STATE SIGNIFICANT INFRASTRUCTURE ASSESSMENT:
Rapid Transit Rail Facility
Tallawong Road, Rouse Hill
(SSI 13_5931)

Director-General's
Environmental Assessment Report
Section 115ZA of the
Environmental Planning and Assessment Act 1979

December 2013

ABBREVIATIONS

AHIMS	Aboriginal Heritage Information Management System
ARI	Average Recurrence Interval
ASS	Acid Sulphate Soils
CEEC	Critically Endangered Ecological Community
Department	Department of Planning & Infrastructure
DGRs	Director-General's Requirements
Director-General	Director-General of the Department of Planning & Infrastructure
DPI	Department of Primary Industries
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EP&A Regulation	*Environmental Planning and Assessment Regulation 2000*
EPL	Environment Protection Licence
ESD	Ecologically Sustainable Development
GCC	Growth Centres Commission
GHG	Greenhouse Gas
ICNG	Interim Construction Noise Guideline (DEC, 2009).
INP	Industrial Noise Policy (EPA, 2000)
Minister	Minister for Planning & Infrastructure
NML	Noise Management Level
NoW	NSW Office of Water
NWGC	North West Growth Centre
NWRL	North West Rail Link
PASS	Potential Acid Sulphate Soils
PMF	Probable Maximum Flood
Proponent	Transport for NSW
RBL	Rating Background Level
RNP	Road Noise Policy (DECCW, 2011)
RTRF	Rapid Transit Rail Facility
SEPP	State Environmental Planning Policy
SSI	State Significant Infrastructure
Stage 1 EIS	Environmental Impact Statement Stage 1-Major Civil Construction Works Incorporating Staged Infrastructure Modification Assessment (SSI-5100)
Stage 2 EIS	Environmental Impact Statement – Stage 2 – Stations, Rail Infrastructure and Systems (SSi-5414)
VENM	Virgin Excavated Natural Material

Cover Photograph: Representation of a Sydney Train

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Published December 2013
NSW Department of Planning & Infrastructure
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NSW Government
Department of Planning & Infrastructure

EXECUTIVE SUMMARY

Transport for NSW (the Proponent) is seeking project approval under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) for the construction and operation of an expanded facility for train stabling and train maintenance at Tallawong Road, Rouse Hill. The facility has been designed in two phases and would initially provide stabling and maintenance for 20 trains and a maximum future capacity for stabling 45 trains and maintaining 76 trains.

The NSW Long Term Transport Master Plan (December 2012) outlines the NSW Government's commitment to increase the capacity of Sydney's rail network by introducing a rapid transit rail network. The Rapid Transit Rail Facility (RTRF) is to service the greater rapid transit network of Sydney, which includes trains running from the north-west, into the city, along the proposed second Sydney Harbour Crossing and portions of the Bankstown and Hurstville/Illawarra rail lines.

The North West Rail Link (NWRL) is the first of Sydney's new rapid transit services and will be the first to feature single-deck trains. *Sydney's Rail Future: Modernising Sydney's Trains* (June 2012), envisages that rapid transit trains would be stabled and maintained at a purpose built facility at the western end of the NWRL. A stabling yard was approved as part of the NWRL that included a train stabling facility for 16 trains with the provision for future expansion to 24 trains. The additional capacity and facilities required to service the broader rapid transit network in addition to the NWRL was not considered as part of the NWRL and is the subject of this assessment.

The Environmental Impact Statement (EIS) was placed on public exhibition from 7 August 2013 to 9 September 2013. During this time, a total of 18 submissions were received; 7 from agencies, including Blacktown City Council and 11 from the public. Of the 11 public submissions received, 10 objected to the project, and 1 provided general comment. The key issues raised in submissions were:

- stormwater management and flooding;
- noise and vibration; and
- visual amenity.

The Department has assessed the Proponent's EIS, the submissions received from the general public and agencies, the Proponent's response to submissions and the Proponent's statement of commitments and considers that there are a number of environmental issues that would need to be carefully addressed during construction and operation of the RTRF. These include the provision of sufficient stormwater capacity to maintain pre-development flows from the RTRF, incorporation of silencers within the compressed air lines and the development of a Design and Landscape Plan.

Based on its assessment, the Department considers that the RTRF is justified and in the public interest. The Department considers that the proposal would provide a required piece of infrastructure that would facilitate improving public transport links and services. The implementation of the Proponent's commitments and the recommended conditions of approval would ensure that the RTRF can be constructed and operate in a manner to minimise environmental and social impacts. The Department's recommended conditions include consideration of environmental performance requirements, construction environmental management, and operational environmental management. Therefore, the Department recommends that the Rapid Transit Rail Facility proposal be approved.

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1. BACKGROUND

The NWRL project was identified by the NSW Government as a key priority railway transport infrastructure project and an integral part of *Sydney's Rail Future*. *The NSW Long Term Transport Master Plan* (December 2012) outlines the NSW Government's commitment to increase the capacity of Sydney's rail network by introducing a rapid transit rail network. The NWRL is the first of Sydney's new rapid transit services and the first to feature single-deck trains. The Rapid Transit Rail Facility (RTRF), provides stabling yards and maintenance facilities for the rolling stock of the rapid transit rail network. *Sydney's Rail Future: Modernising Sydney's Trains* (June 2012), envisages that rapid transit trains would be stabled and maintained at a purpose built facility at the western end of the NWRL.

The rapid transit rail network comprises single deck trains operating the length of the NWRL, the proposed second Sydney Harbour Crossing and on portions of the Bankstown and Hurstville/Illawarra lines. An overview of the proposed rail network is shown in **Figure 1**.

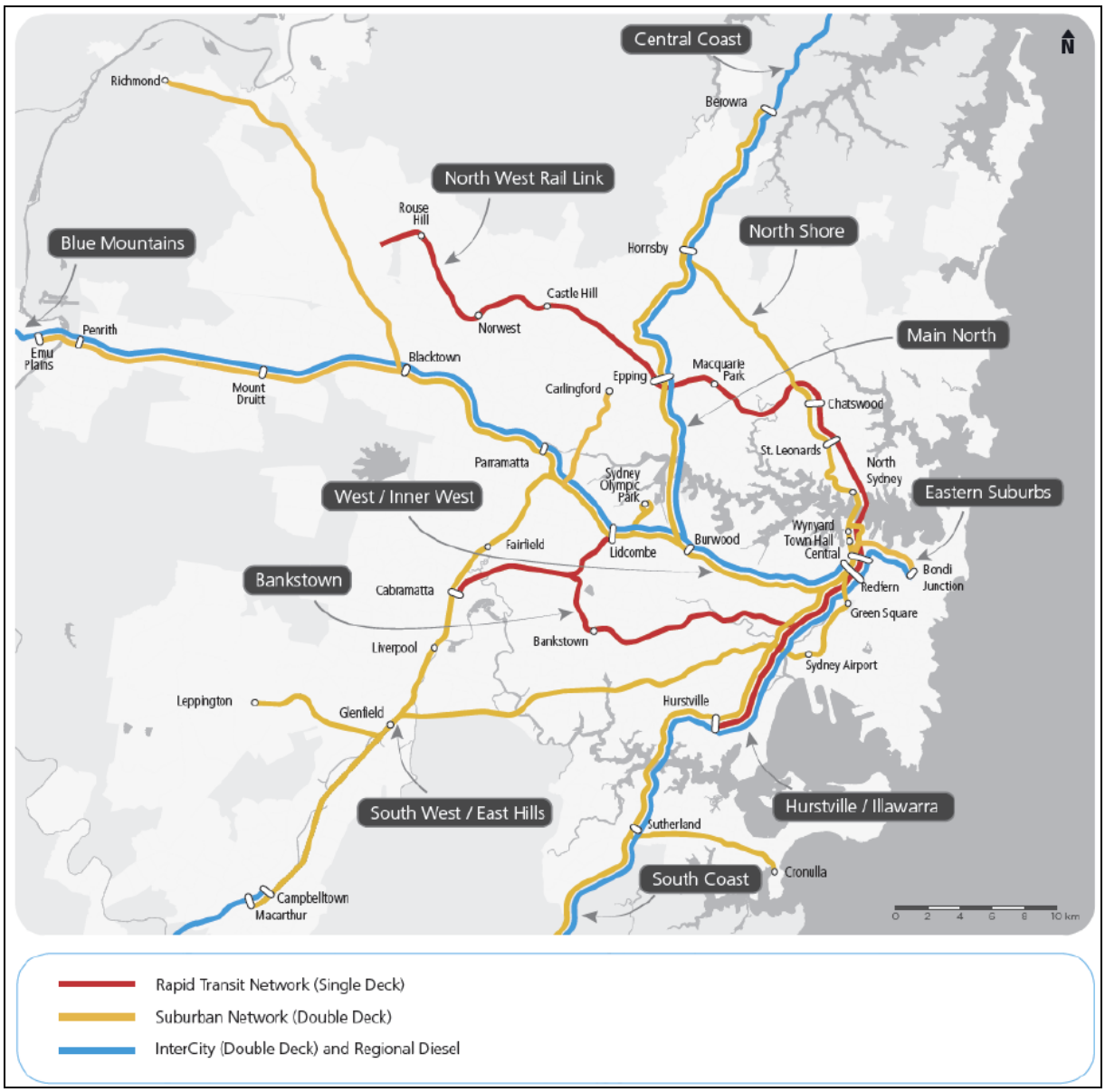

Figure 1 **Three tiered rail network under *Sydney's Rail Future***

The proposed RTRF will provide a more extensive maintenance, servicing and stabling role than that provided by the maintenance and stabling facility approved as part of the NWRL. The RTRF will not be fully operational until the delivery of other components of the rapid transit rail network, the first component being the NWRL.

Planning approval for the NWRL was sought in two stages as State Significant Infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Approval for Stage 1 including civil construction and tunnelling was granted on 25 September 2012. Approval for Stage 2 including the development of stations, rail infrastructure and system works was granted on 8 May 2013. The approved NWRL included a train stabling facility for 16 trains with the provision for future expansion to 24 trains.

The RTRF would initially provide stabling and maintenance for 20 trains and provision of a maximum capacity for stabling 45 trains and maintaining 76 trains. This additional capacity and facilities in addition to those approved with the NWRL is the subject of this application.

2. PROPOSED PROJECT

2.1. Project Description

The RTRF comprises a purpose built train stabling and maintenance facility to support Sydney's proposed rapid transit rail network, the first component being the NWRL. The facility would be located on 36 hectares of land between Tallawong Road and Schofields Road, in the suburbs of Rouse Hill and Schofields. A proposed indicative site layout plan is shown in **Figure 2**.

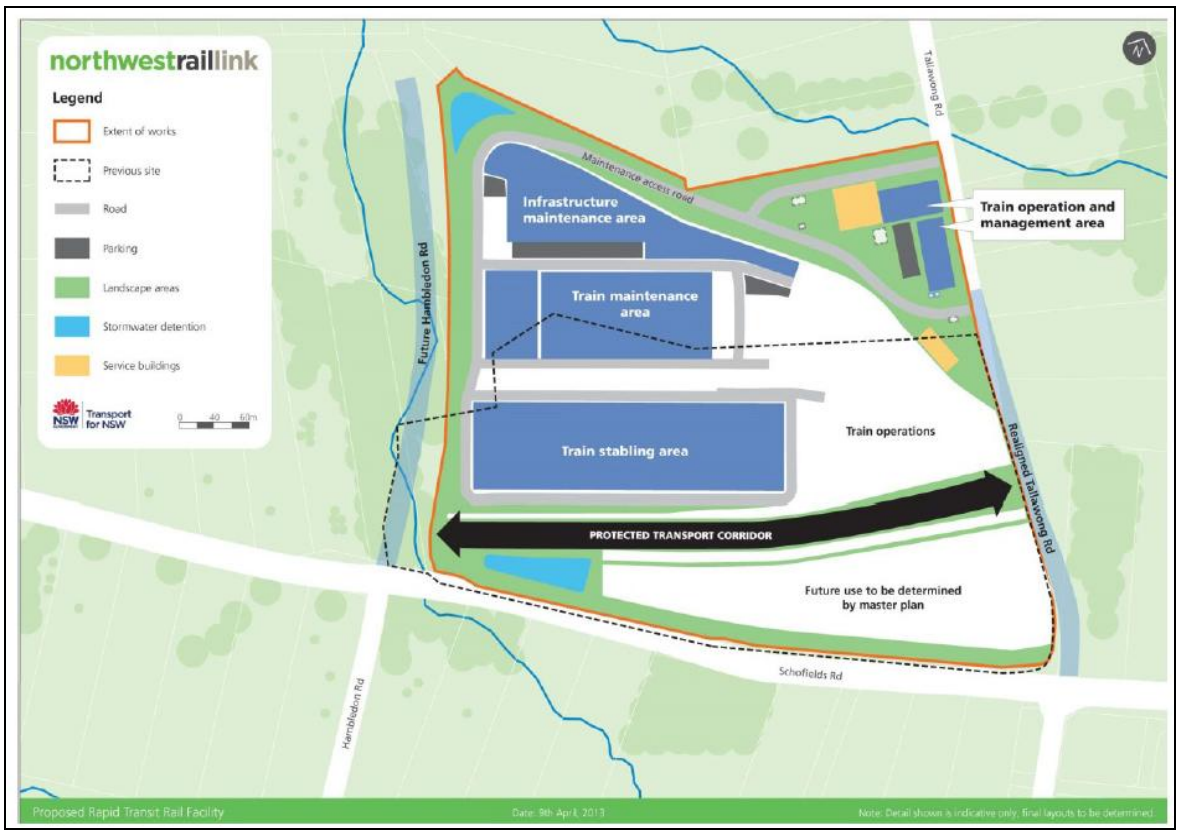

Figure 2 Proposed indicative site layout plan

The facility would be secure and operate 24 hours a day, 7 days a week and include the following:

- train stabling facilities;

- train maintenance facilities including cleaning, inspection, preventative and corrective maintenance, component repair and major overhauls of rolling stock;
- train wash and wheel lathe;
- a section of track to test trains for service;
- facilities for maintenance and repair of rail systems, equipment and infrastructure;
- warehousing for spare parts, tools and equipment;
- administration, staff and training facilities, and an Operations Control Centre;
- ancillary buildings and structures as required for security services, power supply systems, refuse disposal, hazardous material storage, stormwater management and pollution control;
- bulk power sub-station and transformer facilities with secure access;
- internal access and maintenance roads; and
- safe guarding for a future transport corridor to Marsden Park.

The facility is to be constructed in two phases with an initial capacity for 20 trains (stabling and maintenance) and a maximum future capacity for stabling 45 trains and maintaining 76 trains. A summary of works and approximate timing is provided within **Table 1**.

Table 1 Summary of Construction Works

Phase of Construction	*Activities*	*Timing*
Site Preparation	Preparation for bulk earthworks, including removal of existing: • buildings; • structures; • infrastructure; • utilities; and • vegetation. Recyclable materials such as bricks, tiles, timber, plastic and metals to be sent to appropriate recycling facilities.	Prior to commencement of bulk earthworks.
Bulk Earthworks	Cut and fill earthworks to provide a level surface for construction of buildings and infrastructure, totalling: • 570,000m³ of cut to be excavated; • 430,000m³ on-site fill; and • 140,000m³ waste spoil.	Earthworks required prior to construction of buildings and infrastructure. Earthworks expected to take 15 months.
Buildings and Infrastructure	Buildings to be constructed with conventional steel frame methods. Infrastructure includes: • concrete; • track formation; • track works; and • installation of overhead wire systems and cable supports. Establishment of roads and car parking.	Commencement expected late 2015 and likely to take 18 months.
Rail Systems installation and testing	Installation and testing of rail systems such as maintenance equipment.	Between 2017 and 2018 for 18 months.

Operations would initially commence following completion of the works outlined within **Table 1** and provide stabling and maintenance for 20 trains and a maximum future capacity for stabling 45 trains and maintaining 76 trains. Timing for provision of future capacity would be dependent upon the development of the rapid transit rail network across Sydney.

Minor site preparation works, such as removal of buildings and structures, may be carried out under the NWRL approvals until such time as this application is determined. Works relating to the

diversion and relocation of Tallawong Road, including the rail bridge, will be carried out under other approvals. Refer **Figure 3** for the construction plan and the proposals relationship to existing NWRL approvals.

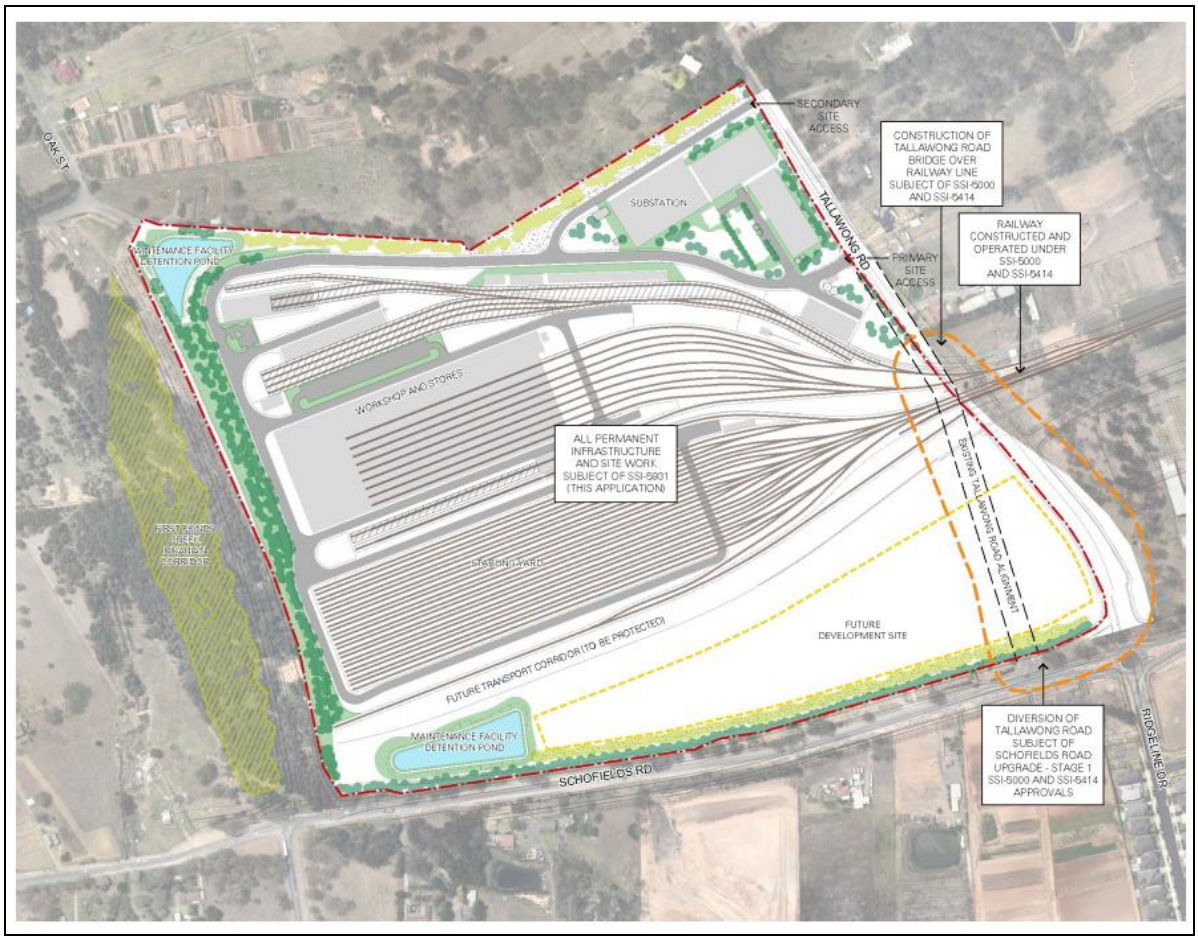

Figure 3 Construction plan and relationship to existing NWRL approvals

2.2. Project Need and Justification

Modernisation of Sydney's transport is needed in order to respond to customer demand and the changing urban form of Sydney. Increasing public transport patronage; reducing travel times and improving patron experience are emphasised within the NSW Government's *NSW 2021* plan.

The *Draft Metropolitan Strategy for Sydney to 2031* aims to address goal 20 of *NSW 2021 - building liveable centres*, and sets the strategic direction for Sydney's future growth. This strategy is fully integrated with the *Long Term Transport Master Plan* and the *State Infrastructure Strategy*. For Sydney to maintain its status as a strong global city, it must maximise the productivity advantages of supporting economic investment, employment growth and activity in centres. Investment in public transport must also support urban renewal and development of new centres that will improve the liveability of Sydney's local neighbourhoods. The RTRF is an investment into public transport and will assist in the delivery of these commitments by servicing the proposed rapid transit network and the NWRL.

Sydney's Rail Future – Modernising Sydney's Trains is integral to the NSW *Long Term Transport Master Plan* for Sydney. Under the Plan, rapid transit trains would service the north-west via the NWRL and, in the future, would continue on to the Sydney CBD via a second Sydney Harbour rail crossing, with sectors of the existing suburban rail network being converted to the rapid transit rail network. The operation of rapid transit trains would require additional associated infrastructure for

train stabling, train maintenance and infrastructure maintenance for a new fleet of single-deck rapid transit vehicles.

The expansion of the Tallawong Road Depot from that approved with the NWRL is required due to the increased scale of operations, with the site expanded to service the rapid transit network as a whole, rather than just that of the NWRL component. The larger RTRF will support the future operations of Sydney's rapid transit train fleet and is consistent with the strategic framework for transport and metropolitan planning. The facility will also enable the NWRL to be executed as intended and enable the future establishment of rapid transit throughout Sydney.

For the above reasons, the Department considers that the RTRF is justified and is an infrastructure asset which is beneficial to the public interest. The impacts of not proceeding with the project in the long term would prove detrimental and would hinder the delivery of the commitments made by the NSW Government.

3. STATUTORY CONTEXT

3.1. State Significant Infrastructure

Pursuant to section 115U(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act), development that may be declared to be State Significant Infrastructure (SSI) is development of the following kind that a State Environmental Planning Policy (SEPP) permits to be carried out without development consent under Part 4;

(a) infrastructure,

(b) other development that (but for this Part and within the meaning of Part 5) would be an activity for which the proponent is also the determining authority and would, in the opinion of the proponent, require an environmental impact statement to be obtained under Part 5.

Clause 1 of Schedule 3 of the *State and Regional Development SEPP 2011* (SRD SEPP) identifies infrastructure 'for which the proponent is also the determining authority and would, in the opinion of the proponent, require an environmental impact statement to be obtained under Part 5 of the Act' as being SSI. TfNSW is the proponent for the RTRF and is also the determining authority for infrastructure works. Due to the level of environmental impact, TfNSW has determined that an EIS is required to be prepared pursuant to section 115U(2) of the EP&A Act. As such the RTRF is declared to be SSI according to section 115U(2) of the EP&A Act and Clause 1 of Schedule 3 of the SRD SEPP.

3.2. Permissibility

The RTRF is defined as a rail infrastructure facility under the *Infrastructure SEPP 2007*. As a rail infrastructure facility being carried out by a public authority it is identified as development that is permissible without consent under clause 79 of the Infrastructure SEPP.

3.3. Environmental Planning Instruments

With the exception of the Infrastructure SEPP and SRD SEPP, there are no Environmental Planning Instruments that apply to the carrying out of the RTRF project. The Department considers that the proposal is consistent with the requirements of relevant EPIs.

3.4. Objects of the EP&A Act

Decisions made under the EP&A Act must have regard to the objects of the Act, as set out in Section 5 of the Act. The relevant objects are:

(a) to encourage:
- *(i) the proper management, development and conservation of natural and artificial resources, including agricultural land, natural areas, forests, minerals, water, cities, towns and villages for the purpose of promoting the social and economic welfare of the community and a better environment,*
- *(ii) the promotion and co-ordination of the orderly and economic use and development of land,*
- *(iii) the protection, provision and co-ordination of communication and utility services,*
- *(iv) the provision of land for public purposes,*
- *(v) the provision and co-ordination of community services and facilities, and*
- *(vi) the protection of the environment, including the protection and conservation of native animals and plants, including threatened species, populations and ecological communities, and their habitats, and*
- *(vii) ecologically sustainable development, and*
- *(viii) the provision and maintenance of affordable housing, and*

(b) to promote the sharing of the responsibility for environmental planning between the different levels of government in the State, and

(c) to provide increased opportunity for public involvement and participation in environmental planning and assessment.

The Department has considered the appropriate management and conservation of natural and artificial resources, including natural water resources, flora and fauna, and towns and centres for the purpose of promoting the social welfare of the community. The Department has also considered the proposal in relation to the orderly development of land, the protection of communication and utility services, the provision of land for public purposes, the co-ordination of community services and facilities, and the protection of the environment. The Department considers that the proposal would be undertaken to protect communication and utility services and use land for public purposes. Further, the Proponent has outlined management strategies to maintain community services and facilities and commits to undertaking both construction and operation of the facility in a manner that would minimise impacts upon the environment.

Object 5(b) is relevant as the project the provision of key rail infrastructure through key strategic centres and the North West Growth Centre (NWGC). Object 5(c) is also relevant to the project as the issues raised by the community during the exhibition period of the EIS form a part of the assessment of the project and the Departments consideration. The Department considers that the RTRF would provide key infrastructure within the NWGC. The submissions raised in the exhibition period were discussed within the Response to Submissions report, as accepted by the Department on 6 November, 2013.

3.5. Ecologically Sustainable Development

The EP&A Act adopts the definition of Ecologically Sustainable Development (ESD) found in the *Protection of the Environment Administration Act 1991*. Section 6(2) of that Act states that ESD requires the effective integration of economic and environmental considerations in decision-making processes and that ESD can be achieved through the implementation of:

(a) the precautionary principle,

(b) inter-generational equity,

(c) conservation of biological diversity and ecological integrity,

(d) improved valuation, pricing and incentive mechanisms.

The principles of ESD have been addressed in the EIS. The EIS includes detailed discussion on the sustainability of the project, as well as detailed studies in the areas of construction and operational traffic and transport management, noise and vibration, heritage, ecology, and surface water and hydrology. The Proponent has set out a number of mitigation and

management measures that would be implemented throughout the project. On this basis, the Department is satisfied that the proposal promotes the principles of ESD.

3.6. Environment Protection and Biodiversity Conservation Act

A strategic certification for the NWGC under the *Environment Protection Biodiversity Conservation Act 1999* (EPBC ACT) was approved on 28 February 2012. Under the Growth Centres Biodiversity Certification, clearing of vegetation on this land is enabled. The RTRF site is on land certified under the legislation and therefore does not require further approval under the EPBC Act.

4. CONSULTATION AND SUBMISSIONS

4.1. Exhibition

Under section 115Z(3) of the EP&A Act, the Director-General is required to make the EIS publicly available for at least 30 days. After accepting the EIS, the Department publicly exhibited the RTRF proposal from 8 August 2013 until 9 September 2013 on the Department's website, and at the following exhibition locations:

- Department of Planning & Infrastructure, Information Centre;
- North West Rail Link Community Information Centre;
- Nature Conservation Council;
- Blacktown City Council;
- Dennis Johnson Library, Stanhope Gardens;
- Max Webber Library, Blacktown; and
- Vinegar Hill Memorial Library, Rouse Hill.

The Department advertised the public exhibition in the Sydney Morning Herald, Daily Telegraph, Blacktown Advocate and North Shore Times on 7 August 2013, and notified State and local government authorities directly in writing.

The Department received 18 submissions during the exhibition period. This included seven submissions from public authorities and 11 submissions from the general public and special interest groups. A summary of the issues raised in submissions is provided below. The Department has considered the issues raised in submissions in its assessment of the project.

4.2. Public Authority Submissions

The key issues raised in public authority submissions are listed in **Table 2**.

Table 2 Key Issues raised by Council and Agencies

Agency	*Key issues raised*
Blacktown City Council	- Construction traffic management and impact on the local road network; - Noise and air quality to ensure matters have been addressed satisfactorily; - Surface water run-off and flooding relating to Second Ponds Creek; - Heritage impacts and the involvement of Aboriginal stakeholders; and - Land use and general support for location of project site.
NSW Office of Water	- Sought clarification on issues regarding riparian corridors and groundwater.
Roads and Maritime Services	- Commented on construction access, spoil movements and roadway upgrades/modifications and recommended conditions of approval.

Agency	***Key issues raised***
Environment Protection Authority	- Noise – important elements of the project are yet to be confirmed, noise from the project is predicted to exceed Project Specific Noise Levels (PSNL), and noise mitigation measures are yet to be confirmed; - Contamination - further testing is required to determine the extent of any contamination and to assess the amount of material to be disposed of; - Waste – further testing is required to determine if the spoil excavated will be Virgin Excavated Natural Material (VENM); and - Air – clearing of the site should be staged and vegetation retained as long as possible to manage dust generation.
Heritage Council	- Noted that the distance of the site from the nearest heritage items and mitigation strategies of vegetation screening will result in no direct impacts on any identified heritage items.

4.3. Public Submissions

The Department received 11 submissions from the public. Of the 11 public submissions, 10 objected to the project, and 1 provided general comment. The key issues raised in public submissions are listed in **Table 3.**

Table 3 Summary of Issues Raised in Public Submissions

Issue	***Issue summary***	***Proportion of submissions***
Land Use	Concern was raised about the location of the proposed RTRF given the residential surrounds. Some submissions raised concerns over the decrease in property value of residential properties as a result of the proximity to the RTRF.	91%
Noise	Submissions raised concerns over noise, particularly due to the residential location.	64%
Community Amenity	Submissions raised concerns over security issues that the RTRF may attract, including graffiti.	36%
Air Quality	Submissions raised concerns about the potential for general air pollution issues as a result of the RTRF.	27%
Visual Amenity	Submissions raised concerns over the scale of the development within a residential location.	18%
Surface Water and Flooding	Submissions raised concerns over the risk of flooding due to the increase in run off to First Ponds Creek.	18%
Ecology	Submissions raised concerns over preservation of flora and degradation of the environment.	18%
Other	A submission urged that the proposal be reconsidered.	18%

Note that rounding was used in the calculation of the proportions.

4.4. Proponent's Response to Submissions

The submissions received by the Department were provided to the Proponent for response. The Response to Submissions report addresses and responds to the issues raised by the community and agencies (refer **Appendix C**), however, no changes were made to the proposal.

Stormwater Detention

Concern was raised regarding the capacity of the existing First Ponds Creek to convey increased stormwater flows as a result of the existing capacity constraint of the Gordon Road stormwater culvert. The Proponent undertook additional stormwater modelling to determine the effect the culvert has on stormwater flows, particularly those from the proposed RTRF site. The modelling indicated that currently, 75% of the water on site flows upstream of the culvert, however once developed 100% of the water on the RTRF site will convey flows upstream of the culvert. The Proponent determined that an increase to stormwater detention capacity from 7,600m³ to 12,750m³ would maintain pre-development peak flows in First Ponds Creek from the site, post-development of the RTRF. Whilst the Response to Submissions Report determined that no changes were required to the RTRF proposal, the Department disagrees and recommends a condition to maintain pre-development stormwater flows throughout construction and operation through increasing stormwater detention onsite.

5. PROJECT ASSESSMENT

The Department considers that the key environmental assessment issues requiring further consideration are:

- stormwater management and flooding;
- noise and vibration; and
- visual impacts.

Other issues considered to be minor and manageable during construction and operation of the RTRF include:

- air quality;
- traffic and access;
- ecology;
- land use, local business and community facilities; and
- heritage.

5.1. Stormwater Management and Flooding

The RTRF is located within the First Ponds Creek catchment, which is part of the wider Hawkesbury-Nepean catchment. Elevations at the RTRF site generally fall from east to west with surface water run-off tending to flow in the direction of the First Ponds Creek catchment, bordering the Western boundary of the RTRF site.

The First Ponds Creek catchment 100 year Average Recurrence Interval (ARI) flood extents, and Probable Maximum Flood (PMF), are wider than the riparian corridor but only encroach on a small portion of the RTRF site at the north-east and south-east corners as shown in **Figure 4**.

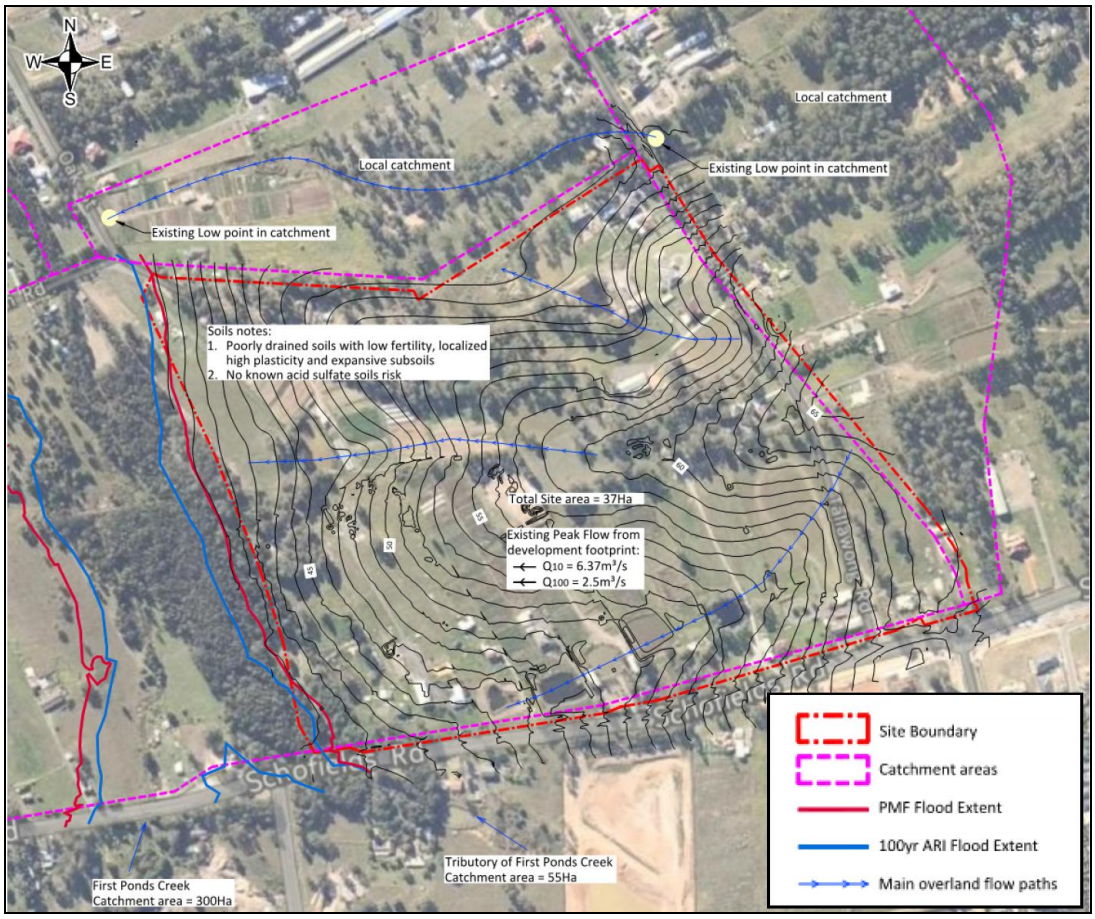

Figure 4 Hydrological constraints plan

Construction Impacts

Construction activities are expected to result in increased sediment load within stormwater flowing from the RTRF site. This stormwater has the potential to discharge to First Ponds Creek and impact on the water quality and the aquatic flora and fauna of the creek.

Construction activity impacts may include the following:

- Hydrological impacts – Construction activities are not expected to significantly alter the existing hydrology of the site. Sediment control and stormwater harvesting will most likely result in a net reduction in stormwater discharge from the site, but would be a short term impact and not pose a significant long term issue for receiving environments. No mitigation measures are proposed.
- Flooding impacts – Some construction works would encroach on lands affected by the PMF and 100 year ARI flood. As the works would only be temporary and on the outer extent of the floodplain, there is considered to be negligible impact on downstream flooding or loss of floodplain storage. No mitigation measures are proposed.
- Erosion and sedimentation – Earthworks will generate stormwater borne sediment loads which must be intercepted to prevent illegal sediment discharge to First Ponds Creek. Stormwater detention basins will be established and will present a low soil erosion risk. Mitigation measures for management of erosion and sedimentation as a result of stormwater flows are proposed.
- Fuel and chemical handling and storage – Small volumes of liquid wastes and fuels and oils will be stored on site. Accidental spillage or poor management will be controlled through spill management actions to prevent water quality and ecological impacts in First Ponds Creek.

Mitigation measures for sediment control and water quality management, include basins, traps and flocculation agents. The Proponent has indicated that they would develop a Soil and Water Management Plan in accordance with Best Management Practices set out in the *'Soils and Construction: Managing Urban Stormwater'* (Landcom, 2009). Site specific controls, including active spill management practices, sediment control devices, and storage of hazardous materials in bunded areas would also be implemented.

The Department has reviewed the assessment, the issues raised in submissions, and the Proponent's Response to Submissions, and considers that the construction of a project of this nature would require careful construction management to prevent flooding and water quality issues such as sedimentation and other pollutants being transported to First Ponds Creek.

In noting that construction works on lands affected by the PMF and 100 year ARI flood are only temporary and on the outer extent of the floodplain, the Department is satisfied with the level of assessment undertaken and considers that construction impacts can be managed.

With regards to management of erosion and sedimentation and water quality associated impacts, the Department considers the Proponent's approach to be satisfactory and therefore recommends a condition of approval confirming the requirement that the Proponent prepare and implement a Construction Soil and Water Quality Management Plan. The Plan would detail appropriate controls to manage surface and groundwater impacts during construction. In addition, the Department has included standard conditions regarding water quality, including the requirement to prepare and implement a water quality monitoring program to monitor impacts on surface and groundwater quality resources during construction and operation of the RTRF. The Program shall be developed in consultation with DPI (Fisheries), NoW and Blacktown City Council.

Operational Impacts

The following elements form part of the facilities operational water cycle/specific water infrastructure:

- staff amenities;
- automated train wash;
- stormwater harvesting tanks;
- stormwater detention/quality basins; and
- landscaping.

Following the completion of construction, the site would have an increased impermeable surface area which would decrease the amount of infiltration of stormwater flows. An increase in impervious surface area has the potential to increase the frequency and intensity of stormwater pollution from the RTRF site into the First Ponds Creek catchment. Activities that have the potential to pollute stormwater during operation include accidental spills of chemicals, destabilisation of banks caused by changes in hydrology, and hydrocarbons, oils, sediments and dust associated with the maintenance of trains.

Despite the potential increase of sediment and pollutants into First Ponds Creek the Proponent's assessment notes that the increased load would not likely be sufficient to adversely affect the existing water quality, due to the existing degraded water quality.

The Proponent has proposed a holistic approach to water quality and stormwater management that incorporates Water Sensitive Urban Design principles to minimise impacts on the existing hydrologic regime. Water quality treatment measures integrated into the drainage system include a combination of bio-retention systems, water quality basins, swales, and gross pollutant traps.

The assessment identified that basins would be required that provide a combined detention capacity of 7,600m³ to maintain pre-development peak flows to First Ponds Creek, up to the 100 year ARI. This detention volume was modelled and results indicated that the amount of water run-

off downstream was not reduced, therefore would not impact on the availability of water for downstream users, including licensed users.

The indicative location of the stormwater detention basins is along the western boundary of the RTRF site as shown in **Figure 5**. At these locations the basins are located outside the 100 year ARI, the design standard for new developments; however the embankments do encroach upon the PMF floodplain. The Proponent determined that the basins would still function as per the required design standard.

Blacktown City Council made comments in relation to the indicative stormwater management strategy regarding First Ponds Creek. Council considers that any works that result in an encroachment into the current 100 year flood extents will require a flood impact assessment to ensure no adverse impacts on flooding occur, including loss of flood storage. There are existing flood affected properties and dwellings in the vicinity of the site and therefore it will be necessary to ensure there is no increase in flood affectation (including frequency of flooding) and associated flood damages for the full range of ARI from 1 year through to 100 year associated with First Ponds Creek and its tributaries.

Council further considers that the reported detention storage volume of 7,600m^3 over a site area of 35.48ha gives a storage rate of 214m^3/ha which appears low and should be checked thoroughly as part of the design of the project. Additionally, the proposed area of bio-retention of 3,000m^2 appears to be on the low side but reasonable, and the proposed configuration for the systems should further consider the potential salinity and groundwater impacts and determine whether lining of the system is required.

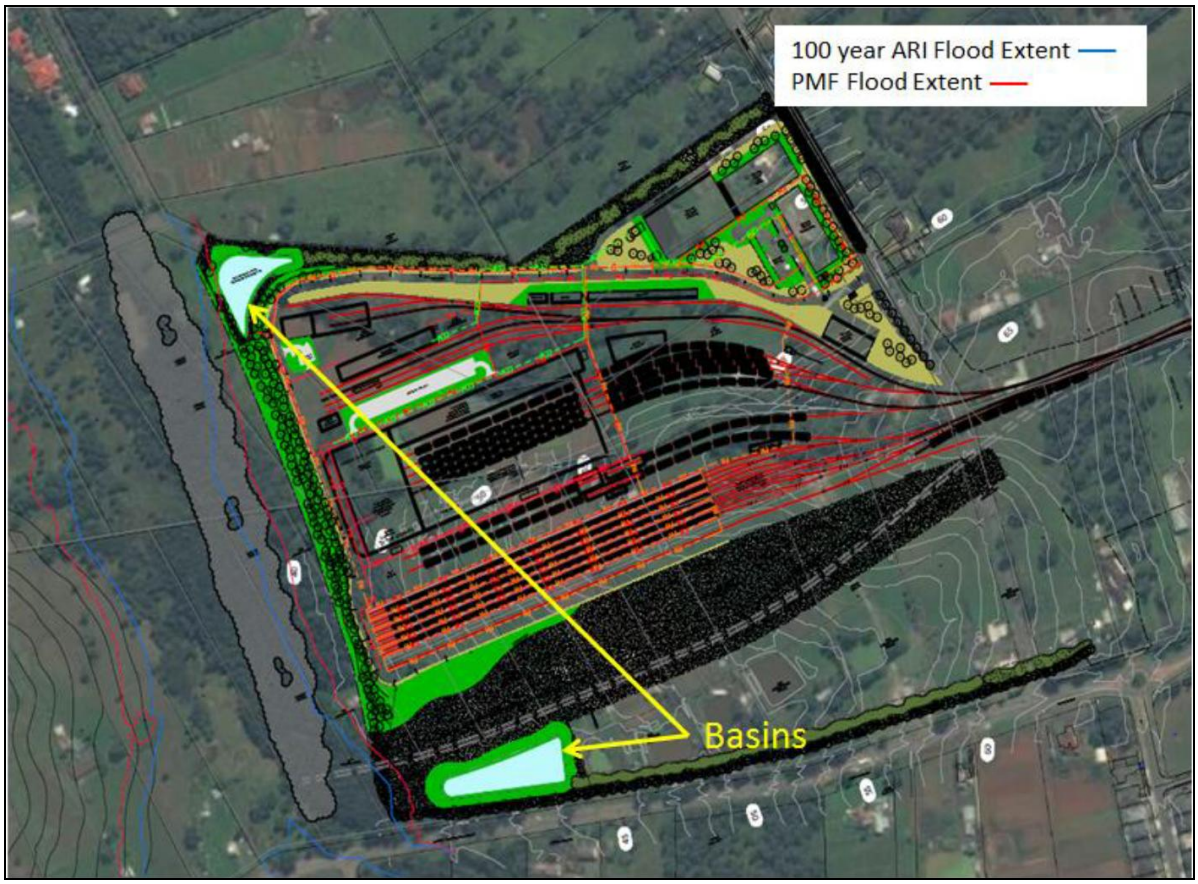

Figure 5 Stormwater Basin - Indicative layout plan

Approximately 8% of public submissions raised concerns over the risk of flooding due to the increase in run-off to First Ponds Creek. In particular, any additional water added to the upstream inflow associated with First Ponds Creek will exacerbate the existing problems to affected properties, associated with the capacity of the culvert located between 62 and 68 Gordon Road.

As a result of submissions made, the Proponent undertook supplementary stormwater modelling in order to analyse and document the effect that the culvert has on the proposed stormwater management regime. It was determined that with the provision of 12,750m^3 of stormwater detention storage, the peak flow from the site post-development would not exceed the pre-development peak flow rates. This would be confirmed during the detailed design stage.

Additionally, the Proponent has noted that the land most impacted by the existing flooding situation, being the land immediately upstream of the Gordon Road culvert, has been rezoned under the Growth Centre SEPP as SP2 Drainage. This rezoning acknowledges the existing sub-optimal stormwater/flooding situation on this land.

The Department is satisfied with the level of assessment undertaken in relation to surface water and considers that with the implementation of various mitigation measures, potential impacts on downstream water quality can be effectively managed. In particular, the Department considers that the Proponent's approach to manage water quality impacts from the site through the integration of treatment measures such as swales, bio-retention systems, water quality basins and gross pollutant traps is appropriate. The Department has included standard conditions regarding water quality requiring the preparation and implementation of a water quality monitoring program, to continue to be implemented for a period of three years following the completion of construction.

The Department undertook a detailed assessment of the flooding impacts associated with the NWRL, including the approved Tallawang Road Maintenance and Stabling Facility. Whilst the Rapid Transit Rail Facility is a larger site than the approved Tallawang Road facility, the Department considers that the impacts are generally similar, and therefore has recommended similar conditions in relation to flooding as for the NWRL.

The Department has recommended that impacts from the project be limited, where feasible and reasonable, to not worsen existing flood characteristics in the vicinity of the RTRF. Additionally, the Department has included a requirement that the pre-development peak flows in First Ponds Creek from the site be maintained through provision of appropriately sized stormwater detention basins, with a minimum capacity of 12,750m^3 unless otherwise agreed by the Director-General.

The Department has recommended that the preparation of a Stormwater and Flooding Management Plan, in consultation with the Department (Strategies and Land Release), OEH and Blacktown City Council, during detailed design of the RTRF and prior to construction. The Plan is to include the identification of flood risks, the performance criteria, and mitigation measures that are proposed to be implemented to protect proposed works and not exacerbate existing flooding.

5.2. Noise and Vibration

The EIS includes a noise and vibration impact assessment undertaken in accordance with the *Interim Construction Noise Guideline* (DECC 2009) (ICNG), *Industrial Noise Policy* (EPA, 2000)) (INP) and the *NSW Road Noise Policy* (DECCW, 2011) (RNP). The existing noise environment at the proposed RTRF site is currently residential, with a 'Place of Worship', the Lankarama Buddhist Temple (Buddhist Temple), located north-west of the RTRF. Receiver catchments are shown in **Figure 6**, and the distances to the nearest noise sensitive receivers are shown in **Table 4**.

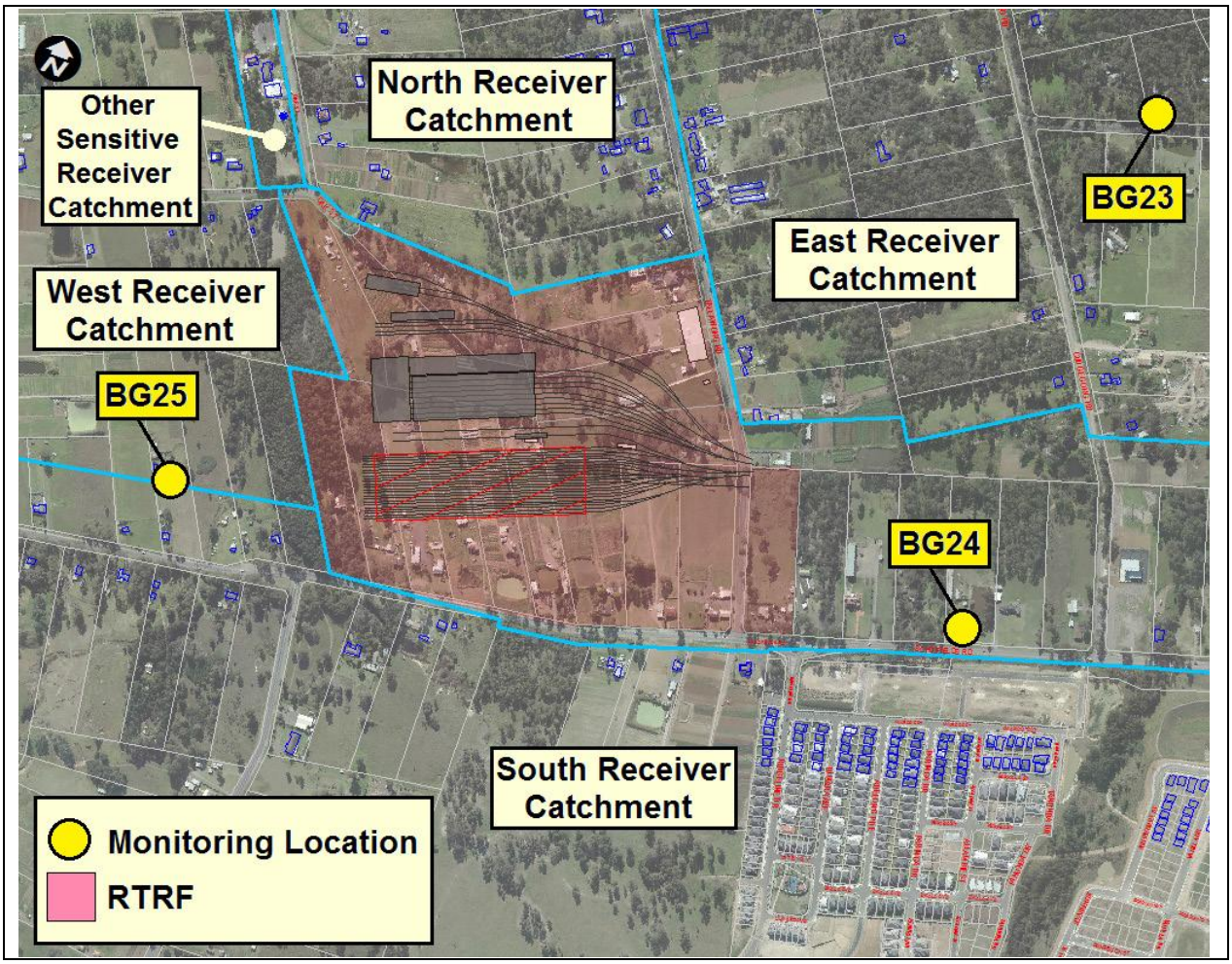

Figure 6 Noise Monitoring Locations

Table 4 RTRF Nearest Noise Sensitive Receivers

Receiver Area	*Location relative to Earthworks*	*Location relative to RTRF Operations*
North Receiver Catchment – residences north of the site, between Tallawong Road and Oak Street	20 m	45 m
East Receiver Catchment – residences east of the site, east of Tallawong Road	25 m	35 m
South Receiver Catchment – residences south of the site, between Ridgeline Drive and Schofields Road	40 m	130 m
West Receiver Catchment – residences south and west of the site, west of Ridgeline Drive	95 m	130 m
Other Sensitive Receiver Catchment – Place of Worship to the north of the site, immediately west of Oak Street	150 m	240 m

Construction Noise & Vibration

In accordance with the ICNG, the noise criteria for residential receivers during construction are:

- construction during standard hours: (7:00am–6:00pm Monday to Friday, 8:00am–1:00pm Saturdays): Noise management level (NML) ($L_{Aeq(15minutes)}$) of Rating Background Level (RBL) + 10dB;
- construction work outside the standard hours: NML($L_{Aeq(15minutes)}$) of RBL + 5dB;

- construction traffic: in accordance with the RNP, noise criteria for construction traffic (traffic entering the public road network and outside of the RTRF site) is a NML of existing road traffic noise +2dB which applies to both daytime and night-time periods; and
- sleep disturbance: a NML of 65dBA (external noise level) has been adopted.

With reference to the project NMLs and the ambient noise survey results, the site specific construction NMLs are presented in **Table 5**.

Table 5 RTRF Construction NMLs

Receiver Area and type	***Relevant Monitoring Location***	***$L_{Aeq(15min)}$ construction NMLs Daytime***	***$L_{Aeq(15min)}$ construction NMLs Evening***
North Receiver Catchment - residential	BG23	54 dBA	48 dBA
East Receiver Catchment – residential	BG23	54 dBA	48 dBA
South Receiver Catchment – residential	BG25	53 dBA	49 dBA
West Receiver Catchment – residential	BG24	55 dBA	54 dBA
Other Sensitive Receiver Catchment – Place of Worship	BG23	55 dBA	55 dBA

The modelling undertaken indicated that during both the standard daytime (07:00am – 6:00pm) and evening (6:00pm – 10:00pm) periods, noise levels are predicted to be highest during the civil works phase of construction, specifically earthworks (i.e. vegetation clearing, topsoil stripping, cut and fill). It is predicted that NML's will be exceeded within the north, east and south receiver catchments by over 20dB, 10-20dB across the west receiver catchment and other residential areas and less than 10dB at the Buddhist Temple. These exceedances are a direct result of the close proximity of these receivers to the earthworks and the absence of appreciable shielding between sites and receivers.

A lesser level of noise impact is anticipated during the RTRF infrastructure construction phase with exceedances generally below 20dB, with the exception of over 20dB exceedance for the east receiver catchment during track formation and track work, and the installation of overhead wire systems and cable support.

Construction traffic noise levels at residential receivers along the proposed access routes via Schofields Road indicate compliance with the NML recommendation.

Safe working distances for plant and machinery likely to be used during civil construction works are a minimum of 6m. The Proponent has identified that the majority of existing buildings and structures adjacent to the proposed RTRF are located more than 20m from the proposed works, and therefore vibration levels are predicted to be below the safe vibration levels associated with minor cosmetic damage.

The Department acknowledges that noise impacts are likely to occur during construction and this was identified in a small number of submissions from the public which raised concerns regarding the moderate to high exceedances of the NMLs. It was also raised by both Blacktown City Council and the EPA. Blacktown City Council considers that the mitigation measures included in the EIS are satisfactory in addressing noise impacts and the EPA has made minimal comments regarding potential construction noise impacts.

It is understood that the predicted noise exceedances represent the worst-case maximum impact scenarios, where in actuality it is expected that the construction noise levels will frequently be lower than predicted at the most exposed receiver/s.

The Department undertook a detailed assessment of the construction noise and vibration impacts associated with the NWRL, including the approved Tallawang Road Maintenance and Stabling

Facility (Tallawong Road facility). Whilst the RTRF is a larger site than the approved Tallawang Road facility, the Department considers that the construction impacts are generally similar, and therefore supports the approach of the Proponent to implement noise mitigation measures, such as noise barriers, as described in the Construction Noise and Vibration Strategy for the NWRL. Key elements of the Construction Noise and Vibration Strategy include:

- the establishment of maximum noise levels;
- implementation of a noise monitoring program;
- attended vibration measurements;
- on-site noise control practices and work behaviours; and
- community consultation procedures.

Notwithstanding, to ensure that noise impacts are managed appropriately for the construction of the larger site of the RTRF, the Department further recommends additional conditions including:

- the requirement that prior to construction, a detailed land use survey to identify potentially critical areas that are sensitive to construction noise and vibration impacts, be undertaken;
- identification of construction hours;
- the RTRF be constructed with the aim of achieving the construction noise management levels detailed in the *Interim Construction Noise Guideline* (DECC, 2009);
- preparation and implementation of a Construction Noise and Vibration Management Plan to detail how construction noise and vibration impacts will be minimised and managed; and
- all feasible and reasonable noise mitigation measures be implemented and any activities that could exceed the construction noise management levels shall be identified and managed in accordance with the Construction Noise and Vibration Management Plan.

With regards to noise barriers and noise monitoring, the Proponent has confirmed that noise mitigation measures, including acoustic sheds and noise hoardings will be put in place as appropriate and measures for noise and vibration monitoring would be included in the Construction Noise and Vibration Management Plan. The Department supports this approach and has recommended conditions of approval that, as part of the Construction Noise and Vibration Management Plan, the Proponent must identify how the efficiency and efficacy of noise measures employed will be monitored and non compliances rectified.

With respect to vibration impacts, the Department is satisfied that the Proponent's assessment has demonstrated that vibration generated during the construction period would have minimal impact on human comfort levels, vibration is unlikely to result in damage to buildings. On this basis, the Department concludes that the assessment demonstrated that vibration impacts are likely to be minor and could be adequately managed as part of the project. To ensure minimal to negligible vibration impacts as a result of the construction of the RTRF, the Department has recommended the following conditions:

- the SSI shall be constructed with the aim of achieving the following construction vibration goals:
  - (a) for structural damage, the vibration limits set out in the German Standard *DIN 4150-3: Structural Vibration - effects of vibration on structures*; and
  - (b) for human exposure, the acceptable vibration values set out in the *Environmental Noise Management Assessing Vibration: A Technical Guideline* (Department of Environment and Conservation, 2006); and
- implementation of all reasonable and feasible mitigation measures with the aim of achieving the relevant construction vibration goals.

The Department notes the Proponent's commitment to proactively engage with affected sensitive receivers and has recommended a condition requiring the Proponent to continue engaging with the community, religious and educational institutions, prior to and throughout construction works. During construction, Proponents of other construction works in the vicinity of the RTRF shall be consulted, and reasonable steps taken to coordinate works to minimise impacts on, and maximise respite for, affected sensitive receivers.

Operational Noise & Vibration

In accordance with the INP, intrusive, amenity and sleep disturbance goals apply to the operation of the RTRF as follows;

- intrusiveness criteria: ($L_{Aeq(15minutes)}$) of RBL + 5dB during daytime (7:00am – 6:00pm), evening (6:00pm – 10:00pm) and night time (10:00pm – 7:00am) periods at the nearest sensitive receivers;
- amenity criteria: INP identifies acceptable maximum average noise levels for particular land uses – the residences in the vicinity of the RTRF are considered 'suburban' (at the commencement of RTRF operations); and
- sleep disturbance: as per construction, 65dBA (external noise level).

The majority of train maintenance activities are to be undertaken within the proposed maintenance facility building. Other noise sources with potential impacts around the stabling and maintenance facility would include infrastructure maintenance, wheel lathe, alarm systems, internal train cleaning, stabling facility staff car movements and a PA system. Rail grinding and major track maintenance would occur intermittently during night-time shutdown periods and on selected weekends and would be an additional, infrequent noise source. Vibration impacts are not anticipated during operations of the RTRF.

Fourteen modelling scenarios were developed to predict noise $L_{Aeq(15minutes)}$ at the most affected receivers as shown in **Table 6**.

Table 6 Predicted $L_{Aeq(15minutes)}$ Noise Levels at Most Affected Receivers – Base Case

Base Case Scenario and Description		*Noise Criteria (dBA)*			*$L_{Aeq(15minutes)}$ Sound Pressure Level (dBA)*				
		North, East, West	*South*	*Other*	*North*	*East*	*South*	*West*	*Other*
1	Opening – Early Morning[1]	45	48	n/a	**50**	**53**	**49**	**48**	n/a
2	Opening – Daytime Departures	50	50	50	48	**52**	45	44	43
3	Opening – Daytime Arrivals	50	50	50	48	**52**	47	44	43
4	Opening – Evening	45	50	50	**48**	**52**	47	44	42
5	Opening – Night Departures	50	43	n/a	39	**44**	**46**	**41**	n/a
6	Opening – Night Arrivals[1]	40	43	n/a	**41**	**47**	**49**	**44**	n/a
7	Future – Early Morning[1]	45	48	n/a	**50**	**53**	**53**	**49**	n/a
8	Future – Daytime Arrivals	50	50	50	48	**52**	49	44	43
9	Future – Daytime Arrivals	50	50	50	48	**52**	50	45	43

Base Case Scenario and Description		***Noise Criteria (dBA)***			***$L_{Aeq(15minutes)}$ Sound Pressure Level (dBA)***				
		North, East, West	***South***	***Other***	***North***	***East***	***South***	***West***	***Other***
10	Future – Evening	45	50	50	**48**	**52**	50	45	42
11	Future – Night Departures	40	43	n/a	40	**44**	**47**	**41**	n/a
12	Future – Night Arrivals[1]	40	43	n/a	**44**	**50**	**54**	**48**	n/a
13 & 14[2]					*L_{Amax}*				

[1] *Noise levels for these scenarios were calculated under adverse weather conditions*
[2] *Scenarios 13 and 14 represent typical worst case operating scenarios (LAmax).*
Bold *indicates exceedances of noise criteria*

A summary of the results for the predicted noise levels during operation are presented below:

- for the opening and future scenarios, exceedances of the early morning noise criteria of up to 8dB are predicted at the nearest residential receivers under adverse weather conditions. Under neutral weather conditions, the predicted noise levels are typically 4dB lower at the nearest representative receivers;
- for the opening and future scenarios, exceedances of the daytime noise criterion (50dBA $L_{Aeq(15minute)}$) of up to 2dB are predicted at the east receiver catchment;
- for the opening and future scenarios, exceedances of the evening noise criteria of up to 3dB are predicted at the east and north residential receiver catchments;
- for the opening scenario with adverse weather conditions, exceedances of the night-time noise criteria of up to 7dB are predicted at the nearest sensitive receivers. Noise criterion exceedances of up to 11dB are predicted at the nearest sensitive receivers in the south receiver catchment, and up to 10dB at the nearest sensitive receivers in the east catchment;
- scenarios 13 and 14 represented the typical worst case operating scenarios (L_{Amax}). Noise from auxiliary equipment, brake air release, train washing and maintenance operations were modelled at a number of worst-case locations taking into account the maximum noise level for each receiver. Under adverse weather conditions, L_{Amax} is predicted to comply with sleep disturbance screening criterion at all surrounding residential receivers; and
- there will be some variation in noise level from each of the L_{Amax} modelled events since brake air release is a variable source. Noise impacts would also be lower than predicted in the event that the train is shielded by other trains stabled on adjacent tracks, and under neutral weather conditions.

The noise modelling indicated that the most significant sources of noise during operation are associated with onsite heavy vehicle movements and steady noise from train stabling operations, in particular train arrivals and time in cleaning mode with air-conditioning running. The Proponent has subsequently committed to implementing mitigation measures including investigation into:

- the installation of the incorporation of silencers with the compressed air lines; and
- methods to minimise rolling stock auxiliary noise.

Approximately 19% of submissions from the public, the EPA and Blacktown City Council identify operational noise within their submissions. Blacktown City Council considers that the mitigation measures included within the EIS are satisfactory at addressing the noise impacts. The EPA notes that several assumptions were made to enable the noise modelling and recommends a number of conditions to manage operational noise.

The Department acknowledges that noise impacts would potentially exceed operational noise criteria, particularly during the early morning, night departures and night arrivals scenarios. It is understood that the predicted noise exceedances represent the worst-case maximum impact scenarios, particularly during night-time and early morning periods, which are calculated under adverse weather conditions.

As for construction noise and vibration, the Department undertook a detailed assessment of the operational noise impacts associated with the proposed Tallawong Road facility approved as part of the NWRL. The Department considers that the impacts of the larger scale RTRF would be generally similar and therefore supports the approach to implement mitigation measures as presented within the NWRL. To ensure noise impacts as a result of the operation of the larger site are managed appropriately, the Department has recommended a number of conditions of approval for the RTRF.

To minimise the noise impacts of the proposal, the Department has recommended a condition requiring the Proponent to provide details of measures to monitor and manage noise impacts as part of the Operational Environmental Management Plan. Additionally, the Proponent is required to undertake operational noise and vibration compliance assessment, including validation of noise monitoring assumptions to verify the accuracy of the modelling and review the appropriateness of the mitigation measures. Should the Proponent identify that the proposed mitigation measures would not provide appropriate reduction of operational noise impacts, the Department will require details of any additional proposed noise mitigation.

As the RTRF will operate 24 hours a day, seven days a week, it will likely present noise impacts to existing residential receivers, particularly at night. At the commencement of operations, the RTRF would service up to 20 single deck trains per day and it is likely that more train sets would be introduced as the rapid train network expands and rapid train services increase. The Department notes the difficulty in setting definitive operational noise criteria surrounding the RTRF, given the evolving land uses adjacent to the site, planned development and growth of the NWGC. To address this, and in the absence of fixed noise criteria for future development surrounding the RTRF, the Department has recommended a condition of approval which requires operational noise targets to be reviewed within two years of the date of any approval granted by the Director-General and at any subsequent time as required by the Director-General. These reviews shall have regard to the status of the project, rolling stock selected, land use planning, any land use changes and the background noise environment within areas adjacent to the rail corridor at the time of the relevant review and if necessary, review noise mitigation measures.

The Department acknowledges that source noise levels adopted by the Proponent for noise modelling assumed that silencers would be installed in the compressed air lines to minimise the noise levels associated with brake air releases. Noise from brake air releases would also be reduced by the under-platform barriers included in the base case scenarios. The Department has included a condition requiring the Proponent to investigate the installation of silencers in the compressed air lines of the rolling stock to reduce brake noise and minimise impacts upon sensitive receivers. With the RTRF being undertaken in accordance with the EIS and recommended conditions of approval, the Department is satisfied that noise from the RTRF will be appropriately managed and mitigated.

5.3. Visual Amenity

The existing visual character of the surrounding environment is heavily influenced by the rural nature of the area surrounding the RTRF. Small market gardens and other small agriculture businesses such as poultry farms and orchards, as well as larger rural residential properties represent the majority of the surrounding land uses. The land broadly surrounding the site consists of grassy hills and small assemblages of trees.

The site is located within the NWGC which is designated for future growth under the Growth Centres SEPP. The area is expected to become more urban with designated residential areas surrounding the site and a Town Centre planned east of Tallawong Road (on the eastern boundary of the site).

The visual components of the RTRF would include the following:

- an 8m embankment along the south-western corner of the site;
- the embankment would be between 6.7m and 8.8m along the western boundary;
- retaining walls would be visible for approximately 100m along the northern boundary;
- varied topography along the eastern boundary providing access, grade separation and building pad levels;
- a 15m high rolling stock maintenance workshop;
- an 8m high bulk supply building;
- an administration building and training area along Tallawong Road;
- two infrastructure workshops 12-15m high;
- perimeter fencing;
- night-lighting;
- a 30m high communications tower; and
- ancillary structures throughout the site.

As a result of the changes to topography during earthworks, views from nearby properties of the operational facility and surrounds would be highly modified. The RTRF would appear dominant in the landscape as a result of the scale of buildings required which is in contrast to the rural nature of the surrounds. The potential visual impacts of the RTRF would include:

- views from adjoining roads (Schofields Road, Tallawong Road and Hambledon Road) including views of embankments, a large scale workshop (15m high and 250m long), retaining walls and vegetation planting;
- views from residential areas as the facility would be visually dominant. Given the change in the landscape and the addition of the workshop structures, there would be a reduction in visual amenity to residences to the east and west of the RTRF; and
- night lighting as a result of the 24-hour operation of the facility and the security and safety requirements.

Approximately 11% of submissions received from the public raised concerns regarding the visual amenity impacts of the operational RTRF. A submission from a local resident requested that vegetation planting along the southern boundary be maximised to create the greatest level of visual screening.

The Proponent commits to maximising boundary planting along the southern boundary and to use colour and materials that blend into adjacent bushland setting. However, the Proponent recognises that visual amenity impacts would be greater during the early phases of operation as boundary plantings would not be fully established. The Proponent commits to mitigating light impacts by using cut-off and direct lighting. In addition, the Proponent considers that the visual impact of the facility is consistent with the intent of The Hills *Local Environmental Plan 2012* and *Development Control Plan 2012* that provides for buildings of 15m high in industrial areas. The Department is generally satisfied with the visual impact assessment, however notes that the control tower is 30m high, double the height of the provision provided within The Hills *Local Environmental Plan 2012* and *Development Control Plan 2012*.

The Department assessed visual impacts of the approved Tallawong Road facility as part of the NWRL and considers that there are additional visual impacts as a result of the increased scale of the RTRF. To manage visual impacts in addition to those that were previously assessed by the Department, it is recommended that the Proponent prepare and implement a Design and Landscape Plan. The Plan would include the identification of design objectives and management

strategies to mitigate impacts to the landscape of the area from the commencement of works throughout the operation of the facility.

With the development of the Design and Landscape Plan, the Department considers that impacts can be effectively managed to minimise visual conflicts, particularly in the short-term, within the changing landscape.

5.4. Other Issues

Air Quality

An Air Quality Assessment was undertaken for the construction and operation of the RTRF as part of the EIS. The assessment identified the existing main sources of air pollution in the area as emissions from agricultural activities, local urban activities such as motor vehicle exhaust, domestic wood heaters and various other minor commercial and industrial activities.

Construction Impacts
Activities undertaken as part of the construction works have the potential to impact the surrounding air quality through dust generation and vehicle and plant emissions. The quantity of dust generated would be proportionate to the amount of material handled and the type of activity undertaken. Submissions received from the EPA, Blacktown City Council and a small number of the public raised concerns regarding the potential dust impacts resulting from exposed surfaces during construction.

The EPA noted that the project will expose a large area of ground and will also require the movement and storage of a large volume of spoil material. These exposed areas have the potential to generate a large amount of dust. The EPA recommended that the clearing of the site be staged and vegetation be retained for as long as possible so that the likelihood of soil erosion by either wind or water is minimised. Exposed areas should be progressively and quickly re-established and stockpiles of materials managed to minimise the generation of dust.

The Proponent anticipates that any activities which have the potential to generate dust would occur for a limited period and any prolonged effect of any off-site dust impacts would be minimal. The Proponent has committed to managing dust impacts through the Construction Air Quality Management Plan, and in a similar manner as for the approved NWRL project, and which are routinely adopted during construction works.

Operational Impacts
Potential impacts resulting from the operation of the RTRF would include emissions associated with the maintenance of trains, the operation of workshops and associated infrastructure as well as vehicle movements. Maintenance would occur within an enclosed workshop with low potential for any impact to off-site air quality. Other activities of the operational RTRF that may generate air impacts would include washing, degreasing and painting of small parts of trains, servicing track equipment, track welding and repair, fugitive emissions from dangerous good stores and emissions relating to graffiti removal. These activities have the potential to release fine particles to the immediate air environment.

Approximately 13% of submissions raised concern regarding the potential for general air pollution issues associated with the RTRF.

The Proponent considers that operational activities can be managed to maintain potential impacts to acceptable levels, through the design of the facility, and has committed to managing operational air emissions in accordance with an Operations Environmental Management Plan, which would include an Air Quality section. Pollution control measures

applied at the site would be designed to meet the requirements of the *Protection of the Environment Operations (Clean Air) Regulation 2010.*

The Department undertook a detailed assessment of the construction and operational air quality impacts associated with the NWRL, including the approved Tallawang Road Maintenance and Stabling Facility. Whilst the RTRF is a larger site than the approved Tallawang Road facility, the Department considers that the construction and operational impacts are generally similar. The Department therefore supports the approach to implement air quality, including dust mitigation measures, through implementation of the Construction Air Quality Management Plan, similar to that required for the NWRL.

Notwithstanding, to minimise impacts and address concerns raised within submissions received regarding construction impacts, the Department has included a condition to reinforce that the RTRF be constructed in a manner that minimises dust emissions from the site. Other emissions generated from the exhaust emissions of diesel powered machinery are considered to be small, infrequent and widely dispersed, resulting in insignificant off site pollution concentrations. Standard conditions have therefore been recommended to manage potential construction air quality impacts, including development and implementation of a Construction Air Quality Management Plan, which would further detail site specific soil erosion measures.

The RTRF is unlikely to contribute to cumulative air quality impacts due to the location of the facility and anticipated surrounding land uses (See Land Use, Local Business and Community Facilities of this report). The RTRF is located away from other industrial land uses which may generate similar air emissions and result in cumulative air quality impacts. The implementation of mitigation measures are anticipated to minimise air quality impacts limiting the impact of the RTRF upon regional air quality. As such the potential for cumulative air quality impacts resulting from the RTRF is considered to be unlikely regardless of future land use of the surrounding area.

Standard conditions have also been recommended to manage potential operational air quality impacts, including the requirement to prepare an Operational Environmental Management Plan to include consideration of air quality issues.

With the implementation of management measures and undertaking works in accordance with the Conditions of Approval, the Department considers that the impacts upon air quality as a result of construction and operation of the RTRF would be adequately managed.

Traffic and Access

The RTRF site is bounded by Tallawong Road, Schofields Road, and First Ponds Creek, as shown in **Figure 7**, which also shows the existing road network surrounding the RTRF site.

Tallawong Road is classified a local road and is a two-way road set within a 25m road reserve. Presently, this local road services some 950 vehicles per day. Schofields Road is classified as a State road, and is also a two-way road servicing approximately 11,600 vehicles per day. The two roads intersect immediately south-east of the proposed RTRF and this intersection is currently performing satisfactorily during both AM and PM peak times.

The RTRF site is located within a transitional urban environment, with development proceeding in a currently semi-rural area. An upgrade and realignment of Schofields Road is currently being undertaken by RMS, which also incorporates a realignment of the southern section of Tallawong Road to align with Ridgeline Drive and form a four-leg intersection.

The performance of the key intersection, being Tallawong Road/Schofields Road, immediately north-east of the site was modelled to assess the effects of the altered vehicle demand during both

construction and operation of the RTRF. Discussions with RMS to date have indicated that the works associated with Stage 1 of the Schofields Road upgrade would be completed prior to the commencement of RTRF works. As such, modelling has been based on the future arrangement of Schofields Road. The modelling identified that the worst performing leg of the Schofields Road/Tallawong Road intersection, the Tallawong Road (north) leg, currently operates at Level of Service C, with average vehicle delay of 31 seconds during the AM peak and 39 seconds during the PM peak. Level of Service C at traffic signals is considered to be satisfactory.

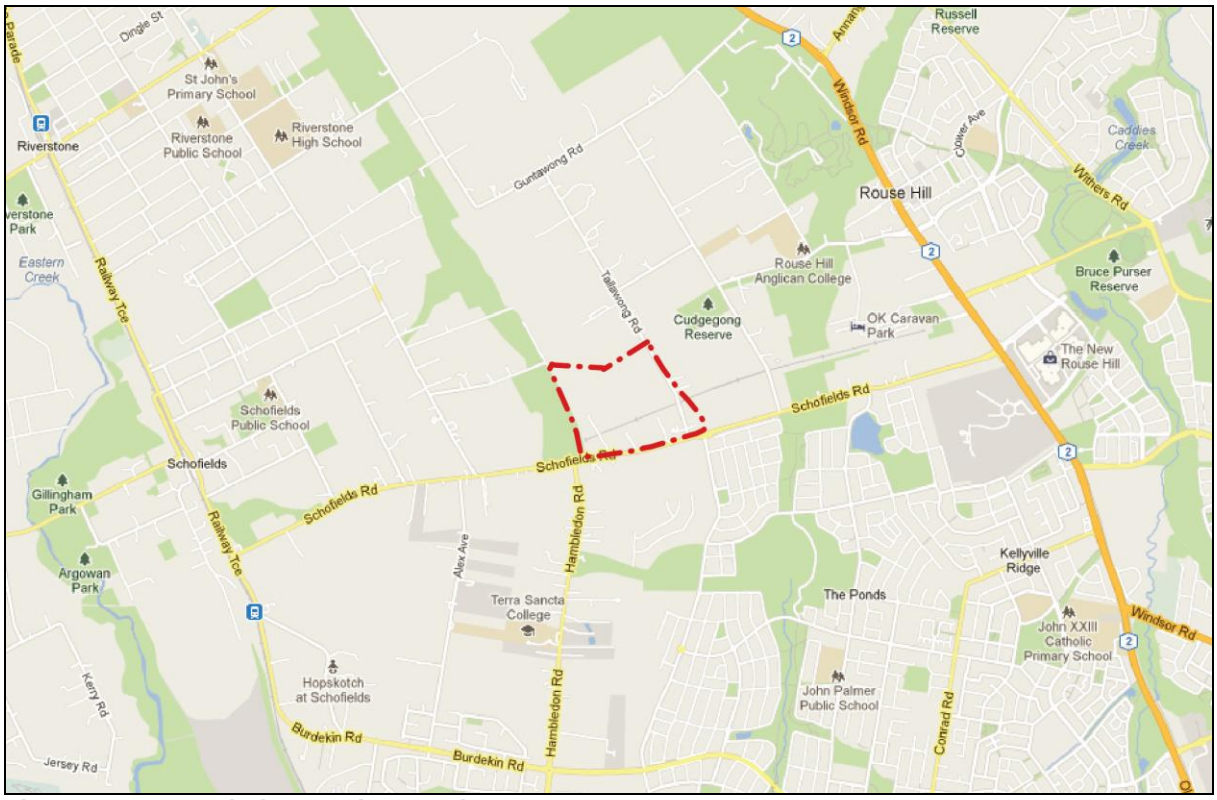

Figure 7 Existing road network

Construction Traffic

The major civil construction works of the RTRF would be completed in two phases over 13 months with a three year timeframe anticipated for the infrastructure and systems phase, to align with the NWRL. It is likely that construction of the RTRF would be somewhat shorter than the three years anticipated for the NWRL, however this timeframe has been provided as a conservative estimate for consistency with the NWRL project.

The daily traffic movements generated and staff numbers expected during the major civil construction phase of the RTRF would include:

- 100 heavy vehicle movements (two-way);
- 100 light vehicle movements (two -way); and
- Up to 60 staff during peak civil construction works.

During the infrastructure and systems phase, the anticipated daily movements would include:

- 132 heavy vehicle movements (two -way);
- 168 light vehicle movements (two -way); and
- Up to 100 staff during peak infrastructure and systems works.

Heavy vehicle access to the RTRF construction site would be from Tallawong Road, and heavy vehicle routes would generally be along Schofields Road to Windsor Road. With regards to light vehicle traffic, given the nature of the construction work, it is assumed approximately 50% of staff would arrive/leave from the site during AM and PM peak periods.

Estimated daily vehicle movements are shown in **Table 7**. Construction traffic is anticipated to have a minimal impact on the Tallawong Road/Schofields Road intersection as a result of minimal movements during construction from the RTRF site, with maintenance of a Level of Service C throughout construction activities.

Table 7 Estimated Daily Vehicle Movements during construction phases in both AM and PM peak periods.

Stage	*Peak Hour*	*Heavy Vehicles*		*Light Vehicles*		*Peak Staff Levels*
		IN	*OUT*	*IN*	*OUT*	
Major Civil Works	AM	5	5	25	0	60
	PM	5	5	0	25	
Infrastructure and Systems Works	AM	6	6	42	0	100
	PM	6	6	0	42	

The location for construction workforce parking has not been determined at this stage. However, given constraints associated with the Schofields Road upgrade, up to 84 car spaces would need to be accommodated on-site. There is minimal demand for on-street parking in the vicinity of the RTRF site and it is anticipated that the impact on existing parking would be low, even if on-street parking is required.

There is the potential for cumulative impacts to occur during construction, in particular with the adjacent urban development of the Alex Avenue Growth Centre Precinct. The continued construction activities of the Alex Avenue development have been taken into account as part of the RTRF Transport Impact Assessment, however the Proponent notes that the future urban development patterns and timing of development may change.

Construction activities associated with the NWRL and the RTRF would occur within the same timeframe given the connection between the two projects. The Proponent would be responsible for managing the cumulative impacts of these projects in accordance with the NWRL Construction Environmental Management Framework required for the approved NWRL project. It is anticipated that the cumulative construction impact of these two projects would be less than as forecast by the NWRL due to the balancing of the earthworks at the expanded RTRF site.

The Proponent considers that the implementation of the following measures would contribute towards mitigating the traffic and transport impacts during the RTRF construction stage:

- provision of shuttle bus services for construction workers;
- scheduling movements of heavy vehicle haulage and deliveries outside peak periods; and
- liaison with RMS and stakeholders to manage cumulative impacts.

Blacktown City Council considers that traffic generated as a result of the construction of the RTRF can be accommodated within the existing road network capacity. No other major concerns regarding construction traffic were raised in submissions.

The Department acknowledges that some traffic and transport impacts are likely to occur during construction, particularly in an area that is undergoing both urban development and development of the NWRL. Given the size and nature of construction vehicles required for the RTRF, however, the impacts are considered to be minor. The Department notes that anticipated movement numbers during major civil construction works are significantly reduced from those estimated as required for the NWRL construction works at the Tallawong Stabling facility, as approved. This is as a result of the substantial balance of cut and fill that was achieved by the expanded footprint of the facility from

that presented as part of the NWRL (reduction in excess spoil and reduction in movements required to dispose of this spoil).

The Proponent has identified high-level mitigation measures to avoid pedestrian and cyclist conflicts with construction vehicles and construction-generated traffic. The Department notes that whilst there is limited access for pedestrians in close proximity to the site at this time, the development of the area will likely change this. The Department notes the Proponent has committed to the use of traffic controllers to monitor and regulate heavy vehicle movements and pedestrian movements in addition to the use of advance directional signage to guide pedestrians and cyclists to alternative pedestrian/cycle routes, as required.

The Department considers that, as the vehicle numbers and type are relatively minor and would not impact on the existing road network capacity during construction, the mitigation measures proposed by the Proponent provides appropriate mitigation and management of traffic related impacts. To ensure construction of the RTRF does not impact the surrounding road network or property access, the Department has recommended the following conditions of approval:

- to schedule construction traffic, to the greatest extent practicable, outside of AM and PM peak traffic periods;
- to maintain access to private property during construction; and
- to prepare and implement a Construction Traffic Management Plan.

As identified, the assessment and management of cumulative impacts will be an important aspect as the NWRL construction program develops and the development of adjacent Alex Avenue Growth Centre continues. The Department has recommended that traffic generation from other major developments shall be taken into account and addressed during preparation of the Construction Traffic Management Plan. Additionally, the Department recommends that dilapidation reports for heavy vehicle construction routes, be completed prior to commencement of construction, and following completion of construction, to assess any damage that may have resulted from construction vehicle movements. This will allow identification of appropriate mechanisms to restore any damage, in accordance with the reasonable requirements of the relevant road authority.

Operational Traffic and Access

Traffic impacts during operation would be predominantly the result of staff and service vehicles arriving and departing from the RTRF. The main entry to the RTRF would be central to the Tallawong Road frontage of the facility, 420m north of the intersection with Schofields Road. A secondary access would be located approximately 150 m north of the main access location. Both access points would be security controlled. An internal access road would facilitate vehicular movement within the site. Approximately 180 car parking spaces would be provided around the site for staff and visitors. Additional car parking spaces would be available at the nearby Cudgegong Station, immediately to the east of the RTRF site. During peak operations, there would be around 300 staff working at the site. Given the operational characteristics of the facility, most of these movements would be during non-peak times.

There is potential for cumulative impacts with adjacent developments into the future, which has the potential to exacerbate impacts upon traffic flows in the area. The key impacts would be centred on operational traffic generation and the implications of increased vehicle movements resulting from the future urban development.

Modelling was undertaken of the anticipated operational traffic with the 2026 background data to demonstrate the likely traffic flows at the completion of the facility. The operational traffic assessment compared 2026 traffic Levels of Service and performance of the Schofields Road/Tallawong Road intersection with and without the RTRF. It was further assumed that the 2026 traffic volumes incorporated traffic generation from the completed Cudgegong Road Railway Station. **Table 8** presents a summary of the anticipated 2026 operation of the Schofields

Road/Tallawong Road intersection without and with the RTRF operational traffic for comparison purposes.

Table 8 Schofields Road/Tallawong Road (signalised) - 2026

	Peak	***Average Delay (sec)***	***Level of Service***
Without RTRF operation	AM	45	D
With RTRF operation	AM	45	D
Without RTRF operation	PM	51	D
With RTRF operation	PM	51	D

The results of modelling indicated that there would be no change to anticipated average vehicle delay, degree of saturation of the road network or Level of Service as a result of the traffic generated as a result of the operation of the RTRF. The modelling of operational traffic was a conservative estimate of movements, as it was assumed that traffic generated by the RTRF would be during both AM and PM peaks. In addition, the operation of the NWRL and cycling infrastructure in the area would provide opportunities for staff to get to and from work, reducing the traffic generated during operation further.

The Proponent has subsequently identified the following measures to be implemented for the operation of the RTRF:

- consideration of peak period movements in assigning shift hours and changeover patterns for maintenance staff; and
- preparation of workplace travel plans that would provide alternative modes for journeys to/from work, including the potential for an RTRF staff shuttle service between the site and Cudgegong Road Station.

Blacktown City Council considers that traffic generated as a result of the operation of the RTRF can be accommodated within the existing road network capacity. No other major concerns regarding operational traffic were raised in submissions.

The Department is satisfied that the modelling of future traffic scenarios shows that there would be limited change to the average vehicle delay, degree of saturation or Level of Service as a result of the RTRF operation and supports the implementation of the mitigation measures presented within the EIS. Further, to ensure that operational traffic generation is appropriately managed, the Department has recommended a condition of approval to prepare an Operational Environmental Management Plan to include consideration of traffic and transport issues.

With the addition of a number of conditions to strengthen the Proponent's commitments during construction and operation of the RTRF, the Department considers unavoidable impacts can be effectively managed to minimise and reduce anticipated negative traffic and transport outcomes during the construction and operation of the RTRF.

Ecology

The ecological assessment undertaken for the EIS included quantitative (field surveys for fauna and flora, including ground-truthing as part of vegetation mapping) and qualitative assessment (desk-based database searches, review of previous studies, literature reviews and historical survey results). This formed the basis for identifying the potential threatened species, populations and Endangered Ecological Communities (EECs) of flora and fauna (including groundwater dependant ecosystems) within and directly adjacent to the RTRF site.

The entire RTRF site is located within the NWGC, and is bio-certified under the Growth Centres SEPP. The SEPP has been 'bio-certified' by order of the Minister for the Environment under S126G

of the *NSW Threatened Species Conservation Act 1995* (TSC Act). BioCertification negates the requirement for impact assessment in certified areas, as impacts have already been accounted for and offset as part of the Biodiversity Conservation Order. Non-certified areas of existing native vegetation are able to be utilised for essential infrastructure provided such areas are compensated through additional offsets or revegetation.

The RTRF site is highly modified from its original condition and consists predominantly of areas of cleared semi-rural and/or agricultural land. Most of the land is cleared of native vegetation, however there are small to moderate areas with a remaining native tree canopy, in some instances with a native or partly native groundcover, and in others with predominantly introduced weeds and other species.

The biodiversity investigations at the RTRF site indicated the presence of 96 flora species; 54 native species and 42 exotic species. No threatened flora were found at the site during investigations and threatened flora were considered unlikely to be present given the disturbed nature of the site. Endangered flora populations (listed under the TSC Act) were not recorded at the site, however a Critically Endangered Ecological Community (CEEC), Cumberland Plain Woodland and an EEC, River-Flat Eucalypt Forest on Coastal Floodplains, were both mapped within the RTRF boundary.

The Proponent considers that the vegetation present does not represent a constraint to development of the RTRF. Field investigations noted that the CEEC, Cumberland Plain Woodland, whilst degraded, had already been identified as appropriate for removal, pursuant to the bio-certification covering the RTRF area. Furthermore, based on the definitions of an EEC under the EPBC Act, the area of Cumberland Plain Woodland on the site would not likely have constituted an EEC (i.e. insufficient size, storeys).

The RTRF site is located between two watercourses, Second Ponds Creek to the east of the site and First Ponds Creek which runs along the western boundary of the site. Both of these watercourses are located within non-certified areas. Both watercourses support bands of modified and disturbed native vegetation, much of which is weed-infested and/or substantially modified from its original condition. Nevertheless, both watercourses support vegetation which has been identified as the EEC River Flat Eucalypt Forest on Coastal Floodplains, listed in the TSC Act. The areas are regarded as having conservation value under the Growth Centres SEPP and as such will be protected from any construction or ongoing activities at the RTRF.

The RTRF site was regarded as having limited habitat for fauna or resources of particular importance or relevance for threatened fauna which could potentially utilise the site. The Proponent considered that the site was not considered essential or important for the survival of individuals of any such species.

Groundwater Dependant Ecosystems are considered unlikely to occur at the RTRF site as the low-lying vegetation currently on the site is mostly artificial. The EIS concluded that riparian vegetation along First Ponds Creek is more dependent upon incipient rainfall rather than groundwater present at this location. In addition, the riparian vegetation along First Ponds Creek would not likely require removal outside of the area of the RTRF, i.e. outside of the certified area of the RTRF site.

Whilst there is no requirement for the retention of any of the vegetation on the site, nor any further requirement for offsets for the vegetation to be removed, the Proponent has committed to implementing a number of mitigation measures to minimise impacts on ecological values as a result of construction and operation of the RTRF, including:

- management of noxious and environmental weeds;
- reducing disturbance to bats and nocturnal birds;
- undertaking pre-clearing surveys to identify the presence of hollow bearing trees and other habitat features, as well as threatened flora and fauna;

- management measures for felling of hollow bearing trees;
- use of endemic native plant species where appropriate; and
- protective measures where native vegetation is to be retained.

Approximately 5% of public submissions received raised concern regarding preservation of flora and degradation of the environment. Blacktown City Council submitted that the outlets to the riparian corridor shall be in accordance with NoW requirements and be configured to ensure stability of the soil profiles and avoid conditions that would encourage weed infestation of the riparian area. A submission was also received from the NSW Office Water requesting that the following issues be addressed:

- clarification as to whether there is any capacity for the proposed Hambeldon Road to be located so that it prevents or minimises potential impacts on the riparian corridor;
- clarification and justification for the extent and duration of post-construction groundwater monitoring; and
- that adequate mitigation measures are provided to mitigate potential impacts on the riparian vegetation and the creek.

The Proponent confirmed that the RTRF will not have any direct impacts or require the removal of any vegetation that is outside of the bio-certified area. In particular the RTRF has been designed to avoid the need for works in the First Ponds Creek riparian area which is not bio-certified. The Proponent has further committed to using endemic species for landscape treatments, particularly along the western boundary near the First Ponds Creek riparian area.

The Department acknowledge that impacts to flora and fauna associated with the clearing required for such infrastructure projects are unavoidable. With regards to the RTRF site, as this is located on bio-certified land within the NWGC, there is no requirement for the retention of any of the vegetation on the site, nor is there any further requirement for offsets for the vegetation which is to be removed for the RTRF. Notwithstanding, to ensure minimal impacts to the site and adjoining areas, the Department has recommended a suite of conditions including:

- development of an Ecological Monitoring Program to monitor the effectiveness of the biodiversity mitigation measures implemented by the Proponent;
- the clearing of native vegetation to be minimised with the objective of reducing impacts to any threatened species or EECs to the greatest extent practicable; and
- preparation and implementation of a Construction Flora and Fauna Management Plan to detail how construction impacts on ecology will be minimised and managed.

The Department supports the conclusion of the Proponent that the RTRF would not likely impact upon the riparian vegetation nor the fish habitat or aquatic resources of First Ponds Creek. Notwithstanding, to ensure limited impacts upon riparian and aquatic ecology, the Department has recommended a number of conditions including requiring the Proponent to:

- implement and maintain riparian buffer widths depending on the Category of Watercourse determined by the *Riparian Corridor Management Study* (DIPNR, 2004);
- restore riparian vegetation in and around watercourses affected by the project in consultation with NOW and DPI (Fisheries) and with Blacktown City Council; and
- rehabilitate watercourses affected by the proposal, where feasible and reasonable, to emulate a natural stream system. The rehabilitation of watercourses shall be consistent with the *Guidelines for Controlled Activitieson Waterfront Land* (NOW, 2012).

The Department is therefore satisfied that the potential impacts of the RTRF can be managed with the proposed mitigation measures and the conditions of approval.

Land Use, Local Business and Community Facilities

The proposed site of the RTRF is located within the Blacktown Local Government Area, situated within the NWGC Riverstone and Riverstone East Growth Centre Precincts. The existing area surrounding the site is semi-rural with predominantly residential and commercial properties. Existing residential dwellings occupy large lots (around two hectares) of rural land and new residential suburbs are developing to the south of Schofields Lane.

Businesses within the area generally include small agricultural operations such as orchards, market gardens and poultry farms, as well as home businesses including provision of trade services, construction support and professional services such as accountants. A light industrial area is located along Old Windsor Road and the Rouse Hill Town Centre, the closest retail centre, is located 1.5 km from the proposed site. **Figure 8** shows the existing surrounding land uses, including community facilities.

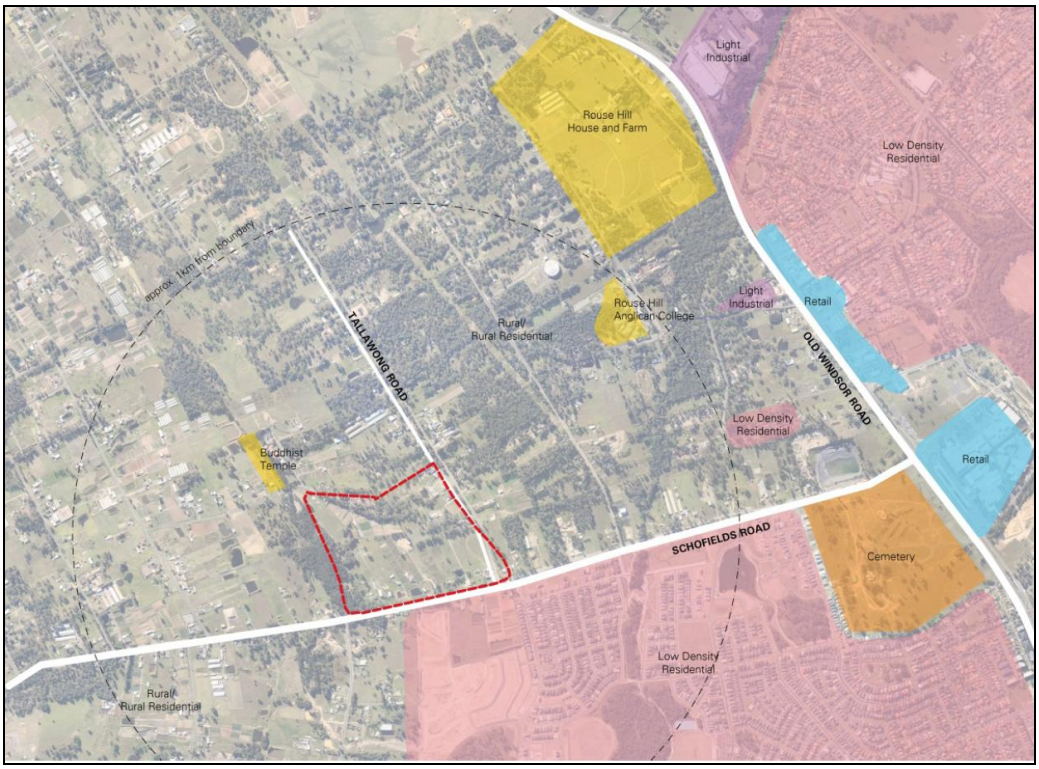

Figure 8 Existing land uses and community facilities surrounding the proposed RTRF site

Construction of the RTRF may impact on surrounding land uses, through potential disruption of traffic movements, some redistribution of pedestrian connections, and the Buddhist Temple would potentially be affected by noise generated during construction. The existing agricultural businesses within the RTRF locality are unlikely to be significantly affected by the construction of the RTRF.

The draft *Blacktown Local Environment Plan 2013* (LEP) plans to rezone the site from 1(a) General Rural to RU4 Rural Small Holdings. Under the draft LEP, the land to the south of the RTRF is be rezoned to SP2 Infrastructure and the area to the north and along Tallawong Road, RU4 Rural Small Holdings.

The Department, as part of the Urban Activation Precinct Program, identified the Riverstone and Riverstone East Growth Centre Precincts as key areas for future residential growth in March 2013. The Riverstone East precinct is expected to accommodate up to 15,000 residents in the future. With residential growth in the area, it is likely that the area will transition from a rural environment to a more urbanised area.

The Department, in the recently exhibited *Draft Cudgegong Road Structure Plan*, proposed to re-zone the RTRF site and the land directly north, for employment uses within the Cudgegong Road Station Structure Plan (Structure Plan), exhibited as part of the North West Rail Link Corridor Strategy. Under the proposed re-zoning, the site and land directly to the north of the site would be zoned for employment uses and land further to the north of this would be low rise residential. Land to the east of the site would consist of medium rise residential and mixed use zoning. **Figure 9** shows the proposed land uses in the Structure Plan.

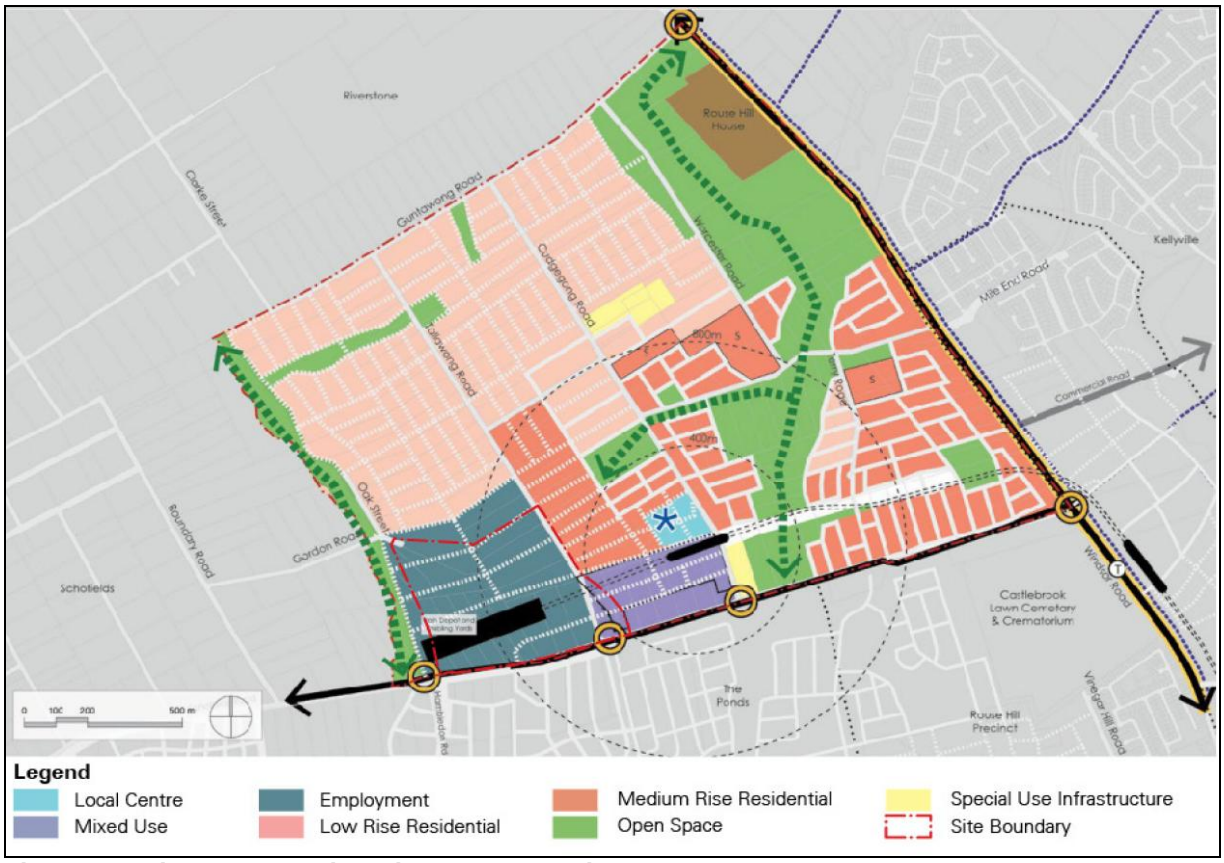

Figure 9 Cudgegong Road Station Structure Plan

The RTRF is considered consistent with the proposed employment use under the Structure Plan. The portion of employment land to the north of the RTRF would provide a buffer for low rise residential development however the Department notes that the RTRF would impact on medium rise residential development to the east of the site.

The RTRF, as part of the rapid transit network, will improve the public transport availability to the existing and future population and decrease reliance on private transport. Some potential impacts, however, include conversion of 36 hectares of currently rural zoned land to an industrial land use, and potential land use and design implications for residential developments immediately adjacent to the RTRF site. The Buddhist Temple has the potential to be affected by the noise generated during the ongoing operation of the facility. Potential impacts associated with operation of the RTRF include impacts associated with noise and light emissions, particularly with regard to poultry farms, orchards and market gardens.

Employment opportunities would be generated from the construction and operation of the RTRF with jobs for 100 and 300 people, respectively. The Department supports the creation of these jobs within an area to be zoned for employment uses under the Cudgegong Road Station Structure Plan. This increase in employment would also have the potential to increase business opportunities in the nearby retail area of Rouse Hill.

Mitigation measures for the construction and operational stages of the RTRF have been developed to avoid, reduce or manage potential impacts. These impacts are addressed specifically in separate sections of the EIS, including noise, traffic and transport, and visual impacts. Additionally, as part of the NWRL project, the Proponent has specialist Place Managers to act as a single, identifiable and direct point of contact for local residents, business people and community groups with the project during construction. Place Managers would work closely with all affected local businesses to help ensure timely responses to queries.

Approximately 33% of public submissions raised concerns regarding land use and the RTRF. Submissions generally raised concern regarding the location of the site, including requests that the RTRF be located in an already industrialised area. The Proponent acknowledges that some public submissions suggested relocating the RTRF site to the Marsden Park Industrial Area, however this would require an extension of the railway line beyond Cudgegong Road to the west.

Local community submissions also demonstrated concerns relating to security due to the presence of the RTRF in proximity to residences. The Proponent considers the RTRF to be consistent with the character of facilities/buildings that may otherwise be located within an area zoned for employment uses. The Proponent has also indicated that safety is of paramount importance and that the site would incorporate high security measures. The Department notes the Proponent's commitment to implement high security at the facility, and considers that the security measures that would be included as part of the site such as security fencing, the physical presence of security and CCTV would provide security and deter vandalism at the RTRF.

The EPA has requested the Department consider re-zoning the lands adjacent to the RTRF to provide a buffer between the RTRF and sensitive land uses. The Department has rezoned areas as part of the Structure Plan and acknowledges that there would be some impacts upon these proposed residential areas. Mitigation measures presented by the Proponent and conditions proposed by the Department for key impact issues, would assist in managing these impacts.

The future strategic plans for the area and the likely transition from a rural to urban setting suggests that the impacts of the RTRF on land use, local business and community facilities would not be beyond those already anticipated for the area in the future. The location of the RTRF would not likely pose additional security threats to residences in the area.

The cumulative impacts of the RTRF with the proposed development of the area have the potential to have an impact upon the small agricultural businesses in the surrounds, particularly during construction due to noise, air quality impacts and light pollution. Mitigation measures committed to by the Proponent within the EIS and Response to Submissions Report, and those measures and management strategies required by the Proponent by the conditions, would minimise impacts upon the land use, local business and community facilities.

Heritage

Historic Heritage

Prior to the 1950's the RTRF site had not been subject to development and was largely a vegetated area. Aerial photographs from the 1970's show a large number of small rural allotments within the RTRF site and surrounding area which appear to have been developed into small market gardens or small poultry farms.

The development of the RTRF site during the 1970's is likely to have disturbed or damaged any surviving archaeological evidence from the pre-1950's. The Proponent concluded that any remains that have survived are expected to be limited in extent and of low research significance.

The Proponent's Assessment of Heritage Impacts identified two items which may potentially be impacted by the construction and operation of the RTRF, the house at 128 Westminister Street, the

closest heritage item to the RTRF at approximately 1.2 km away, and the Rouse Hill House and Farm, located at approximately 1.5 km away.

The house at 128 Westminister Street, listed on the *Alex Ave & Riverstone Precinct Plan 2010*, would have limited views of the proposed RTRF and the Proponent's archaeologist determined that the RTRF would not have a significant impact on the views or setting of this house.

The Rouse Hill House and Farm, listed on the State Heritage Register, Register of the National Trust, and Register of the National Estate, is a heritage farm and museum managed by the Historic Houses Trust of NSW. The RTRF may potentially be seen from the Rouse Hill House and Farm, however as the topography between the Rouse Hill property and the study area is undulating and in places well vegetated by bushland, it is highly unlikely that any significant views of the RTRF would be available from the property.

The Proponent has nonetheless proposed mitigation measures that include vegetation buffer or screening to minimise impact on views from the heritage items.

The Department notes that there are no listed heritage items within 1.2 kilometres of the RTRF, and that the RTRF would not have any direct impact upon listed heritage items in the broader vicinity of the proposed facility. The Heritage Council of NSW and Blacktown City Council agreed with the conclusion that direct impacts upon any identified heritage items were unlikely as a result of the RTRF.

The Department also supports the Proponent's commitment that should unexpected archaeological finds be made during works, work in the vicinity would stop, and a qualified archaeologist and the Heritage Council would be contacted. The Department has included standard conditions of approval which support these management measures, including the requirement to prepare and implement a Construction Heritage Management Plan.

Aboriginal Heritage

An Aboriginal Cultural Heritage Assessment was undertaken of the RTRF and included:

- a search of the OEH AHIMS site register;
- compliance with the Growth Centres Commission (GCC) *Protocol for Aboriginal Stakeholder Involvement in the Assessment of Aboriginal Heritage in the Sydney Growth Centres* (referred to as the GCC Aboriginal consultation protocol) and the *Draft Guidelines for Aboriginal Cultural Heritage Impact Assessment and Community Consultation*;
- compliance with existing heritage legislation including the *National Parks and Wildlife Act 1974* (NPW Act) and the 2005 Department of Environment and Conservation (DEC) (now Office of Environment and Heritage [OEH]) *draft Aboriginal cultural heritage impact assessment guidelines*; and
- a site survey of the acquired properties within the study area that were accessible to ground truth the desktop assessment and to identify and inspect any visible heritage items (excluding the six most northern properties).

The assessment describes the Blacktown locality as a focus for Aboriginal histories pre-European contact, post European contact and the present day. A search of the OEH AHIMS database indicates that two Aboriginal sites are located within the RTRF site, being artefact scatters 45-5-4112 and 45-5-4188. One Aboriginal site not listed on the OEH AHIMS site register consists of a single artefact identified on a vehicle track located within 65 Schofields Road.

The Proponent consulted with registered Aboriginal stakeholder groups to provide appropriate information on the cultural significance of the RTRF area. The Aboriginal stakeholder groups did not suggest collection of the artefacts as the site was considered to have low significance. This assessment, in conjunction with other studies of the area has indicated that the archaeological

significance of the Aboriginal sites is low due to high levels of disturbance resulting from development and semi-rural occupation.

The Proponent has advised that prior to commencement of construction; further ground verification will be carried out on properties for which access has not been available to date. Additionally, Aboriginal consultation will be ongoing throughout the life of the project with processes in place to involve the Aboriginal community. Blacktown City Council's submission re-iterated the need for these activities to be carried out throughout design and construction of the project.

The Department is satisfied with the assessment undertaken and has included standard conditions of approval to ensure minimal impact upon Aboriginal heritage, including the requirement to prepare and implement a Construction Heritage Management Plan.

Other Issues

The Department's consideration of other minor issues identified in the assessment and in submissions is presented in **Table 9**.

Table 9: Other impacts

Issue	Issues raised in submissions	Department's consideration
Construction Visual Impact	Blacktown City Council noted its support for the location of the RTRF. No other submissions raised key issues regarding the visual impact of the construction of the facility.	The Department undertook a detailed assessment of the construction visual impacts associated with the Tallawong Road facility as approved as part of the NWRL. The Department considers that the construction impacts of the larger scale RTRF would be similar and generally supports the approach to implement mitigation measures as presented within the NWRL which are consistent with best practice visual impact mitigation measures. Notwithstanding, to ensure visual impacts as a result of the larger site are managed appropriately during construction, the Department has recommended that where reasonable, temporary landscaping be provided and architectural treatment and finishes be incorporated within key elements of temporary structures that reflect the context within which the construction site is located.
Contamination	The EPA raised concerns regarding the extent of the contamination. In particular, the EPA considers that further contamination testing is required to determine the extent of any contamination and to assess the amount of material that may need to be disposed of.	The Department undertook a detailed assessment of contamination associated with the Tallawong Road facility as approved as part of the NWRL. The Department considers that the construction impacts of the larger scale RTRF would be generally similar and supports the approach to implement mitigation measures as presented within the NWRL. As there is potential for contamination to be present on the site and potential for contamination to occur as a result of construction activities (disposal of water, contaminants leaking to the ground surface and accidental spills), the Department has recommended similar conditions to the NWRL, that require the Proponent to undertake further assessment of contamination and provide validation that the site is suitable for the intended use prior to the commencement of works.

Issue	Issues raised in submissions	Department's consideration
Salinity	The NSW Office of Water has indicated that there is a lack of clarity within the EIS that clearly demonstrates the salinity potential of the soils in the vicinity of First Ponds Creek.	The Department agrees with the NSW Office of Water that salinity has not been specifically delineated across the RTRF site and as such, has recommended a condition that the Proponent prepare a Soil Salinity Report in consultation with NoW to detail the extent of soil salinity and potential impacts to groundwater and hydrology. The findings of this report are to be incorporated into the Construction Soil and Water Quality Management Plan and Operation Management Plan, as required.
Groundwater	The NSW Office of Water has indicated that groundwater monitoring should be undertaken prior to, during and following the completion of works to demonstrate minimal impacts upon groundwater as a result of the RTRF.	The Department considers that there has been no confirmation of the presence of groundwater beneath the entirety of the RTRF site. As such, the Department agrees with the NSW Office of Water's concerns and recommends that groundwater monitoring should be undertaken prior to, during and following the completion of works to demonstrate minimal impacts upon groundwater as a result of the RTRF. This would be undertaken and incorporated into the Construction Soil and Water Quality Management Plan and the Operation Environmental Management Plan.
Waste Management	The EPA raised concerns over the classification of excess spoil as Virgin Excavated Natural Material due to limited contamination testing having been undertaken.	In response to the EPAs concern, the Department has included a condition that requires the Proponent to undertake further assessment of contamination to ensure that any areas of contamination are appropriately assessed and remediated prior to the commencement of works. In addition, the Department has included standard waste conditions requiring the Proponent to appropriately dispose of waste materials at facilities that are lawfully permitted to accept such materials and classifying waste in accordance with the *Waste Classification Guidelines* (DECCW, 2009), prior to disposal.

6. RECOMMENTATION

The Rapid Transit Rail Facility (RTRF) would provide a facility integral to the *NSW Long Term Transport Master Plan for Sydney* to undertake train stabling and maintenance for a new fleet of single-deck rapid transit vehicles. The RTRF will support the future operations of Sydney's rapid transit train fleet and is consistent with the strategic framework for transport and metropolitan planning in NSW. The facility will enable the NWRL to be executed as intended as well as enable the future establishment of the rapid transit network.

Following a detailed assessment of the Proponent's EIS and Response to Submissions Report, and the submissions received from agencies, council and the public, the Department is satisfied that the impacts of the project can be appropriately mitigated or managed to acceptable levels. The Department therefore recommends that the RTRF be approved subject to the recommended conditions of approval.

The recommended conditions of approval for the RTRF provide for the mitigation and management of key impacts associated with the project. These include specific environmental performance and construction environmental management conditions for stormwater and flooding impacts, noise and vibration impacts, visual amenity impacts, air quality impacts, soil and contamination impacts, transport and access impacts, ecological impacts, property and business impacts, and heritage impacts.

The Department has also recommended conditions of approval for construction environmental management planning, including the requirement for a Construction Soil and Water Quality Management Plan, a Construction Noise and Vibration Management Plan, a Design and Landscape Plan, a Construction Air Quality Management Plan and a Construction Traffic Management Plan.

The Department believes that these requirements would provide for the implementation of best management practices during design and construction of the project, and would ensure that the construction impacts of the project on the surrounding environment and the amenity of local residents are managed to acceptable levels.

Consequently, the Department recommends that the Director General for Planning & Infrastructure approve the Rapid Transit Rail Facility application, subject to the recommended conditions of approval.

Director
Infrastructure Projects

Executive Director
Development Assessment Systems & Approvals

APPENDIX A ENVIRONMENTAL IMPACT STATEMENT

See the Department's website for the EIS. The EIS is broken into three parts available at the links below.

Part 1:
https://majorprojects.affinitylive.com/public/41a172f2fe4846eafeb52da8dcff2cc9/01_Environmental%20Impact%20Statement_Rapid%20Transit%20Rail%20Facility_HighRes_Part1.pdf

Part 2:
https://majorprojects.affinitylive.com/public/e51a405a804fe4ba949ef716ec31c32e/01_Environmental%20Impact%20Statement_Rapid%20Transit%20Rail%20Facility_HighRes_Part2.pdf

Part 3:
https://majorprojects.affinitylive.com/public/c07227ad54c8242c9d97e0ea819339ed/01_Environmental%20Impact%20Statement_Rapid%20Transit%20Rail%20Facility_HighRes_Part3.pdf

Technical papers are available within the 'Environmental Impact Statement' folder at:
http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=5931

APPENDIX B SUBMISSIONS

See the Department's website for copies of the submissions received.

Agency submissions are available at:
http://majorprojects.planning.nsw.gov.au/?action=list_submissions&job_id=5931&title=EIS%20-%20Website%20Submissions&type=6

Submissions received from the public are available at:
http://majorprojects.planning.nsw.gov.au/?action=list_submissions&job_id=5931&title=EIS%20-%20Website%20Submissions&type=2

APPENDIX C PROPONENT'S RESPONSE TO SUBMISSIONS

See the Department's website at for a copy of the Proponent's Response to Submissions Report. The report is available ay:
https://majorprojects.affinitylive.com/public/a4ea9ffbb9114f2fa3ee1e05453484b2/Rapid%20Transit%20Rail%20Facility_%20Response%20to%20Submissions%20Report.pdf

APPENDIX D RECOMMENDED CONDITIONS OF APPROVAL