construction and operational noise and vibration impacts.*		
Action		
B31	Construction noise and vibration assessment and review would be undertaken as part of the future design development and assessment, in accordance with relevant policies and guidelines.	A construction noise and vibration assessment has been undertaken. Refer to Section 9.3 and Technical Paper 1 (Volume 2a).
B32	In regard to operation noise, the *Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects* (IGANRIP, DEC, 2007) would be utilised and where appropriate any other relevant guideline to implement the following activities:	Relevant guidelines, including the IGANRIP, have been utilised to implement activities discussed in this commitment. Refer to Section 9.4.1 and Technical Paper 1 (Volume 2a).
	a) modelling of operational noise impacts (including ground borne noise) in more detail as part of the design development	Operational noise impacts were modelled as part of the Environmental Assessment, as described in Section 10.4.2 and Technical Paper 1 (Volume 2a). As described in Section 6.1 of Technical Paper 1, no existing buildings have been identified as being especially sensitive to ground-borne noise from the proposed railway. If sensitive occupancies such as residential developments, recording studios, cinemas and the like are located within approximately 40 m of the proposed alignment, an assessment would be undertaken to determine if vibration mitigation at the source (as part of the planning process) or at the building (after project opening) is required. The level of attenuation potentially required depends amongst other factors, on the distance from the track, the sensitivity of the building occupancy and train speed.

	b) identification of reasonable and feasible acoustic mitigation measures to meet the design goals	Acoustic mitigation measures are provided in Section 9.6.
	c) select representative locations for the project at which it is appropriate to later assess compliance.	Section 9.6.2 provides nominated locations to assess future compliance.
B33	In regard to train stabling operational noise, the following would be undertaken:	
	a) determine the extent of any physical noise mitigation measures in consultation with the DECC and RailCorp, and	Section 3.4.1 confirms that DECCW and RailCorp have been consulted. Section 9.4 discusses the extent of any physical noise mitigation from the train stabling operation. Also refer to Technical Paper 1 (Volume 2a). SoC B33 has been carried over unchanged into the draft SoCs (refer SoC no. 55 in Table 17-1).
	b) review the results of RailCorp's investigations into addressing horn noise and consider the feasibility in consultation with RailCorp in implementing a low volume horn test.	Section 3.4.1 identifies that RailCorp has been consulted in regard to this commitment. Section 9.6.2 states that RailCorp is still undertaking this investigation and that this has the potential to influence mitigation measures for the train stabling facility. Refer also to Technical Paper 1 (Volume 2a). The implementation of the project approval SoC (Chapter 17) also requires TIDC to work with Strategic Land Release Project Office of DoP to provide a long-term planning solution to minimise noise impacts on land uses located near the train stabling facility. SoC B33 has been carried over unchanged into the draft SoCs (refer SoC no. 55 in Table 17-1).
B34	Investigate feasible and reasonable mitigation measures for operational vibration in consultation with local Councils, the DECC and RailCorp.	Local councils, DECCW and RailCorp have been consulted having regard to the mitigation measures provided in Section 9.6.2 and Technical Paper 1 (Volume 2a). Also refer to Section 3.4.1 for details on consultation.
B35	Design development and assessment would include assessment of potential construction and operational vibration impacts on the Sydney Water Canal, in consultation with the Sydney Catchment Authority.	Section 3.4.1 confirms that the Sydney Catchment Authority has been consulted with regard to the project. Section 13.5 discusses the operational vibration impacts that the project may have on the Upper Canal. Also Refer to Technical Paper 7 (Volume 2b). Also Section 9.3.2 and Technical Paper 1 (Volume 2a) provide further discussion on the potential vibration impacts on the Upper Canal.

Visual impacts, landscape and urban design ***Outcome:*** *Future design development and assessment is informed by best practice landscape and urban design principles and minimises visual impacts.*		
Action		
B36	Visual impact assessment would be undertaken as part of design development. This would be undertaken considering both the existing and future urban environment to identify and mitigate impacts with architectural, landscape and/or urban design treatments. Additional assessments would apply to pedestrian and cycle facilities, proposed bridging structures; cutting and embankment treatments; landscape treatment projects; design of the stations and stabling facility; proposed acoustic treatments; and any visual buffer areas as required.	A Visual Impact Assessment has been undertaken in accordance with this commitment. Refer to Sections 14.5, 14.6 14.8 and Technical Paper 5 (Volume 2b).
B37	The following architectural, landscape and urban design principles would be used to guide the design of the stations and transport interchanges, civil works (such as noise walls, embankments, bridge crossings) and the stabling facility concepts: a) reinforce the role of the station and transport interchange within its surrounding neighbourhood as the principle transport and community facility within the locality b) stations would be designed in the context of the scale, character and image of the surrounding area and enhance the presentation of the area to visitors, residents and travellers c) maintain or improve the links across the project and to surrounding areas and activities. Where a connection between adjacent areas is desirable, pedestrian bridges or underpasses would be considered d) easy access facilities will be incorporated into the station designs and integrated with the associated transport interchanges e) movement networks should establish comfortable and inviting pedestrian environments and should ensure equitable access within the railway station and associated facilities f) a design theme would be established for bridges and flyovers to link the overall rail design together. The design would ensure that the structures are simple, integrated with the surrounding area and finished to a high quality. Fencing parapets and any railing on the bridges would also be integrated with the overall design g) establish a hierarchy of access to stations consistent with the NSW Government Policy package *Integrating land use and transport* i.e. prioritise public transport and other non-car based access to the rail stations and adjoining areas where possible h) station precinct design should facilitate new development that reflects the highest standard of design.	The design of the project has been undertaken in accordance with these design principles. The approach to urban and landscape design is further discussed in Section 14.8. SoC B37 has been amended to form the basis of SoC no. 61 in the draft SoCs (refer Table 17-1).

B38	TIDC's Design Review Panel would guide the application of urban design principles throughout the design development.	As discussed in Section 14.8, TIDC's Design Review Panel has guided the application of urban design principles throughout the design development in accordance with this commitment. This would also continue to occur during detailed design. SoC B38 has been amended to form the basis of SoC no. 59 in the draft SoCs (refer Table 17-1).
B39	Measures to mitigate visual impacts and deliver high quality design outcomes would include:	Section 14.8 and Technical Paper 5 (Volume 2b) provide a discussion on the measures that have been undertaken to mitigate visual impacts and deliver high quality design outcomes in accordance with this commitment. SoC B39 has been amended to form the basis of SoC no. 63 in the draft SoCs (refer Table 17-1).
	a) where noise walls are proposed, potential visual impacts would be minimised by implementation of urban design measures, to be developed in consultation with adjacent land owners (mitigation might include plantings and high quality facings near residential areas, Glenfield Station and the planned town centres) b) earth mounding would be considered where space allows and where significant vegetation would not be lost c) the design of any underpass would adopt CPTED principles, including the need for unobstructed views into and outside of the underpass, effective drainage and ventilation, wide corridors and good lighting d) light spill would be minimised as much as possible to reduce impacts on surrounding existing and future residents in accordance with relevant standards.	
B40	Public art and interpretation would be incorporated into architectural elements or urban design treatments and would be assessed and implemented with design themes and urban design criteria (e.g. graffiti management).	This would be undertaken during detailed design stage. SoC B40 has been carried over unchanged into the draft SoCs (refer SoC no. 60 in Table 17-1).
Social ***Outcome:*** *Future design development and assessment ensure minimisation of impacts on adjoining sensitive land uses.*		
Action		
B41	Measures would be developed to minimise impacts on sensitive adjacent land uses (e.g. Forest Lawn Memorial Gardens Cemetery), including consideration of cultural sensitivities and particularly visual and noise impacts.	Chapters 9 and 14 and Technical Papers 1 and 5 discuss measures that have been developed in accordance with this commitment to reduce potential visual and noise impacts on the Forest Lawn Memorial Gardens Cemetery.

Economic and business ***Outcome:*** *Potential for economic and business impacts and benefits of the project are given consideration in the future assessment.*		
Action		
B42	An assessment of the potential impacts and benefits of construction and operation on adjacent businesses would be undertaken in consultation with business owners during the design phase.	An assessment of the potential impacts and benefits of the project on adjacent businesses is provided at Section 15.2.6. Consultation has been undertaken with business owners as discussed in Section 3.4.2.
Public safety and security ***Outcomes:*** *Potential impacts on public safety and security would be addressed through adoption of Crime Prevention Through Environmental Design (CPTED) guidelines in future design development.*		
Action		
B43	NSW Police CPTED guidelines would be applied to all elements of the project to guide the design of appropriate lighting, fencing of the railway corridor, security measures (including surveillance cameras), graffiti management, help points at stations and other issues.	NSW Police CPTED guidelines have been applied to the project as discussed in Section 15.5.5. The application of the guidelines would continue during detailed design stage. SoC B43 has been amended to form the basis of SoC no. 67 in the draft SoCs (refer Table 17-1).
Services and utilities ***Outcome:*** *To ensure the project addresses potential impacts on utilities and services.*		
Action		
B44	Appropriate protection and risk management procedures would be established to protect utilities (such as the Sydney Water Supply Canal and Moomba Gas pipelines).	Risk management procedures would be further developed with SCA and other utility providers during detailed design stage to protect services and utilities. Initial procedures are discussed in Section 15.7.6. SoC B44 has been carried over unchanged into the draft SoCs (refer SoC no. 69 in Table 17-1).

Groundwater and salinity ***Outcome:*** *Further assessment is completed to inform future design development and minimise potential risks associated with saline soils and groundwater.*		
Action		
B45	Geotechnical investigations undertaken would assess groundwater levels and groundwater soil quality to identify risks associated with saline groundwater and saline soils.	A geotechnical assessment has been prepared. More detailed geotechnical investigations would be undertaken by TIDC prior to construction to further assess groundwater levels and groundwater soil quality to identify risks associated with saline groundwater and saline soils (refer SoC 69 in Table 17-1), with boreholes recently commencing. SoC B45 has been amended to form the basis of SoC no. 71 in the draft SoCs (refer Table 17-1).
Contaminated land and hazardous materials ***Outcome:*** *Assessment of potential contamination within the SWRL corridor and where appropriate identification of mitigation and management measures.*		
B46	Further assessment of potential contamination would be undertaken to assess the extent or presence of contamination or hazardous materials along the length of the project corridor.	A desktop assessment of contamination has been undertaken, Refer Section 15.4. Further detailed contamination investigations along the length of the corridor would be required during detailed design stage. SoC B46 has been amended to form the basis of SoC no. 73 in the draft SoCs (refer Table 17-1).

[1] SoC with a prefix relate to Stage A works