# Sydney International Speedway

## Environmental Impact Statement

### Volume 1 Main Document

August 2020

Cover: Artist’s impression of the new Sydney International Speedway.

# Certification

## Submission of Environmental Impact Statement

This Environmental Impact Statement has been prepared under Division 5.2 of the (NSW) *Environmental Planning and Assessment Act 1979* and in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Environmental Impact Statement prepared by:

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|---|---|
| **Name** | Claire Vahtra |
| **Qualifications** | Bachelor of Science (Honours) |
| **Address** | Arcadis/Jacobs<br>Level 16/580 George St, Sydney NSW 2000 |
| **In respect of** | Sydney International Speedway Environmental Impact Statement |
| **Applicant Name** | Sydney Metro |
| **Applicant Address** | Level 43, 680 George Street, Sydney NSW 2000<br>PO Box K659, Haymarket NSW 1240 |
| **Proposed development** | Sydney International Speedway involves the construction and operation of a speedway within Western Sydney Parkland's Precinct 5: Eastern Creek Motor Sports, which sits within the Blacktown LGA, about 32 kilometres west of the Sydney CBD. The Sydney International Speedway would include racing infrastructure, event support infrastructure and operational ancillary infrastructure. Further details are provided in Chapter 5 (Project description). |
| **Land to be developed** | The project would be carried out within Western Sydney Parkland's Precinct 5: Eastern Creek Motor Sports, which sits within the Blacktown Local Government Area (LGA) in the Central River City sub-region of Greater Sydney, about six kilometres south-west of Blacktown City Centre. The footprint of the project site is about 21 hectares. |
| **Environmental Impact Statement** | An Environmental Impact Statement is attached that assesses all matters specified in the Secretary's Environmental Assessment Requirements dated 19 May 2020, in accordance with Division 5.2 of the (NSW) *Environmental Planning and Assessment Act 1979* and other relevant legislation. |
| **Declaration** | I certify that I have prepared the contents of the Environmental Impact Statement in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* and the Secretary's Environmental Assessment Requirements dated 19 May 2020, and that, to the best of my knowledge the information contained in the Environmental Impact Statement is not false or misleading. |
| **Signature** | |
| **Name** | Claire Vahtra |
| **Date** | 12 August 2020 |

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# Executive Summary

## Overview

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands, creating a true motorplex for the NSW motorsport racing community.

The project would be located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, which sits within the Blacktown Local Government Area (LGA) in the Central River City subregion of Greater Sydney, about six kilometres southwest of Blacktown City Centre, and 32 kilometres west of the Sydney Central Business District (refer to Figure E-1). The new speedway would be located alongside the existing Sydney Dragway to the north and east and the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north.

Western Sydney Parklands Trust, in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues. This masterplan sets the context for the planning of the new Sydney International Speedway, which is the subject of this Environmental Impact Statement.

As part of delivering Sydney Metro West - the city's next big underground railway, the existing government land currently used for speedway racing is required for a future stabling and maintenance facility. The project is planned to be constructed and operational prior to the start of new speedway racing season in 2021.

The project site is located on land owned and managed by Western Sydney Parklands Trust. Sydney Metro is applying for the State significant infrastructure approval and is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

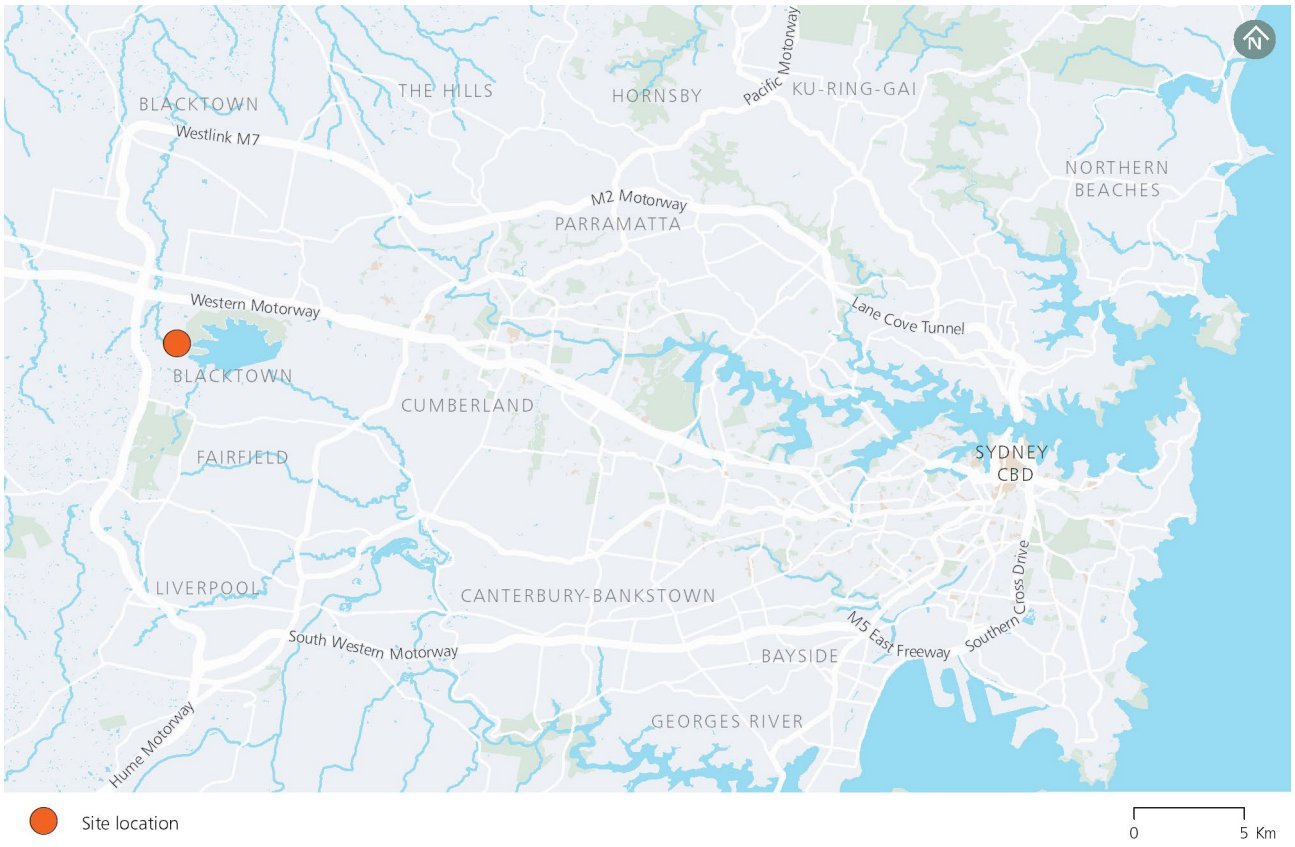


Figure E-1 Location of the project

## Key features of the project

Once complete, the project would include world class racing infrastructure in the form of clay-based racetracks benchmarked to national and international best practice for both speedway vehicles and motorcycles. The following ancillary racing infrastructure would be constructed to support the use of the speedway racetracks:

- New vehicle access to the raceway area via an existing intersection off Ferrers Road
- A racing competitor's pit area in Carpark B, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to a total of around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway in Carpark A, available for use by other motorsport operators by agreement
- Dedicated parking for Sydney Dragway to replace the existing spectator parking areas which would form part of the Sydney International Speedway project site. The New Dragway Parking in Carparks C and D would be available for use by other motorsport operators by agreement.

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

The operational site layout is shown on Figure E-2. Operation would also include maintenance activities required to support the project.

Construction of the project is expected to take around 13 months to complete. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing woks occurring concurrently with the commencement of operations.

The following construction activities would be carried out:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks
- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

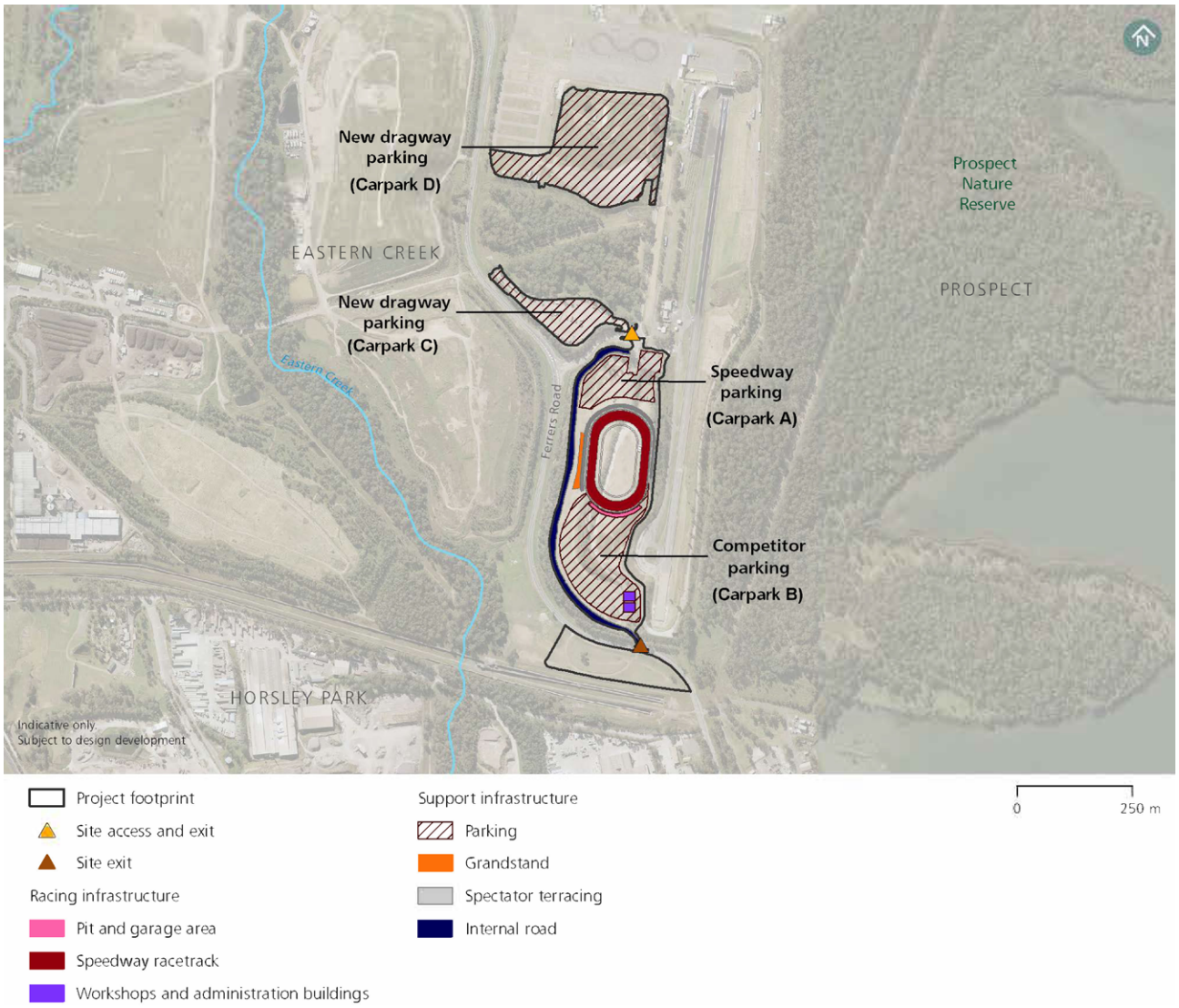


Figure E-2 Overview of the project

## Project need

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events and would continue to support the growth of Speedway racing in NSW.

Speedway racing, alongside other motorsport codes, is a key contributor to the NSW economy. A study by Motorsport Australia (formerly the Confederation of Australian Motor Sports) found that in 2013, Australian motorsport generated $2.7 billion in direct industry annual output, $1.2 billion in direct value add and 16,181 direct jobs. Motor sports events generated 30 per cent of the motorsports industry's output, namely $0.8 billion in direct industry output, $0.4 billion in value add, and 4888 jobs. Motorsports aids the development of an innovative, creative and competitive automotive component and aftermarket industry following the decline of the Australian vehicle manufacturing industry.

The project also supports the objectives of the *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) to provide access to sporting facilities in response to population growth and recognition of the role of sporting facilities to enhance and promote social connections and networks within the community. The project would complement and support the operation of existing commercial facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

## Project objectives

The objectives for the project are to:

- Deliver a world class speedway within Greater Metropolitan Sydney that would cater for local, regional, national and international racing events while continuing the growth of speedway racing in NSW
- Deliver a project that complements and supports the operation of existing commercial facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- Deliver a project consistent with the objectives of the Western Sydney Parklands Plan of Management 2030
- Minimise adverse impacts on the environment, other motorsport operations and the community during construction and operation
- Build and commence operation of the Sydney International Speedway prior to the start of new speedway racing season in 2021.

## Options considered

Construction and operation of a new speedway would enable the continuity of speedway racing and would maintain the recreational and tourism value the sport provides within Greater Metropolitan Sydney. Providing this facility within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be consistent with the future desired character for this portion of the Western Sydney Parklands.

A range of options for the location of the Speedway were considered within the Western Sydney Parklands. The options selection process has considered issues raised during consultation with key stakeholders, including government agencies and the community. Suitability criteria used for the selection process included: land use, key stakeholder feedback, environmental impact, access and traffic, impact on other precinct operators as well as a range of other criteria.

As the design process for the Sydney International Speedway has progressed, it has been informed by stakeholder feedback and the outcome of early environmental and engineering investigations. As a result, various aspects of the design have been developed and refined. A key focus in the design process has been achieving a parking layout that provides an appropriate number of parking spaces to address the increased demand that would arise from concurrent events between the Sydney International Speedway and Sydney Dragway.

## Stakeholder and community engagement

Stakeholder consultation has been an integral part of the development of the Sydney International Speedway as well as informing and scoping investigations for the Environmental Impact Statement.

In December 2019, the NSW Government confirmed that in-principle agreement had been reached to build the Sydney International Speedway on Government land within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, to the south of the Sydney Dragway. Engagement with stakeholders began in November 2019 and continued during preparation of the Environmental Impact Statement.

A Precinct Working Group (PWG) comprising the Office of Sport, Sydney Metro, Western Sydney Parklands Trust, Sydney Dragway and Speedway Australia was established to coordinate the integration of the new Sydney International Speedway within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

Key stakeholders for the project include (but are not necessarily limited to):

- Sydney Dragway and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) as existing leaseholders within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- Existing lease holders within the wider Western Sydney Parklands
- State government agencies (including but not limited to Department of Planning, Industry and Environment, Western Sydney Parklands Trust, Office of Sport, NSW Environment Protection Authority)
- Local government (Blacktown City Council)
- Public utilities and business and industry groups near the project site (including Water NSW, SUEZ Eastern Creek Recovery Park, Global Renewables, and Austral Bricks)
- Special interest groups including Local Aboriginal Land Councils, Aboriginal stakeholders, sporting associations
- Racing industry bodies including Speedway Australia, speedway patrons and the wider motorsport community.

Consultation to date has sought feedback on the project from key stakeholders, including state government agencies, industry bodies and existing leaseholders within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, to inform the development phase and the scope of issues to be assessed in the Environmental Impact Statement. This has included a forum with the motorsport community, facilitated by The Office of Sport, to explore the opportunities and challenges for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sport, including potential to co-locate other motorsports within the precinct. Aboriginal community consultation has also been conducted in accordance with the *Aboriginal cultural heritage consultation requirements for proponents 2010* (DECCW, 2010b).

Community and stakeholder engagement has been carried out during the planning approvals and project development process. Sydney Metro has used a number of targeted communication channels to seek feedback from key stakeholders, neighbouring properties and the wider community.

Following the lodgement of the Scoping Report in March 2020, Sydney Metro provided information to the community and stakeholders through the existing Sydney Metro website, distribution of a community newsletter and ongoing briefings with key stakeholders.

Sydney Metro has continued to consult with the community and stakeholders during the preparation of the Environmental Impact Statement for the project.

The Department of Planning, Industry and Environment will place the Environmental Impact Statement on public exhibition for a minimum of 28 days (as per Schedule 1, Division 2, clause 12 of the *Environmental Planning & Assessment Act 1979*) (EP&A Act)). During the exhibition period, the community, stakeholders and government agencies will have an opportunity to review the Environmental Impact Statement and provide a written submission to the Department of Planning, Industry and Environment for consideration in its assessment of the Sydney International Speedway.

## Environmental assessment

This Environmental Impact Statement has been prepared in accordance with the Secretary's Environmental Assessment Requirements, the requirements of Schedule 2, Part 3 of the *Environmental Planning & Assessment Regulation 2000* (EP&A Regulation) and in accordance with the provisions of Part 5.1 of the EP&A Act.

Key environmental issues have been examined through the design and development process. Consultation has been carried out with affected stakeholders to identify potential impacts at an early stage. Where possible, these would be avoided, or appropriate mitigation measures have been developed. Several design changes and refinements have occurred as a result that have mitigated potential impacts.

The main impacts identified in the environmental assessment are described in the following sections.

### Traffic, transport and parking

Based on the location of the project and the relatively low number of construction vehicles, potential temporary transport and traffic impacts are expected to be minor. The performance of modelled intersections would not change during peak construction, with the exception of the Great Western Highway/Doonside Road/Brabham Drive intersection which would have an estimated increase in average intersection delay of one second.

Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of 2400 dedicated parking spaces for Sydney Dragway comprising of:

- Retention of about 800 existing spaces in the existing P2 Dragway car park outside of the project footprint
- A minimum of 1600 spaces within the project site for use by Dragway visitors during events.

Event coordination arrangements have been agreed between Western Sydney Parkland Trust, Sydney Dragway and Speedway Australia and include rights for both the operators of Sydney Dragway and the Sydney International Speedway to nominate a number of major events where they would have exclusive use of all car parking across the two venues. Event coordination during operations would be managed by relevant motorsport operators and would include managing potential impacts to the performance of the surrounding road network.

Although concurrent major events may occur with agreement, these would be infrequent and the operators would be required to agree additional operational measures to manage the events such as traffic management and car park sharing. An event specific Traffic Management Plan would also be required to be developed for major events in consultation with the relevant part of Transport for NSW including the Transport Management Centre, NSW Police and other relevant stakeholders.

The project includes two areas of new dedicated parking for Sydney Dragway (Carpark C and Carpark D), providing about 2220 car parking spaces and new dedicated parking for the Sydney International Speedway (Carpark A), providing about 600 car parking spaces. The operational car parking design has been developed in consultation with Sydney Dragway to provide adequate parking for visitors to Sydney Dragway. The event coordination and exclusive use arrangement would provide sufficient car parking for major events at both the Sydney Dragway and the Sydney International Speedway.

Parking demand for a Sydney International Speedway 'minor' event and Sydney Dragway 'minor' event occurring concurrently on a Friday would be adequately serviced with a parking occupancy of 34 per cent (that is, 34 per cent of available parking spaces would be used).

During a major Sydney International Speedway event on a Saturday evening, all intersections would operate at the same level of service as they would under the without project scenario, except for the Ferrers Road/The Horsley Drive intersection which would be temporarily impacted during pre-event and post-event peak periods with a minor increase in average delay of around five to ten seconds.

During concurrent minor events at the Sydney International Speedway and Sydney Dragway on a Friday evening, the majority of modelled intersections would perform at the same Level of Service compared to the 'without project' scenario. Some intersections would experience a minor temporary reduction in performance for short periods prior to events however, all would continue to have spare capacity and the level of service would still be acceptable.

### Noise and vibration

The management of construction noise and vibration would be in accordance with the Sydney Metro Construction Noise and Vibration Standard which provides standard mitigation measures and additional mitigation measures for certain noise and vibration impact levels. Site specific mitigation measures have also been identified to reduce noise and vibration impacts.

As the project site is well separated from surrounding receivers, no exceedances of the noise management levels are predicted at any receiver during daytime construction.

Night time construction works are predicted to result in minor exceedances of the noise management levels of up to 1dB at noise sensitive receivers in noise catchments NCA01 and NCA02, to the south and west of the project site, however these impacts would be manageable through appropriate positioning or shielding of certain construction equipment, restricting the use of certain equipment during night time construction or through the early implementation of operational at-property treatment.

During operation, noise levels are generally expected to be comparable to, or lower than, noise levels from existing motorsport events in the precinct. At-property treatment would be provided to a small number of residential receivers located to the south to minimise potential exceedances of the operational noise criteria.

No vibration impacts are expected from the construction and operation of the Sydney International Speedway and the project is not expected to impact items of heritage significance or the Warragamba Pipelines.

### Biodiversity

The project site is located within a highly modified landscape, and vegetation present consists mostly of poor condition young regrowth, isolated and (likely planted) trees and vegetation. Residual biodiversity impacts would be offset in accordance with the requirements of the *Biodiversity Conservation Act 2016* and relevant guidelines.

There would be no direct impacts to Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* listed Threatened Ecological Communities.

Construction of the project would result in the clearance of about 0.63 hectares of Cumberland Plain Woodland in the Sydney Basin Bioregion, identified as a threatened ecological community under the *Biodiversity Conservation Act 2016*.

No threatened fauna species are likely to be significantly impacted by the project. One threatened fauna species, the Southern Myotis (listed as vulnerable under the *Biodiversity Conservation Act 2016*) is considered likely to occur based on the presence of suitable foraging habitat. Other threatened species are expected to occur in nearby bushland. These areas would not be impacted by the project.

To mitigate potential impacts to biodiversity associated with the project, biodiversity credit obligations were calculated using the Biodiversity Assessment Method Calculator. A total of six ecosystem credits would be required as follows:

- Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 849) – Moderate: One credit
- Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 850) – Poor: Three credits
- Grey Box – Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 850) – Revegetation: Two credits.

### Air quality

Dust control and mitigation measures have been developed as part of the racetrack design, layout and operational procedures to minimise dust generation. This includes a vertical mesh screen and vegetation planting to the northeast of the racetrack, behind the terracing, to decrease wind speeds and drop out airborne dust particles as they migrate off-site.

Additional dust control measures would include potentially combining the clay material for the racetrack with additives to minimise the mobilisation of dust during the use of the racetrack and the use of water suppression during race events.

Dust mitigation and control protocols have been agreed with Sydney Dragway and would be incorporated in both the dragway lease and the speedway lease. The protocols include the determination of baseline dust levels through a dust monitoring program and setting dust trigger levels that would avoid impact on Dragway operations supported by an air quality management plan to identify specific dust control measures. The speedway construction contractor and future speedway operator would be required to manage dust emissions within these agreed levels.

For other receivers, construction and operation of the project would not result in any unacceptable changes to local air quality. There would be no additional days where the EPA's daily $PM_{10}$ and $PM_{2.5}$ impact assessment criterion would be exceeded during construction or operation. The EPA's annually averaged impact assessment criteria for particulate matter ($PM_{10}$, $PM_{2.5}$), total suspended particles (TSP) and deposited dust would not be exceeded during construction and operation.

Best practice management measures would be implemented during all construction works to adequately manage potential dust impacts.

### Aboriginal heritage

Development of the project has avoided direct impacts to known Aboriginal sites. Two areas of Potential Archaeological Deposit were identified within the study area but outside of the project site. Exclusion zones would be established around these sites to avoid potential impacts during construction. The project site consists of heavily modified artificial landforms and has low potential for Aboriginal heritage.

### Non-Aboriginal heritage

There would be no direct impacts to non-Aboriginal heritage items. Potential indirect visual impacts to the nearby State heritage listed 'Prospect Reservoir and surrounding area' would be negligible due to screening from existing landform and vegetation. Additionally, the project site does not contain potential for significant archaeological remains and the proposed works are not considered to result in archaeological impact.

### Landscape character and visual amenity

The project has been designed to retain vegetation along the perimeter of the project site and between Carparks C and D. The landscape design also includes the planting of about 1000 trees, substantially more than the 148 canopy trees to be removed as part of the project.

During construction, there would be minor adverse impacts on landscape character and negligible to minor temporary impacts on visual amenity. The majority of ground level activity would be screened by existing vegetation and landform along the perimeter of the project site, with only glimpses of construction machinery and works experienced.

The project would be consistent with the desired future character of the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports, as identified in the Western Sydney Parklands Plan of Management 2030 and the layout and treatment of accesses to and from the project site would be in keeping with the principles of the Western Sydney Parklands Design Manual. During operation, there would be negligible landscape character and visual impacts as a result of the project. The project would result in no perceived change in the landscape character of this area, which is of regional landscape sensitivity. The project features that would be visible would be consistent in character with the current land use and therefore be absorbed into the current view.

### Soils and surface water quality

Standard construction management measures would be implemented to manage potential soil erosion and risks to downstream water quality. Construction activities such as the removal of vegetation and earthworks have the potential to cause salinity impacts and/or expose soil to surrounding waterways.

During the operation of the project, the potential impacts on soils are limited, as there would be no ongoing ground disturbance and all surfaces exposed during construction would then be sealed or landscaped as required. The project would include permanent water quality controls which would aim to capture stormwater runoff from the project site and treat water to an appropriate standard prior to discharge so that there is no impact to downstream water quality.

The project is predicted to have a beneficial impact on the water quality of Prospect Reservoir as existing flows east towards the Reservoir would be directed west towards Eastern Creek.

### Contamination

The potential risks associated with encountering existing contamination would be appropriately managed by well established mitigation processes and measures.

The project site has been identified as having a moderate to high potential contamination risk associated with historic bulk earthworks and filling activities carried out on-site to form the current landform profile. Earthworks during construction of the project could intersect areas of potential contamination.

Management measures adopted during construction would remove potential for contamination impacts from existing contamination to occur during operation of the project. The risk of contamination from operational activities, such as spills and leaks, associated with the project would be manageable through the implementation of appropriate mitigation measures.

### Groundwater and geology

Excavation works are not expected to intercept substantial groundwater. Potential groundwater recharge impacts are expected to be negligible and would be limited to reduced recharge from modifications to ground conditions and groundwater recharge in fill areas during bulk earthworks.

Operation of the project would not include any further earthworks or changes to finished levels across the project site, and is not likely to cause groundwater level drawdown. Increased areas of hardstand associated with the project may reduce groundwater recharge, however the estimated net reduction in regional groundwater recharge is expected to be negligible and groundwater baseflow to creeks is not expected to change appreciably.

### Flooding and hydrology

The project site is located above the probable maximum flood levels of Eastern Creek and the Hawkesbury – Nepean River, and would continue to be above these levels during construction and operation of the project.

Construction of the project would not result in any impacts to flooding downstream of the project site, including no loss of flood conveyance or floodplain storage. The project site is therefore also considered to be compatible with the existing flood hazard of the land during construction.

During operation, the project would incorporate stormwater and flooding infrastructure, including on-site detention tanks which would result in no changes to peak flows to culverts downstream of the project. The project site is at sufficiently high elevation that future sea level rise would not impact on flooding conditions at the site.

### Socio-economic

Construction of the project is expected to generate up to 150 full time employment opportunities for residents and constructions workers across the wider Sydney region. A number of indirect jobs are also likely to be generated. The project would potentially provide additional benefits for local businesses servicing the construction industry. Sydney Metro has been consulting with Sydney Dragway as the leaseholder to minimise potential temporary impacts during construction, including those relating to dust generation, traffic, parking and noise and vibration.

Motorsport car clubs hold occasional off road and dirt driver training events in the southern portion of the project site. This site would be required from the start of construction and would no longer be available for such uses. The Motorsport Precinct Masterplan process being led by Western Sydney Parkland Trust (including consultation) would aim to provide an appropriate venue for all existing motorsport users in the precinct.

Operation of the Sydney International Speedway would generate five permanent full time employment positions to be based at the project site and additional employment associated with events. An increase in the number of events and spectators at the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports has potential to benefit local businesses. The new Sydney International Speedway would provide the community and racing supporters with quality motorsports facilities and create recreational and community facilities, which would help to increase community participation and engagement in motorsport racing activities in the Parklands.

The development and design of the project has incorporated measures to control dust deposition to the Sydney Dragway including a vertical mesh screen and vegetation planting, the potential use of additives to the track clay material and water suppression during events. Dust trigger levels would also be established based on a dust monitoring program. The Speedway operator would be required to manage dust emissions within these agreed levels.

Other amenity related impacts would be manageable with the mitigation measures proposed as part of the air quality and noise and vibration impact assessments.

### Property and land use

The project site is entirely located on land owned and managed by the Western Sydney Parklands Trust. No property acquisition would be required for the project.

As identified above, regular consultation has been carried out with Sydney Dragway to understand potential impacts and develop appropriate mitigation measures during construction and operation of the Sydney International Speedway to ensure ongoing safe operation of the dragway.

Potential amenity related impacts, such as noise and dust, on other receivers from operation of the speedway would be manageable with the implementation of the proposed mitigation and management measures.

### Hazards

The implementation of mitigation measures would keep the likelihood of hazards and risks occurring low.

Hazardous materials that may be stored on the project site during construction and operation would be stored, handled and used in accordance with the Work Health and Safety Regulation 2011 and the 'Storage and Handling of Dangerous Goods Code of Practice' (WorkCover NSW, 2005).

The project site is considered to be bushfire prone land, however it is largely cleared of vegetation thereby reducing its risk. The potential bushfire threat to the project site from vegetation on the land adjacent to the project would be adequately managed through the continued bushfire management of the adjoining land owned by Western Sydney Parkland Trust.

### Greenhouse gas and energy

Greenhouse gas and energy impacts from the project would be minor and would generally result from the consumption of electricity and gas to power the support infrastructure required for the raceway and its events, vehicle emissions generated as part of motorsports events held at the Sydney International Speedway as well as embodied emissions in construction materials during construction.

The inclusion of solar lighting for car park areas as part of the operational design of the project has resulted in an emissions savings, avoiding potential emissions of about 60,000 t $CO_2e$ over the life of the project.

Design development for the project would consider further opportunities to minimise electricity demand, where possible, including consideration of the use of motion sensor activations and/or solar powered CCTV systems, optimising the durability of the racetrack to minimise ongoing maintenance and use of plant equipment as well as investigating best practice waste management to maximise landfill avoidance.

### Climate change adaptation

During construction, potential climate change impacts are expected to be minimal. Standard risk controls for current average climatic conditions would be implemented.

The implementation of climate change adaptation measures would reduce potential risks related to peaks in electrical network demand from increased ambient temperatures and breaches in water quality controls from increased or lower average rainfall, so that no high (undesirable) or very high (unacceptable) risks remained.

### Waste management and resource use

During construction, potential waste management issues would be manageable with the implementation of standard mitigation measures. Construction of the project would adopt a construction waste recycling target of 90 per cent of inert and non-hazardous construction waste, excluding spoil.

No off-site spoil is anticipated as part of the project and all useable spoil would be reused on the project site or at nearby construction sites if feasible. The suitability of soils for on-site reuse would be determined in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure* (National Environment Protection Council, 1999) and the NSW Environment Protection Authority resource recovery framework, to prevent soil contamination occurring from unknown origins of fill material. A variety of resources would be needed to construct the project, which would be satisfied by the market and would be unlikely to result in any resource becoming scarce or in short supply.

During operation, potential waste management issues during operation would be manageable with the implementation of standard mitigation measures. Materials and resources would be required for use during events, and for the ongoing maintenance of the Sydney International Speedway. Resource use would be similar to that of the existing speedway or a comparable venue.

Some of the on-site detention tanks would function as rainwater harvesting tanks for non-potable use. This includes irrigating the track before and during a race event, flushing toilets within the grandstand facility, and use within the garbage room of the grandstand facility, hose taps and at washdown areas across the project site. The electrical supply for the lighting of all external areas including carparks would be solar, supported by backup batteries.

### Cumulative impacts

The cumulative impact assessment identified other projects that may have cumulative impacts with impacts from the project, taking into account the spatial and temporal overlap of impacts and loss of environmental values.

During construction, there is potential for cumulative impacts with other nearby projects that may be under construction at the same time as the project. These impacts would potentially include construction traffic, dust and noise.

Potential cumulative impacts also include the permanent loss of biodiversity as a result of vegetation clearing on the Cumberland Plain.

While the timing of construction of other nearby projects is unknown, only one project considered for the purposes of the cumulative impact assessment has been approved, being the Horsley Park Brickworks Plant 2 Upgrade, to the south of the project site.

During operation, the potential cumulative impacts relate to the impacts of event traffic on the performance of the existing road network alongside impacts from the operation of other future projects. The project would operate within a Major Event Operations Plan to minimise the impacts of event traffic on the performance of the surrounding road network. The timing of operational traffic for other projects is not clear, however, the projects are located in an area that is well served by arterial road infrastructure which reduces the likelihood of cumulative impacts on the performance of the road network.

## Justification and conclusion

Sydney International Speedway has been assessed as State significant infrastructure in accordance with the provisions under Division 5.2 of Part 5 of the EP&A Act. In particular, the assessment addresses the environmental assessment requirements of the Secretary of the Department of Planning, Industry and Environment as well as issues raised by the community and stakeholders during the development stage.

Sydney International Speedway would be a world class speedway within Greater Metropolitan Sydney that would accommodate local, regional, national and international racing events and maintain speedway racing in Metropolitan Sydney. The project would complement and support the operation of existing commercial facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

Key environmental issues have been examined throughout the design development process. Potential impacts of the project have been identified at an early stage, and where possible, avoided and minimised through design or appropriate mitigation measures.

Notwithstanding, the project would have some residual (unavoidable) impacts, particularly during construction. Key residual impacts include:

- Removal of 0.63 hectares of native vegetation, classified as a threatened ecological community under the *Biodiversity Conservation Act 2016* which would be offset in accordance with the Biodiversity Assessment Method
- Increase in vehicle movements on the local road network pre- and post-race events at the Sydney International Speedway, resulting in a minor decrease in road network performance and slight delays at a nearby intersection for short periods of time.

The residual impacts identified would not result in any unacceptable impacts and further mitigation would be considered during the detailed design stage including the decision on appropriate construction methodologies and the implementation of the environmental management practices.

Identified residual impacts need to be considered within the context of the overall objectives of the project and the substantial benefits that Sydney International Speedway would provide for the NSW motorsport racing community and in supporting the growth of Speedway racing in NSW.

## Next steps

Sydney Metro is seeking approval from the Minister for Planning and Public Spaces for the construction of the Sydney International Speedway. Subsequent steps in the process include:

- Exhibition of the Environmental Impact Statement for a minimum of 28 days and invitation for the community and stakeholders to make submissions
- Consideration of submissions. Submissions received by the Secretary of the Department of Planning, Industry and Environment would be provided to Sydney Metro who may then be required to prepare and submit:
  - A submissions report, responding to issues raised in the submissions
  - A preferred infrastructure report and/or an amendment report, outlining any proposed changes to the design to minimise its environmental impacts or to deal with any other issues raised
- Determination of the Environmental Impact Statement by the Minister for Planning and Public Spaces including, if approved, any Conditions of Approval.

Consultation with the community and stakeholders would continue throughout the detailed design and construction phases.

Any person wishing to make a submission should use the online form if possible. To find the online form go to the webpage for the proposal via www.planningportal.nsw.gov.au/major-projects/projects/on-exhibition.

Your submission must reach the Department of Planning, Industry and Environment by close of business on 16th September 2020. Before making your submission, please read the Privacy Statement at www.planning.nsw.gov.au/privacy or for a copy, telephone the number below. The Department of Planning, Industry and Environment will publish your submission in accordance with the Privacy Statement.

If you cannot lodge online, you can write to the address below. If you want the Department of Planning, Industry and Environment to delete your personal information before publication, please make this clear at the top of your letter. You need to include:

Your name and address (at the top of the letter only)

- The name of the application and the application number (SSI-10048)
- A statement on whether you support or object to the proposal
- The reasons why you support or object to the proposal

A declaration of any reportable political donations made in the previous two years. To find out what is reportable, and for a disclosure form, go to www.planning.nsw.gov.au/donations or phone 1300 305 695 for a copy.

Address:

Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Your submission should be marked Attention: Director, Transport Assessments.

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# 1 Introduction

# 1 Introduction

This chapter provides an overview of the project, including the strategic planning context and key features. The purpose and structure of this report are also provided.

## 1.1 Overview

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway (the project) would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW.

The new speedway would be located alongside the existing Sydney Dragway to the north and east and the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north.

Western Sydney Parklands Trust in conjunction with the NSW Office of Sport, is leading a masterplanning process for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, with opportunities to share infrastructure and coordinate events across the three venues. This masterplan sets the context for the planning of the new Sydney International Speedway, which is the subject of this Environmental Impact Statement.

As part of delivering Sydney Metro West - the city's next big underground railway, the existing government land currently used for speedway racing is required for a future stabling and maintenance facility. The project is planned to be constructed and operational prior to the start of new speedway racing season in 2021.

The project site is located on land owned and managed by Western Sydney Parklands Trust. Sydney Metro is applying for State significant infrastructure approval and is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

## 1.2 Location

The project would be located within Western Sydney Parkland's Precinct 5: Eastern Creek Motor Sports, which sits within the Blacktown Local Government Area (LGA) in the Central River City sub-region of Greater Sydney, about six kilometres south-west of Blacktown City Centre, and 32 kilometres west of the Sydney Central Business District. The location of the project is shown on Figure 1-1.

## 1.3 Local context

The footprint of the project site is about 21 hectares. The Western Motorway (M4 Motorway) is about 1.4 kilometres north, and the Westlink M7 is about 1.2 kilometres west of the project. Industrial and commercial developments are located to the north and west of these major roads. The Prospect Nature Reserve, which contains the Prospect Reservoir, is about 150 metres east of the project. The local context of the project is shown on Figure 1-2.

Sixteen precincts have been identified within the Western Sydney Parklands, each with its own character and land uses, infrastructure, issues and opportunities. The project would be situated within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The project is bounded by Ferrers Road to the north-west, Ferrers Road and vegetation as part of Western Sydney Parklands in the west, the Warragamba Pipeline to the south and the Austral Bricks Horsley Park Brickworks located further south. Other motorsport operators within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports include the Sydney Dragway immediately to the north and east and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) to the north. A full list of stakeholders is provided in Chapter 4 (Stakeholder and community engagement).

Other businesses in the vicinity include:

- The SUEZ Eastern Creek Resource Recovery Park, about 1.1 kilometres west of the project
- Global Renewables waste processing facility, about 650 metres west of the project.

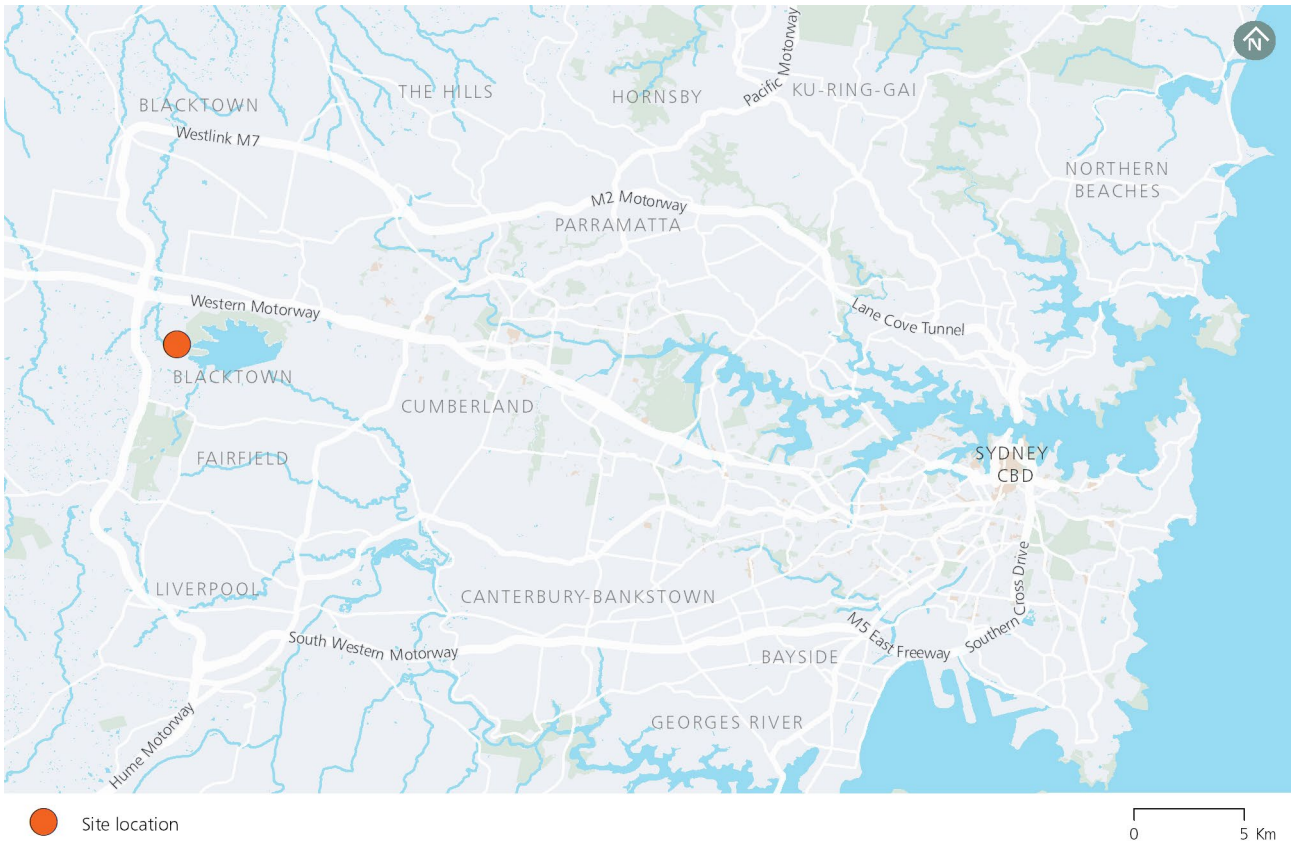


Figure 1-1 Location of the project

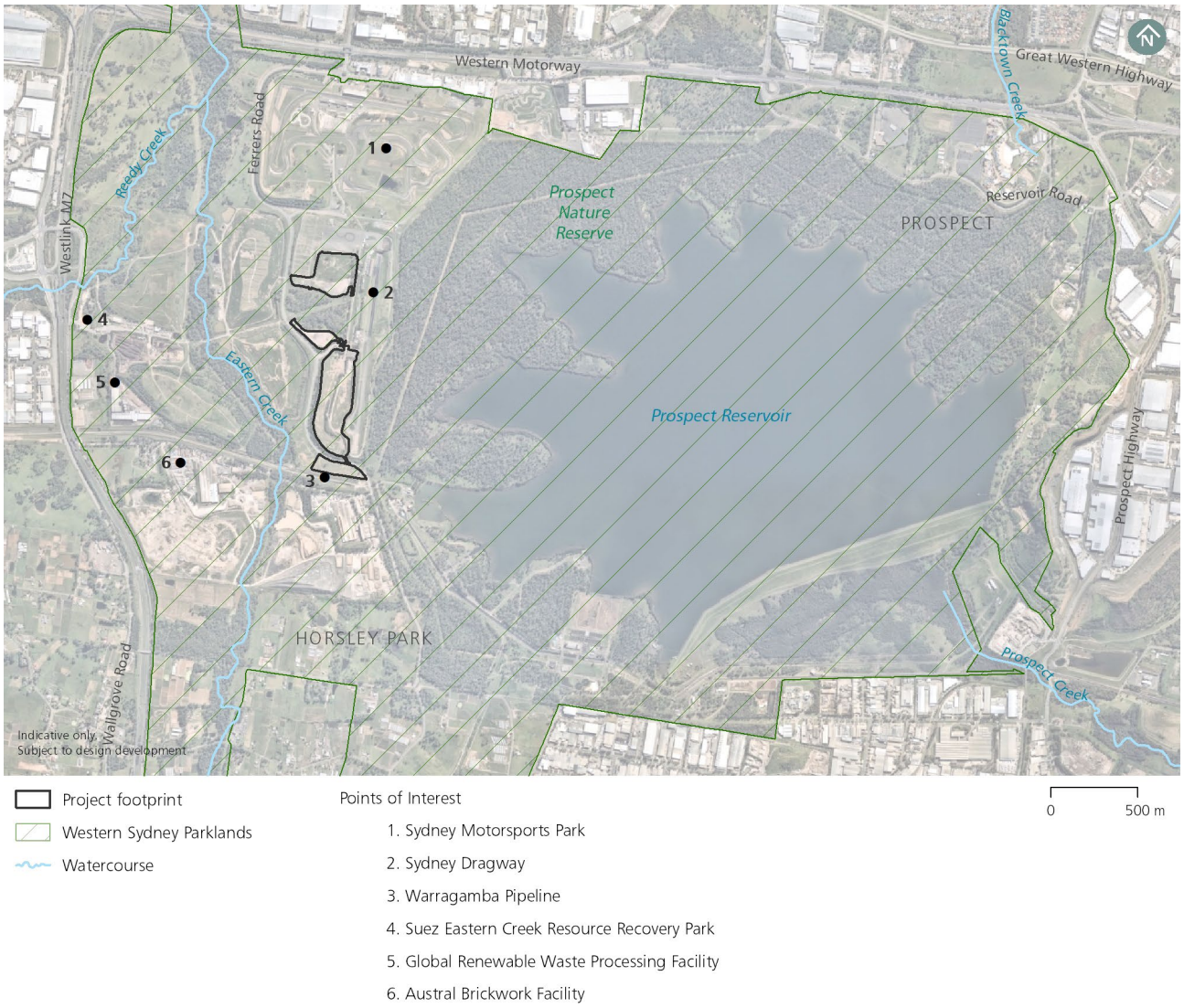


Figure 1-2 Local context of the project

## 1.4 The project

Once complete, the project would include world class racing infrastructure in the form of a clay-based racetracks benchmarked to national and international best practice for both speedway vehicles and motorcycles. To facilitate the use of the speedway racetracks, the following ancillary racing infrastructure would be constructed:

- New vehicle access to the raceway area, including a gated access via an intersection off Ferrers Road
- A racing competitor's pit area, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to a total of around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway, available for use by other motorsport operators by agreement

- Dedicated parking for Sydney Dragway to replace the existing spectator parking areas which would form part of the Sydney International Speedway project site. The new Sydney Dragway parking would be available for use by other motorsport operators by agreement.

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

The operational site layout is shown on Figure 1-3. Further detail on the project is provided in Chapter 5 (Project description).

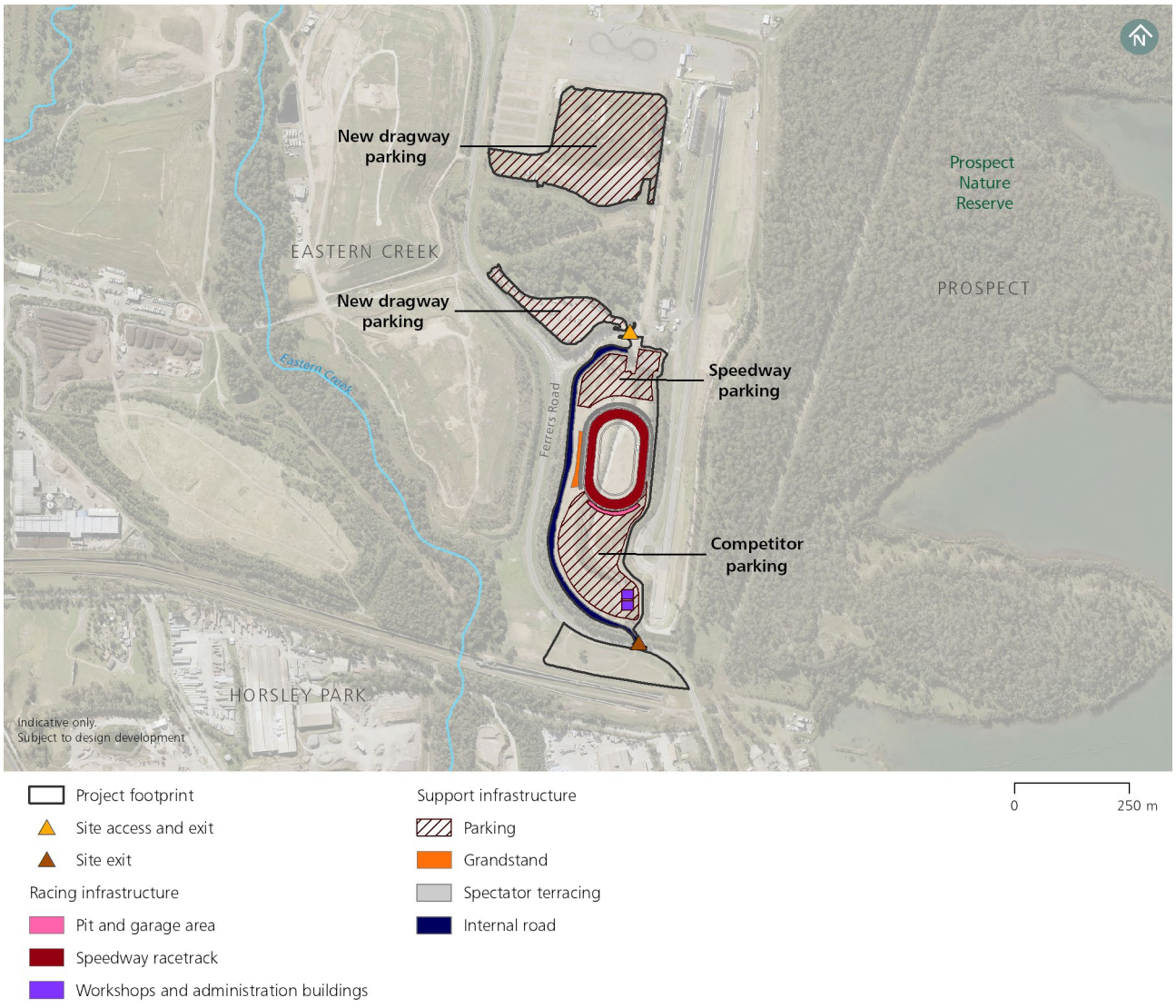


Figure 1-3 Project overview

The following construction activities would be carried out:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks
- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

Construction of the project is described further in Chapter 5 (Project description).

This Environmental Impact Statement does not include tests, surveys, sampling or investigation for the purposes of the design or assessment of the Sydney International Speedway. In addition, any establishment of car parks, access roads, fences, directional signage, moveable offices and construction compounds and associated facilities carried out prior to the commencement of construction of the new Sydney International Speedway are not within the scope of this Environmental Impact Statement.

## 1.5 Purpose and structure of this report

The purpose of this Environmental Impact Statement is to support Sydney Metro's application to the Minister for Planning and Public Spaces for planning approval under Section 5.2 of the *Environmental Planning and Assessment Act 1979*. It addresses the environmental assessment requirements of the Department of Planning, Industry and Environment (the Secretary's Environmental Assessment Requirements), dated 19 May 2020 (refer to Appendix A).

This Environmental Impact Statement is presented in two volumes. Volume 1 contains the main Environmental Impact Statement (this report) and appendices. Volume 2 provides the technical papers that form the technical basis of the information in Volume 1. The structure and content of this report are outlined in Table 1-1.

Table 1-1 Structure and content of this report

| Chapter | | Description |
|---|---|---|
| **Chapter 1** | Introduction (this chapter) | Outlines the key elements of the Sydney International Speedway and the purpose of this report. |
| **Chapter 2** | Strategic need, justification and project alternatives | Provides the project strategic need with regards to its State significance, the consistency of the project with the strategic planning and policy, and the project objectives. It also describes the strategic alternatives considered and refinements made through the design process. |
| **Chapter 2** | Planning and assessment process | Identifies the statutory approvals framework, including applicable legislation and planning policies. |
| **Chapter 4** | Stakeholder and community engagement | Describes stakeholder and community engagement carried out to date, including during the preparation of this Environmental Impact Statement. |
| **Chapter 5** | Project description | Identifies the physical infrastructure, built form, construction activities and operation of the Sydney International Speedway. |
| **Chapter 6-23** | Environmental assessment | Provides a description of the existing environment of the study area, and an assessment of the potential direct and indirect impacts that may result during construction and operation of the Sydney International Speedway. |
| **Chapter 24** | Environmental risk analysis | Provides an environmental risk analysis for the project considering the potential impacts and mitigation measures identified in Chapter 6-23 . |
| **Chapter 25** | Synthesis and conclusion of the Environmental Impact Statement | Provides a technical summary and conclusion of the Environmental Impact Statement for the Sydney International Speedway, including a justification for the Sydney International Speedway and whether the project has achieved its objectives and the objects of the *Environmental Planning and Assessment Act 1979*. |

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# 2 Strategic need, justification and project alternatives

# 2 Strategic need, justification and project alternatives

This chapter provides the project's strategic need with regards to its State significance, the consistency of the project with strategic planning and policy, and the project objectives. It also describes the strategic alternatives considered and refinements made through the design process.

## 2.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to strategic need, justification and project alternatives, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 2-1.

Table 2-1 Secretary's Environmental Assessment Requirements – Strategic need, justification and project alternatives

| Reference | Secretary's Environmental Assessment Requirements | Where addressed |
|---|---|---|
| **2. Environmental Impact Statement** | | |
| **2.1** | The EIS must include, but not necessarily be limited to, the following:<br>c. a statement of the objective(s) of the project; | Section 2.4 |
| | d. a summary of the strategic need for the project with regard to its critical State significance and relevant State Government policy; | Section 2.2 |
| | e. an analysis of any feasible alternatives to the project; | Section 2.5 |
| | f. a description of feasible options within the project; | Section 2.6 and 2.7 |
| | g. a description of how alternatives to and options within the project were analysed to inform the selection of the preferred alternative / option. The description must contain sufficient detail to enable an understanding of why the preferred alternative to and options(s) within the project were selected; | Section 2.5 to 2.7 |

## 2.2 Project need

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events and would continue to support the growth of Speedway racing in NSW.

Speedway racing, alongside other motorsport codes, is a key contributor to the NSW economy. In 2014, Motorsport Australia (formerly the Confederation of Australian Motor Sports) commissioned a study into the Economic Value of the Australian Motorsports Industry. The study found that in 2013 Australian motorsport generated $2.7 billion in direct industry annual output, $1.2 billion in direct value add, and 16,181 direct jobs. Motor sports events generated 30 per cent of the motorsports industry's output, namely $0.8 billion in direct industry output, $0.4 billion in value add, and 4,888 jobs.

In their submission to the Senate Rural and Regional Affairs and Transport References Committee into the Future Role and Contribution of Regional Capitals to Australia, Motorsport Australia emphasised the important contribution that motorsports make to regional economies including the development of an innovative, creative, and competitive automotive component and aftermarket industry following the decline of the Australian vehicle manufacturing industry.

The 2014 study included survey interviews with motorsports competitors, which found that the majority of competitors would take part in motor sport more often if tracks and venues were improved.

The project also supports the objectives of the Greater Sydney Region Plan – A Metropolis of Three Cities (Greater Sydney Commission, 2018) to provide access to sporting facilities in response to population growth and recognition of the role of sporting facilities to enhance and promote social connections and networks within the community.

The project site is located on land owned and managed by Western Sydney Parklands Trust and currently leased to Sydney Dragway. Sydney Metro (as the proponent) is applying for the State significant infrastructure approval and is proposing to build the project on behalf of and pursuant to arrangements with Western Sydney Parklands Trust.

As part of delivering Sydney Metro West, Sydney's next underground railway, the existing NSW Government land currently used for speedway racing is required for a future stabling and maintenance facility. To minimise the potential impact to speedway racing operations in Sydney, the project is planned to be constructed prior to the start of new speedway racing season in 2021.

## 2.3 Consistency with the Western Sydney Parklands Plan of Management 2030

The Western Sydney Parklands Plan of Management 2030 has been prepared and adopted under Part 4 of the Western Sydney Parklands Act 2006. The project is located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, of the Western Sydney Parklands Plan of Management 2030. A summary of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports and the consistency of the project with the desired future character, objectives and land use opportunities detailed in the Plan of Management 2030 is provided in Table 2-2.

Table 2-2 Consistency of the project with the Western Sydney Parklands Plan of Management 2030 Precinct 5: Eastern Creek Motor Sports

| Component | Description | Consistency of project with the plan of management |
|---|---|---|
| **Desired future character** | To be a venue for amateur and professional motorsports and associated activities, events, exhibitions and facilities | The project would provide a new speedway to Speedway Australia 5 Star Safety Standards (highest rating) and associated spectator facilities catering for professional motorsport events. |
| **Objectives** | Work with stakeholders to continue providing quality motorsports facilities | The project is being developed in consultation with key motorsport industry stakeholders (refer to Chapter 5 (Project description) for more information). |
| | Improve general streetscape amenity and buffer/ integration to the broader parklands, while acknowledging the Precinct's motorsports character | The project would include the provision of landscaping and design features to integrate with the surrounding land uses, and would be consistent with the principles of the Western Sydney Parklands Design Manual (Design Manual) (Western Sydney Parklands Trust, 2018). Further information is provided in Chapter 12 (Landscape character and visual amenity). |
| **Land use opportunities** | • Motorsports, structured recreation and associated facilities<br>• Entertainment, commercial recreation, events and exhibition spaces and facilities<br>• Motorsports-related education and commercial activities and associated facilities<br>• Tourism facilities<br>• Education, training and associated facilities<br>• Environmental protection works<br>• Potential Aboriginal and non-Aboriginal heritage interpretation<br>• Utilities infrastructure. | The project would be consistent with the land use opportunities of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, as it would:<br>• Provide a new clay-based racetrack, designed and constructed to Speedway Australia's 5 Star Safety Standards (highest rating) for motorsport activities<br>• Enable high quality motorsport related recreation and sport activities to be carried out<br>• Include necessary environmental protection works (refer to Chapter 6 - 23 and summarised in Chapter 25)<br>• Not impact on any known Aboriginal or non-Aboriginal heritage items<br>• Provide utilities infrastructure, including those related to communications and services. |

## 2.4 Project objectives

The objectives for the project are to:

- Deliver a world class speedway within Greater Metropolitan Sydney that would cater for local, regional, national and international racing events while continuing the growth of speedway racing in NSW
- Deliver a project that complements and supports the operation of existing commercial facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- Deliver a project consistent with the objectives of the Western Sydney Parklands Plan of Management 2030
- Minimise adverse impacts on the environment, other motorsport operations and the community during construction and operation
- Build and commence operation of the Sydney International Speedway prior to commencement of the new speedway racing season in 2021.

## 2.5 Strategic alternatives

### 2.5.1 Do nothing

If the project does not proceed, there would be no speedway facility within the Greater Sydney Metropolitan region. This would mean that competitors and spectators would be required to travel to either Nowra, Goulburn or Cullen Bullen, and Sydney would be unable to host events currently held at the existing Sydney Speedway (located on NSW Government owned land), with additional cost, convenience and time implications. Additionally, Greater Western Sydney would lose the tourism benefits associated with the raceway to other locations in NSW and interstate. The 'do nothing' option would therefore be inconsistent with the objectives of the project and is not considered feasible.

### 2.5.2 Build the project

Construction and operation of a new speedway within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would provide a unique sporting facility that would cater for local, regional, national, and international racing events. This would enable continuity of speedway racing and maintain the recreational and tourism value the sport provides within Greater Metropolitan Sydney.

Providing this facility within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be consistent with the future desired character for this portion of the Western Sydney Parklands. The *Western Sydney Parklands Plan of Management 2030* key management priorities for Precinct 5 includes:

> *'Create a vibrant motorsports precinct which includes events, tourism, motor related technologies, education opportunities, and complementary uses to generate local employment and economic development in Western Sydney, via private partnerships'.*

New dedicated parking would be provided for the project, complementing and supporting the operations of existing motorsport operators within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports including the adjacent Sydney Dragway.

The environmental impacts of the project are expected be similar in nature to those that occur from the operation of the existing racing venues and facilities within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, minimising the nature and extent of environmental impacts to nearby sensitive receivers.

Building a new speedway facility within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports is considered to be the preferred option for the project as it would best meet the project objectives.

## 2.6 Site alternatives

The consideration of site alternatives focussed on the Eastern Creek area within or in close proximity to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, as the most appropriate location in Sydney, given previous major capital and management effort invested by the NSW Government for the creation, development and operation of a sustainable motor sports precinct.

Eastern Creek has the benefit of being subject to a Plan of Management conducive to the construction and operation of motor racing infrastructure. Locating the Sydney International Speedway in close proximity to other motor sports facilities in Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports allows opportunities for synergies and coordinated development planning. The location of the project within this precinct avoids the constraints of other potential locations including potential environmental impacts on sensitive neighbouring development and residential areas.

Three options for the project were evaluated within the Western Sydney Parklands at Eastern Creek. Two of these options (the eastern and the southern options) are within Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports.

The three options were:

- A northern option located immediately east of the Light Horse Interchange, to the south of the M4 motorway
- An eastern option within the southwest area of Sydney Motorsport Park (on land currently operated by Sydney Dragway)
- A southern option to the west of the Sydney Dragway (the preferred option).

Suitability criteria to evaluate these options included:

- Land use
- Technical and engineering feasibility
- Feedback from key stakeholders including industry bodies, Office of Sport and motor sport operators
- Physical suitability
- Environmental impact (such as ecology, geology and contamination)
- Distance to sensitive receivers and potential amenity related impacts
- Construction complexity
- Access and traffic
- Parking impact
- Impact on other operators within Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports
- Cost and time.

A summary of the options evaluation of each potential site is provided in Table 2-3. The location of each site considered is shown in Figure 2-1.

Table 2-3 Options evaluation of potential project locations

| Option | Evaluation |
|---|---|
| **Northern option (east of Light Horse Interchange, to the south of M4 motorway)** | This option is located within Western Sydney Parklands' Precinct 6: Wallgrove and would provide sufficient space for the project including future expansion opportunities. A speedway on this site would benefit from the marketing opportunities associated with frontage on to two motorways.<br>While Western Sydney Parklands Plan of Management 2030 acknowledges the potential for sports uses in Precinct 6, locating the project in this precinct is not consistent with other aspects of the desired future character which focus on commercial uses such as brickmaking, agriculture, recycling and renewable energy as well as unstructured recreation.<br>This option is also inconsistent with Western Sydney Parklands' current proposed development of a logistics/business hub in this location.<br>There is no existing direct access to this option from the M7 or the M4 Motorways, which would result in substantial intersection and access works being required and additional traffic on local roads such as Ferrers Road and Peter Brock Drive. Access to existing utilities is also limited and significant works would be required to connect to the electricity, water and data networks.<br>There are several constraints within the site including vegetation that is protected under Commonwealth and State legislation, creeks (and their associated flood risk) and an existing high pressure gas pipeline. Construction of the project in this location would require removal of protected trees and may require diversion of the creeks. The option is also located closer to sensitive residential receivers at Minchinbury which could result in increased impacts such as operational noise. |
| **Eastern option (within the south west area of Sydney Motorsport Park)** | This option is located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports and aligns with the current strategic land use vision for the area to be a venue for amateur and professional motorsports, and associated activities, events, exhibitions and facilities. However, its close proximity to the Sydney Dragway would generate potential negative impacts on traffic and parking, particularly during operation. This option would also result in the unacceptable loss of Sydney Dragway competitor pits, which would have a substantial impact to the operation of the Dragway.<br>The site includes vegetation that is protected under Commonwealth and State legislation and removal of these protected trees would be required.<br>New car parks provided as part of this option would have the benefit of encouraging southern access to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports from the Horsley Park M7 intersection, reducing the impact on Ferrers Road. However, the spectator parking would be remote from the racing infrastructure, requiring a bus service to connect the parking to the speedway and impacting the overall convenience and user experience for spectators. |
| **Southern option (to the west of Sydney Dragway) (preferred option)** | This option is located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports and aligns with the current strategic land use vision for the area. While its proximity to the Sydney Dragway would generate potential traffic and parking impacts, particularly during operation, these are considered manageable in this location. The potential to upgrade access arrangements and provide additional parking would enable this infrastructure to be shared across both speedway and dragway racing events.<br>New car parks and dual entry points available with this option would encourage southern access to Western Sydney Parklands' Precinct 5: Motor Sport Precinct from the Horsley Park M7 intersection, reducing congestion at the north of Ferrers Road and Peter Brock Drive which is currently observed during peak operating periods. New dedicated car parking as part of this option would offset areas no longer available for parking by patrons of Sydney Dragway as a result of the development of the new speedway.<br>While this site does contain some vegetation that is protected under State legislation, this location would require the least amount of vegetation clearing of the three options. This location also benefits from having fewer environmental constraints and a greater distance to sensitive receivers meaning that potential environmental impacts (such as operational noise) would be minimal. The site has good access to utilities with minimal works required to meet the requirements of the new speedway. |

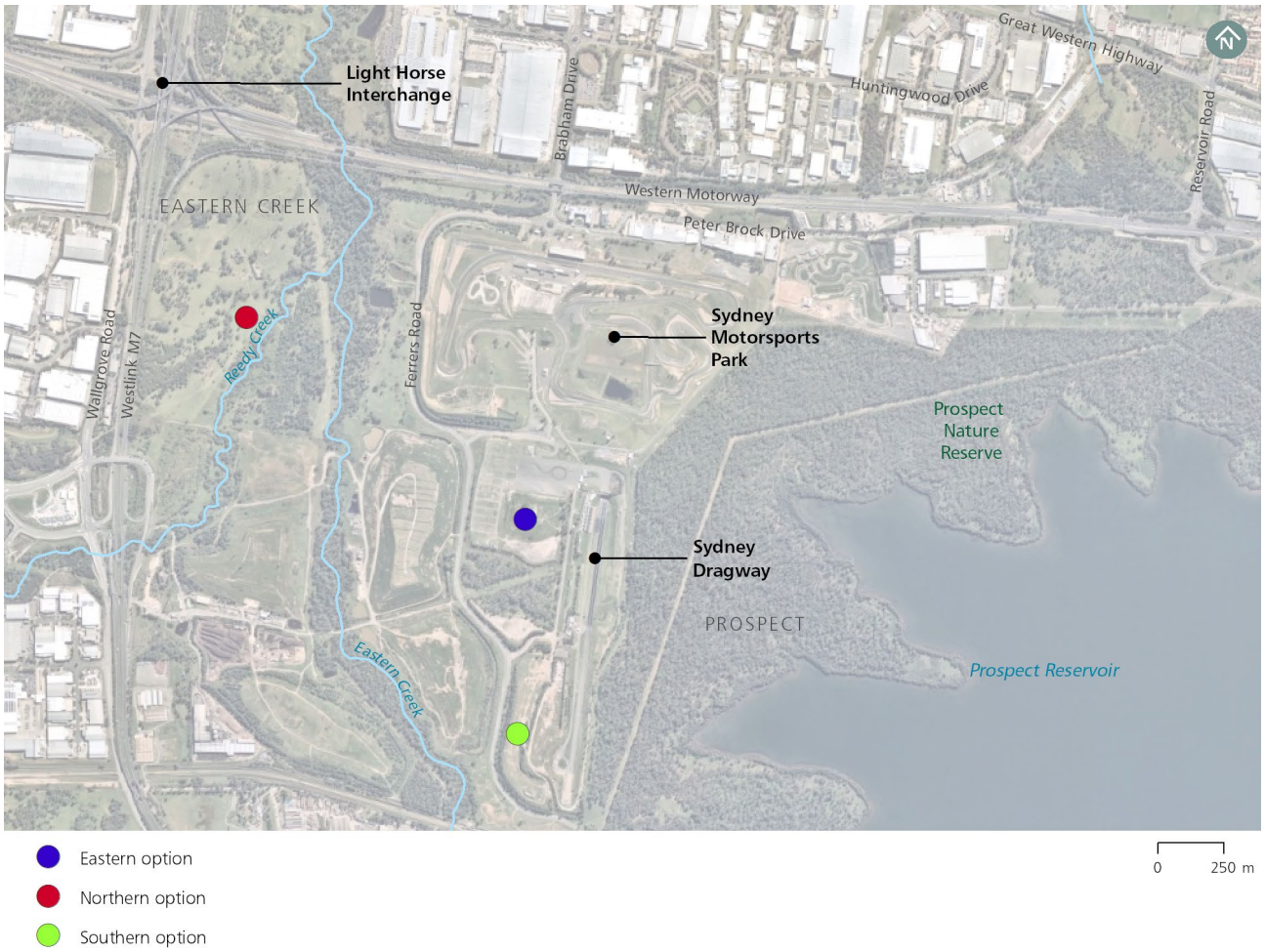


Figure 2-1 Site alternative locations

### 2.6.1 Preferred option

Following assessment against the site suitability criteria and consultation with key stakeholders, the southern option was identified as the preferred option. The preferred option provides several benefits compared to the other options including:

- The size of the site ensures a like-for-like facility (to the current Speedway) can be constructed with minimal impact to neighbouring motorsport operations such as the Sydney Dragway and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club)
- Locating the Sydney International Speedway at this location amongst other motorsport operations in Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports allows for opportunities for sharing of infrastructure, coordinated development planning and coordinated event management
- The site provides the project with good access to utilities, direct site access during construction and smaller scale earthworks which would minimise the construction program
- The site has the least environmental constraints and is likely to result in the least environmental impact
- It provides the opportunity for dedicated parking for the project and Sydney Dragway close to their spectator areas
- The potential to draw competitors and spectators from the Horsley Park M7 intersection, offering an alternative point of access into the precinct.

## 2.7 Design refinements

Parking is a key issue for motorsport stakeholders within Western Sydney Parklands Precinct 5: Eastern Creek Motorsports. The operational car parking design has been developed in consultation with Sydney Dragway to provide adequate parking for visitors to Sydney Dragway and the Sydney International Speedway. This included dedicated car parking areas for both the Sydney Dragway and the Sydney International Speedway and exclusive use arrangements during major events at each facility allowing access to additional car parking, where required. Further details about parking arrangements and event coordination are provided in Chapter 5 (Project description) and Chapter 6 (Traffic, transport and parking).

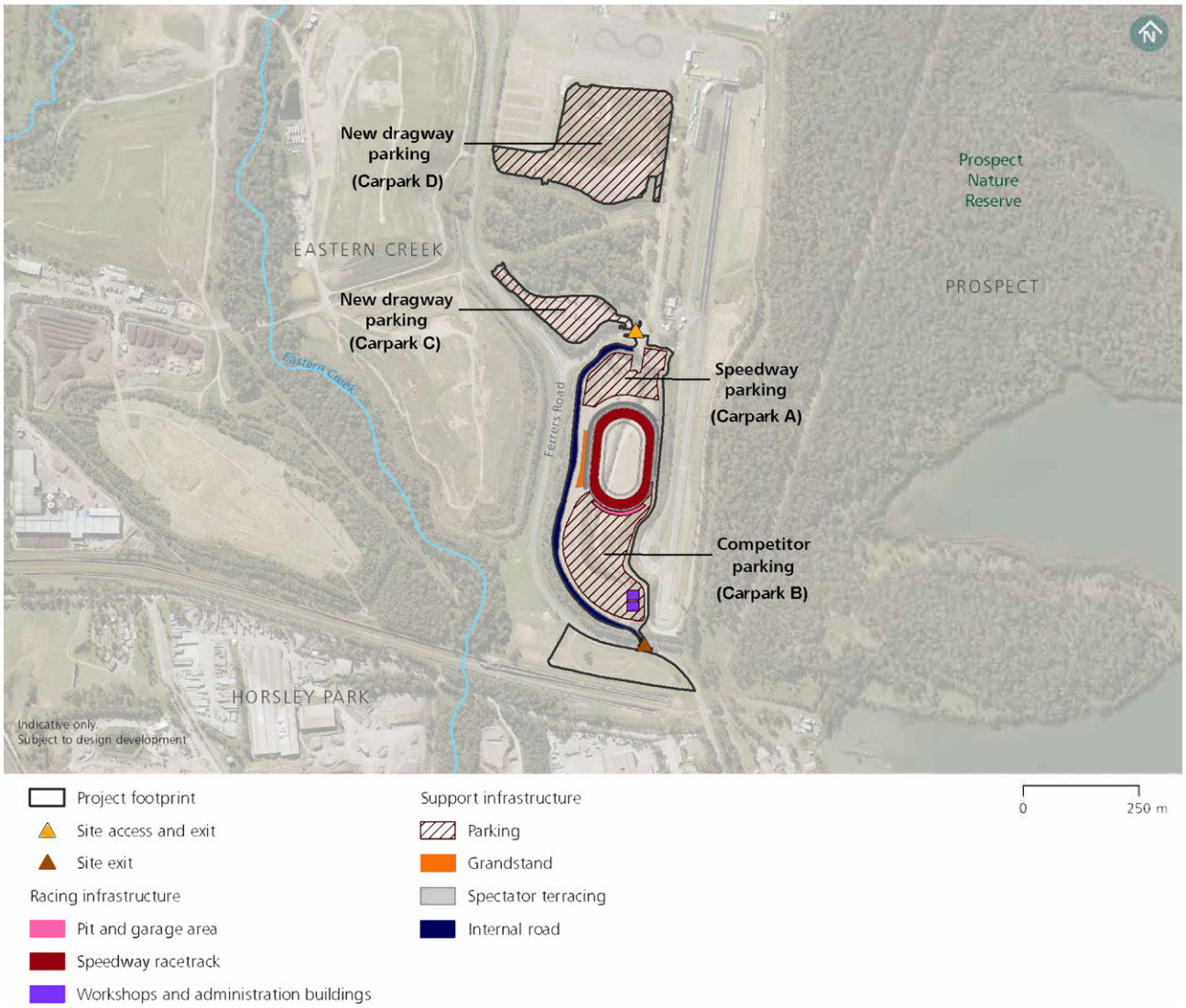


Figure 2-2 Preferred site layout

Table 2-4 Design refinements

| Design aspect | Options considered | Rationale for design refinement |
|---|---|---|
| **Site layout** | | |
| **Racetrack location** | • Northern racetrack location<br>• Central racetrack location (preferred option) | An initial design, with the speedway track located across the current carpark C and D areas as shown in Figure 2-2, was discounted due to the requirement for clearance of existing woodland areas that are protected under Commonwealth and State legislation. Locating the speedway track more centrally (the preferred option) avoided this area of vegetation and utilised the total area of land available most efficiently. This configuration also allows the inclusion of a second site exit point (at the southern end of the main operational area) to minimise congestion during post-event peak periods. |
| **Parking areas** | • Main Spectator parking to the south of Ferrers Road, with either dedicated shuttlebuses or a pedestrian footbridge providing access to the main speedway site.<br>• Provision of parking bays in an area below the power transmission lines that traverse the lot<br>• Spectator parking in the northern part of the site (preferred option) | The southern parking area was not pursued further, in favour of maximising parking areas to the north that would:<br>• Be closer to the main speedway site, Sydney Dragway and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club)<br>• Avoid a Potential Archaeological Deposit within the area to the south of Ferrers Road<br>• Avoid the need for spectators to cross Ferrers Road and, as a result, remove any associated safety risks or additional infrastructure.<br>Parking bays located beneath the transmission lines would have been adjacent to two areas of woodland protected under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. To avoid potential impacts on these ecological areas, this parking area was not pursued further. |
| **Parking layout** | Adjustments have also been made to the project boundaries to minimise vegetation clearance, particularly where vegetation is part of a threatened ecological community as listed in Commonwealth and State legislation. | |
| **Earthworks** | | |
| **The extent of earthworks has been refined through the design process.** | • Complete levelling of the Carpark D area to maximise car parking spaces<br>• Reduced excavation within Carpark D and redesign of the parking layout to include ramps to elevated parking bays (preferred option).<br>• Use of the site south of Ferrers Road to stockpile surplus excavated material, instead of offsite disposal (part of preferred option) | Levelling Carpark D would generate volumes of excavated material that would have likely been surplus to requirements for fill placement across the rest of the project site to achieve final design levels. This material would have either needed to be transported offsite or large permanent stockpiles may have been required to achieve a cut/fill balance. The earthworks design levels for Carpark D have been revised throughout the design process and the volume of extractive material has been reduced resulting in a smaller, low-level flat permanent stockpile in the area to the south of Ferrers Road. |

| Design aspect | Options considered | Rationale for design refinement |
|---|---|---|
| **Dust mitigation and control** | | |
| **Dust management to the adjacent Sydney Dragway has been raised as a key issue given the safety risk presented if dust from the Sydney International Speedway racetrack were to settle on the Sydney Dragway track. Refinements to environmental controls that form part of the operational layout of the project have been considered to mitigate this potential impact.** | • Additional vegetation planting along the boundary with Sydney Dragway<br>• Installation of dust screens to the north and east of the track, behind the spectator terracing combined with dust suppression through the application of water to the speedway track and vegetation planting (preferred option). | The preferred option includes dust control and mitigation measures which have been developed as part of the racetrack design, layout and operational procedures to minimise dust generation, and offsite settlement as follows:<br>• Primary mitigation measures to minimise dust generation at the source, including:<br>  • Potentially combining the select fill to be imported to meet racetrack specifications with additives, which would minimise the mobilisation of dust during the use of the racetrack<br>  • The use of water suppression during race events<br>• Secondary mitigation measures, to prevent the transport of dust mobilised during race events, including:<br>  • The provision of a dust screen along the north-eastern portion of the main operational site<br>  • Landscape planting and vegetative barriers<br>• Dust mitigation and control protocols have been agreed and would be incorporated in both the dragway lease and the speedway lease.<br>• The protocols include:<br>  • Determination of baseline dust levels<br>  • Real time speedway and dragway dust level monitoring<br>  • Real time speedway dust level reporting<br>• The Speedway operator would be required to ensure compliance with the above obligations through agreement to and implementation of:<br>  • A Dust Mitigation and Control Plan<br>  • A Rectification Action Plan (in the event of a breach)<br>  • Dragway dragstrip dust level monitoring<br>  • Dragway dragstrip dust level reporting<br>  • Adoption of approved track curation and preparation procedures<br>  • Use and maintenance of approved track material<br>  • Conducting and reporting of annual track condition audits<br>  • Repair and maintenance of natural and engineered physical barriers. |
| **Utilities** | | |
| **Electrical supply** | • Direct connection to the existing feeder station at Peter Brock Drive<br>• Establishment of an additional Endeavour Energy substation<br>• Solar (with back-up batteries)<br>• Generators<br>• A combination of a new substation, solar and backup generation (preferred option) | The electrical design is constrained by the availability of power supply to the preferred project site. A connection to the existing feeder station located at Peter Brock Drive was discounted as it would have required about two kilometres of trenching to provide an electrical supply to the project site. A combination of a new substation, solar (and batteries) and backup generators is required to satisfy the power supply requirements of the Sydney International Speedway, particularly during race events. |

| Design aspect | Options considered | Rationale for design refinement |
|---|---|---|
| **Waste water infrastructure** | • Installation of a septic tank within the project site<br>• Connection to existing sewer infrastructure at Peter Brock Drive<br>• Connection to the Sydney Dragway pressure sewer system (the preferred option). | New waste water infrastructure is required as part of the Sydney International Speedway as there are no existing Sydney Water wastewater assets near the project site. Investigations to assess the feasibility of connecting the project to the Sydney Dragway pressure sewer system are continuing as part of further design development. This option requires the least excavation and avoids impacts on neighbouring land uses to the north of the project, and outside of the project boundary (compared to the connection at Peter Brock Drive). Connecting the project to the Sydney Dragway pressure sewer system avoids the potential for groundwater and pollution impacts and management requirements associated with the installation of a septic tank. |
| **Drainage** | • Vegetated swales running in a north-south orientation, linking Carparks A, C and D.<br>• Use of existing Ferrers Road embankment and culvert<br>• Installation of a weir and throttle pipe for use in an extreme rainfall event<br>• Onsite detention basins (preferred option) | Although the use of vegetated swales would apply sustainable drainage principles to the project, their installation was discounted as it would require the clearance of additional native vegetation which has been listed as threatened under Commonwealth and State legislation.<br>The preferred option for site drainage includes the provision of onsite detention basins, which would allow for the reuse of water within the project site, including for water suppression of the racetrack to manage dust generation during race events.<br>The use and upgrade of (where necessary) existing drainage infrastructure near the project has been considered, including:<br>• The existing embankment and culvert along Ferrers Road<br>• Installation of a weir and throttle pipe along the unnamed drainage line between carpark C and carpark D.<br>The use and upgrade of this drainage infrastructure would enable more efficient use of space within the project site to maximise carparking provision and would result in a reduction in the amount of onsite detention required. However, this infrastructure would be located in an area identified as a Potential Archaeological Deposit and adjacent to an area of vegetation protected under the *Environmental Protection and Biodiversity Conservation Act 1999*.<br>Further investigations would be carried out as part of design development of the project with regards to the installation of a weir design that would avoid impacts to environmentally sensitive areas; however, this does not form part of the scope of the project nor is it assessed as part of this Environmental Impact Statement. |

# 3 Planning and assessment process

# 3 Planning and assessment process

This chapter describes the statutory planning and assessment process for the Sydney International Speedway and identifies NSW and Commonwealth legislation that may apply.

## 3.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to the planning and assessment process, and where these requirements are addressed in this Environmental Impact Statement, are provided in Table 3-1.

Table 3-1 Secretary's Environmental Assessment Requirements – Planning and assessment process

| Reference | Requirement | Where addressed |
|---|---|---|
| **1. Environmental Impact Assessment Process** | | |
| **1.1** | The Environmental Impact Statement must be prepared in accordance with Part 3 of Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (the EP&A Regulation). | Appendix B |
| **1.2** | It is the Proponent's responsibility to determine whether the Proposal needs to be referred to the Commonwealth Department of Environment and Energy (DoEE) for an approval under the *Commonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). If the DoEE has determined that an approval is required under the EPBC Act, supplementary environmental assessment requirements may need to be issued to ensure a streamlined assessment under an Accredited Assessment can be achieved. | Section 3.4.1 |
| **2. Environmental Impact Statement** | | |
| **2.1** | The EIS must include, but not necessarily be limited to, the following:<br>g. statutory context of the proposal (as a whole) including:<br>• how it meets the provisions of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and the EP&A Regulation;<br>• a list of any approvals that must be obtained under any other Act or law before the Proposal may lawfully be carried out;<br>• identification of the existing environmental planning instruments and other current government strategic plans and policies relevant to the land subject to the Proposal (including State environmental planning policies, land use and infrastructure strategies and local strategic planning statements). | Section 3.2<br>Section 3.4 |

## 3.2 NSW environmental planning approvals

The *Environmental Planning and Assessment Act 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation) are the primary pieces of legislation regulating land use planning and development assessment in NSW. This legislation is supported by a range of environmental planning instruments including State environmental planning policies (SEPPs) and local environmental plans (LEPs).

### 3.2.1 State significant infrastructure

Section 5.12(4) of the EP&A Act provides for the declaration of specified development on specified land as State significant infrastructure. A declaration is being sought for the Sydney International Speedway as State significant infrastructure under Section 5.12(4) of the EP&A Act. Should the project be declared as State significant infrastructure, Schedule 4 of *State Environmental Planning Policy (State and Regional Development) 2011* will be amended to include Sydney International Speedway.

### 3.2.2 Planning approval process under Part 5, Division 5.2 of the EP&A Act

The assessment and approval process for a State significant infrastructure project is established under Part 5, Division 5.2 of the EP&A Act and shown in Figure 3-1. Sydney Metro submitted a State significant infrastructure application and supporting documentation to the Secretary of the Department of Planning, Industry and Environment on 26 March 2020 (as required by section 5.15 of the EP&A Act). The Secretary's Environmental Assessment Requirements for Sydney International Speedway were issued on 19 May 2020 (as per section 5.16 of the EP&A Act). The Secretary's Environmental Assessment Requirements are provided in Appendix A.

This Environmental Impact Statement has been prepared in accordance with the Secretary's Environmental Assessment Requirements and the requirements of Schedule 2, Part 3 of the EP&A Regulation.

The Department of Planning, Industry and Environment will place the Environmental Impact Statement on public exhibition for a minimum of 28 days (as per Schedule 1, Division 2, clause 12 of the EP&A Act). During the exhibition period, the community, stakeholders and government agencies will have an opportunity to review the Environmental Impact Statement and provide a written submission to the Department of Planning, Industry and Environment for consideration in its assessment of the Sydney International Speedway.

At the completion of the public exhibition period, the Department of Planning, Industry and Environment will collate and provide Sydney Metro with a copy of all submissions received during the exhibition period. After reviewing the submissions, Sydney Metro will prepare a Submissions Report that responds to the relevant issues raised. If changes are required to the Sydney International Speedway as a result of the issues raised or to minimise environmental impacts, a Preferred Infrastructure Report and/or an Amendment Report may also be required. If this is required, Sydney Metro would prepare the report to address the changes to the design to minimise impacts and submit this for review to the Department of Planning, Industry and Environment. This report would be made available to the public.

Approval from the Minister for Planning and Public Spaces is required before Sydney Metro can proceed with the Sydney International Speedway (as per section 5.14 of the EP&A Act).

Figure 3-1 The planning approval process for State significant infrastructure

### 3.2.3 NSW environmental planning instruments

Section 5.22 of the EP&A Act provides that environmental planning instruments (such as LEPs and SEPPs) do not, with some exceptions, apply to State significant infrastructure projects. Notwithstanding, the environmental planning instruments that have been considered for consistency, are detailed below.

#### State Environmental Planning Policies

##### State Environmental Planning Policy (State and Regional Development) 2011

*State Environmental Planning Policy (State and Regional Development) 2011* identifies development that is State significant development and State significant infrastructure. Should the project be declared as State significant infrastructure, Schedule 4 of this SEPP will be amended to include the Sydney International Speedway.

##### State Environmental Planning Policy (Western Sydney Parklands) 2009

The project is located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and as such the project has been assessed for consistency with the aims of the *State Environmental Planning Policy (Western Sydney Parklands) 2009* (Western Sydney Parklands SEPP) as described in Table 3-2.

Table 3-2 Assessment of the development in relation to the Western Sydney Parklands SEPP

| Aims of the Western Sydney Parklands SEPP | Consistency of the project |
|---|---|
| **a. allowing for a diverse range of recreational, entertainment and tourist facilities in the Western Parklands, and** | The project objective is to deliver a world class speedway, providing a private recreation facility for local, regional, national and international visitors. |
| **b. allowing for a range of commercial, retail, infrastructure and other uses consistent with the Metropolitan Strategy, which will deliver beneficial social and economic outcomes to western Sydney, and** | The project supports the objectives of the Greater Sydney Region Plan to provide access to sporting facilities in response to population growth and recognition of the role of sporting facilities to enhance and promote social connections and networks within the community. |
| **c. continuing to allow for and facilitate the location of government infrastructure and service facilities in the Western Parklands, and** | The project is consistent with the *Western Sydney Parklands' Plan of Management 2030*, as it would be situated within Precinct 5: Eastern Creek Motor Sports. |
| **d. protecting and enhancing the natural systems of the Western Parklands, including flora and fauna species and communities and riparian corridors, and** | The biodiversity impacts of the project have been assessed in Chapter 8 (Biodiversity) and any necessary environmental protection works included in construction of the project. The design has also considered existing areas of native vegetation to minimise clearance. |
| **e. protecting and enhancing the cultural and historical heritage of the Western Parklands, and** | Aboriginal and non-Aboriginal heritage assessments have been carried out for the project, that conclude there would not be any significant heritage effects. Further details are provided in Chapter 10 (Aboriginal heritage) and 11 (Non-Aboriginal heritage). |
| **f. maintaining the rural character of parts of the Western Parklands by allowing sustainable extensive agriculture, horticulture, forestry and the like, and** | The project is consistent with the desired future character of the area as set out in *Western Sydney Parklands Plan of Management 2030* as discussed in Chapter 2 (Strategic need, justification and project alternatives) of this Environmental Impact Statement. |
| **g. facilitating public access to, and use and enjoyment of, the Western Parklands, and** | The Sydney International Speedway would be accessible by members of the public during motor sports events, particularly appealing to those with an interest in motor sports. |
| **h. facilitating use of the Western Parklands to meet a range of community needs and interests, including those that promote health and wellbeing in the community, and** | |
| **i. encouraging the use of the Western Parklands for education and research purposes, including accommodation and other facilities to support those purposes, and** | The project is not relevant to this aim, except that the project would be located within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, which would leave other areas of the Western Sydney Parklands available for such purposes. |
| **j. allowing for interim uses on private land in the Western Parklands if such uses do not adversely affect the establishment of the Western Parklands or the ability of the Trust to carry out its functions as set out in section 12 of the Western Sydney Parklands Act 2006, and** | The project would be located on land owned by Western Sydney Parklands Trust, so is not relevant to this aim. |
| **k. ensuring that development of the Western Parklands is undertaken in an ecologically sustainable way.** | Ecological sustainable development principles have been applied to the design and assessment of the construction and operation of Sydney International Speedway. This includes design of the project site layout to minimise impacts on biodiversity areas, reuse of water on-site and solar powered lighting in car parks. |

Although the project site falls on land within the Blacktown local government area, clause 6 of the Western Sydney Parklands SEPP directs that the provisions of the *Blacktown Local Environmental Plan 2015* do not apply to land within the Western Sydney Parklands. In addition, clause 6 provides that several other State Environmental Planning Policies do not apply to land within the Western Sydney Parklands. Those that would otherwise be of relevance to the project are:

- *State Environmental Planning Policy No 19—Bushland in Urban Areas*
- *State Environmental Planning Policy No 64—Advertising and Signage*.

Clause 6 also identifies SEPPs that prevail if there is an inconsistency with the Western Sydney Parklands SEPP. The only one of relevance to the project is *State Environmental Planning Policy No 55 - Remediation of Land* (see Section 3.2.3).

Part 2, clause 9 of the Western Sydney Parklands SEPP notes that from the commencement of the policy, the land to which the policy applies is unzoned. Clauses 12 to 17B of the Western Sydney Parklands SEPP outline matters which the consent authority must consider when determining a development application for development on land within the Western Parklands. While the planning approval pathway for the project is an application for approval of State significant infrastructure, rather than an application for development consent, the land uses and provisions applying to development within Western Sydney Parklands, as detailed in the *State Environmental Planning Policy (Western Sydney Parklands) 2009* and the *Western Sydney Parklands Plan of Management 2030* have been considered as part of this Environmental Impact Statement. Those matters relevant to the Sydney International Speedway are listed in Table 3-3 with a reference to where they are considered in this Environmental Impact Statement.

Table 3-3 Summary of relevant considerations in the State Environmental Planning Policy (Western Sydney Parklands) 2009

| Relevant clause | Summary of relevant considerations | Where addressed |
|---|---|---|
| **Clause 12: Matters to be considered by the consent authority - generally** | Any Development Application must demonstrate the following matters as are relevant to the development:<br>a. the aim of this Policy, as set out in clause 2, | Table 3-2 demonstrates that the project is consistent with the aims of the SEPP, where relevant. |
| | b. the impact on drinking water catchments and associated infrastructure | The project would not adversely affect the continued operation of bulk water supply infrastructure, including the Warragamba Pipelines and the Prospect Reservoir, as assessed in Chapter 18 (Property and land use). Potential impacts on the water quality of Warragamba Pipelines and Prospect Reservoir (as the nearest drinking water catchment) are assessed in Chapter 13 (Soils and surface water quality). Chapter 19 (Hazards) assesses any potential risks to the pipelines. |
| | c. the impact on utility services and easements | The project does not require the relocation or diversion of existing utility infrastructure or easements and Chapter 19 (Hazards) concludes the project would present no additional risk. |
| | d. the impact of carrying out the development on environmental conservation areas and the natural environment, including endangered ecological communities,<br>e. the impact on the continuity of the Western Parklands as a corridor linking core habitat such as the endangered Cumberland Plain Woodland, | The project has minimised impacts to Cumberland Plain Woodland and would not impact any corridors linking core habitat.<br>Potential biodiversity impacts are assessed in Chapter 8 (Biodiversity) |

| Relevant clause | Summary of relevant considerations | Where addressed |
|---|---|---|
| **Clause 12: Matters to be considered by the consent authority - generally cont.** | f. the impact on the Western Parkland's linked north-south circulation and access network and whether the development will enable access to all parts of the Western Parklands that are available for recreational use, | The project does not impact existing access arrangements for those parts of the Western Sydney Parklands that are available for recreational use.<br>An assessment of the impacts on Ferrers Road (a north-south link through the Parklands) is provided in Chapter 6 (Traffic, transport and parking). The project design includes egresses at both the north and south of the project site to minimise congestion on Ferrers Road during periods of increased traffic volumes as spectators leave the project site. |
| | g. the impact on the physical and visual continuity of the Western Parklands as a scenic break in the urban fabric of western Sydney | The project would result in no perceived change in the character of this area as it is located in the existing Precinct 5: Eastern Creek Motor Sports.<br>The assessment of the project in its surrounding landscape context is provided in Chapter 12 (Landscape character and visual amenity). |
| | h. the impact on public access to the Western Parklands | The project would not impact public access to the parklands. Further details are provided in Chapter 18 (Property and land use). |
| | i. consistency with:<br>i. any plan of management for the parklands, that includes the Western Parklands, prepared and adopted under Part 4 of the *Western Sydney Parklands Act 2006*, or<br>ii. any precinct plan for a precinct of the parklands, that includes the Western Parklands, prepared and adopted under that Part, | The project is consistent with the Western Sydney Parklands Management Plan 2030, specifically the Precinct 5: Eastern Creek Motor Sports, as demonstrated in Table 2-2 of Chapter 2 (Strategic need, justification and alternatives). |
| | j. the impact on surrounding residential amenity<br>k. the impact on significant views | The project would have limited impacts on residential amenity or significant views due to the distance to the nearest residential receivers. Further details are provided in Chapter 6 (Traffic, transport and parking, Chapter 7 (Noise and vibration) and Chapter 12 (Landscape character and visual amenity). |
| | l. the effect on drainage patterns, ground water, flood patterns and wetland viability | The project is not within any maximum flood extents and is not expected to impact on existing flood patterns. Further assessment is provided in Chapter 13 (Soils and surface water quality), Chapter 15 (Groundwater and geology) and Chapter 16 (Flooding and hydrology). |
| | m. the impact on heritage items, | The project would not impact heritage items. Further assessments are provided in Chapter 10 (Aboriginal heritage) and Chapter 11 (Non-Aboriginal heritage. |

| Relevant clause | Summary of relevant considerations | Where addressed |
|---|---|---|
| **Clause 12: Matters to be considered by the consent authority - generally cont.** | n. the impact on traffic and parking. | Consultation with the Western Sydney Parklands Trust and Sydney Dragway identified the parking and operational arrangements required to support concurrent motorsport events within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The amount of car parking provided by the project meets the needs of concurrent motor sport events and has been formally agreed with Western Sydney Parklands Trust and Sydney Dragway. The Sydney Dragway Lessee and Sydney International Speedway Lessee would enter into a reciprocal shared car parking agreement in conjunction with an event coordination agreement and a Major Event Operations Plan.<br>A new left-only T-intersection at the south of the project site would be provided to manage the impact of event traffic onto Ferrers Road. Potential impacts on traffic and parking are assessed in Chapter 6 (Traffic, transport and parking). |
| **Clause 13: Bulk water supply infrastructure not to be impacted** | The development will have a neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure (clause 13(a)) | The project would have a neutral impact on the quality of the water in the bulk water supply infrastructure. Further details are provided in Chapter 13 (Soils and surface water quality). |
| **Clause 14: Development in areas near nature reserves or environmental conservation areas** | The consent authority has considered the following:<br>a. whether the development is compatible with and does not detract from the values of the nature reserve or environmental conservation area<br>b. any management plans applicable to the nature reserve or environmental conservation area<br>c. whether the development has been designed and sited to minimise visual intrusion when viewed from vantage points in the nature reserve or environmental conservation area. | The project would not impact conservation values within the Prospect Nature Reserve as assessed in Chapter 18 (Property and land use).<br>There are no publicly accessible vantage points within Prospect Nature Reserve as it is closed to the public. However, the assessment of visual amenity in Chapter 12 (Landscape character and visual amenity) includes a vantage point to the east of Prospect Reservoir at George Maunder Lookout, which notes that the project would be screened by existing vegetation. |
| **Clause 15: Heritage conservation** | This clause sets out when development consent is required for impacts on a heritage item listed on either the local or State heritage registers. | The project would not impact heritage items. Although the project does not meet any of the triggers that require consent (e.g. demolishing, moving or altering a heritage item), a heritage assessment has been carried out at Chapter 11 (Non-Aboriginal heritage) that considers the impact of the proposed development on the heritage significance of the nearby heritage items (in accordance with clause 15(4). |

| Relevant clause | Summary of relevant considerations | Where addressed |
|---|---|---|
| **Clause 16: Signage** | Development consent must not be granted to the erection of signage unless:<br>a. the consent authority is satisfied that the signage is consistent with any signage policy prepared by the Trust, and<br>b. in the case of a road sign, the Roads and Traffic Authority (now Transport for NSW) has been given written notice of the development application and any comments received by the consent authority from the Roads and Traffic Authority (now Transport for NSW) within 21 days have been considered by the consent authority. | The principles within the Western Sydney Parklands Urban Design Manual (2018) have been applied to the design of project signage. The assessment of landscape character and visual amenity in Chapter 12 (Landscape character and visual amenity) has concluded that proposed signage would be consistent with the intended design of the Western Sydney Parklands according to the design manual.<br>Transport for NSW have been consulted as part of stakeholder engagement for the project, as documented in Chapter 4 (Stakeholder and community engagement). |
| **Clause 17A: Essential services** | Development consent must not be granted to development unless the consent authority is satisfied that any of the following services that are essential for the proposed development are available or that adequate arrangements have been made to make them available when required:<br>a. the supply of water,<br>b. the supply of electricity,<br>c. the disposal and management of sewage,<br>d. stormwater drainage or on-site conservation,<br>e. suitable road access. | The required services would be provided as part of the project.<br>Chapter 5 (Project description) provides a description of the project site access and the proposed installations required for utilities infrastructure including water, power and wastewater management. The proposed drainage strategy, including installation of on-site detention tanks as part of stormwater infrastructure is provided in also described. |
| **Clause 17B: Earthworks** | Before granting development consent for earthworks, the consent authority must consider the following matters:<br>a. the likely disruption of, or any detrimental effect on, drainage patterns and soil stability in the locality, | Potential impacts of earthworks are assessed as part of construction of the project within Chapter 13 (Soils and surface water) and Chapter 15 (Groundwater and geology). |
| | b. the effect of the proposed development on the likely future use or redevelopment of the land, | The project would not have an adverse effect on the future use or redevelopment of the project site, as assessed in Chapter 18 (Property and land use). |
| | c. the quality of the fill or the soil to be excavated, or both, | Any excavated material that is unsuitable for reuse would be classified according to the Waste Classification Guidelines Part 1: Classifying Waste. The potential for contamination to be encountered during earthworks is assessed in Chapter 14 (Contamination). |
| | d. the effect of the proposed development on the existing and likely amenity of adjoining properties, | The earthworks would be largely screened from the Sydney Dragway (the adjoining property) by existing vegetation, resulting in a minor impact on visual amenity, as assessed in Chapter 12 (Landscape character and visual amenity). |

| Relevant clause | Summary of relevant considerations | Where addressed |
|---|---|---|
| **Clause 17B: Earthworks cont.** | e. the source of any fill material and the destination of any excavated material, | The source of fill is considered within the assessment of resource use for the project. The proposed landform across the project has been designed to retain all excavated material on-site. Where excavated material is unsuitable for reuse, it would be managed in accordance with responsible waste disposal principles. Clay material suitable for use in the racetrack would be imported to the project site. Further details are provided in Chapter 22 (Waste management and resource use). |
| | f. the likelihood of disturbing relics, | The design of the project has been refined to avoid areas of Potential Aboriginal Deposit and the non-Aboriginal heritage assessment concluded there is no potential to disturb significant non-Aboriginal heritage relics. These assessments are provided in Chapter 10 (Aboriginal heritage) and Chapter 11 (Non-Aboriginal heritage). |
| | g. the proximity to and potential for adverse impacts on any watercourse, drinking water catchment or environmentally sensitive area, | The site drainage design includes a series of on-site detention basins to manage the flow of surface water through and off the project site. Potential impacts of construction (including earthworks) on watercourses are assessed in Chapter 13 (Soils and surface water quality) and Chapter 16 (Flooding and hydrology). |
| | h. any appropriate measures proposed to avoid, minimise or mitigate the impacts of the development. | Mitigation measures relevant to potential impacts of the earthworks associated with construction of the project are described in Chapter 13 (Soils and surface water quality) and Chapter 15 (Groundwater and geology). These measures include requirements to:<br>• Carry out a baseline surface water management program before construction starts<br>• Soil salinity testing prior to earthworks activities to determine the presence of saline soils<br>• Testing of surface water collected across the project site prior to discharge into nearby waterways,<br>• Incorporation of sediment and erosion control measures. |

### State Environmental Planning Policy No.33 – Hazardous and Offensive Development

*State Environmental Planning Policy No. 33 – Hazardous and Offensive Development* applies to any projects that fall under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'. Certain activities may involve handling, storing or processing a range of substances which in the absence of locational, technical or operational controls may create a potential hazard or offence to people, property or the environment. Such activities would be defined as potentially hazardous or potentially offensive.

Chapter 19 (Hazards) of this report considers the project in the context of the 'potentially hazardous industry' or 'potentially offensive industry' as defined by this State environmental planning policy.

#### State Environmental Planning Policy No. 55 – Remediation of land

*The State Environmental Planning Policy No. 55 – Remediation of Land* provides a State wide approach to the remediation of contaminated land for the purpose of minimising the risk of harm to the health of humans and the environment. In accordance with clause 7(1), a consent authority must not consent to the carrying out of development on any land unless:

- It has considered whether the land is contaminated
- If the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or would be suitable, after remediation) for the purpose for which the development is proposed to be carried out
- If the land requires remediation to be made suitable for the purpose for which the development is proposed to be carried out, it is satisfied the land would be remediated before the land is used for that purpose.

A contamination assessment has been carried out and documented in Chapter 14 (Contamination) and Technical Paper 8 (Contamination).

#### State Environmental Planning Policy (Infrastructure) 2007

*The State Environmental Planning Policy (Infrastructure) 2007* (ISEPP) aims to facilitate the effective delivery of infrastructure across NSW.

Clause 104 of this policy applies to projects listed in Schedule 3, being traffic generating development which is to be referred to Transport for NSW. Schedule 3 lists car parks (whether or not ancillary to other development) with 200 or more car parking spaces with access to a road as traffic generating development. Accordingly, the project would be considered traffic generating development, and Transport for NSW have been consulted during the Environmental Impact Statement as described in Chapter 4 (Stakeholder and community engagement) and Chapter 6 (Traffic, transport and parking).

## 3.3 Other NSW legislation

### 3.3.1 Approvals that would otherwise apply

In accordance with sections 5.23 and 5.24 of the EP&A Act, some environment and planning legislation does not apply to State significant infrastructure that has been approved or must be applied consistently with an approval for State significant infrastructure projects.

#### Approvals that are not required or cannot be refused

Section 5.23 of the EP&A Act specifies approvals that are not required for approved State significant infrastructure under Part 5 Division 5.2 of the EP&A Act. The only relevant approvals that would have otherwise been required for Sydney International Speedway if not for it being State significant infrastructure are any water management work approvals under section 90 of the *Water Management Act* 2000.

In addition, Division 8 of Part 6 of the *Heritage Act 1977* does not apply to prevent or interfere with the carrying out of the State significant infrastructure.

Similarly, section 5.23 of the EP&A Act specifies directions, orders or notices that cannot be made or given so as to prevent or interfere with the carrying out of approved State significant infrastructure. Those that would otherwise apply if not for Sydney International Speedway being State significance infrastructure would be:

- An interim protection order (within the meaning of the *National Parks and Wildlife Act 1974*)
- An order under Division 1 (Stop work orders) of Part 6A of the *National Parks and Wildlife Act 1974*
- A remediation direction under Division 3 (Remediation directions) of Part 6A of the *National Parks and Wildlife Act 1974*
- An order or direction under Part 11 (Regulatory compliance mechanisms) of the *Biodiversity Conservation Act 2016*
- An environment protection notice under Chapter 4 of the *Protection of the Environment Operations Act 1997*
- An order under section 124 of the *Local Government Act 1993*. Although these approvals, orders, directions and notices are not applicable to the project, the respective environmental issues they usually regulate are still addressed appropriately through the State significant infrastructure environmental assessment process (i.e. this Environmental Impact Statement).

Section 5.24 of the EP&A Act identifies approvals or authorisations that cannot be refused if they are necessary for carrying out approved State significant infrastructure and must be substantially consistent with the Part 5, Division 5.2 approval. The only statutory approval or authorisation of potential relevance to Sydney International Speedway is a consent under section 138 of the *Roads Act 1993* required for works within a public road, in this case the new access on Ferrers Road.

### 3.3.2 NSW legislation and regulations that may still be applicable

Environmental planning related legislation and regulations that may still be applicable to approved State significant infrastructure and based on the current scope of Sydney International Speedway are identified in Table 3-4.

Table 3-4 NSW legislation that may still be applicable to the Sydney International Speedway

| Legislation | Requirement |
|---|---|
| ***Biosecurity Act 2015*** | This Act aims to protect natural resources from the adverse impact of pests, disease, weeds and contaminants on agricultural land and parks and reserves (such as those near to the project site). All plants are regulated with a general biosecurity duty to prevent, eliminate or minimise any biosecurity risk they may pose. During construction of the project, any person who deals with any plant, who knows (or ought to know) of any biosecurity risk, has a duty to ensure the risk is prevented, eliminated or minimised, so far as is reasonably practicable. Impacts relating to biosecurity risk have been assessed as part of this Environmental Impact Statement in Chapter 8 (Biodiversity). |
| ***Biodiversity Conservation Act 2016*** | The *Biodiversity Conservation Act 2016* (BC Act) seeks to conserve biological diversity at bioregional and State scales; to maintain the diversity and quality of ecosystems and enhance their capacity to adapt to change and provide for the needs of future generations; to assess the extinction risk of species and ecological communities and identify key threatening processes through an independent and rigorous scientific process; and to establish a framework to avoid, minimise and offset the impacts of proposed development and land use change on biodiversity.<br>An assessment of the potential impacts of the project on threatened species, populations, ecological communities and critical habitat listed under the BC Act has been carried out to inform the Environmental Impact Statement.<br>Biodiversity impacts related to the project have been assessed in accordance with section 7.9 of the BC Act, the Biodiversity Assessment Method (BAM) and documented in Technical Paper 3 (Biodiversity Development Assessment Report (BDAR)). |
| ***Contaminated Land Management Act 1997*** | This Act outlines the circumstances in which notification to the Environment Protection Authority is required in relation to the contamination of land. This may become relevant during construction of the project if contamination is encountered. Contamination is assessed and further discussed in Chapter 14 (Contamination) of this Environmental Impact Statement. |
| ***Heritage Act 1977 (section 146)*** | If a relic is discovered or located, the Heritage Council must be notified 'of the location of the relic, unless the person who discovered the relic believes on reasonable grounds that the Heritage Council is aware of the location of the relic'. |
| ***Motor Vehicle Sports (Public Safety) Act 1985*** | The Office of Sport issues licences authorising the holding of motor vehicle race meetings at prescribed grounds pursuant to *Motor Vehicle Sports (Public Safety) Act 1985.* A licence would be obtained prior to operation of the Sydney International Speedway. |
| ***Motor Vehicle Sports (Public Safety) Regulation 2015*** | *The Motor Vehicle Sports (Public Safety) Regulation 2015* includes requirements for motor vehicle racing grounds and race meetings. The licence approval process is separate to the planning approval process but the requirements have been and will continue to be considered to ensure an appropriate design. |

| Legislation | Requirement |
|---|---|
| ***Protection of the Environment Operations Act 1997*** | An environment protection licence is required for scheduled activities or development work listed by the Act. Schedule 1 lists activities that require a licence. The project (including construction) does not constitute any of the scheduled activities and therefore does not require a licence.<br>Section 120 of the Act prohibits the pollution of waters. Potential pollution of waters is assessed as part of this Environmental Impact Statement in Chapter 13 (Soils and surface water quality) and Chapter 15 (Groundwater and geology).<br>Air pollution-related sections 124 to 126 (Chapter 5, Part 5.4, Division 1) of the Act require activities to be conducted in a proper and efficient manner, while Section 128 (Chapter 5, Part 5.4, Division 1) of the Act requires that all necessary practicable means are used to prevent or minimise air pollution. Air quality impacts are assessed in Chapter 9 (Air quality) of this Environmental Impact Statement.<br>Pollution of land and waste is covered by Part 5.6 of the Act. It defines offences relating to waste and sets penalties and establishes the ability to set various waste management requirements via the *Protection of the Environment Operations (Waste) Regulation 2014*. Potential impacts of the project on waste management are assessed in Chapter 22 (Waste management and resource use). |
| ***Rural Fires Act 1997*** | Sections 63(1) and 63(2) of the *Rural Fires Act 1997* require public authorities and owners/occupiers of land to take all practicable steps to prevent the occurrence of bushfires on, and to minimise the danger of the spread of bushfires on or from, that land. The project site is mapped as within a designated bush fire prone area. Bushfire risk has been considered as part of this Environmental Impact Statement in Chapter 19 (Hazards). |
| ***Waste Avoidance and Resource Recovery Act 2001*** | This Act encourages the most efficient use of resources in order to reduce environmental harm. Waste would be managed through the hierarchy established under the *Waste Avoidance and Resource Recovery Act 2001* as described in Chapter 22 (Waste management and resource use) |
| ***Water NSW Act 2004*** | The Warragamba Pipelines infrastructure are classified as Controlled Areas under the *Water NSW Act 2004*. Given their location immediately south of the project, the pipelines have been identified by this Environmental Impact Statement as potential sensitive receivers and the potential for any project impact is assessed in Chapter 13 (Soils and surface water quality), Chapter 7 (Noise and vibration) and Chapter 19 (Hazards). No impacts to the pipelines are expected. |
| ***Water NSW Regulation 2013*** | The Regulation provides for regulatory powers to manage pollution activities that impact water quality, including those specifically relating to Special Areas and Controlled Areas. Impacts on the local Special Areas and Controlled Areas have been assessed as part of this Environmental Impact Assessment in Chapter 13 (Soils and surface water quality). |
| ***Western Sydney Parklands Act 2006*** | The *Western Sydney Parklands Act 2006* requires a Parklands Plan of Management to be developed. The Plan of Management was adopted by the NSW Minister for Environment in December 2018.<br>The Plan of Management is an important consideration as this Act requires that:<br>• Under clause 30, Western Sydney Parklands Trust, as far as possible, exercise its functions in accordance with the Plan of Management and each government agency that owns or manages any land within a precinct, must manage it in accordance with the precinct plan.<br>• Under clause 12 of the *Western Sydney Parklands SEPP 2009*, in determining a development application the consent authority must consider consistency with the Plan of Management.<br>Consistency with the *Western Sydney Parklands Plan of Management 2030* has been considered as part of this Environmental Impact Statement and is presented in Table 2-2 of Chapter 2 (Strategic need, justification and project alternatives).<br>Clause 19 of the *Western Sydney Parklands Act 2006* states that any closure, opening or realignment of roads within the Western Sydney Parklands requires the consent of the Western Sydney Parklands Trust. Therefore, consent has been sought for the works associated with the new accesses to the project site, and for the internal road through the main operational area of the project site. |

## 3.4 Commonwealth legislation

### 3.4.1 Environmental Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) establishes the Commonwealth's role in environmental assessment, biodiversity conservation and the management of protected areas.

Under the EPBC Act, a referral to the Commonwealth Department of Agriculture, Water and Environment is required for proposed 'actions' that have the potential to significantly impact on any matter of national environmental significance or the environment of Commonwealth land (including leased land).

#### Matters of national environmental significance

Current matters of national environmental significance are:

- World heritage properties
- National heritage places
- Wetlands of international importance (often called 'Ramsar' wetlands after the international treaty under which such wetlands are listed)
- Nationally listed threatened species and ecological communities
- Listed migratory species
- Commonwealth marine areas
- The Great Barrier Reef Marine Park
- Nuclear actions (including uranium mining)
- A water resource, in relation to coal seam gas development and large coal mining development.

Consideration has been given to the provisions of the EPBC Act and issues with respect to matters of national environmental significance are discussed in Chapter 8 (Biodiversity), which confirms that a referral under the EPBC Act is not required.

#### Actions taken on Commonwealth land

Under section 26 of the EPBC Act, approval is required for:

- An action taken by any person on Commonwealth land (including Commonwealth leased land) that has, will have, or is likely to have a significant impact on the environment (subsection 26(1))
- An action taken by any person outside of Commonwealth land (including Commonwealth leased land) that has, will have, or is likely to have a significant impact on the environment on Commonwealth land (Subsection 26(2)).

For the purposes of section 26, the EPBC Act defines the 'environment' as:

a. Ecosystems and their constituent parts, including people and communities; and
b. Natural and physical resources; and
c. The qualities and characteristics of locations, places and areas; and
d. Heritage values of places; and
e. The social, economic and cultural aspects of a thing mentioned in (a), (b), (c) or (d).

Section 26 of the EPBC Act provides for a broader coverage of environmental and heritage matters relating to activities on Commonwealth land including issues such as noise, pollution, visual amenity or economic impacts. There are no areas of Commonwealth Land identified as potential receivers within this Environmental Impact Statement, and as such, there are not anticipated to be any impacts on the environment on Commonwealth Land.

### 3.4.2 Native Title Act 1993

An objective of the Commonwealth *Native Title Act 1993* is to recognise and protect native title. Section 8 states that the *Native Title Act 1993* is not intended to affect the operation of any law of a State or a Territory that is capable of operating concurrently with the Act. Searches of the registers maintained by the National Native Title Tribunal indicate there are no native title claims or any indigenous land use agreements registered with respect to land within the Sydney International Speedway project site.

### 3.4.3 Disability Discrimination Act 1992

*The Disability Discrimination Act 1992* aims to eliminate as far as possible discrimination against persons on the ground of disability in areas including access to premises and the provision of facilities, services and land. The project has been and would continue to be designed to be independently accessible and in compliance with the objectives and requirements of the Act.

# 4 Stakeholder and community engagement

# 4 Stakeholder and community engagement

This chapter describes the engagement carried out to date, how this engagement has influenced the scope of the project and the environmental assessment, and proposed engagement during future stages of the project.

## 4.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to stakeholder and community engagement, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 4-1.

Table 4-1 Secretary's Environmental Assessment Requirements – Stakeholder and community engagement

| Reference | Requirement | Where addressed |
|---|---|---|
| **4. Consultation** | | |
| **4.1** | The project must be informed by consultation, including with relevant local, State and Commonwealth government agencies, infrastructure and service providers, special interest groups, affected landowners, businesses and the community. | Section 4.2 to 4.6 |
| **4.2** | The Proponent must document the consultation process and demonstrate how the project has responded to the inputs received. | Section 4.4 to 4.5 |
| **4.3** | The Proponent must describe the timing and type of consultation proposed during the design and delivery of the project, the mechanisms for community feedback, the mechanisms for keeping the community informed, and procedures for complaints handling and resolution. | Section 4.5 to 4.6 |

## 4.2 Overview

Stakeholder and community engagement has formed an integral part of the development of the Sydney International Speedway as well as informing and scoping investigations for the Environmental Impact Statement.

The NSW Government has committed to relocating speedway racing to ensure the longevity of the sport. In November 2019, the NSW Government announced a whole of government approach to ensure that a new home for speedway racing would be built in Western Sydney.

In December 2019 the NSW Government confirmed that in principle agreement had been reached to build the Sydney International Speedway on Government land within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, to the west and south of the Sydney Dragway. Engagement with stakeholders began in November 2019 and continued during preparation of the Environmental Impact Statement.

A Precinct Working Committee (PWC) comprising Office of Sport, Sydney Metro, Western Sydney Parklands Trust, Sydney Dragway and Speedway Australia was established to coordinate the integration of the new Sydney International Speedway within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

Key stakeholders for the project include (but are not necessarily limited to):

- Sydney Dragway and Sydney Motorsport Park (operated by the Australian Racing Drivers' Club), as existing leaseholders within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- Existing users of the wider Western Sydney Parklands' precincts and adjoining lands (Eastern Creek International Karting, North Shore Sporting Car Club, driver training facilities including MotoDNA and Driving Solutions Pty Ltd, Sydney Zoo, Alpha Hotel Eastern Creek and adjoining Oak Bar and Grill)
- State government agencies (including but not limited to the NSW Department of Planning, Industry and Environment, Western Sydney Parklands Trust, NSW Office of Sport, and the National Parks and Wildlife Service)
- Local government (Blacktown City Council)

- Public utilities and business and industry groups near the project site (including Water NSW, SUEZ Eastern Creek Recovery Park, Global Renewables, and Austral Bricks)
- Special interest groups including Local Aboriginal Land Councils, Aboriginal stakeholders and sporting associations
- Racing industry bodies including Speedway Australia, speedway patrons and the wider motorsport community.

Engagement to date has sought feedback and comments from key stakeholders, including state government agencies, industry bodies and existing leaseholders within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, on the project to inform the development phase and the scope of issues to be assessed in the Environmental Impact Statement.

## 4.3 Communication and engagement objectives

Sydney Metro is committed to continuing community and stakeholder engagement on the project.

The communication and engagement objectives for the project are to:

- Inform interested and affected communities and stakeholders about the design, development and potential impacts of the project
- Build community and key stakeholder relationships and maintain goodwill
- Encourage participation and obtain government, community and stakeholder input for consideration in development of the project
- Provide information about the planning approval process and encourage community participation
- Understand community and stakeholder priorities and concerns so they can be considered in the ongoing development and delivery of the project.

## 4.4 Engagement during project development

Since the announcement by the NSW Government of the intention to relocate the existing speedway to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, engagement with State government departments and agencies, local government and relevant sporting organisations has started. The following key stakeholders were briefed via meetings and phone calls:

- Western Sydney Parklands Trust
- NSW Department of Planning, Industry and Environment
- Office of Sport
- The current operator of Sydney Speedway (Valvoline Raceway)
- Sydney Dragway
- Speedway Australia.

Ongoing stakeholder engagement has included attending meetings and workshops with stakeholders, meetings of the PWC and responding to requests for advice and information. This has enabled the consideration of ongoing stakeholder input throughout the development phase of the project. Discussions at PWC meetings that relate to environmental aspects of the project are listed in Table 4-4.

Sydney Metro is working with Speedway Australia, as the peak speedway racing body in Australia, to ensure the relevant safety standards that would apply to the Sydney International Speedway are addressed through the project design. This includes ensuring the racetrack is compliant with their 5 Star Safety Standards.

### 4.4.1 Western Sydney Motor Sport Forum – organised by the Office of Sport

The Office of Sport facilitated a forum with the motorsport community on 15 November 2019. The primary objective of the forum was to explore the opportunities and challenges for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, including the potential to co locate other motorsports within the precinct including Sydney Speedway at Clyde and Motorcycle NSW. Shortly after the forum was called, it was announced that the existing government land, currently used for speedway racing is required for a future stabling and maintenance facility as part of delivering the Sydney Metro West project (subject to separate assessment and determination).

The motor sports organisations invited and represented at the forum were:

- Sydney Motorsport Park (operated by the Australian Racing Drivers' Club)
- Sydney Dragway
- Eastern Creek Karts (EC Karts)
- Motorcycle NSW
- The current operator of Sydney Speedway (at Clyde)
- Speedway Australia
- Confederation of Australian Motor Sport (CAMS) (now Motorsport Australia).

The government agencies invited and represented at the forum were:

- NSW Office of Sport
- Transport for NSW (Sydney Metro)
- Western Sydney Parklands Trust.

Key issues and concerns that were raised as part of the forum included:

- Secure and long term tenure
- The need for a masterplan within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- The need to provide an adequate amount of car parking to service venues within the precinct
- Access improvements, including consideration of roads to be improved surrounding Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- The provision of world class facilities
- The need to provide more public transport options to and from the precinct, including bus services during events
- The potential for an internal bus service within the precinct to connect patrons from car parks to venues
- Government coordination.

Following this forum, engagement with key stakeholders commenced as part of the development of a Motorsport Precinct Masterplan, to be adopted by the Western Sydney Parklands Trust upon completion. The masterplanning process is being led by the Western Sydney Parklands Trust in cooperation with the NSW Office of Sport. The Masterplan will be informed by the issues and concerns raised at the Western Sydney Motor Sport Forum and will incorporate feedback received as submissions in response to the exhibition of the Sydney International Speedway Environmental Impact Statement. A preliminary masterplan is expected to be finalised in early 2021.

### 4.4.2 Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports masterplanning consultation (2013)

A masterplanning and feasibility study for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports was carried out by the Western Sydney Parklands Trust in November 2013. One of the options considered by this study was the relocation of Sydney Speedway within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. As part of the study, engagement including site visits and workshops were carried out with key stakeholders including the Sydney Dragway, the previous operator of the Sydney Speedway and the Australian Racing Drivers' Club as operators of Sydney Motorsport Park. The study recognised that strong industry support was available for the relocation of the Sydney Speedway within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. Additionally, the workshops identified the following issues and requirements:

- Parking and access were existing issues at the Sydney Dragway site, and any additional facilities would need to include sharing of infrastructure
- Potential concurrent timing of events at the Sydney Dragway and a future speedway in the precinct would require close cooperation
- Dust and contamination issues from waste asset management services infrastructure located to the west of the project site (though the landfill site has closed since the completion of the feasibility study).

Although this engagement was carried out some years ago and not directly for this project, these findings have been considered, where relevant, as part of the Environmental Impact Statement for the project, including:

- Chapter 6 (Traffic, transport and parking), in relation to parking and access provisions and assessment
- Chapter 9 (Air quality), in relation to the management of potential dust generated from the construction and operation of the project
- Chapter 14 (Contamination), in relation to the potential contamination risks from nearby development to the construction and operation of the project.

In addition, the findings would be considered in conjunction with the new engagement process and update of the Motorsport Precinct Masterplan being carried out with key stakeholders, separate to this project.

### 4.4.3 Public information and engagement

Community and stakeholder engagement has been carried out during the planning approvals and project development process. Sydney Metro has used a number of communication channels to call for submissions and feedback. Communication channels were targeted to reach key stakeholders, neighbouring properties and the wider community. The channels that were used to provide current information to community and stakeholders, and invite feedback, are outlined in Table 4-2.

The Scoping Report and request for Secretary's Environmental Assessment Requirements (SEARs) for the new Sydney International Speedway (being built by Sydney Metro) was lodged in March 2020 with the Department of Planning, Industry and Environment. Following the lodgement of the Scoping Report, Sydney Metro provided information to the community and stakeholders through the existing Sydney Metro website, distribution of a community newsletter and ongoing briefings with key stakeholders.

Table 4-2 Community contact and information channels

| Activity | Details |
|---|---|
| **Community toll free information line** | 1800 612 173 |
| **Community email address** | sydneymetrowest@transport.nsw.gov.au |
| **Website** | www.sydneymetro.info |
| **Postal address** | Sydney Metro West<br>PO Box K659, Haymarket NSW 1240 |
| **Project newsletter** | Distributed to community and stakeholders<br>(within two kilometre radius of the project site) |
| **E-newsletter** | Distributed to registered community members and stakeholders |

## 4.5 Engagement during preparation of the Environmental Impact Statement

Sydney Metro has continued to engage with the community and stakeholders during the preparation of the Environmental Impact Statement for the project. In line with the project's communication and engagement objectives, a number of activities have been carried out during the preparation of the Environmental Impact Statement to provide information about design development, encourage participation and input, and collect feedback from key stakeholders. Such feedback and participation has been used to further inform the investigations being carried out for the environmental assessment.

Key elements of this engagement included:

- Engagement with adjoining land owners and users including Western Sydney Parklands Trust and Sydney Dragway
- Government agency engagement including (but not limited to):
  - Updates and discussions relating to the environmental assessments with the Department of Planning, Industry and Environment
  - Engagement with the Office of Sport and Western Sydney Parklands Trust relating to the precinct masterplanning process and the coordination of events within the precinct.

- Industry specific engagement including Speedway Australia and other racing bodies
- Ongoing meetings of key stakeholders represented in the Precinct Control Group
- Community contact and information channels in place throughout the planning approval process.

Engagement with specific groups has been carried out to inform technical assessments as required.

Sydney Metro's stakeholder consultation team has ensured councils and key stakeholders are proactively engaged and informed about the project. Regular briefings have been held to keep stakeholders informed and to ensure that key issues raised are addressed.

### 4.5.1 Aboriginal stakeholder consultation

Aboriginal community consultation has been conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010* (DECCW, 2010b). A consultation log has been maintained which details all correspondence with the registered Aboriginal parties for Sydney International Speedway (see Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report) for more information).

In accordance with Stage 4.1.2 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, correspondence was sent to Aboriginal Land Councils, local councils and Aboriginal stakeholders during March and April 2020 to identify Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the project area.

In accordance with Stage 4.1.3 of the *Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010*, advertisements were also placed in the Koori Mail and Blacktown Advocate on 11 March 2020 and 18 March 2020, respectively. The advertisement invited all Aboriginal persons and organisations who hold cultural knowledge relevant to determining the significance of Aboriginal objects and places in the study area to register their interest.

Also, in accordance with Stage 4.1.3, letters and/or emails were sent on 1 April 2020 to all Aboriginal persons and organisations identified through responses from the stakeholders contacted during consultation completed in accordance with Stage 4.1.2. The correspondence provided details on the location and nature of the Sydney International Speedway as well as an invitation to register as an Aboriginal stakeholder. Fourteen days were allowed for registrations. A total of seventeen Aboriginal stakeholder groups registered their interest in the consultation process.

A representative of Deerubbin Local Aboriginal Land Council carried out a site survey in April 2020. The representative noted the level of 'destruction from levelling and landscaping' in areas within the project site and as a result no Aboriginal cultural material was identified. Two areas of Potential Archaeological Deposits were identified within the study area in areas which had not been subject to widespread landscaping work. These are located outside of the project site. Consideration of these areas within the assessment is provided in Chapter 10 (Aboriginal heritage).

A copy of the proposed assessment methodology was distributed to Aboriginal stakeholders on 24 April 2020, with a 28 day period for review and comment. Comments were received from six Aboriginal stakeholder groups. All comments supported the assessment methodology for the project. In addition, comments noted that Eastern Creek is highly spiritual and significant to Aboriginal people. Further details are provided in Chapter 10 (Aboriginal heritage).

Further consultation would be carried out with Aboriginal stakeholders during the exhibition of the Environmental Impact Statement and any outcomes would be incorporated into the final version of Technical Paper 5 (Aboriginal cultural heritage assessment report).

### 4.5.2 Stakeholder and community feedback

#### Technical input provided through stakeholder engagement

In addition to formal engagement as part of the planning approvals process, engagement with stakeholders has been used to inform the scope and assumptions of environmental assessments within this Environmental Impact Statement. A summary of the technical input provided by stakeholders during the preparation of the Environmental Input Statement is provided in Table 4-3.

Table 4-3 Technical input provided through stakeholder consultation

| Stakeholder | Input | Reference |
|---|---|---|
| **Department of Planning, Industry and Environment** | Discussions to inform the approach to and scope of the Environmental Impact Statement throughout the planning approval process. | Throughout this Environmental Impact Statement. |
| **Sydney Dragway** | Assumptions relating to the traffic volumes associated with visitors to the Sydney Dragway to determine the existing environment for the traffic and transport assessment, dust mitigation and control and car parking. | Chapter 6 (Traffic, transport and parking), Technical Paper 1 (Traffic, transport and parking), Chapter 9 (Air quality) and Technical Paper 4 (Air quality) |
| **Noise specialists within Department of Planning, Industry and Environment** | Discussion regarding the appropriate criteria for operational noise assessment. | Chapter 7 (Noise and vibration) and Technical Paper 2 (Noise and vibration) |
| **Aboriginal stakeholders including Deerubbin Local Aboriginal Land Council** | Cultural knowledge relating to Aboriginal heritage to inform the assessment on Aboriginal heritage. Further information on this input is provided in Section 4.5.1. | Chapter 10 (Aboriginal heritage) and Technical Paper 5 (Aboriginal cultural heritage assessment report). |
| **Blacktown City Council** | Existing water quality monitoring data for Eastern Creek, used to determine the existing environment for the assessment of potential impacts on surface water quality.<br>Local flood models for Eastern Creek and confirmation that there were no Council stormwater assets in the area were used in the flooding and hydrology assessment of this Environmental Impact Statement. | Chapter 13 (Soils and surface water quality) and Chapter 16 (Flooding and hydrology) |
| **Sydney Water** | Existing water quality monitoring data for Eastern Creek and the Upper Canal, used to determine the existing environment for the assessment of potential impacts on surface water quality. | Chapter 13 (Soils and surface water quality) |

### Issues raised during stakeholder engagement

At least 26 meetings and briefings with stakeholders have been held to date. Table 4-4 provides a summary showing the issues raised by key stakeholder groups and how they were addressed through the Environmental Impact Statement.

Table 4-4 Summary of issues raised during stakeholder engagement and where they are addressed in the Environmental Impact Statement

| Stakeholder | Type of consultation and environmental issues raised | Response |
|---|---|---|
| **Western Sydney Motorsport Precinct Forum:**<br>• **Australian Racing Drivers Club (ARDC)**<br>• **Western Sydney International Dragway (Sydney Dragway)**<br>• **Eastern Creek Karts**<br>• **Motorcycle NSW**<br>• **The current operator of Sydney Speedway (at Clyde)**<br>• **Speedway Australia**<br>• **Motorsport Australia (formerly Confederation of Australian Motor Sport)** | A workshop was facilitated on 15 November 2019 with key stakeholders of the Western Sydney Motorsport Precinct Forum.<br>Key issues relevant to the project that were discussed as part of the forum included:<br>• Provision of adequate car parking as part of the project design<br>• Access – roads to be improved<br>• Consideration of public transport options<br>• Potential for an internal bus schedule to connect patrons from car parking areas to venues within the precinct.<br>Other issues relevant to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports that were discussed as part of the forum included:<br>• The need for a Masterplan for the precinct<br>• General consensus that there is a fantastic opportunity for motorsports to have world class facilities on site<br>• Opportunities for collaboration among codes to strengthen motor sports.<br>• Secure and long term tenure. | A description of the features of the project that relate to car parking and access is provided in Chapter 5 (Project description) of this Environmental Impact Statement.<br>An assessment of car parking, and public and active transport is included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of this Environmental Impact Statement.<br>A consultative process is underway with key stakeholders of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports to develop a Motorsport Precinct Masterplan, to be adopted by the Western Sydney Parklands Trust upon completion. A preliminary Masterplan will be finalised in early 2021.<br>The Masterplan is outside of the scope of the project and this Environmental Impact Statement; however, development of the Masterplan will incorporate feedback received during public exhibition of this Environmental Impact Statement. |
| **Precinct Working Committee:**<br>• **Office of Sport (chair)**<br>• **Sydney Metro**<br>• **Western Sydney Parklands Trust**<br>• **Sydney Dragway**<br>• **Speedway Australia** | Six working committee meetings have been held since December 2019. The group meets about every four weeks and includes discussion and consultation on project planning and design, construction and operation of the new Speedway and the precinct Masterplan. Subject matter experts are enlisted where required (for example to discuss dust management or mitigation).<br>Key issues that have been raised include:<br>• Provision of adequate car parking as part of the project design<br>• Impacts of the project during construction and operation including dust and noise<br>• Event coordination. | A description of the features of the project that relate to car parking and access is provided in Chapter 5 (Project description) of this Environmental Impact Statement.<br>An assessment of car parking and traffic during construction and operation of the project is included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of this Environmental Impact Statement.<br>Potential air quality impacts of the project during construction and operation, including dust deposition at the Sydney Dragway have been considered as part of the air quality impact assessment for the project, as included in Chapter 9 (Air quality) and Technical Paper 4 (Air quality) of this Environmental Impact Statement.<br>Potential noise impacts of the project have been assessed in Chapter 7 (Noise and vibration) and Technical Paper 2 (Noise and vibration) of this Environmental Impact Statement.<br>Agreements have been reached with Sydney Dragway regarding event coordination and a Major Event Operations Plan has been proposed for adoption by Motorsport Precinct operators. |

| Stakeholder | Type of consultation and environmental issues raised | Response |
|---|---|---|
| **Blacktown City Council** | A project briefing and consultation on key aspects relevant to council has been carried out throughout the project development to date. Issued discussed as part of this consultation has included:<br>• Traffic management<br>• Provision of adequate car parking within the project site to prevent vehicles parking on the local roads<br>• Potential environmental impacts of the project which is the responsibility of Blacktown City Council. | An assessment of car parking and traffic is included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of this Environmental Impact Statement.<br>An assessment of impacts offsite from the project, including flooding and soils and surface water which may interact with areas that may be managed by Blacktown City Council is included in Chapter 6 to Chapter 23 of this Environmental Impact Statement. |
| **Western Sydney Parklands Trust** | Ongoing engagement with Western Sydney Parklands Trust has taken place at all stages of the project since initial discussions about the location of the new Speedway.<br>Key issues discussed include<br>• Lease negotiations with Sydney Dragway<br>• Potential environmental impacts of the project on land owned and managed by Western Sydney Parklands,<br>• Design and landscaping<br>• Precinct operations<br>• Potential property impacts. | Further information regarding the potential locations that were considered for the project is provided in Chapter 2 (Strategic need, justification and project alternatives) of this Environmental Impact Statement.<br>The project's urban design and sustainability considerations, and the consistency of the project with the Western Sydney Parklands Design Manual (Version 2) (Western Sydney Parklands Trust, 2018) are provided in Chapter 5 (Project description) of this Environmental Impact Statement. An assessment of the design in the context of the existing landscape character and visual amenity is provided in Chapter 12 (Landscape character and visual amenity) and Technical Paper 7 (Landscape character and visual amenity) of this Environmental Impact Statement.<br>An assessment of the potential property and land use impacts of the project is provided in Chapter 18 (Property and land use).<br>The Motorsport Precinct Masterplan is currently in development, to be adopted by Western Sydney Parklands Trust upon completion. The Masterplan will include a Major Events Operations Plan that will be informed by the results of the relevant assessments in this Environmental Impact Statement. |

| Stakeholder | Type of consultation and environmental issues raised | Response |
|---|---|---|
| **Sydney Dragway** | Regular engagement with Sydney Dragway has been carried out since November 2019 throughout the design development of the project, and as part of the preparation of the Environmental Impact Statement. This has included regular meetings, project briefings and engagement during site visits. Where reasonable, feedback from Sydney Dragway has been incorporated into the project design.<br>Key issues include:<br>• Design of the project, including car parking and access arrangements<br>• Impacts of the project on Sydney Dragway during construction and operation, including dust and traffic management<br>• Event coordination. | A description of the features of the project that relate to car parking, access and dust screening is provided in Chapter 5 (Project description) of this Environmental Impact Statement.<br>An assessment of car parking, and public and active transport impacts associated with construction and operation of the project is included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of this Environmental Impact Statement. The Major Events Operation Plan being developed to support the masterplan incudes arrangements for the coordination of major events to minimise conflicts and traffic, parking, noise and dust impacts. This includes providing individual motorsports operators with exclusive access to the project site and car parking areas at certain agreed dates during the year. Other operators can hold concurrent events on these dates only with the approval of the operator with exclusive access.<br>Potential air quality impacts of the project during construction and operation, including dust deposition at the Sydney Dragway have been considered as part of the air quality impact assessment for the project, as included in Chapter 9 (Air quality) and Technical Paper 4 (Air quality) of this Environmental Impact Statement.<br>As part of the management of potential dust impacts to the Sydney Dragway, dust trigger levels would be established based on a dust monitoring program. The construction contractor and Speedway operator would manage their activities in accordance with an air quality management plan to maintain safe operations at Dragway. |
| **Speedway Australia** | Speedway Australia is a member of the Project Working Committee. Additional feedback from Speedway Australia has been sought in developing the detailed design through detailed design briefings, meetings, emails and phone calls.<br>Feedback has also been sought from other operating Speedways in Australia and New Zealand including BayPark Speedway (NZ), Perth Motorplex and other operating speedways. | Feedback from Speedway Australia has been instrumental to shaping the design of the new Speedway. Representatives of Speedway Australia have advised on and provided feedback on matters such as operational requirements, safety and design. Such features that are relevant to the assessments of this Environmental Impact Statement are noted in Chapter 5 (Project description). |

| Stakeholder | Type of consultation and environmental issues raised | Response |
|---|---|---|
| **Sydney Motorsport Park (operated by ARDC)** | Regular project updates are provided to ARDC. Key discussions with ARDC management have related to the sporting calendar (particularly in relation to major events and coordination planning) and parking arrangements. | A description of the features of the project that relate to car parking and access is provided in Chapter 5 (Project description) of this Environmental Impact Statement. An assessment of car parking is included in Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) of this Environmental Impact Statement.<br>An assessment of the potential impacts of the project on local businesses including the Sydney Motorsport Park is provided in Chapter 17 (Socio-economics) and Technical Paper 9 (Socio-economics) of this Environmental Impact Statement.<br>Coordination of events across the precinct would be through a Major Event Operations Plan developed as part of the Motorsport Precinct Masterplan that is currently in development, to be adopted by Western Sydney Parklands Trust upon completion. The Masterplan is outside of the scope of the project and this Environmental Impact Statement; however, the Masterplan and Major Event Operations Plan would be informed by the results of the relevant assessments in this Environmental Impact Statement. |
| **Motorsport Australia (formerly CAMS)** | Submission received seeking involvement with the design of the new Speedway project. | Engagement with Motorsport Australia will occur through the development of the Motorsport Precinct Masterplan, which will look at operations and scope for growth across the entire precinct. The Masterplan is outside of the scope of the project and this Environmental Impact Statement. |
| **North Shore Sporting Car Club (NSSCC)** | Letter received seeking involvement with the design of the new Speedway project. | An assessment of the potential impacts of the project on existing motorsport clubs has been carried out as part of the socio-economic assessment provided in Chapter 17 (Socio-economics) and Technical Paper 9 (Socio-economics) of this Environmental Impact Statement.<br>Motorsport clubs hold occasional events in the southern portion of the project site. This site would be required from the start of construction and would no longer be available for such uses. The Motorsport Precinct Masterplan process being led by Western Sydney Parklands Trust (including consultation) would aim to provide an appropriate venue for all existing motorsport users in the precinct.<br>The Masterplan is outside of the scope of the project and this Environmental Impact Statement. |

### 4.5.3 Contact statistics

Table 4-5 outlines the contacts received by Sydney Metro during development of the project and preparation of the Environmental Impact Statement (between October 2019 and May 2020).

Table 4-5 Contact statistics

| Activity | Number of contacts |
|---|---|
| **Calls to 1800 612 173** | 6 |
| **Emails to and from** sydneymetrowest@transport.nsw.gov.au | 57 |
| **Website visitors** | 2327 |
| **Doorknocks** | 6 |
| **Works notifications** | 19 |
| **Newsletter and publication distribution** | 135 printed newsletters distributed<br>601 downloads of the online newsletter |
| **Submissions** | 2 |
| **Stakeholder engagement** | 27 |
| **Industry engagement** | 10 |

## 4.6 Future consultation and engagement

### 4.6.1 Public exhibition of the Environmental Impact Statement

Public exhibition of the Environmental Impact Statement will be for a minimum of 28 days as stated in *Environmental Planning and Assessment Act 1979*. During the exhibition period, government agencies, stakeholders and the community will be able to review the Environmental Impact Statement and will have an opportunity to make a written submission to the Department of Planning, Industry and Environment for consideration in its assessment of the project.

Consultation activities during public exhibition of the Environmental Impact Statement will include:

- The establishment of a virtual community information room
- Place manager introduction cards including translation information
- Newsletter letterbox drop and email issue
- Information on the project website
- Hard copies available on request
- Stakeholder meetings
- Local business engagement
- Government stakeholder engagement
- Place Manager as ongoing contact for community and stakeholders.

**Submissions report**

At the completion of the public exhibition period for the Environmental Impact Statement, the Department of Planning, Industry and Environment will collate and provide Sydney Metro with a copy of all submissions received. After reviewing the submissions, Sydney Metro will prepare a submissions report that responds to the relevant issues raised. The submissions report will be made publicly available on the Department of Planning, Industry and Environment website. Anyone making a public submission will receive a letter notifying them of the publication of the submissions report on the Department of Planning, Industry and Environment website.

If changes are required to the project as a result of the issues raised in submissions or to minimise environmental impact, a Preferred Infrastructure Report or Amendment Report may also be required. If this is required, Sydney Metro would prepare the report to address the changes to the design and submit this for review to the Department of Planning, Industry and Environment. This report would be made available to the public.

### 4.6.2 Engagement during construction

Should the project be approved, engagement would continue with the community and key stakeholders during construction. In general, this engagement would involve:

- Ongoing engagement with key stakeholders, local councils and other government agencies
- Ongoing meetings and regular briefings of the PWC
- Provision of regular updates to the nearby communities
- Development and implementation of a community complaints and response management system.

Engagement with stakeholders and the community would be guided by the Sydney Metro Overarching Community Communications Strategy, which provides Sydney Metro's framework for communication and engagement during construction. The Overarching Community Communications Strategy outlines the following as relevant to the construction of the project:

- Approach, objectives, principals, and tools to be used
- Team structure, roles and responsibilities
- Communication protocols and procedures to be followed
- Key stakeholders
- Approach to low impact works or preparatory activities
- Approach to reporting and evaluation.

The Overarching Community Communications Strategy forms part of the communication strategy hierarchy for Sydney Metro, which also includes the following:

- A contract specific Community Communication Strategies to be developed by the successful construction contractor (once appointed), which would address contract and site specific needs of the community, stakeholders and businesses. These strategies would be prepared to reflect the requirements of the Overarching Community Communications Strategy and the construction contract for the project
- A construction complaints management system, which would outline the framework for managing complaints, enquiries and escalation processes throughout the project lifecycle, as well as the process for reporting complaints received.

The Overarching Community Communications Strategy is provided as Appendix D of this Environmental Impact Statement.

# 5 Project description

# 5 Project description

This chapter describes the Sydney International Speedway, including a description of the project site layout and operational features, as well as the construction work required. The design of the project set out in this chapter forms the basis of the environmental assessment carried out for this Environmental Impact Statement.

## 5.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to the project description, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 5-1.

Table 5-1 Secretary's Environmental Assessment Requirements – Project description

| Reference | Secretary's Environmental Assessment Requirements | Where addressed |
|---|---|---|
| **2. Environmental Impact Statement** | | |
| **2.1** | The EIS must include, but not necessarily be limited to, the following:<br>b. a description of the project, including key components and activities (including ancillary components and activities) required to construct and operate it including:<br>• project overview | This chapter |
| | • scope of work to construct the project, including key activities, description of methodologies, working hours, indicative plant and equipment to be used | Section 5.6 |
| | • timing of key construction activities | Section 5.6.3 |

## 5.2 Overview

An overview of the project is shown in Figure 5-1.

Key features of the project would include:

- Construction of the Sydney International Speedway, including enabling and temporary works, earthworks and land forming activities, construction of project infrastructure, environmental management measures, utilities connections, landscaping and finishing works. Additional information regarding construction of the project is provided in Section 5.6
- Operation of the Sydney International Speedway for local, regional, national and international racing events. This would include racing infrastructure, event support infrastructure and operational support infrastructure.

A description of the operational site layout is provided in Section 5.3 and additional information about operation of the project is included in Section 5.4.

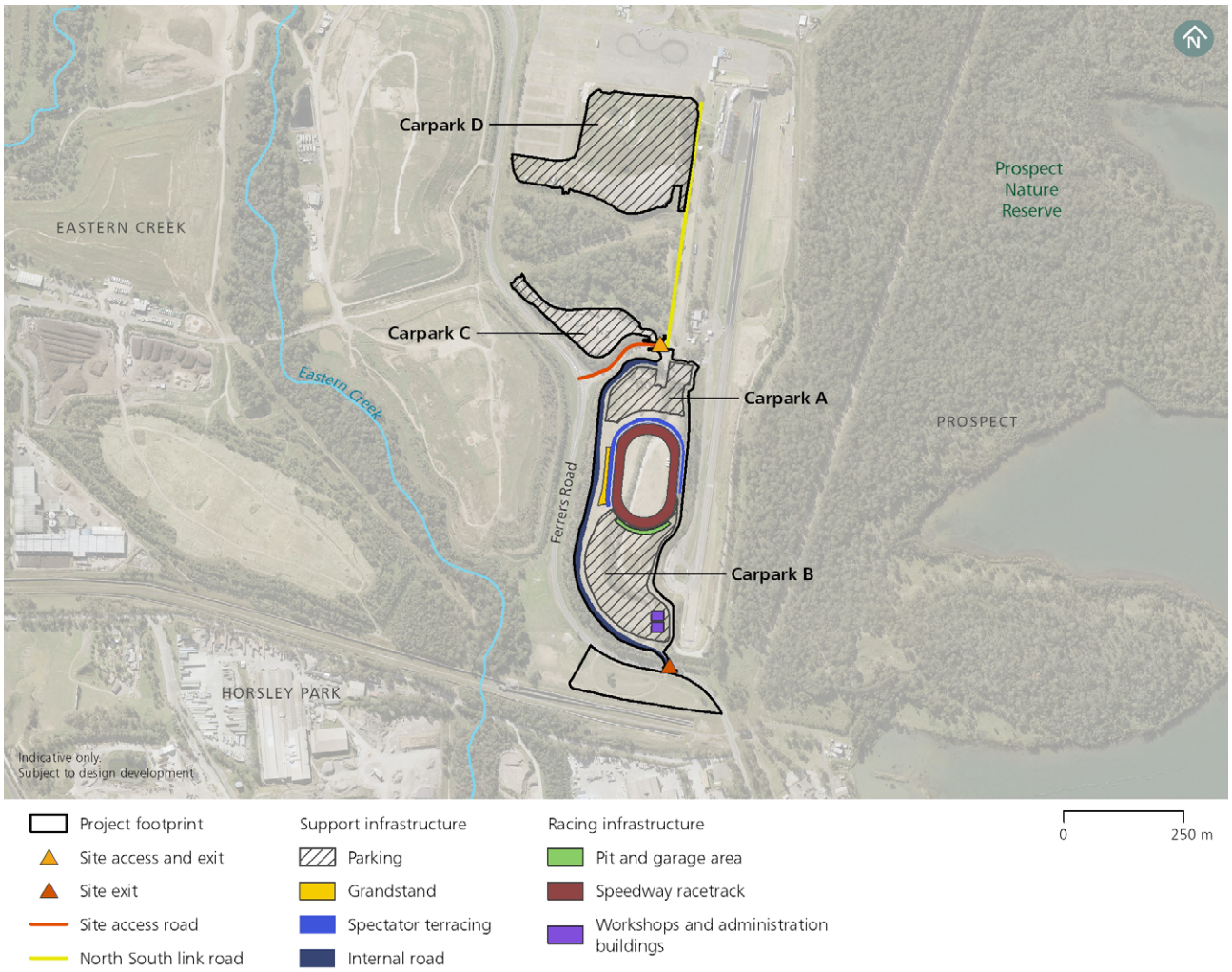


Figure 5-1 Overview of the project

## 5.3 Site layout

The layout of the project site has been divided into three sections:

- The main operational site, consisting of the racetrack, pit areas and adjacent parking areas (Carparks A and B)
- Dedicated Sydney Dragway carparking areas (Carparks C and D)
- Landscaping in the southern area.

The project's operational site layout is provided in Figure 5-1 and the key features are described in Section 5.3.1 to 5.3.5.

### 5.3.1 Car parking

The car parking areas for the Sydney International Speedway are shown on Figure 5-2. Two types of parking would be provided as part of the project:

- Carparks A and B would be dedicated parking for users and visitors of the Sydney International Speedway within the main operational site. These carparks would primarily cater for project-specific vehicle parking during operation but would be available for use by other motorsport operators within Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports by agreement
- Carparks C and D would be new areas of dedicated parking for Sydney Dragway to replace the existing spectator parking areas that would form part of the Sydney International Speedway project site. The new Sydney Dragway parking would be available for use by other motorsport operators by agreement.

All car parking areas would include asphalt pavement with some landscaping around parking area boundaries. A summary of the parking spaces to be provided as part of the project is provided in Table 5-2.

Table 5-2 Summary of car parking areas

| Car park area | Competitor parking | | Visitor and spectator parking | |
|---|---|---|---|---|
| | Yes/No | Estimated number of parking spaces | Yes/No | Estimated number of parking spaces |
| A | No | - | Yes | 600 |
| B | Yes | 150 | No | - |
| C | No | - | Yes | 460 |
| D | No | - | Yes | 1760 |
| **Total** | **150** | | **Dedicated Sydney International Speedway parking spaces: 600**<br>**New dedicated Sydney Dragway parking spaces: 2220** | |

The existing Sydney Dragway carparking areas would be modified to form the project carparking, as shown on Figure 5-2. The project includes construction of Carparks C and D to provide dedicated parking for Sydney Dragway to replace the existing spectator parking areas for Sydney Dragway that would form part of the Sydney International Speedway project site. The Sydney Dragway site would need to be subdivided to partition the land required for the project from the Sydney Dragway site and the application for project approval includes this subdivision.

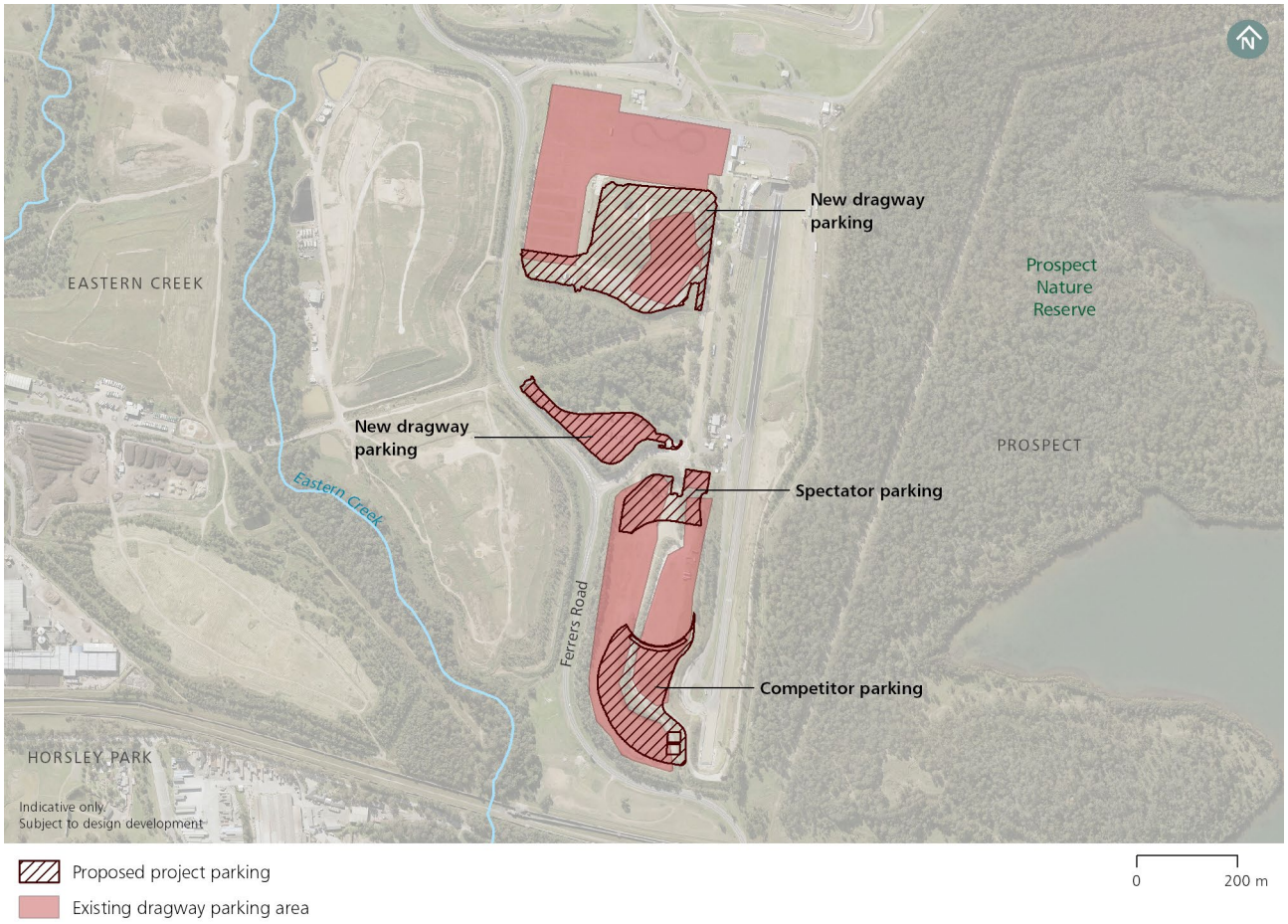


Figure 5-2 Overview of project car parking

### 5.3.2 Site access and internal roads

Site access points and internal roads for the project are shown on Figure 5-1.

#### Site access

Entry to the Sydney International Speedway project site would be via the existing Sydney Dragway spectator access road (herein referred to as the site access road) from Ferrers Road. The site access road would be used by all vehicles parking in all areas of the project site.

New pedestrian infrastructure would be provided along the existing North South Link Road to improve connectivity between the carparking areas and the main operational site. New kerbs and signage would also be incorporated into the existing roundabout on the site access road.

Vehicles that park in Carpark B would exit the project site via a new, left only T intersection at the south of the project site onto Ferrers Road. Spectators parked in Carparks A, C and D would exit via the site access road and then onto Ferrers Road using the existing unsignalised T intersection. Vehicles would be able to turn left or right onto Ferrers Road from the site access road. Some spectator vehicles parked in Carparks A, C and D could leave via the new southern exit if required to ease pressure on the site access road and existing intersection.

Signposting with wayfinding infrastructure would be provided along Ferrers Road to provide site entry and exit information.

#### Internal roads

The existing North South Link Road would connect Carparks C and D with the main operational site via the site access road.

An internal one way road would be constructed along the western boundary of the main operational site. This road would provide access from the roundabout along the site access road through the main operational site to the competitor pit area, Carpark B and the new exit in the south.

### 5.3.3 Racing infrastructure

Racing infrastructure which would be provided as part of the project includes:

- A racetrack, benchmarked to national and international best practice
- Competitors pit area and garages
- Track side operational support areas.

#### Racetrack

The Sydney International Speedway would have a clay-based racetrack benchmarked to national and international best practice and compliant to the following standards:

- Speedway Australia 5 Star Track Standards (highest rating)
- FIM (Fédération Internationale de Motocyclisme).

The speedway car racetrack circuit would be around 460 metres in length and would vary in width from around 18 metres along the straight sections, to around 22 metres around the bends. The facility would also provide for speedway bike racing. The speedway bike circuit would sit within the speedway car circuit. The speedway bike racetrack circuit would be around 345 metres in length and would vary in width from around 12 metres along the straight sections, to around 16 metres around the bends.

The surface of the racetrack would consist of locally sourced Sydney clay material, most likely with other composite materials added to assist with dust minimisation.

Racetrack design specifications that have been applied to the design of the project as identified from the abovementioned standards and through consultation with Speedway Australia (refer to Chapter 4 of this Environmental Impact Statement for more information relating to consultation) include:

- Thickness and composition of the racetrack surface material
- Safety fencing with a minimum height of 1.2 metres around the perimeter of the racetrack
- Other track features such as banking and access gates.

#### Competitors pit area and garages

The pit area and garages would be located to the south of the racetrack and would include:

- Provision for up to 20 enclosed pit garages, with entry and exit lanes to the Speedway racetrack
- A hardstand competitors area, able to accommodate up to 150 competitors, including vehicles (transport and racing vehicles)
- Competitors amenities block.

#### Trackside operational support

Trackside operational support would include a maintenance workshop shed and buildings for Speedway administrative staff.

The maintenance workshop would comprise an enclosed shed for the storage of equipment and vehicles / plant to be used for Speedway events.

Event operations staff would use garage buildings in the competitor pit area for vehicle scrutineering and race control, and a separate office building for controlling competitor pit area access. Administrative staff would use office space in the top level of the grandstand building.

### 5.3.4 Event support infrastructure

High quality event support infrastructure would be provided to maximise spectator experience at speedway events. This infrastructure is summarised in Table 5-3, and shown on Figure 5-1.

Table 5-3 Event support infrastructure

| Project component | Description |
|---|---|
| **Grandstand facility** | The two-storey grandstand would be positioned to the west of the racetrack and would be able to accommodate up to about 3750 spectators. The grandstand would include:<br>• About twenty corporate box facilities on the upper level<br>• Lift access to the second storey<br>• Public amenity facilities<br>• About six air-conditioned food, beverage and merchandise outlets. |
| **Open terraced seating** | Open terraced seating would be provided along the northern and eastern perimeter of the racetrack. |
| **Ticketing and entryway structures** | Turnstiles and ticketing would be provided on the northern side of the grandstand between the grandstand and Carpark A. |

### 5.3.5 Operational support infrastructure

#### Stormwater management

A pit and pipe system would be installed across the project site to collect and transport stormwater runoff into stormwater drains. Water would then flow to the on-site detention tanks located across the project site before being treated (as required). Stormwater runoff would ultimately be discharged into the existing culverts underneath Ferrers Road and from there flow into local waterways. The stormwater drainage system for the project would be designed to have the capacity to convey stormwater flows from the whole project site during a 100 year average recurrence interval (ARI) storm event to the stormwater drainage system.

Water sensitive urban design features have been incorporated into the project stormwater design, including but not limited to the provision of open swales, gross pollutant traps and rainwater harvesting tanks. These features aim to achieve compliance with the Blacktown City Council water quality targets for pollutants in stormwater discharge.

The roof drainage and overflow system for the grandstand facility would be sized to cater for:

- Rainfall intensity equivalent to a 20 year ARI storm event of five minutes duration discharge for eaves, gutters and surface outlets in noncritical areas (areas where a suitable overflow may be provided for higher storm intensities and durations)
- Rainfall intensity equivalent to a 100 year ARI storm event of five minutes duration for box gutters and roof and surface outlets in critical areas (areas where overflow may be provided for higher storm intensities and durations in piped construction).

The stormwater drainage system on the project site has been designed to prevent stormwater entering the office and administration building during a 100 year ARI storm event, and designed in accordance with National Construction Code requirements.

### Onsite detention

Onsite detention storage tanks would be located in the car park areas, beneath the racetrack and beneath the terraced seating area. They would be sized to provide adequate system capacities and mitigate potential flood impacts and increases in stormwater discharge from the project site.

In addition to the on-site detention tanks, there would also be three rainwater harvesting tanks across the main operational site with a combined capacity of around 200 cubic metres. The rainwater tanks would collect surface runoff and runoff from the grandstand roof for nonpotable uses within the project site, including:

- Irrigating the track during a race event
- Flushing toilets and for use within the garbage room of the grandstand facility
- Hose taps and at washdown areas across the project site.

The rainwater harvesting system may also receive the discharges from the fire services (fire hydrant and fire sprinkler testing). Overflow from the rainwater harvesting tanks would be discharged via a pit and pipe system to other on-site detention tanks across the project site before discharge off site through drainage outlets.

### Waste water management

Waste water would include a combination of discharge from amenity buildings, trade waste and grease waste. A plumbing system would convey the flow of waste water from the project site via gravity to the existing Sydney Dragway connection to the Sydney Water sewer main for discharge via Brabham Drive. Additional storage tanks are likely to be required to increase the capacity of the waste water system during events. An internal pressure sewer system would be required to transfer the domestic sewage to the existing system for locations where gravity-fed discharge isn't possible.

All trade and grease waste discharges would be pre-treated prior to entering Sydney Water's sewer main. Trade waste would include liquid discharges from racetrack facilities including wash down areas, pit facilities, waste management areas, loading docks and garage workshop areas. Grease waste would comprise liquid discharges from retail areas with hot food cooking operations and bin wash areas.

The systems would be designed in accordance with Sydney Water's trade waste policy requirements and would be subject to Sydney Water's conditions and approval. Garage workshops and car wash bay waste water discharges would be pre-treated via a coalescing plate oil water separator prior to discharge to the sewer drainage system.

### Signage

All proposed wayfinding and signage for the project would be developed in accordance with the Western Sydney Parklands' Design Manual (Design Manual) (Western Sydney Parklands Trust, 2018). This would include signage relating to the entry point, directional signage for vehicles, identification signage for the main facilities and amenities, and pedestrian and wayfinding signage for spectators and visitors to the project site.

There would also be a number of advertising opportunities that would be provided by the operator. Video screens would be provided within the raceway for streaming the event and replays for viewing during the event by spectators.

Signage external to the Sydney International Speedway would include the temporary use of variable messaging systems for wayfinding along Ferrers Road during race events.

### Lighting

The speedway track would be lit during night time events via a series of LED floodlights mounted on the grandstand roof and on poles around the racetrack. Lighting would be provided to undercover spectator viewing areas where required.

There would be lighting provision to all external areas of the project, including vehicular roadways, pedestrian pathways, pit bays and carparks. Lighting would generally be provided to the recommendations of Australian Standard *AS1158 Lighting for roads and public spaces* and Australian and New Zealand Standard AS/NZS 4282:19 *Control of the obtrusive effects of outdoor lighting*. Lights would incorporate LED technology and would generally be pole mounted and where required building mounted. External lighting would be controlled via a daylight sensor.

Interior lighting would be provided to all accessible buildings within the project site. Lighting would generally be provided to the recommendations of Australian Standard *AS1680 Interior Lighting* depending on the specific use of the space and tasks carried out, and would incorporate LED technology. Interior lighting would be provided to but not limited to internal circulation areas, amenities, corporate boxes, maintenance sheds and workshops. Emergency and exit lighting would be provided to all internal areas.

### Communications

Information and communications technology infrastructure that would be installed for the functioning of the Sydney International Speedway include a public address system, CCTV for security and audio and visual requirements for broadcasting of race events and streaming of the race onto a video screen. New communications connections (telephone and fibre optic network to suit internet broadcasting bandwidth and PA/AV provisions) would be via new pit and conduit systems to dedicated carrier connections to external networks.

### Dust management

Consultation with Sydney Dragway has identified airborne dust settling on the dragway track as a key issue for concern given the potential to disrupt racing. As a result, dust control and mitigation measures have been developed as part of the racetrack design, layout and operational procedures to minimise dust generation. This includes a vertical mesh screen and vegetation planting to the northeast of the racetrack, behind the terracing, to decrease wind speeds and drop out airborne dust particles as they migrate off site. The screen would be around 25 metres high (above the speedway track level), to align with the mature height of the proposed vegetation behind it. The screen's location to the north-east of the track has been selected based on the most common wind direction (south westerly) and to manage potential dust impacts on the neighbouring Sydney Dragway.

Additional dust control measures would include potentially combining the clay material for the racetrack with additives to minimise the mobilisation of dust during the use of the racetrack and the use of water suppression during race events.

Dust mitigation and control protocols have been agreed and would be incorporated in both the dragway lease and the speedway lease. The protocols include the determination of baseline dust levels through a dust monitoring program and setting dust trigger levels that would avoid impact on Dragway operations supported by an air quality management plan to identify specific dust control measures. The Speedway operator would be required to manage the facility and race events within the dust trigger levels. During speedway operations real time dust monitoring would be carried out at the Sydney Dragway. If the trigger levels are exceeded during an event speedway racing would cease until the track surface is appropriately treated.

An assessment of the project's potential dust impacts is provided in Chapter 9 (Air quality) and Technical Paper 4 (Air quality) of this Environmental Impact Statement.

## 5.4 Operation

### 5.4.1 Racing events

The Sydney International Speedway would have the ability to be operational year-round, though most events would be held during the typical speedway racing season (September to May). The Sydney International Speedway would have the ability to be used for a variety of dirt track racing events, including those currently able to be held at the Sydney Speedway, including but not limited to:

- Sprint cars
- Wingless Sprints
- Street stockers
- V8 Dirt modifieds
- Formula 500s.

The new facility would also be designed to accommodate speedway bike racing.

On average, it is expected that there would be about four major events held at the speedway each year, attracting around 4000 to 6000 people per event. Based on the Sydney Speedway 2019-2020 season schedule (45 racing events per year) it is anticipated that there would be an average of one event at the Sydney International Speedway per week across the racing season, with a number of midweek events (typically Wednesday and Friday nights) across the Christmas and early January period. The smaller events spread frequently across the racing season are expected to attract around 500 to 1500 spectators per event.

The racing events would typically be held on Saturdays with gates opening about 2pm and racing occurring in the early evening between 6pm and 10pm. Some events might then conclude with firework displays.

There are typically 60 to 120 competitors per race event, with each competitor requiring parking for a racing vehicle that would be used on the racetrack, and for a larger vehicle that transports the racing vehicle(s) to and from the speedway. These vehicles would be parked within Carpark B.

### 5.4.2 Traffic movements and parking

Peak traffic movements would coincide with race event times, particularly later in the evening when large volumes of patrons would be leaving the speedway at the same time. The majority of vehicles travelling to and from the Sydney International Speedway would be light vehicles, but there would also be heavy vehicles associated with the transportation of racing vehicles. It is expected that all visitor vehicles would be parked on site within Carparks A and B, with Carparks C and D available for use during major speedway events. No parking would be expected outside of the project site, including along local roads.

An assessment of the parking capacity of the project site is included in Chapter 6 (Traffic, transport and parking) for major events at the project site, and during concurrent events at the Sydney International Speedway and Sydney Dragway. For major events and during concurrent events, the project would operate in accordance with a Motorsport Precinct Major Event Operations Plan (MEOP) which would provide a framework for the management of major events within the Motorsport Precinct for the benefit of all operators, competitors, spectators, and the public.

A limited number of vehicle movements would be associated with the operation of the Sydney International Speedway outside of racing events (see Section 5.4.3). These would include:

- Light vehicles associated with commuting movements of speedway employees
- Waste management
- Deliveries.

### 5.4.3 Maintenance and other operational activities

Outside of racing events, ongoing operational activities would include general administration and maintenance of the racetrack and supporting facilities to a good condition. Operational staff would be based at the speedway part time to enable preparation of the Sydney International Speedway for race events and clean up and waste management following events.

Ongoing maintenance activities would be carried out regularly throughout the operational life of the project. Relevant activities and management measures would be detailed in the OEMP. Maintenance would include, but not be limited to:

- **Track maintenance** - ongoing upkeep and preparation of the racetrack and its surfacing so that it meets the required standards (see Section 5.3.3) and is in accordance with the Air Quality Management Plan. This includes watering the speedway racetrack on a regular basis to reduce windblown dust
- **Pavements** - ongoing surface and joint repair depending on the pavement type, with subgrade repair where necessary
- **Stormwater** - regular sediment and pollutant clean out and repairs to drainage infrastructure, including six monthly maintenance of gross pollutant traps
- **Electrical and communications equipment** - ongoing maintenance and replacement where necessary of equipment such light poles, CCTV, and video screen
- **Line marking and other ancillary road furniture** - line marks would be re-lined and road furniture repaired or replaced as necessary
- **Fencing and gates** - ongoing fence and gate repair
- **Landscaping** - ongoing management of the landscaped areas of the project site to ensure long term viability of planting.

### 5.4.4 Operational environmental management plan

An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway (once appointed). The Operational Environmental Management Plan would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. It is anticipated that a number of operational related management plans would be prepared for the Sydney International Speedway, and would (along with others) form the basis of the Operational Environmental Management Plan including:

- Traffic Management Plan
- Air Quality Management Plan
- Noise Management Plan
- Stormwater and Drainage Design Drawings
- Waste Management Plan.

## 5.5 Urban design and sustainability considerations

### 5.5.1 Urban design statement

The Sydney International Speedway project would be a carefully designed addition to the Western Sydney Parklands that would reconcile the design requirements for new facilities in the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and the objectives of the Western Sydney Parklands Trust. It has been important to balance the technical requirements of a sports racing venue with the environmental and design objectives of the Western Sydney Parklands Trust. The result is a world-class venue that can fulfil the growing demands of the sport, its participants, spectators and local stakeholders.

The design considers the protection of the Cumberland forest and has consciously surrounded all carparking areas with new vegetation to better integrate into the precinct. Vegetation is selected from the Western Sydney Parklands Trust endemic species list, and where possible the carparking spaces and spectator seating have incorporated turf and permeable surfaces to reduce the urban heat island effect. There are designated carparks that remain in asphalt so that they can be used for the sport of 'drifting', and operate as large open-air event spaces.

The primary architecture of the venue has adopted the Western Sydney Parklands Trust recommendations for pavilion buildings. The long and low building form with overhanging roof looks more like a park pavilion than a grandstand. The roof form creates deep shade from the western sun, with strategic planting distributed to reduce the heat load on paved surfaces and buildings. With consistent design quality, the smaller ancillary buildings are a collection of shaded pavilions and sensitively designed sports garages. The prefabricated buildings create a legible identity for the sport while responding sustainably to the context. Water is harvested and reused within the precinct and solar cells are a visible reminder of the environmental credentials of the project.

### 5.5.2 Consistency of the project with the Western Sydney Parklands Design Manual

The *Western Sydney Parklands Design Manual* (Version 2) (Western Sydney Parklands Trust, 2018) describes the general approach to planning and implementation of infrastructure and outlines the standard elements and vision for the Western Sydney Parklands. The Design Manual provides specific design guidelines for each category of standard elements (including roads, barriers, signage, lighting, planting and landscape management) and the application of these elements to the parklands.

It also includes sustainability principles in accordance with its 'whole of life' approach to facilities planning and implementation. Where the project has achieved consistency with the design manual, including sustainability considerations is summarised in Table 5-4.

Table 5-4 Assessment of the design against the principles of the *Western Sydney Parklands Urban Design Manual* (Version 2) (Western Sydney Parklands Trust, 2018)

| Project element | Relevant principles of the Design Manual | Project consistency |
|---|---|---|
| **Roads** | • The designation and layout of roads and parking for vehicle access in the Parklands needs to be assessed to determine the most logical and functional approach to vehicle access. This includes visitor vehicles, staff maintenance vehicles including garbage trucks, service infrastructure access (electricity, gas, water), fire fighting vehicles, public transport access (buses), taxis and large semi trailers during event setup. The requirements should be determined for specific site use depending on usage levels and type of precinct<br>• Provide safe pedestrian movement across roads. | • The design of site access and internal roads has included logical and functional consideration for the potential road users<br>• Pedestrian safety measures including adequate pavements and crossings have been considered for visitors of the project site when moving between the carparking areas and the main operational site. |
| **Carparking** | • Total carparking capacity should meet typical visitor occupancy periods (i.e. on weekends), with peak periods facilitated by overflow carparking (i.e. during events)<br>• Have multiple, inter-connected smaller carparks rather than one large carpark<br>• Minimise visual impact of expansive carparks<br>• Use of WSUD principles to capture water runoff and redirect to surrounding planting beds<br>• Disabled parking in accordance with Australian Standards and DDA requirements<br>• Materials options include asphalt, concrete pavement and gravel pavement imposed granite finish. | • Adequate parking has been provided with sufficient capacity to accommodate expected parking demand major events, and during concurrent minor events at the Sydney Dragway and Sydney International Speedway (see Chapter 6 (Traffic, transport and parking))<br>• Dedicated new the Sydney Dragway parking is provided in two smaller carparks, rather than one large one<br>• The visual impact of the carparking areas would be minimised through visual screening using landscape planting, and site levelling as part of the earthworks design. A visual impact assessment is provided in Chapter 12 (Landscape character and visual amenity)<br>• Disabled parking and access provision have been included as part of the project design in accordance with Australian Standards and DDA requirements<br>• Carparking areas would consist of asphalt or permeable surfacing where possible. |
| **Fences and gates** | • Fencing options include wire strand, chainwire, mesh or palisade<br>• Galvanised steel entry gate located at entrances to activity hubs to control vehicular access. | • Fencing and gates that are incorporated into the final project design would follow the styles set out in the Design Manual. |

| Project element | Relevant principles of the Design Manual | Project consistency |
|---|---|---|
| **Entry signage** | • Gabion walls for major entry signage<br>• Directional signage required to inform users. | • Entry signage would follow the styles set out in the Design Manual. |
| **Internal signage** | • Styles are provided for internal wayfinding and directional signage for pedestrians and vehicles. | • Internal signage would follow the styles set out in the Design Manual. |
| **Lighting** | • Consider solar lighting options for elements off-grid and as a low power alternative<br>• Consistent use of lighting types and pole types and heights<br>• Power efficient LED with warm filter. | • Carpark lighting would be solar powered<br>• Lighting across the project site would utilise LED technology, where possible<br>• Consistent use of lighting types and pole types and heights would be used across the project site. Pole mounted lights around the racetrack would be of a consistent height and design. |
| **Planting and landscape** | • The use of endemic Cumberland Plain species would be the predominant planting palette across the Parklands<br>• Generally, tree canopy planting to carparks is to be mixed Cumberland Plain species and should provide a visual buffer to expansive areas of carparking<br>• Planting shall be provided along the perimeter of asphalt areas and in generously sized planting islands<br>• Maximise shade cover in carparks to avoid heat island effect. | • Carparking areas would be surrounded with endemic vegetation planting as part of the project landscape design, selected from the list of endemic species within the Western Sydney Parklands Design Manual<br>• Where possible the carparking spaces and spectator seating would have turf and permeable surfaces as an alternative to hardstand and dark surfaces. |
| **Sustainability in planning and design** | • Reduce or eliminate reliance on energy required to light, heat and ventilate structures. | • Maintenance sheds would include windows and skylights, where possible<br>• Fully glazed walls would be included as part of the corporate boxes in the grandstand facility to maximise natural light<br>• Carpark lighting would be solar powered<br>• Lighting across the project site would utilise LED technology, where possible. |
| | • Minimise usage and reduce reliance on mains supplies (for example utilise rain or grey water). | • Project rainwater harvesting tank water would be used for track irrigation<br>• Carpark lighting would be solar powered. |
| | • Maximise natural cooling opportunities through water and evapotranspiration by WSUD, irrigation and biosaturation. | • Where possible the carparking spaces and spectator seating would have turf and permeable surfaces as an alternative to hardstand and dark surfaces. |
| **Sustainability in construction** | • Minimise material and vehicle movements on and off the project site. | • The project design would aim to achieve an earthworks cut/fill balance (dependent on quality of excavated materials) which would reduce the number of vehicle movements required during construction. |
| **Sustainability in materials** | • Reuse demolition components, materials or recycled content materials that meet engineering specifications. | • Supplementary cementitious material in concrete mixes would be considered, where possible<br>• Potential use of recycled material in gabion walls would be considered as part of future design development. |

| Project element | Relevant principles of the Design Manual | Project consistency |
|---|---|---|
| **Water Sensitive Urban Design** | • Protect water quality- improve the quality of water draining from urban developments into creeks, rivers and bay environments<br>• Integrate stormwater treatment in the landscape- use stormwater treatment systems in the landscape by incorporating multiple uses that will provide multiple benefits, such as water quality treatment, wildlife habitat, public open space, recreational and visual amenity for the community<br>• Reduce runoff and peak flows- reduce peak flows by on site temporary storage measures (with potential for reuse) and minimise impervious areas<br>• Reduce potable water demand - use stormwater as a resource through capture and reuse for non-potable purposes (for example toilet flushing and garden irrigation). | Water quality controls (as described in Section 5.3.5) would be provided to minimise and mitigate potential impacts on local water quality. These would include on site detention tanks to reduce peak flows and to capture water for reuse across the project site (reducing potable water demand). |

## 5.6 Construction

### 5.6.1 Construction sites

The construction footprint is the total area required to construct the project, comprising four construction sites, sub-divided into a total of seven construction areas, as shown on Figure 5-3. The exact nature and activities within these sites and areas may change following the appointment of a construction contractor.

The main operational site and Carpark D are both subdivided during construction to allow for the ongoing provision of 1500 temporary carparking spaces for the Sydney Dragway throughout the construction period. The relationship between the construction areas and the operational site layout is provided in Table 5-5.

Table 5-5 Construction areas and the corresponding operational features

| Construction area | Operational feature |
|---|---|
| **1** | Carpark D |
| **2** | |
| **3** | Carpark C |
| **4** | Carpark A |
| **5** | Speedway racing infrastructure and event support infrastructure |
| **6** | Carpark B and workshop and administration buildings |
| **7** | Landscaped mound in the southern area |

#### Construction compound

A construction compound would be located in construction area four as shown on Figure 5-3. The construction compound would be used for laydown of plant and equipment, temporary stockpiling of materials and waste management. Temporary stockpiling areas would also be provided across the construction footprint, for the storage of earthworks material throughout construction.

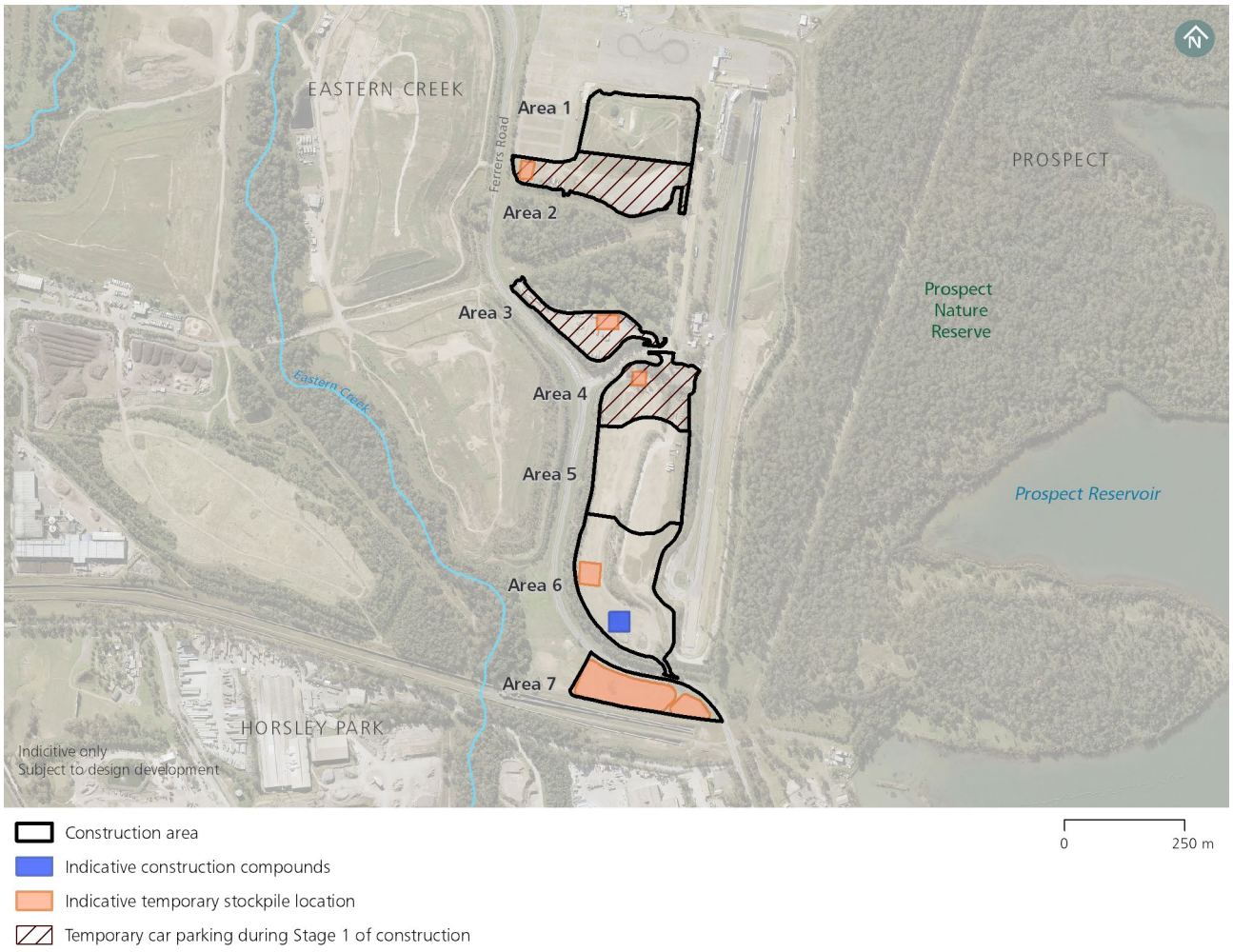


Figure 5-3 Indicative construction site layout

### Construction water management

Primary erosion and sediment controls during construction would consist of diversion drains and temporary sediment basins. The diversion drains ensure that:

- External 'clean' runoff does not enter and mix with site runoff
- Internal 'dirty' runoff is conveyed to the proposed temporary sediment basin for treatment prior to discharge offsite.

The temporary sediment basins would capture coarse and fine sediments and release treated runoff into the downstream waterways. The indicative locations of the proposed temporary sediment basins and diversion drains within the project site are shown in Figure 5-4 although the exact nature of erosion and sediment controls would change throughout construction to respond to active construction works being carried out.

The storage volumes of each temporary sediment basin would be calculated in accordance with the methodology outlined in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book', and would consider site specific features including the size of the catchment area for each temporary sediment basin, the landform of the project site and the downstream receiving environments.

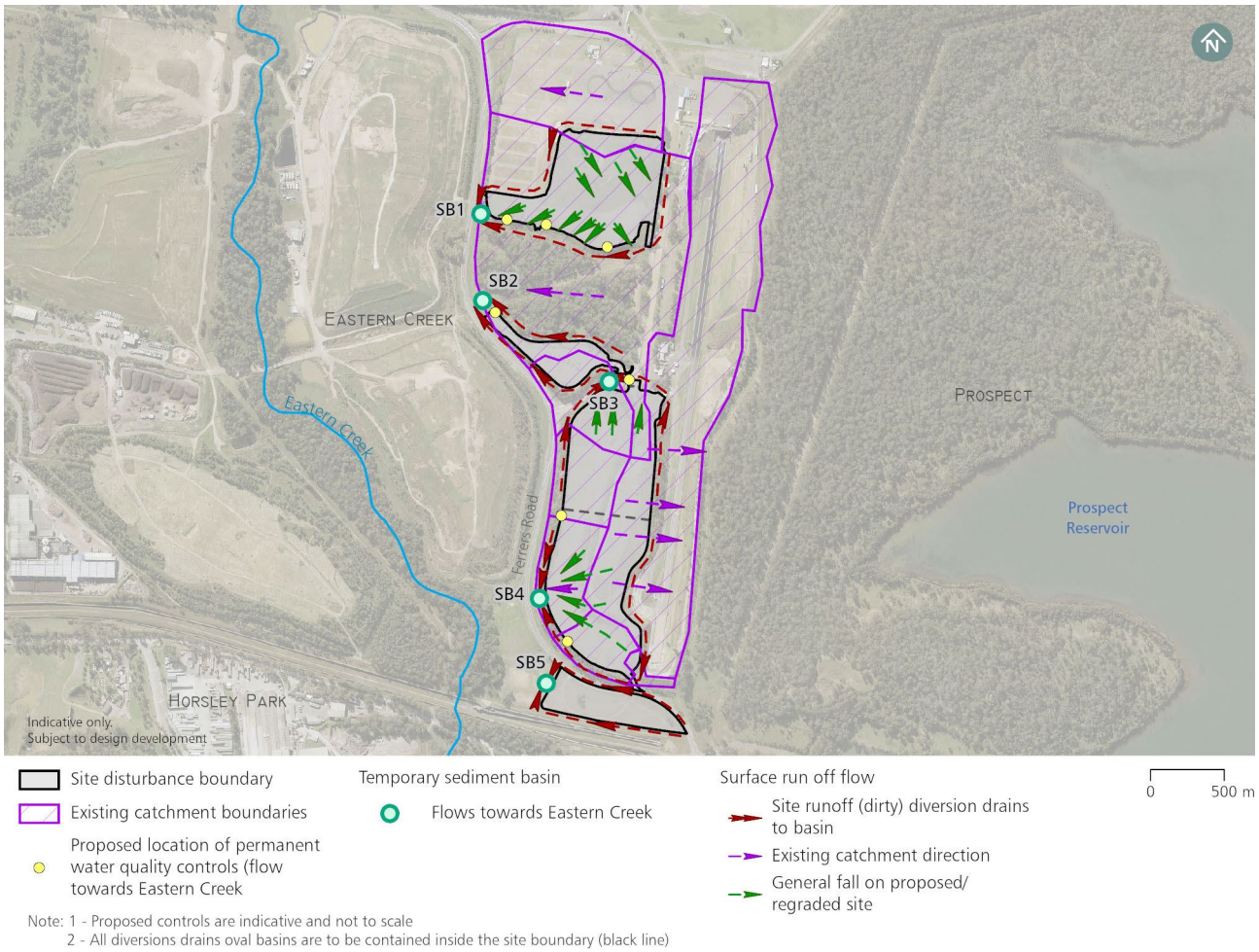


Figure 5-4 Indicative construction water management controls

### 5.6.2 Construction activities

Key construction activities to be carried out as part of the project include site establishment, site clearance, earthworks and site levelling, construction of racing and support infrastructure, utilities connections, landscaping and finishing works.

Construction as assessed within this Environmental Impact Statement does not include surveys, test drilling test excavations, geotechnical or contamination investigation or other tests, surveys, sampling or investigation for the purposes of the design or assessment of the Sydney International Speedway. In addition, any establishment of access roads, temporary car parks, fences, signage, and construction compounds including the erection of temporary buildings and associated facilities carried out before the commencement of construction of the new Sydney International Speedway are not within the scope of the application for project approval.

#### Early works and site establishment

Site establishment activities would involve the establishment of:

- Site compounds including construction site offices, facilities and storage areas
- Vehicle access and internal site roads
- Temporary services to enable construction
- Environmental exclusion zones and perimeter fencing, where required
- Erosion and sediment controls.

### Site clearance

Site clearance would take place in stages, in accordance with the construction program as described in Section 5.6.3.

Clearance would require the removal of existing vegetation comprising grasses, shrubs and trees (including stumps) including about 0.65 hectares of native vegetation. An assessment of the biodiversity related impacts of vegetation clearance required for the project is provided in Chapter 8 (Biodiversity) of this Environmental Impact Statement. A Biodiversity Development Assessment Report has also been prepared in accordance with the *Biodiversity Conservation Act 2016* and is provided as Technical Paper 3 (Biodiversity Development Assessment Report) of this Environmental Impact Statement.

Topsoil would be stripped from each construction area in accordance with the construction staging (see Figure 5-5). Topsoil would be stored in temporary stockpiles within the project site, up to about four metres high, before being transported to its final location. Indicative temporary stockpile locations are shown in Figure 5-3.

### Earthworks and site levelling

Earthworks within construction areas 1 to 6 would result in the generation of about 100,000 cubic metres of excess cut material. This material is proposed to be transported to construction area 7 and formed into a landscaped mound. Area 7 would also be used to temporarily stockpile excavated material.

A summary of the estimated cut and fill volumes from earthworks across the seven construction areas are provided in Table 5-6. Opportunities to optimise the project design to minimise the amount of excess cut material are being investigated as part of design development. Sydney Metro is also exploring the potential for spoil to be re-used for nearby construction projects if feasible. This would reduce the temporary stockpiling and final landscaped mound within construction area 7 accordingly.

Table 5-6 Approximate cut and fill volumes for earthworks activities during construction

| Area(s) | Cut ($m^3$) | Fill ($m^3$) |
|---|---|---|
| **1** | 95,400 | 21,600 |
| **2 and 4** | 2000 | 20,400 |
| **3** | 100 | 16,300 |
| **5 and 6** | 211,100 | 150,000 |
| **7** | - | 100,300 |
| **Total** | **308,600** | **308,600** |

Carpark D would require the most earthworks and site levelling activities. This car park is currently located on a rocky outcrop, which would need to be reduced to allow for the establishment of car parking facilities (refer to Section 5.3.1 for more information). In addition, earthworks activities would be required to establish the racetrack profile to meet the national and international racing standards outlined in Section 5.3.3.

Earthworks would require the use of excavators and dozers. A list of indicative construction plant and equipment is provided in Section 5.6.6. Temporary stockpiles would be created within each of the construction sites, with indicative locations shown in Figure 5-3.

The new grandstand facility would be built on fill material sourced from earthworks activities within the project site. The terraced seating and remainder of the bowl formed by the existing bank to the Sydney Dragway would also be constructed using site-generated fill material. Landscaping would be used to stabilise the existing embankments surrounding the project site.

Should any excavated material not be suitable for reuse on site (for example if it is contaminated or of poor quality) it would be disposed of to an appropriate waste management facility in accordance with waste management legislation and responsible waste management principles.

### Construction of racing and event support buildings and infrastructure

The speedway racetrack would be located within construction area 5 and would be formed using about 8200 cubic metres of Sydney clay, which would be imported to the project site. This material would be imported to construct the racetrack so that it is similar to the existing Sydney Speedway, and to meet the national and international racing standards noted in Section 5.3.3.

The grandstand would be constructed on a fill embankment overlooking the racetrack. The racing and event support infrastructure are anticipated to be reinforced pre-cast concrete structures with steel elements and modular prefabrications. The prefabricated elements would be constructed offsite, delivered via heavy vehicle and installed using cranes and other lifting equipment. The terraced seating would be comprised of concrete and turf.

Construction of these structures on site would likely include the following activities:

- Piling
- Earthworks (excavation of foundations and creation of embankments)
- Concrete pouring
- Brickwork/masonry
- Installation of modular prefabricated elements
- Internal fit out.

### Utilities connections

Utilities connections (including electrical, potable water, wastewater and communications) would be required as part of the construction of the project. These would be subject to further consultation and approval from the relevant asset owners and authorities.

Electrical works would comprise the establishment of a new Endeavour Energy 1500kVA substation located to the north east of the speedway racetrack, within the main operational site. The building would also be provided with a diesel-fuelled back up standby generator (200kVA) to supply essential services during race events, including security functions, lighting for the speedway track itself and to power the lift within the grandstand. The electrical supply for the lighting of all other external areas including carparks would be solar, supported by backup batteries.

No gas connection would be provided to the project. Where gas is required on site for commercial catering operations and welding within workshops, this would be provided by bottles and tanks delivered to the project site by road periodically.

A new potable water connection would be constructed, to either the existing water main in Ferrers Road, or to the nearest larger main available for connection at the corner of Brabham Drive, subject to consultation with Sydney Water. The non-potable water system would be connected to the potable water supply system as a backup during periods of low rainfall and drought.

There are no Sydney Water waste water assets currently available for connection near the project site, so new infrastructure would be required to connect to Sydney Dragway's pressure sewage system, as described in Section 5.3.5.

### Landscaping and finishing works

A landscape strategy has been developed to enable integration of the Sydney International Speedway with the surrounding environment and minimise potential impacts to the existing landscape within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. The key components of the landscape strategy for the project include:

- Retention and protection of the existing environment, including water courses and Cumberland Plain Woodland Endangered Ecological Community between the Carparks C and D, and along Ferrers Road
- Planting of embankments to provide a landscaped transition between car parks and the main speedway facility with the adjacent Endangered Ecological Community vegetation
- Where possible, incorporating vegetation into car parking areas to provide shade, minimise large expanses of pavement and to reduce the impacts of the heat-island effect
- Reinforcing pedestrian connections with vegetation to highlight these links and provide shade
- Maximising opportunities to collect and treat stormwater runoff from the car park and competitors' pit areas by incorporating bio-retention swales across the project site.

A landscaped mound would be formed in the southern area of the project site. The mound would be landscaped to have vegetated slopes with a final height of about three metres.

Finishing works would include the asphalting, sealing and line marking of internal roads and carparks, and the installation of signage.

### 5.6.3 Construction program

Construction of the project is expected to occur over a period of 13 months, commencing in late 2020, subject to the environmental assessment and determination process. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing woks occurring concurrently with the commencement of operations. Temporary enabling works (preliminary construction works required to facilitate commencement of substantial construction) would likely begin prior to the commencement of main construction works.

The construction program would be phased, to allow for work to be carried out concurrently in different areas of the project site whilst retaining sufficient parking for the Sydney Dragway at all times.

An indicative construction program is shown in Figure 5-5.

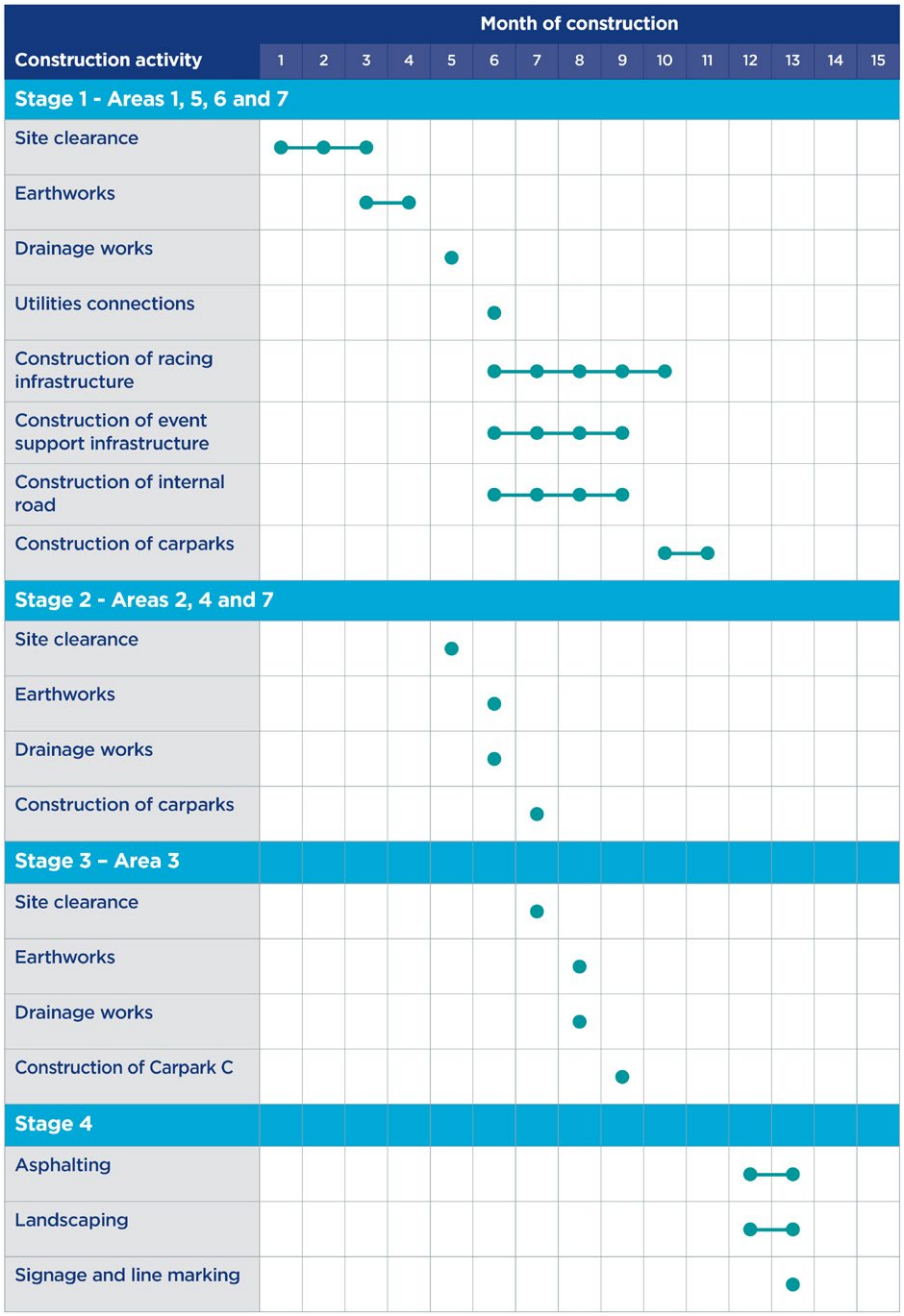


Figure 5-5 Indicative construction program

### 5.6.4 Construction hours

Based on the location of the project away from residential receivers and the anticipated minor nature of construction noise impacts, construction activities are proposed to be carried out up to 24 hours a day, seven days a week. Some construction activities would be limited during major dragway events.

Works that would be carried out outside of standard daytime construction hours are likely to include earthworks, the construction of roads, buildings and carparks, as well as activities that would ordinarily be carried out outside of the standard daytime construction hours such as:

- The delivery of materials outside standard hours as required by the NSW Police or other authorities for safety reasons
- Emergency situations where it is required to avoid the loss of lives and properties and/or to prevent environmental harm.

Further details regarding the potential construction noise impacts are provided in Chapter 7 (Noise and vibration) of this Environmental Impact Statement.

### 5.6.5 Construction workforce

The size and composition of the construction workforce would vary over the construction period depending on the activities carried out and the staging strategy. There may be several different work crews active on the project at any one time.

The estimated total workforce to be employed over the course of the construction of the project would peak at about 150 at any one time. This workforce estimate excludes delivery truck drivers.

Sydney Metro has developed a Workforce Development and Industry Participation plan which includes objectives to support local employment and business opportunities, provide skills development and increase workplace diversity.

### 5.6.6 Construction plant and equipment

The anticipated plant and equipment likely to be used during each stage of construction of the project are listed in Table 5-7.

Table 5-7 Indicative construction plant and equipment

| Construction plant and equipment | Construction stage | | | |
|---|---|---|---|---|
| | Stage 1 | Stage 2 | Stage 3 | Stage 4 |
| **Dump truck** | ✓ | ✓ | | ✓ |
| **Crane** | ✓ | | | |
| **Excavator** | ✓ | ✓ | ✓ | |
| **Telehandler** | ✓ | | | |
| **Front end loaders** | ✓ | ✓ | ✓ | ✓ |
| **Woodchipper** | ✓ | ✓ | ✓ | |
| **Dozer** | ✓ | ✓ | ✓ | |
| **Grader** | ✓ | ✓ | ✓ | |
| **Roller** | ✓ | ✓ | ✓ | |
| **Scraper** | ✓ | ✓ | ✓ | |
| **Hand tools** | ✓ | | ✓ | ✓ |
| **Concrete truck/pump** | ✓ | | ✓ | |
| **Piling rig** | ✓ | | | |
| **Generators** | ✓ | | | |
| **Sealing trucks** | ✓ | ✓ | ✓ | ✓ |

| Construction plant and equipment | Construction stage | | | |
|---|---|---|---|---|
| | Stage 1 | Stage 2 | Stage 3 | Stage 4 |
| Line marking machine | ✓ | ✓ | ✓ | ✓ |
| Compactor | ✓ | ✓ | ✓ | ✓ |
| Slipform machine | ✓ | ✓ | | |
| Water cart | ✓ | ✓ | ✓ | ✓ |
| Fuel trucks | ✓ | ✓ | ✓ | |
| Paver | | | | ✓ |
| Bob cat machine | | | | ✓ |

### 5.6.7 Construction traffic, access and parking

Proposed access and egress for construction traffic would be via the existing intersection with Ferrers Road. This would allow vehicle movements to and from both the north (along Ferrers Road and Peter Brock Drive to the M4 and the Great Western Highway) and the south (along Ferrers Road and the Horsley Drive to the M7). Construction movements would be timed to minimise coinciding with events at the Sydney Dragway. There are expected to be about eight deliveries (heavy goods vehicles) per day within standard construction hours and about 90 light vehicles movements associated with the travel of construction workers to and from the project site in the morning and evening network peak hour (6am to 7am and 5pm to 6pm). Construction worker parking would be provided within the project construction site. The prefabricated elements of the stadium would be transported to the project site via road. Given their size, these deliveries are likely to occur out of standard construction hours for safety reasons.

Heavy vehicles transporting excavated material between areas of the project site would travel out of the main site access and egress and south along Ferrers Road before turning right into construction area 7 (the Southern area). There are expected to be an average of 24 trucks making this return trip each hour over a 24 hour period. Wetting down of internal construction roads and spoil storage areas would be carried out for dust management and tyre wash cleaning facilities would be provided.

Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of around 2400 dedicated parking spaces for Sydney Dragway comprising of:

- Retention of about 800 existing spaces in the existing P2 Dragway car park outside of the project footprint
- A minimum of 1600 spaces within the project site for use by visitors to Sydney Dragway during events.

For major events at Sydney Dragway, a total of 3400 parking spaces would be provided which would include additional parking spaces within the Sydney Motorsport Park (operated by the Australian Racing Drivers Club). During these major events, a shuttle bus service would be provided between this parking and the Sydney Dragway.

Access to other properties within Western Sydney Parklands' Precinct 5; Eastern Creek Motor Sports for emergency vehicles would be maintained at all times.

### 5.6.8 Construction environmental management framework

A Construction Environmental Management Framework (Appendix C) has been developed that details environmental, management systems and processes for construction of the Sydney International Speedway. It details the requirements in relation to the content of the construction environmental management plan, sub-plans and other supporting documentation for each specific environmental aspect. The specified documentation would be required to be prepared by the appointed contractor prior to the commencement of works and adhered to for the duration of construction.

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# 6 Traffic, transport and parking

# 6 Traffic, transport and parking

This chapter assesses the potential impacts of construction and operation of the Sydney International Speedway on traffic, transport and parking and identifies mitigation measures to minimise these impacts. This chapter draws on information in Technical Paper 1 (Traffic, transport and parking).

## 6.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to traffic, transport and parking, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 6-1.

Table 6-1 Secretary's Environmental Assessment Requirements - Traffic, transport and parking

| Reference | Requirement | Where addressed |
|---|---|---|
| **1. Transport and traffic** | | |
| **2.1.1** | The Proponent must assess construction transport and traffic (vehicle, pedestrian and cyclists) impacts, including, but not necessarily limited to: | Section 6.6.1 |
| | a. Route identification, site access and egress and the nature of existing traffic on construction access routes; | |
| | b. The indicative number and frequency of daily and peak construction related vehicle movements (passenger, commercial and heavy vehicles, including spoil management movements); | Section 6.6.3 |
| | c. Construction worker parking; and | Section 6.6.4 |
| | d. Impacts to pedestrian, cyclist and public transport access and movement. | Section 6.6 |
| **2.1.2** | 2. The Proponent must assess the operational transport impacts of the project, including: | Section 6.7.1 |
| | a. An assessment of existing local traffic volumes against forecast volumes including year of opening and 10 years from opening; | |
| | b. Performance of key intersections by undertaking a level of service analysis at key locations; and | Section 6.7.2 |
| | c. Assessment of the traffic and parking capacity of Ferrers Road and the wider Eastern Creek Motor Sports Precinct during concurrent events. | Section 6.7.5 |
| **2.1.3** | 3. The Proponent must describe and assess the accessibility impacts of and initiatives of the project, including in relation to: | Section 6.7.4 |
| | a. Public transport infrastructure and services; | |
| | b. Cyclist and pedestrian access, amenity and safety across and adjoining the project; and | Section 6.7.4 |
| | c. Strategies and initiatives to integrate and enhance accessibility including the provisions of public transport infrastructure. | Section 6.8 |

## 6.2 Legislative and policy framework

Traffic modelling for the project has been completed in accordance with the following guidelines, where relevant:

- *Traffic Modelling Guidelines* (Transport for NSW, 2013)
- *Guide to Traffic Management – Part 3 Traffic Studies and Analysis* (Austroads, 2013)
- *Guide to Traffic Generating Developments Version 2.2* (Transport for NSW, 2002)
- *Highway Capacity Manual* (Transport Research Board, 2010).

The Transport for NSW (2013) *Traffic Modelling Guidelines* were developed to provide consistency in traffic modelling practice and promote high quality model outputs. The approach to traffic modelling for this assessment aligns with the guidelines and includes the following broad steps:

- Development of calibrated and validated base models to align with existing operational conditions along each construction vehicle route
- Application of anticipated construction and operational traffic demands to the future year base models to allow the identification of potential impacts to road network performance.

Access road and parking for spectators and competitors during operation of the project have been designed in consideration of the following design standards and guidelines, where applicable:

- *AS/NZS 2890.1:2004 Parking facilities, Part 1: Off-street car parking facilities*
- *AS/NZS 2890.2:2018 Parking facilities, Part 2: Off-street commercial vehicle facilities*
- *AS/NZS 2890.5:1993 Parking facilities, Part 5: On-street parking*
- *AS2890.6:2009 Parking facilities, Part 6: Off-street parking for people with disabilities*
- *AS1428.1-2009 Design for Access and Mobility*
- *Guide to Road Design Part 4a Unsignalised and signalised intersections (Austroads, 2017).*

## 6.3 Assessment methodology

### 6.3.1 Study area

The study area for this assessment consists of the transport network surrounding the project site. It is bound by proposed construction and operational vehicle routes between the project site and the nearest arterial road inclusive of the arterial road interface. The study area is shown in Figure 6-1.

Figure 6-1 Traffic, transport and parking study area

### 6.3.2 Assessment approach

The traffic, transport and parking assessment for the project included:

- A desktop review of publicly available information to characterise the existing traffic, transport and parking environment within the study area (refer to Section 6.4)
- Traffic volume surveys at key intersections within the study area during:
  - Weekday morning and evening peak periods
  - Weekend pre- and post-event peak periods.
- Traffic modelling to enable existing and future transport conditions and road network performance to be characterised, both with and without the project during construction and operation
- Identification of potential impacts of the project on public and active transport during construction and operation
- Analysis of the parking to be provided as part of the project, to determine any potential impacts to the operation of existing venues within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports during construction and operation
- Traffic modelling, based on public information, to determine the potential cumulative impact on the performance of the road network with other major projects expected to be constructed and operational at the same time as the project.

A summary of the methodology used to assess the impact of the project on the transport network is provided in Table 6-2.

Table 6-2 Summary of the traffic and transport assessment approach

| Component of traffic, transport and parking assessment | Construction | Operation | Assessment approach |
|---|---|---|---|
| **Road network performance** | ✓ | ✓ | Traffic modelling to determine the performance of the road network with construction and operation of the project |
| **Parking** | ✓ | ✓ | Analysis of existing parking provision compared with parking provision during construction and operation of the project |
| **Access** | ✓ | ✓ | Analysis of existing access provisions compared with access provisions during construction and operation of the project |
| **Public transport** | ✓ | ✓ | Analysis of proposed changes to public transport operations including bus routes and bus stop infrastructure to determine potential impacts on public transport customers during construction and operation of the project |
| **Pedestrians and cyclists** | ✓ | ✓ | Analysis of proposed changes to shared user paths, cycleways, footpaths and pedestrian crossings to determine potential impacts on access to and availability of pedestrian and cycle infrastructure during construction and operation of the project |
| **Concurrent operation of the project and Sydney Dragway** | - | ✓ | Traffic modelling to determine the performance of the road network during concurrent operation of the project and Sydney Dragway |

### 6.3.3 Traffic volume surveys

Traffic volume surveys were completed at five intersections on Thursday 6 February 2020 (to account for weekday morning and evening peak periods) and Saturday 8 February 2020 (to account for event peak periods). The intersections that were surveyed included:

- Great Western Highway/Doonside Road/Brabham Drive
- Brabham Drive/Huntingwood Drive
- Brabham Drive/Ferrers Road/Peter Brock Drive
- Ferrers Road/Chandos Road
- Ferrers Road/The Horsley Drive.

The location of these intersections relative to the project is shown in Figure 6-1.

### 6.3.4 Traffic modelling

To assess the potential impacts of the project on road network performance during construction and operation of the Sydney International Speedway, traffic modelling has been completed for proposed construction and operational vehicle routes between the project site and the nearest arterial road inclusive of the arterial road interface.

Traffic models were developed using the SIDRA intersection traffic modelling software, which is a micro analytical tool for the evaluation of intersection performance.

Traffic modelling for the construction traffic assessment was completed for the weekday morning peak hour (6am to 7am) and evening peak hour (5pm to 6pm).

Operational traffic modelling was completed for:

- The Friday pre event peak (5pm to 6pm) and post event peak (9pm to 10pm), for a concurrent (with Sydney Dragway) operations scenario
- The Saturday pre event peak (5pm to 6pm) and Saturday post event peak (9pm to 10pm), for the project only assessment scenario.

The peak weekday traffic periods represent a worst case scenario as during these periods the road network experiences the maximum background traffic demand and the available spare capacity of the road network is at its most limited. The Saturday peak traffic periods represents the worst case scenario where there is expected to be a maximum number of spectators on the surrounding road network due to a major event at the Sydney International Speedway.

### Traffic modelling scenarios

A description of the traffic modelling scenarios adopted to determine the impacts of the project on road network performance is provided in Table 6-3.

Table 6-3 Traffic modelling scenarios assessed

| Model year | Without project | With project | Modelling scenario | Description | Potential impacts assessed |
|---|---|---|---|---|---|
| **2020** | ✓ | | Existing | The existing road network | N/A |
| **2021** | ✓ | | Year of peak construction without the project | The road network without construction traffic movements from the project | N/A |
| **2021** | | ✓ | Construction (project only) | The road network with construction traffic movements from the project. This considers the worst case construction traffic scenario | Potential impacts on the road network as a result of construction of the project |
| **2022** | ✓ | | First full year of opening without the project | The future existing road network with background traffic growth | N/A |
| **2022** | | ✓ | First full year of opening with the project | • The road network with background traffic growth and operation of the project (major event on a Saturday evening)<br>• The road network with background traffic growth, operation of the project (minor event) and operation of the Sydney Dragway (minor event) on a Friday evening | Potential impacts on the road network pre and post events as a result of operation of the project during the first full year of operations |
| **2032** | ✓ | | Year of opening + 10 years without the project | The future existing road network with background traffic growth | N/A |
| **2032** | | ✓ | Year of opening + 10 years with the project | • The road network with background traffic growth and operation of the project (major event on a Saturday evening)<br>• The road network with background traffic growth, operation of the project (minor event) and operation of the Sydney Dragway (minor event) on a Friday evening. | Potential impacts on the road network pre and post events as a result of operation of the project 10 years after commencement of operations |

### 6.3.5 Intersection performance and level of service

The performance of a road network is largely dependent on the operational performance of intersections, which form critical capacity control points. Intersection performance is measured using the level of service criteria outlined in Table 6-4 and defined in the Transport for NSW's (2002) *Guide to Traffic Generating Developments*.

When intersection performance falls to a Level of Service E, investigations would be initiated to determine if suitable remediation can be provided. Although this is not experienced in the study area for the traffic, transport and parking assessment study area under existing and modelled traffic conditions, it is common that Level of Service F is often experienced by motorists across the road network due to limited road capacity and high demands.

Table 6-4 Intersection level of service criteria

| Level of service | Average delay (seconds per vehicle) | Traffic signals and roundabout operations |
|---|---|---|
| **A** | Less than 15 | Good operation |
| **B** | 15 to 28 | Good with acceptable delays and spare capacity |
| **C** | 29 to 42 | Satisfactory |
| **D** | 43 to 56 | Operating near capacity |
| **E** | 57 to 70 | At capacity, at signals incidents will cause delays<br>Roundabouts require other control mode |
| **F** | Greater than 70 | Extra capacity required |

*Source: Guide to Traffic Generating Developments (Transport for NSW, 2002)*

## 6.4 Existing environment

### 6.4.1 Overview of the road network

Major motorway connections to the project site are provided by the M4 Western Motorway, located about 1.4 kilometres north of the project and the Westlink M7 located about 1.2 kilometres west of the project.

Arterial roads near the project include:

- The Great Western Highway which extends north of the study area and provides east-west connectivity between Sydney and the Central West of NSW
- Wallgrove Road which runs parallel to the M7 Motorway between the Great Western Highway and Elizabeth Drive
- Horsley Drive which extends south of the study and provides east-west connectivity.

Local road connections in the study area include Ferrers Road, Brabham Drive, Peter Brock Drive and Chandos Road. Access to the northern portion of the project site is currently provided via an unnamed east-west orientated access road, situated at Gate A of the Sydney Motorsport Park.

### 6.4.2 Traffic volumes and intersection performance

#### Traffic volumes

The peak hour midblock volumes on key roads in the study area are shown in Table 6-5.

Table 6-5 Existing traffic volumes (2020)

| Road | Direction | Vehicles per hour[1] | | | | |
|---|---|---|---|---|---|---|
| | | Weekday morning | Weekday evening | Friday post event (9pm to 10pm) | Saturday pre event (5pm to 6pm) | Saturday post event (9pm to 10pm) |
| **Great Western Highway** | Eastbound | 1510 | 860 | 300 | 470 | 240 |
| | Westbound | 540 | 1370 | 280 | 620 | 270 |
| **Doonside Road** | Northbound | 920 | 1220 | 260 | 490 | 270 |
| | Southbound | 1130 | 940 | 190 | 420 | 240 |

| Road | Direction | Vehicles per hour[1] | | | | |
|---|---|---|---|---|---|---|
| | | Weekday morning | Weekday evening | Friday post event (9pm to 10pm) | Saturday pre event (5pm to 6pm) | Saturday post event (9pm to 10pm) |
| **Brabham Drive** | Northbound | 510 | 840 | 90 | 200 | 130 |
| | Southbound | 960 | 590 | 180 | 200 | 100 |
| **Huntingwood Drive** | Eastbound | 140 | 170 | 40 | 10 | < 5 |
| | Westbound | 140 | 650 | 80 | 60 | 40 |
| **Peter Brock Drive** | Eastbound | 140 | 60 | 10 | 40 | 10 |
| | Westbound | 40 | 110 | 30 | 40 | 10 |
| **Chandos Road** | Eastbound | 370 | 140 | 20 | 30 | 10 |
| | Westbound | 220 | 410 | 40 | 30 | 10 |
| **Ferrers Road** | Northbound | 600 | 420 | 70 | 180 | 110 |
| | Southbound | 590 | 820 | 110 | 180 | 120 |
| **The Horsley Drive** | Eastbound | 860 | 620 | 180 | 400 | 150 |
| | Westbound | 1250 | 1690 | 210 | 510 | 260 |

*1 Weekday morning peak period – 6am to 7am, weekday evening peak period and weekday pre-event peak period – 5pm to 6pm, weekday post-event peak period – Friday 9pm to 10pm, weekend pre-event peak period – Saturday 5pm to 6pm, and weekend post-event peak period – Saturday 9pm to 10pm*

### Intersection performance

Modelled intersection performance at key intersections in the study area are summarised in Table 6-6 for both the weekday and weekend peak periods relevant to the project.

Modelled intersection performance indicates that nearly all intersections assessed operate at an acceptable level of service during the weekday and weekend peak periods.

Table 6-6 Existing intersection performance (2020)

| Intersection | Peak period[1] | Intersection throughput (vehicles per hour) | Average delay (seconds per vehicle) | Level of service |
|---|---|---|---|---|
| **Great Western Highway/ Doonside Road/Brabham Drive** | Weekday morning | 3880 | 53 | D |
| | Weekday evening | 4220 | 57 | E |
| | Weekday post event | 900 | 36 | C |
| | Saturday pre event | 1800 | 46 | D |
| | Saturday post event | 920 | 34 | C |
| **Brabham Drive/ Huntingwood Drive** | Weekday morning | 2050 | 9 | A |
| | Weekday evening | 2230 | 13 | A |
| | Weekday post event | 380 | 8 | A |
| | Saturday pre event | 520 | 7 | A |
| | Saturday post event | 280 | 7 | A |

| Intersection | Peak period[1] | Intersection throughput (vehicles per hour) | Average delay (seconds per vehicle) | Level of service |
|---|---|---|---|---|
| **Brabham Drive/Ferrers Road/Peter Brock Drive** | Weekday morning | 1570 | 11 | A |
| | Weekday evening | 1660 | 11 | A |
| | Weekday post event | 300 | 9 | A |
| | Saturday pre event | 750 | 9 | A |
| | Saturday post-event | 260 | 9 | A |
| **Ferrers Road/Chandos Road** | Weekday morning | 1870 | 15 | B |
| | Weekday evening | 1800 | 18 | B |
| | Weekday post event | 260 | 7 | A |
| | Saturday pre event | 440 | 7 | A |
| | Saturday post event | 260 | 7 | A |
| **Ferrers Road/The Horsley Drive** | Weekday morning | 2500 | 23 | B |
| | Weekday evening | 3210 | 18 | B |
| | Weekday post event | 500 | 12 | A |
| | Saturday pre event | 1090 | 13 | A |
| | Saturday post event | 550 | 12 | A |

*1 Weekday morning peak period – 6am to 7am, weekday evening peak period - 5pm to 6pm, weekday post event peak period – 9pm to 10pm, weekend pre event peak period – Saturday 5pm to 6pm, and weekend post event peak period – Saturday 9pm to 10pm*

### 6.4.3 Parking and access

Vehicular access to the existing Sydney Dragway and car parking areas is currently provided by two access points (Gate A and Gate D) from Ferrers Road. These access points are give-way priority controlled and include separate left and right turn lanes on the approach from Sydney Dragway, channelised left and right turn lanes on Ferrers Road and left turn acceleration lanes on Ferrers Road.

Free and premium parking is provided on-site within Sydney Dragway during events. On-street parking is not permitted near the project site on Ferrers Road.

Under the current parking arrangements within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, there are about 2600 parking spaces provided for use by Sydney Dragway, inclusive of overflow car parking areas and excluding the pit area.

### 6.4.4 Active transport network

Pedestrian activity near the project site is limited to periods where events are being held at the Sydney Motorsport Park and the Sydney Dragway. During these events, key pedestrian movements occur along the shared path on Peter Brock Drive. There is currently no footpath or pedestrian facilities along Ferrers Road or that facilitates connection between the project site and the bus stops located on Peter Brock Drive.

The cycle network near the project site includes a combination of cycleways, shared paths and on-road cycling facilities including:

- **Off-road – low difficulty**: bicycle paths, shared paths and separated paths that are built, signed and marked specifically for bicycle use. The off-road cycleway near the project consists of a shared path along the southern side of Peter Brock Drive (to the north of the project) which provides for east-west movements between Auto Place and Ferrers Road
- **On-road – low difficulty**: bicycle lanes, road shoulders and mixed traffic lanes mainly along local roads. The closest on-road low difficulty bicycle lanes are along an unnamed local access road east of the Prospect Reservoir and east of the project site

- **On-road – medium difficulty**: bicycle lanes, road shoulders and mixed traffic lanes mainly along collector roads. On-road medium difficulty bicycle lanes are present along Ferrers Road, which then connects to bicycle lanes along Brabham Drive and Chandos Road
- **On-road – high difficulty**: bicycle lanes, road shoulders and mixed traffic lanes mainly along arterial roads, which are provided along the M4 Western Motorway and Westlink M7 Motorway
- **On road – high difficulty**: bicycle lanes, road shoulders and mixed traffic lanes mainly along arterial roads, which are provided along the M4 Western Motorway and Westlink M7 Motorway.

The existing cycle network near the project is shown below in Figure 6-2.

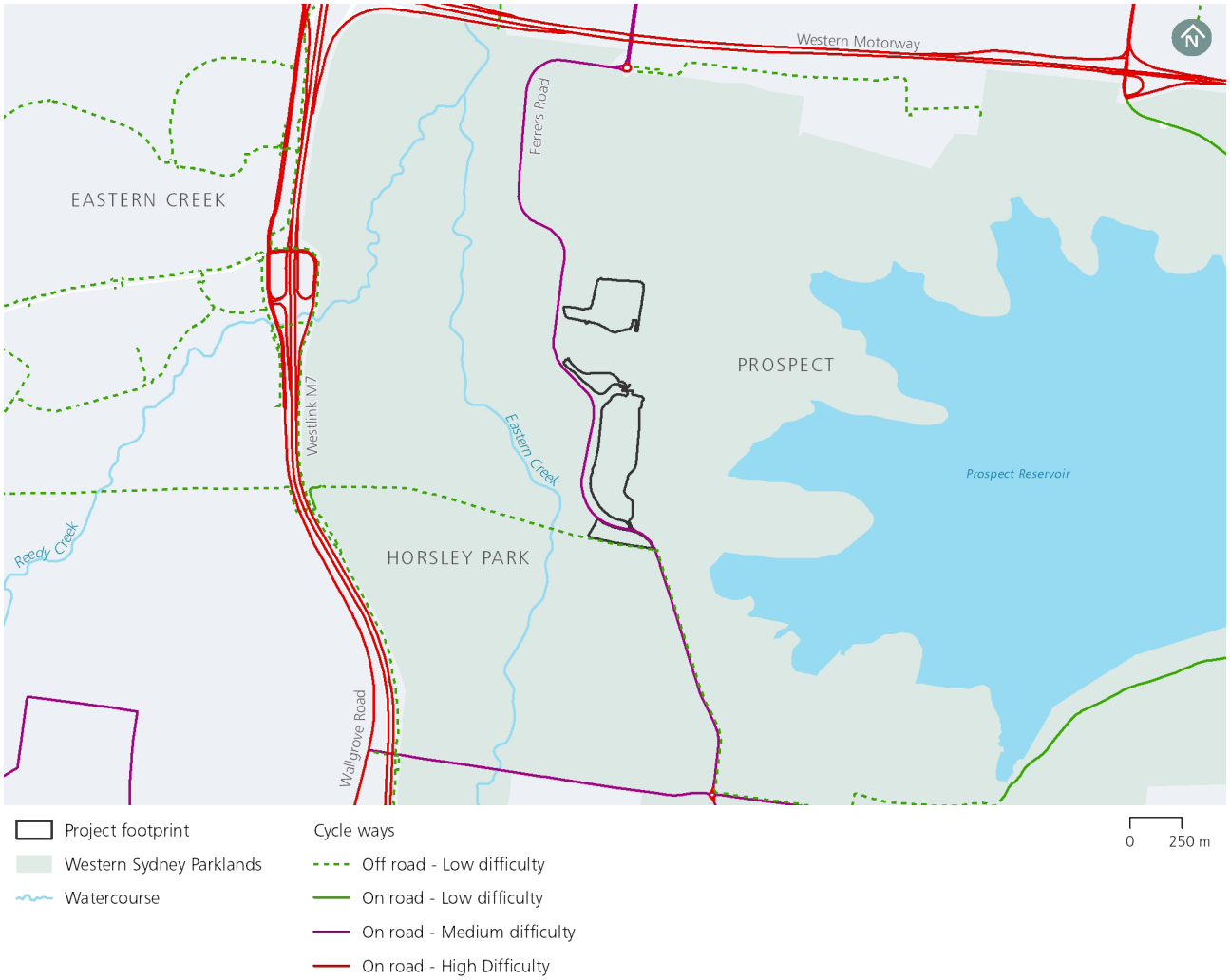


Figure 6-2 Existing cycling network near the project site

### 6.4.5 Public transport network

The local public transport network is shown in Figure 6-3. Buses are the principal form of public transport serving the area surrounding the project site with bus routes connecting to rail services at Blacktown Station and Rooty Hill Station, which form part of the existing Sydney Trains passenger rail network.

No bus services currently operate along Ferrers Road. The closest bus route to the project is route 724, which is a loop service from Blacktown Station operated by Busways. The closest bus stop to the project site is located on Peter Brock Drive, about two kilometres north of the project site and can be accessed via Ferrers Road. There are no other public transport services located in the vicinity of the project site.

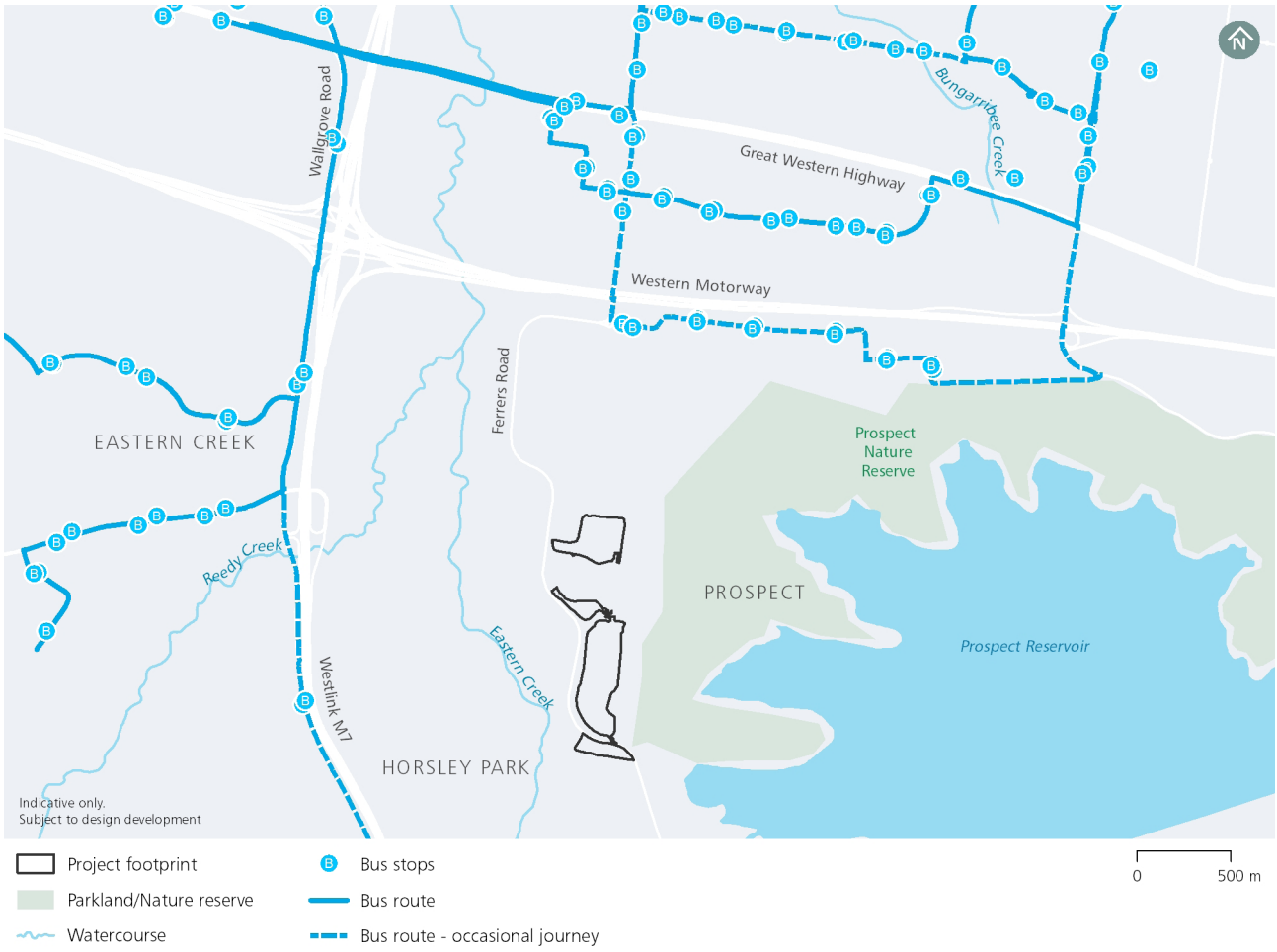


Figure 6-3 Existing public transport network near the project site

## 6.5 Avoidance and minimisation of impacts

The design development of Sydney International Speedway has aimed to avoid or minimise potential traffic, transport and parking impacts. This has included:

- Provision of temporary car parking areas for use by visitors to the Sydney Dragway during construction of the project
- New dedicated parking for Sydney Dragway (Carpark C and Carpark D), providing about 2220 car parking spaces (refer to Section 6.7.5 for more information) with the ability for Sydney Dragway to use Sydney International Speedway parking during some events. The operational car parking design has been developed in consultation with Sydney Dragway to provide adequate parking for visitors to Sydney Dragway (refer to Chapter 4 (Stakeholder and community engagement) for more information about consultation completed to date).

## 6.6 Assessment of potential construction impacts

### 6.6.1 Construction traffic routes and access

The proposed primary construction vehicle routes are shown in Figure 6-4. Access and egress for construction vehicles to the project site would be via the existing intersection with Ferrers Road. This would allow vehicle movements to and from both the north (along Ferrers Road and Brabham Drive to the Great Western Highway) and the south (along Ferrers Road to The Horsley Drive) of the project.

Heavy vehicles transporting excavated material between areas of the project site would travel out of the main access and egress (at the northern end of the project site) and then south along Ferrers Road before turning right into the southern area of the project site (construction area seven).

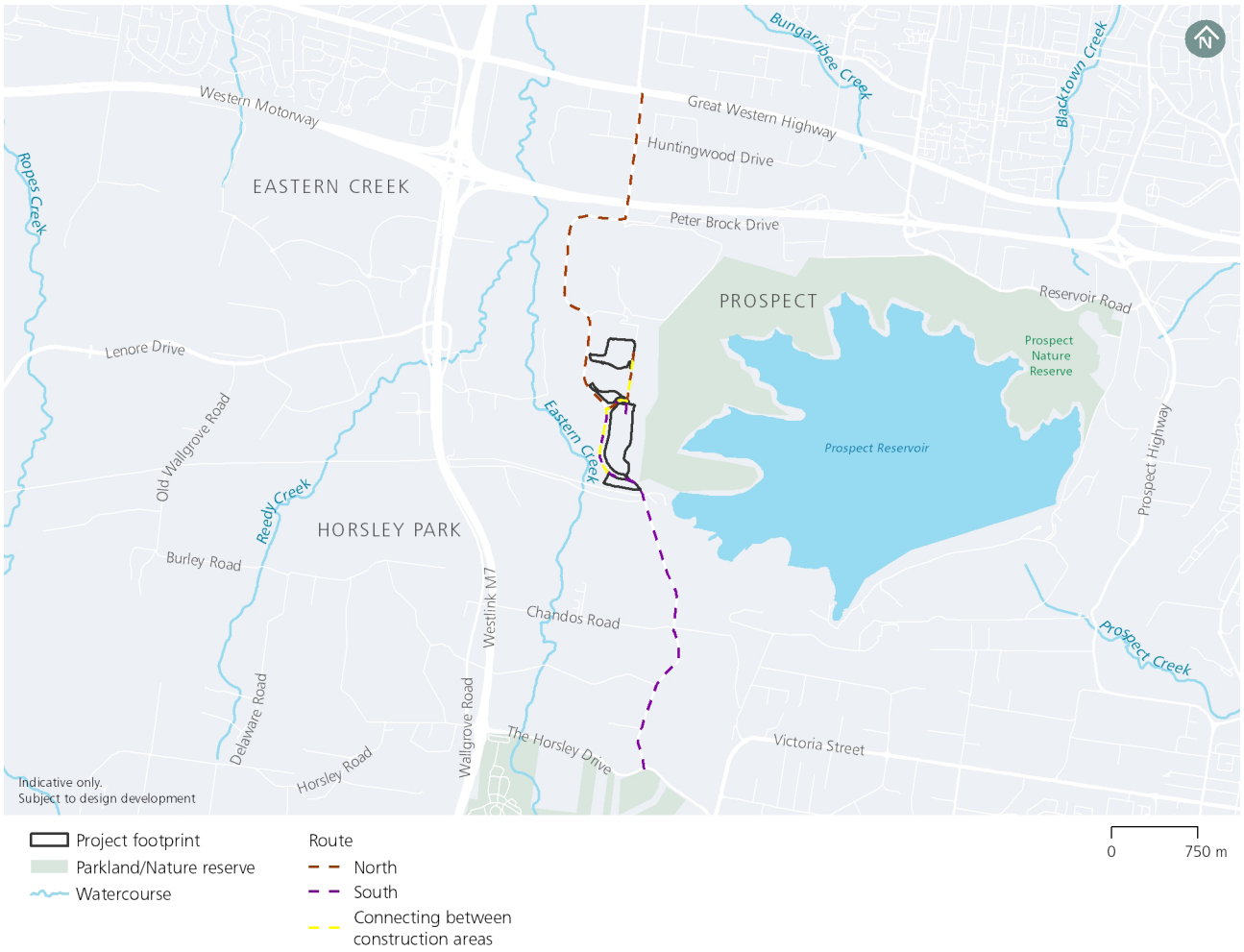


Figure 6-4 Primary construction vehicle routes

### 6.6.2 Pedestrian, cyclist and motorist safety

Access and egress arrangements at the project site during construction have been developed with consideration of pedestrian, cyclist and motorist safety. There are no pedestrian footpaths along Ferrers Road in the vicinity of the project site and, as such, construction vehicles would not be required to cross footpaths to access the project site and potential safety risks are low. Road safety reviews or audits would be carried out including consideration of high pedestrian levels during events at other nearby motorsport facilities. Appropriate mitigation measures would be identified and implemented based on the road safety reviews or audits.

### 6.6.3 Intersection performance

The number of indicative daily construction vehicle movements for the project are summarised in Table 6-7.

Table 6-7 Indicative daily construction vehicle movements (one way)

| Activity | Indicative total vehicle movements per day (one way) | | |
|---|---|---|---|
| | Light vehicles | Heavy vehicles | Total |
| **Construction worker travel to and from the project site** | 180 | - | 180 |
| **Delivery of materials** | - | 16 | 16 |
| **Transport of excavated material between areas of the project site** | - | 592 | 592 |

The number of temporary heavy vehicle movements associated with the delivery of materials to and from the project site (16 per day) is considered low and within the range of daily variations in traffic volumes on the road network when compared to background traffic. Therefore, the impact on road network performance would be minor.

In addition to the 16 movements per day, the transport of excavated material between areas of the project site would involve up to 592 vehicle movements per day. This would result in a minor impact on road network performance given the number of temporary heavy vehicle movements is relatively low (an average of 24 movements per hour when construction is being carried out 24 hours per day, seven days a week) and would occur mostly outside of peak traffic periods. Further, vehicle movements would occur on a short length of Ferrers Road (about 500 metres), meaning interactions with existing traffic would be minimal.

Road network performance with and without the project during peak construction are shown on Figure 6-5. The level of service of the modelled intersections under existing conditions would not change during the peak construction year, with or without the project, with the exception of the Great Western Highway/Doonside Road/ Brabham Drive intersection, where the level of service would temporarily decrease in the evening peak from a level of service D without the project, to a level of service E with construction of the project. The temporary reduction in level of service is associated with an increase in average intersection delay of one second, which is not considered to noticeably change the operational performance of this intersection.

Figure 6-5 shows the level of service during 2021 for each of the modelled intersections with construction of the project, and without the project, during the morning and evening peak period. Performance indicators used to determine the level of service of these intersections are provided in Technical Paper 1 (Traffic, transport and parking).

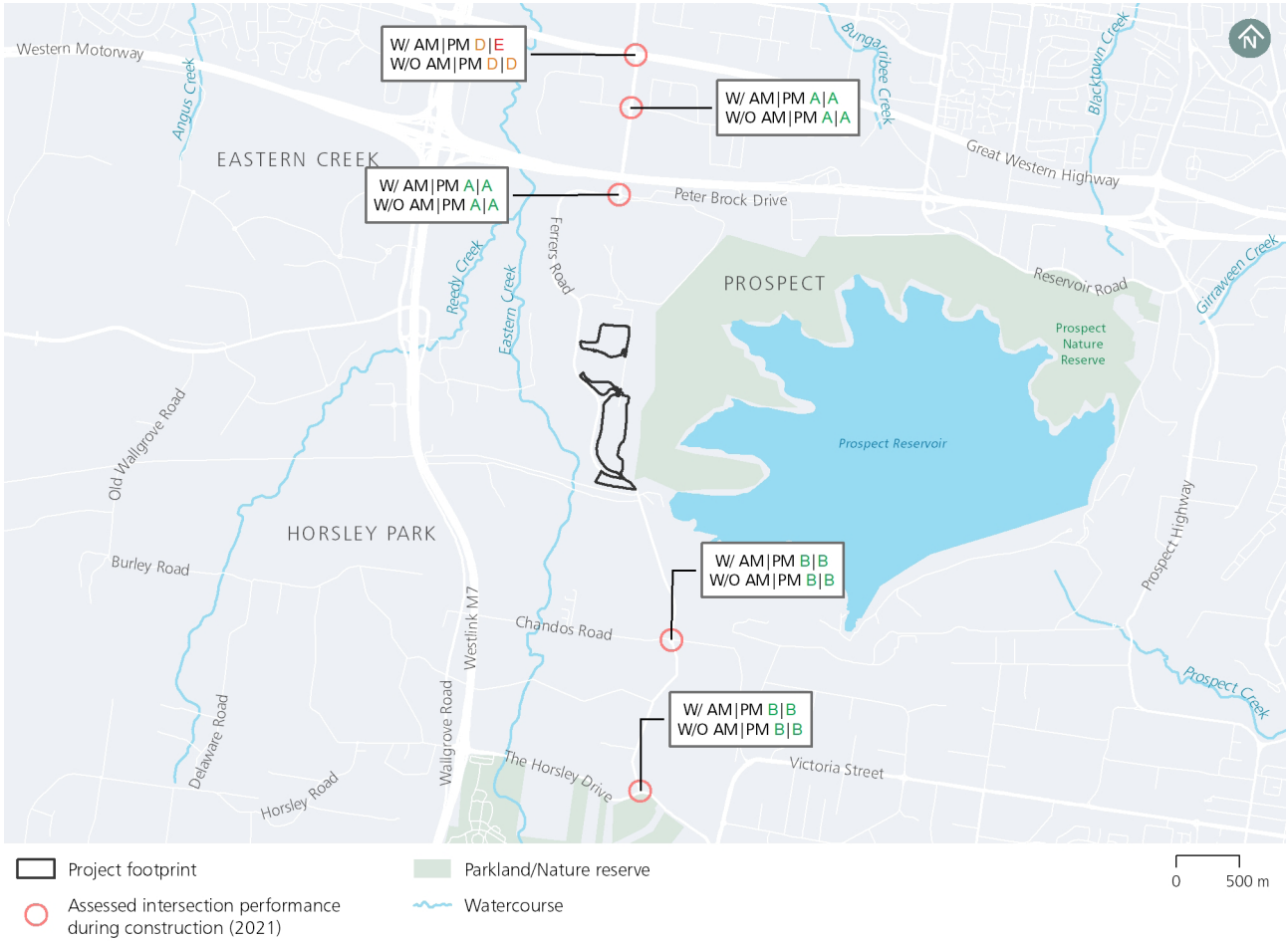


Figure 6-5 Intersection performance during peak construction (2021) with (W/) and without (W/O) the project

### 6.6.4 Parking and access

Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of 2400 dedicated parking spaces for Sydney Dragway comprising of:

- Retention of about 800 existing spaces in the existing P2 Sydney Dragway carpark outside of the project site
- A minimum of 1600 spaces within the project site for use by Sydney Dragway visitors during events.

For larger major events at Sydney Dragway, a total of 3,400 parking spaces would be provided which would include additional parking spaces within the Sydney Motorsports Park (operated by the Australian Racing Drivers Club). During these major events, a shuttle bus service would be provided between this parking and the Sydney Dragway.

Construction worker parking would be provided within the project site.

Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be maintained at all times for emergency vehicles.

### 6.6.5 Active transport network

No impacts to existing pedestrians and cyclist infrastructure are anticipated given that footpaths, pedestrian crossings and cycle routes near the project would remain open during construction.

### 6.6.6 Public transport impacts

The construction traffic routes for the project includes movements along Brabham Drive, which forms part of Busways route 724 (refer to Section 6.4.5). Construction traffic movements are expected to be minimal when compared to background traffic and impacts to the local bus would be limited to potential temporary minor increases in travel time due to the addition of construction vehicles on the road network. Construction of the project would not impact on the use of existing bus stops along Busways route 724.

## 6.7 Assessment of potential operational impacts

### 6.7.1 Traffic generation and trip distribution

**Operational regime and event coordination**

The operational regime and event coordination are described in Chapter 5 (Project description) and includes:

- Sydney Dragway operator would have the right to nominate up to five major events (7 to 13 days) per year when the Sydney Dragway operator would have exclusive use of the Sydney International Speedway carpark and pit area, and the Sydney International Speedway operator would not be permitted to hold a concurrent speedway event, unless with the agreement of the Sydney Dragway operator
- The Sydney International Speedway operator would have the reciprocal right that, from 26 December to the third Saturday in January, the Sydney International Speedway operator would have exclusive use of the Sydney Dragway carpark and the Sydney Dragway operator would not be permitted to hold a concurrent event, unless with the agreement of the Sydney International Speedway operator.

As concurrent major events can only occur with the agreement of the respective operators, the operational traffic impact assessment considers a major Sydney International Speedway event operating on a Saturday evening, and a concurrent minor Sydney International Speedway and minor Sydney Dragway event on a Friday evening. The Friday evening assessment is representative of concurrent events that could occur on any weekday evening.

Although concurrent major events may occur with agreement, these would be infrequent and the operators would be required, in accordance with a Major Events Operation Plan, to agree additional operational measures to manage the events such as traffic management and carpark sharing. An event specific Traffic Management Plan would also be required to be developed for major events in consultation with relevant part of Transport for NSW including the Transport Management Centre, NSW Police and other relevant stakeholders.

**Traffic generation**

Spectator numbers, assumed vehicle occupancy and associated trip generation for relevant events at the Sydney International Speedway, as well as Sydney Dragway are shown in Table 6-8. Sydney International Speedway events are assumed to be held from 3pm to 10.30pm on a Saturday. It is assumed that 100 per cent of spectators would arrive and depart by private vehicle due to the limited public and active transport links to the project site. Opportunities to enhance public transport accessibility to the project would be investigated as part of further design development to reduce spectator reliance on private vehicles to travel to events. This may include the provision of additional and/or event specific bus services and bus stop infrastructure to service major events.

It is assumed that Sydney International Speedway competitors would arrive and leave the project site outside of the peak spectator arrival and departure periods.

Table 6-8 Assumed trip generation during relevant events

| Event type | Sydney International Speedway | | | Sydney Dragway | | |
|---|---|---|---|---|---|---|
| | Spectators | Vehicle occupancy | Trip generation | Spectators | Vehicle occupancy | Trip generation |
| **Friday evening concurrent minor events** | 1200 | 2.5 | 480 | 2000 | 2.5 | 800 |
| **Saturday evening major Sydney International Speedway event** | 4500 | 4.0 | 1125 | - | - | - |

### Trip distribution

The trip distribution of spectators on the road network is based on intersection counts completed on Saturday 25 January and Saturday 8 February 2020 at key intersections within the study area. Spectators are assumed to travel to and from the project site via the following routes, which are shown in Figure 6-6:

- North – to and from Doonside Road via Ferrers Road and Brabham Drive
- East – to and from Great Western Highway via Ferrers Road and Brabham Drive
- South – to and from The Horsley Drive via Ferrers Road
- West – to and from Great Western Highway via Ferrers Road and Brabham Drive.

Figure 6-6 Spectator access and egress routes

### 6.7.2 Intersection performance

**Project only – Saturday evening major Sydney International Speedway event**

Operation of the project on a Saturday evening would not impact the level of service at any of the intersections modelled in either 2022 or 2032.

Operational road network performance for the first full year of operation (2022) and 10 years after the first full year of operation (2032) without the project and with operation of the project during a major event at the Sydney International Speedway are shown on Figure 6-7 and Figure 6-8. Performance indicators used to determine the level of service of these intersections are provided in Technical Paper 1 (Traffic, Transport and Parking).

For the first full year of operation of the project and 10 years after the first full year of operation, the intersection performance at all five modelled locations would be as follows:

- The level of service in 2022 and 2032 under the without project scenario would remain the same as the level of service under existing conditions (2020), except for Ferrers Road/The Horsley Drive. The Ferrers Road/The Horsley Drive intersection without the project would reduce from a level of service A under existing (2020) conditions to a level of service B in 2022 and 2032 without the project
- Compared to the without project scenario, the project would not impact on the level of service at any of the modelled intersections during the first full year of operation (2022), and 10 years after the first full year of operation (2032). All intersections would operate at the same level of service under the two project only operational scenarios as they would under the without project scenario for 2022 and 2032
- All intersections would operate at an acceptable level of service without the project and with the project (Saturday major event) in 2022 and 2032
- Operation of the project only would increase the average delay at the Ferrers Road/The Horsley Drive intersection temporarily for short periods during the pre event and post event peak period in both the 2022 and 2032 assessment years. The changes to the average delay at the Ferrers Road/The Horsley Drive intersection are in the order to five to 10 seconds. This is considered minor and would not substantially change the operational performance of the intersection.

Figure 6-7 Intersection performance at the year of opening (2022), with (W) operation of Sydney International Speedway and without (W/O) (pre and post Saturday evening major event)

Figure 6-8 Intersection performance ten years after opening (2032), with (W) operation of Sydney International Speedway and without (W/O) (pre and post Saturday evening major event)

**Concurrent operation – Friday evening minor Sydney International Speedway and minor Sydney Dragway events**

Overall, the concurrent operations on a Friday evening would have a minor impact on road network performance. Operation of the project with the concurrent operation of Sydney Dragway on a Friday evening would not impact the level of service at most intersections modelled in either 2022 or 2032. All intersections would continue to operate at acceptable levels of service.

Figure 6-9 and Figure 6-10 show the operational road network performance:

- For the first full year of operation (2022) and 10 years after the first full year of operation (2032) without the project
- With the concurrent operation of a minor event at the Sydney International Speedway and minor event at Sydney Dragway on a Friday evening.

Performance indicators used to determine the level of service of these intersections are provided in Technical Paper 1 (Traffic, transport and parking).

For the first full year of operation (2022), the intersection performance at all five modelled locations would perform at the same level of service compared to the 'without project' scenario, except for:

- Brabham Drive/Huntingwood Drive in the Friday pre event peak hour (5pm to 6pm), where the level of service would decrease from a level of service A without the project to a level of service B with the project, as well as an associated increase in average delay of 10 seconds
- Brabham Drive/Ferrers Road/Peter Brock Drive in the Friday pre event peak hour, where the level of service would decrease from A to B with an associated increase in average delay of five seconds.

In 2032, 10 years after the first full year of operation, the intersection performance at all five modelled locations would perform at the same level of service compared to the 'without project' scenario, except for:

- Brabham Drive/Huntingwood Drive in the Friday pre event peak hour, where the level of service would decrease from A to B with an associated increase in average delay of 11 seconds
- Ferrers Road/The Horsley Drive in the Friday pre event peak hour where the level of service would decrease from B to D, with an associated increase in average delay of 22 seconds.

Although the two above mentioned intersections would have a reduction in the level of service, there would continue to be spare capacity and the level of service would still be acceptable. The increase in average delay is relatively minor and the impact would occur for short periods on days with concurrent events at the Sydney International Speedway and Sydney Dragway.

Figure 6-9 Intersection performance at the year of opening (2022), without Sydney International Speedway and with concurrent operation of minor events at Sydney International Speedway and Sydney Dragway on a Friday evening (pre and post events)

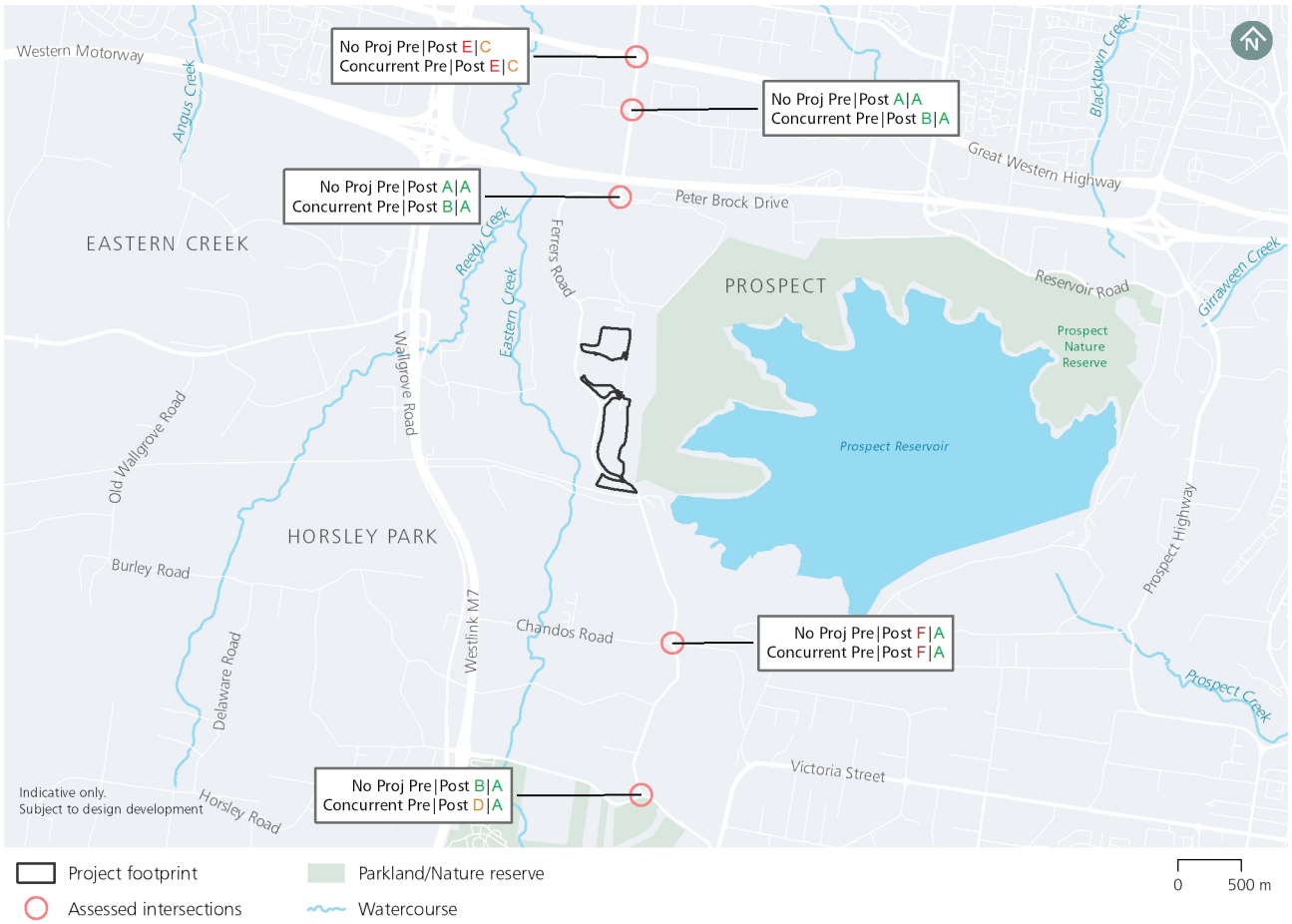


Figure 6-10 Intersection performance ten years after opening (2032), without Sydney International Speedway and with concurrent operation of minor events at Sydney International Speedway and Sydney Dragway on a Friday evening (pre and post events)

### 6.7.3 Active transport network

No impacts to existing pedestrian and cycle infrastructure is anticipated during operation of the project.

Pedestrian connectivity between Carpark C and Carpark D and the main operational site would continue to be via the existing pedestrian footpath along the north-south link road. Carparks would include the provision of pedestrian connectivity features, including pedestrian crossings, footpaths, signage and wayfinding to allow for the safe movement of users of the carparks to access both Sydney International Speedway and the Sydney Dragway.

### 6.7.4 Public transport network

Brabham Drive is used by route 724 which also forms part of the operational access and egress route. Minimal impacts to buses are expected and would be limited to a potential minor increase in travel time due to additional vehicles on the road network during the pre and post event peak periods. No impacts are anticipated on the operation of existing bus stops.

The traffic and transport assessment conservatively assumes that 100 per cent of spectators would arrive and depart by private vehicle due to the limited public and active transport links to the project site (refer to Section 6.4.5). Opportunities to enhance public transport accessibility to the project would be investigated, including the provision of bus services and bus stop infrastructure to service concurrent events.

### 6.7.5 Parking

As outlined in Chapter 5 (Project description), dedicated and shared car parking arrangements have been agreed with Sydney Dragway. The operational car parking design has been developed in consultation with Sydney Dragway to provide adequate parking for visitors to Sydney Dragway (refer to Chapter 4 (Stakeholder and community engagement) for more information about consultation completed to date).

As described in Section 6.5, the project includes provision of the following car parking:

- Two new dedicated parking areas for Sydney Dragway (Carpark C and Carpark D), providing about 2220 car parking spaces
- New dedicated parking for Sydney International Speedway (Carpark A), providing about 600 car parking spaces. There is also the potential to provide another 200 car parking spaces within the Sydney International Speedway pit area.

During Sydney Dragway exclusive events (when the Sydney International Speedway would not operate), Sydney Dragway would also have exclusive use to the 600 dedicated Sydney International Speedway parking spaces, providing a total of about 2820 car parking spaces. Additional spaces may also be made available in the Sydney International Speedway pit area. This represents an increase in vehicle spaces available to Sydney Dragway during large events compared to the current operations.

Likewise, during the Sydney International Speedway exclusive events (when Sydney Dragway would not operate) Sydney International Speedway would have exclusive use to the southern Sydney Dragway parking area (around 460 spaces). This would provide a total of about 1060 car parking spaces with additional spaces potentially available in the Sydney International Speedway pit area.

The parking demand during concurrent minor events is provided in Table 6-9. Based on the forecast vehicle generation and arrival and departure profiles the peak parking demand during a concurrent minor event at Sydney International Speedway and Sydney Dragway would be 955 vehicles. Parking demand for a Sydney International Speedway 'minor' event and Sydney Dragway 'minor' event occurring concurrently on a Friday would be adequately serviced with a parking occupancy of 34 per cent.

Table 6-9 Sydney International Speedway and Sydney Dragway concurrent 'minor' event parking demand – Friday

| Hour commencing | Vehicles entering per hour | Vehicles exiting per hour | Cumulative parking demand |
|---|---|---|---|
| **3pm** | 104 | 25 | 324[1] |
| **4pm** | 163 | 15 | 472 |
| **5pm** | 457 | 59 | 870 |
| **6pm** | 136 | 51 | 955 |
| **7pm** | 52 | 226 | 781 |
| **8pm** | 27 | 272 | 536 |
| **9pm** | 5 | 456 | 85 |
| **10pm** | 2 | 78 | 9 |

*1 The cumulative parking demand at 3pm includes the net number of vehicles entering and exiting the site between 12 am and 3pm.*

### 6.7.6 Access

During concurrent events, Sydney Dragway competitors and staff would enter and exit Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports via the Sydney Dragway Gate A (north of the project site). Visitors to the Sydney Dragway and competitors and visitors of the Sydney International Speedway would access car parking areas within the project site using the site access road.

Competitor vehicles for the Sydney International Speedway that park in Carpark B would exit the project site via a new, left only T-intersection at the south of the project site onto Ferrers Road. Vehicles parked in Carparks A, C and D would exit via the site access road and then onto Ferrers Road using the existing unsignalised T-intersection. Vehicles would be able to turn left or right onto Ferrers Road from the site access road.

## 6.8 Management and mitigation measures

### 6.8.1 Approach to management and mitigation

The approach to traffic, transport and parking management during the construction phase, including the process for the development of Traffic Management Plans, is outlined in the Construction Environmental Management Framework in Appendix C. Construction Traffic Management Plans would be prepared in consultation with the relevant road authority, Transport Coordination and other relevant parts of Transport for NSW. The Construction Traffic Management Plan would be endorsed by Transport Coordination and approved by the relevant part of Transport for NSW.

An Operational Environmental Management Plan (OEMP) would be prepared by the operator of the Sydney International Speedway once appointed. The Operational Environmental Management Plan would include a Traffic Management Plan which would include measures to minimise traffic impacts to road network performance during peak event times. The operational Traffic Management Plan would consider measures to be implemented to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when events are scheduled at the same time as Sydney Dragway.

As part of the Major Events Operations Plan, event specific Traffic Management Plans would be prepared for any major events. These event specific Traffic Management Plans would be prepared in consultation with NSW Transport Management Centre, NSW Police and other relevant stakeholders and would consider (as relevant):

- All major modes of transport
- Car parking arrangements
- Pedestrian routes and access
- Public transport considerations
- The need for temporary road closures and associated detours
- Temporary point to point transport and shuttle bus zones
- Temporary drop off and pick up zones
- Loading vehicle arrangements during events.

### 6.8.2 Mitigation measures

The mitigation measures that would be implemented to address potential temporary traffic, transport and parking impacts are listed in Table 6-10.

Table 6-10 Mitigation measures – traffic, transport and parking

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Construction** | | |
| **TT1** | Traffic related incidents | In the event of a traffic related incident, coordination would be carried out with Transport Coordination and/or the Transport Management Centre's Operations Manager. |
| **TT2** | Property access for emergency vehicles | Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be maintained at all times for emergency vehicles. |
| **TT3** | Construction site access and egress | All trucks would enter and exit the project site in a forward direction, where feasible and reasonable. |
| **TT4** | Road network performance | Construction traffic would be managed to minimise movements along Ferrers Road and the surrounding road network during peak periods. |
| **TT5** | Parking availability for construction personnel | Parking for construction personnel would be provided on-site and not on surrounding local streets. |
| **TT6** | Construction traffic during major events | During major events at Sydney Dragway, impacts to the surrounding transport and traffic network would be reduced by (as necessary):<br>• Avoiding the use of the spectator access road by construction traffic during Sydney Dragway major events<br>• Minimising the level and nature of construction activity pre, during and post events<br>• Maintaining appropriate access to all areas within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports<br>• Scheduling deliveries to the project site outside of event periods, when possible. |
| **TT7** | Parking for events at Sydney Dragway during construction | Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of around 2400 dedicated parking spaces for Sydney Dragway comprising of:<br>• Retention of about 800 existing spaces in the existing P2 Sydney Dragway carpark outside of the project site<br>• A minimum of 1600 spaces within the project site for use by visitors to Sydney Dragway during events.<br>For larger events at Sydney Dragway, additional parking spaces within the Sydney Motorsports Park (operated by the Australian Racing Drivers Club) would also be made available. During these events, a shuttle bus service would be provided between this parking and the Sydney Dragway. |

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Operation** | | |
| **TT8** | Public transport accessibility during major events | Opportunities to enhance public transport accessibility to the project would be investigated, including the provision of bus services and bus stop infrastructure to service major events. |
| **TT9** | Property access for emergency vehicles | Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be maintained at all times for emergency vehicles. |
| **TT10** | Impacts to road network performance during events at the project site (including concurrent operations) | A Traffic Management Plan would be developed by the operator of Sydney International Speedway and would include measures to minimise impacts to road network performance during peak event times. The Traffic Management Plan would consider measures to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when events are scheduled at the same time as Sydney Dragway. |

### 6.8.3 Interactions between mitigation measures

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of potential traffic, transport and parking impacts or the implementation of traffic, transport and parking mitigation measures.

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# 7 Noise and vibration

# 7 Noise and vibration

This chapter provides an assessment of the potential noise and vibration impacts during construction and operation of the Sydney International Speedway and identifies mitigation measures to minimise these impacts. This chapter draws on information provided in Technical Paper 2 (Noise and vibration).

## 7.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to noise and vibration and where these requirements are addressed in this Environmental Impact Statement are outlined in Table 7-1.

Table 7-1 Secretary's Environmental Assessment Requirements – Noise and vibration

| Reference | Secretary's Environmental Assessment Requirements | Where addressed |
|---|---|---|
| **2. Noise and vibration – Amenity** | | |
| **2.1** | The Proponent must assess construction and operational noise and vibration impacts (including cumulative impacts of concurrent events) in accordance with relevant NSW noise and vibration guidelines. | This chapter |
| **2.2** | The assessment of construction noise and vibration must address:<br>a. The nature of construction and operational activities and related noise characteristics; | Section 7.6 |
| | b. The intensity and duration of both air and ground borne noise and vibration impacts; | Section 7.6 |
| | c. The identification and nature of receivers existing during construction and operation; | Section 7.4.1 |
| | d. the nature of the impact and the sensitivity of receivers and level of impact for out of hours work and events; | Section 7.6 |
| | e. an assessment of operational road traffic noise; | Section 7.7.3 |
| | f. details and analysis of the predicted effectiveness of mitigation measures to adequately manage identified impacts; | Section 7.5 to 7.8 |
| | g. any potential residual noise and vibration impacts following application of mitigation measures; and | Section 7.8 |
| | h. a description of how feedback received during the preparation of the EIS has been taken into account (and would be taken into account post exhibition of the EIS) in the design of mitigation measures, including any tailored mitigation, management and communication strategies for sensitive receivers. | Chapter 4 (Stakeholder and community engagement) |
| **3.1** | The Proponent must assess construction and operation noise and vibration impacts in accordance with relevant NSW noise and vibration guidelines. The assessment must include consideration of impacts to the structural integrity and heritage significance of items (including Aboriginal places and items of environmental heritage). | Section 7.6.3 |
| **3.2** | The Proponent must assess the construction and operation vibration impacts of the development upon pipeline(s) and identify relevant mitigation measures where required. | Section 7.6.3 |

## 7.2 Legislative and policy framework

The guidelines and policies used to assess the construction and operational noise and vibration impacts from the project are listed in Table 7-22.

Table 7-2 Noise and vibration guidelines

| Guideline/policy name | Where guideline has been used |
|---|---|
| ***Interim Construction Noise Guideline*** **(ICNG) (Department of Environment and Climate Change, 2009)** | Assessment of construction airborne noise and ground-borne noise impacts on sensitive receivers. |
| ***Assessing Vibration: a technical guideline*** **(Department of Environment and Conservation, 2006)** | Assessment of construction vibration impacts on sensitive receivers. |
| ***AS2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors*** | Provides recommended design sound levels for internal areas of occupied spaces. |
| ***NSW Road Noise Policy*** **(Department of Environment, Climate Change and Water, 2011)** | Assessment of construction and operation road traffic noise impacts. |
| ***BS 7385 Part 2-1993 Evaluation and measurement for vibration in buildings Part 2*** **(British Standards Institute, 1993)** | Screening assessment of construction vibration (cosmetic damage) to sensitive buildings and structures. |
| ***DIN 4150:Part 3-2016 Structural vibration – Effects of vibration on structures*** **(Deutsches Institute fur Normung, 1999)** | Screening assessment of construction vibration impacts (cosmetic damage) to heritage sensitive structures, where the structure is found to be unsound. |
| ***Construction Noise and Vibration Strategy*** **(Transport for NSW, 2016)** | Assessment and management protocols for airborne noise, ground-borne noise and vibration impacts for construction of rail infrastructure projects. |
| ***Sydney Metro Construction Noise and Vibration Standard*** **(Sydney Metro, 2020)** | Assessment and management protocols for construction of Sydney Metro projects. This standard is based on the requirements of the ICNG, as appropriate to Sydney Metro and is the guiding document for the project. |
| ***Noise Policy for Industry*** **(Environment Protection Authority, 2017a)** | Establishment of Rated Background Levels and procedure for noise monitoring. |
| ***Noise Guide for Local Government*** **(Environment Protection Authority, 2013)** | Assessment of motorsport facility operations. |

## 7.3 Assessment methodology

### 7.3.1 Overview

The methodology for the assessment of the noise and vibration impacts of the project involved the following key steps:

- Identifying and classifying noise-sensitive receivers relevant to the project footprint
- Characterising the existing noise environment based on attended and unattended noise measurements at specific locations around the project
- Determining noise and vibration management levels in accordance with relevant guidelines
- Modelling to quantify potential construction and operational noise and vibration impacts on identified noise-sensitive receivers
- Assessing the significance of potential impacts identified
- Examining the proposed construction methodologies, project design and operations to identify mitigation measures to minimise noise and vibration impacts during construction and operation of the project.

### 7.3.2 Construction scenarios

Representative scenarios have been developed to assess the likely impacts from the various construction stages of the project, consistent with the construction staging provided in Chapter 5 (Project description) of this Environmental Impact Statement.

The assessment uses 'realistic worst-case' scenarios to determine the impacts from the noisiest 15-minute period that are likely to occur for each work scenario, as required by the *Interim Construction Noise Guideline* (ICNG). The impacts represent worst-case construction noise levels without the application of management and mitigation measures.

A detailed description of the construction scenarios assessed for airborne construction noise impacts are provided in Technical Paper 2 (Noise and vibration). A summary of the construction activities in each construction scenario are provided in Table 7-3.

Table 7-3 Overview of construction scenarios assessed

| Construction scenario[1] | Construction activity |
|---|---|
| **Temporary Works** | Establish site compound |
| | Enabling works |
| **Stage 1 – Areas 1, 5, 6 and 7** | Site clearance and grub |
| | Cut/fill earthworks |
| | Drainage works |
| | Utilities connections |
| | Construction of racing infrastructure |
| | Construction of event support infrastructure |
| | Construction of internal road |
| | Construction of permanent carpark |
| **Stage 2 - Areas 2, 4 and 7**<br>**Stage 3 - Area 3** | Site clearance and grub |
| | Cut/fill earthworks |
| | Drainage works |
| | Construction of permanent carparks |
| **Stage 4 - main operational site** | Asphalting |
| | Landscaping |
| | Signage and line marking |
| **Stage 5 Southern Area Stockpiling works** | Earthworks |

*1 Equipment lists for each scenario and Sound Power Level data are provided in Technical Paper 2 (Noise and vibration).*

### 7.3.3 Construction program and hours

For the purpose of this assessment and to inform construction planning, all scenarios have been included in the assessment as potentially occurring 24 hours a day, seven days a week (i.e. during the evening and/or night-time). Where feasible and reasonable, noisier construction activities would be planned to occur during daytime construction hours.

Subject to planning approval, construction of the project is planned to commence in late 2020 and the total duration of construction works is expected to be around 13 months. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing woks occurring concurrently with the commencement of operations. An indicative construction program for the project is provided in Chapter 5 (Project description).

### 7.3.4 Construction noise metrics

Noise parameters most relevant to construction noise are described below and were evaluated for the project:

- Rating background level (RBL) or $L_{A90}$–– the background noise level in the absence of proposed construction activities. This parameter represents the average minimum noise level during the daytime, evening and night-time periods and is used to set the $L_{Aeq(15\ minute)}$ noise management levels (NMLs) for residential receivers
- $L_{Aeq\ (period)}$ – the 'energy average noise level' evaluated over a defined measurement period (typically 15 minutes for construction noise or the relevant daytime, evening or night-time period for ambient noise monitoring)
- $L_{Amax}$ or $L_{A1(1min)}$ – the 'typical maximum noise level' for an event, used in the assessment of potential sleep disturbance during night-time periods.

### 7.3.5 Noise catchment areas and sensitive receivers

The area surrounding each construction site is divided into one or more Noise Catchment Areas (NCAs) that reflect the ambient noise environment of that area, as well as the noise and vibration sensitivity of the surrounding land uses.

The sensitivity of occupants to noise and vibration varies according to the nature of the occupancy and the activities performed within the affected premises. For example, premises with sensitive equipment or uses are more likely to be sensitive to vibration and ground-borne noise than residential premises, which in turn are more sensitive than typical commercial premises.

Receivers potentially sensitive to noise and vibration have been categorised into the following receiver categories:

- Residential buildings
- Commercial/industrial buildings
- 'Other sensitive' land uses, which includes educational institutions, childcare centres, medical facilities, places of worship, outdoor recreation areas.

A description of each of the NCAs is provided in Section 7.4.1.

### 7.3.6 Construction noise management levels

The Sydney Metro Construction Noise and Vibration Standard references the ICNG for assessing and managing construction noise impacts on projects carried out by Sydney Metro.

The ICNG contains procedures for determining project specific NMLs for sensitive receivers. The 'worst-case' noise levels from construction of a project are predicted and then compared to the noise management levels in a 15 minute assessment period to determine the potential impact of the project.

The NMLs are not mandatory limits, however where construction noise levels are predicted or measured to be above the noise management levels, feasible and reasonable work practices to minimise noise emissions are to be investigated.

#### Residential receivers

The ICNG provides an approach for determining $L_{Aeq(15minute)}$ noise management levels at residential receivers by applying the measured $L_{A90(15minute)}$ background noise levels, as described in Table 7-4.

Table 7-4 Determination of noise management levels for residential receivers

| Time of day | Noise Management Level $L_{Aeq(15minute)}$ | How to apply |
|---|---|---|
| **Standard construction hours:**<br>• **Monday to Friday**<br>• **7am-6pm**<br>• **Saturday**<br>• **8am-1pm**<br>• **No work on Sundays or public holidays** | Noise affected RBL + 10 dBA | • The noise affected level represents the point above which there may be some community reaction to noise.<br>• Where the predicted or measured $L_{Aeq(15minute)}$ is greater than the noise affected level, the proponent would apply all feasible and reasonable work practices to meet the noise affected level<br>• The proponent would also inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels and duration, as well as contact details. |
| | Highly noise affected 75 dB(A) | • The highly noise affected level represents the point above which there may be strong community reaction to noise.<br>• Where noise is above this level, the relevant authority (consent, determining or regulatory) may require respite periods by restructuring the hours during which the very noisy activities can occur, taking into account:<br>  • Times identified by the community when they are less sensitive to noise (such as before and after school for works near schools or mid-morning or mid-afternoon for works near residences)<br>  • If the community is prepared to accept a longer period of construction in exchange for restrictions on construction times. |
| **Outside recommended standard hours** | Noise affected RBL + 5 dBA | • A strong justification would typically be required for works outside the recommended standard hours<br>• The proponent would apply all feasible and reasonable work practices to meet the noise affected level<br>• Where all feasible and reasonable practices have been applied and noise is more than 5 dB above the noise affected level, the proponent would negotiate with the community. |

**Other sensitive land uses and commercial receivers**

The project specific $L_{Aeq(15minute)}$ noise management levels for other sensitive receivers from the ICNG are provided in Table 7-5.

Table 7-5 Noise management levels for other sensitive receivers (derived from ICNG)

| Land use | NML $L_{Aeq(15minute)}$ (applied when the land use is in use) |
|---|---|
| **Classrooms at schools and other education institutions** | Internal noise level 45 dBA |
| **Hospital wards and operation theatres** | Internal noise level 45 dBA |
| **Places of worship** | Internal noise level 45 dBA |
| **Active recreation areas**<br>**(characterised by sporting activities and activities which generate their own noise or focus for participants, making them less sensitive to external noise intrusion)** | External noise level 65 dBA |
| **Passive recreation areas**<br>**(characterised by contemplative activities that generate little noise and where benefits are compromised by external noise intrusion for example reading, meditation)** | External noise level 60 dBA |
| **Commercial** | External noise level 70 dBA |
| **Industrial** | External noise level of 75 dBA |

**Other noise-sensitive receivers require separate project specific noise goals.**

The ICNG recommends that the internal construction noise levels at these premises are determined based on the 'maximum' internal levels presented in Australian Standard AS2107:2016 Acoustics – Recommended design sound levels and reverberation times for building interiors. These recommended 'maximum' internal noise levels are provided in Table 7-6.

Table 7-6 Noise management levels for other sensitive receivers (derived from AS2107:2016)

| Description | Time period | NML derived from | Noise management level (dBA) $L_{Aeq(15minute)}$ | |
|---|---|---|---|---|
| | | | Internal | External |
| **Hotel** | Daytime and evening | AS2107: Bars and lounges | 50 | 70[1] |
| | Night-time | AS2107: Sleeping areas: Hotels near major roads | 40 | 60[1] |
| **Childcare centres** | Daytime | GCCCAA: Outdoor play areas | - | 55 |
| | | GCCCAA: Sleeping areas | 40 | 50[2] |
| **Public building** | When in use | AS2107: Public space | 50 | 60[2] |
| **Recording studio** | When in use | AS2107: Music recording studios | 25 | 45[1] |
| **Theatre/auditorium** | When in use | AS2107: Drama theatres | 30 | 50[1] |
| **Stables** | When in use | ICNG: Outdoor passive recreation | - | 60 |

*1 The criteria are specified as an internal noise level for this receiver category. As the noise model predicts external noise levels, it has been assumed that these receivers have fixed windows with a conservative 20 dB reduction for external to internal noise levels.*
*2 Receiver conservatively assumed to have openable windows and a 10 dB reduction from outside to inside facade levels.*

**Assessing construction noise impacts**

The assessment of predicted airborne noise impacts from construction of the project is based on the exceedance of the noise management levels during the representative construction scenarios assessed for the project. The likely subjective response of people affected by noise impacts is shown in Table 7-7 and is used to describe the level of impact during standard and night-time construction hours.

Table 7-7 Exceedance bands and corresponding subjective response to construction noise impacts

| Exceedance of management level | Likely subjective response | Impact colouring |
|---|---|---|
| No exceedance | No impact | |
| 1 to 10 dB | Minor | |
| 11 dB to 20 dB | Moderate | |
| >20 dB | High | |

### 7.3.7 Ground-borne construction vibration

The potential impacts during vibration intensive works have been assessed assuming a vibratory roller could be used anywhere within the project site. The effects of vibration in buildings can be divided into three main categories:

- Those in which the occupants of buildings are disturbed (human comfort)
- Those where the building contents may be affected (building contents)
- Those where the integrity of the building/structure may be compromised (structural or cosmetic damage).

### Human comfort and building contents

People can sometimes perceive vibration impacts when vibration generating construction works are located close to occupied buildings. Vibration from construction works tends to be intermittent in nature and the Environment Protection Authority's *Assessing Vibration: a technical guideline* (2006) provides criteria for intermittent vibration based on the Vibration Dose Value (VDV). The VDV provides a measurement of the presence of 'jolts and jars' experienced and combines the magnitude of vibration with the time for which it occurs. The 'preferred' and 'maximum' VDVs for human comfort impacts are shown in Table 7-8.

People perceive vibration at levels well below those likely to cause damage to building contents. For most receivers, the human comfort vibration criteria are the most stringent and it is generally not necessary to set separate criteria for vibration effects on typical building contents.

Table 7-8 Vibration dose values for intermittent vibration

| Building type | Assessment period | Vibration Dose Value[1] ($m/s^{1.75}$) | |
|---|---|---|---|
| | | Preferred | Maximum |
| **Critical Working Areas (for example operating theatres or laboratories)** | Day or night-time | 0.10 | 0.20 |
| **Residential** | Daytime | 0.20 | 0.40 |
| | Night-time | 0.13 | 0.26 |
| **Offices, schools, educational institutions and places of worship** | Day or night-time | 0.40 | 0.80 |
| **Workshops** | Day or night-time | 0.80 | 1.60 |

1 *The vibration dose value accumulates vibration energy over the daytime and night-time assessment periods and is dependent on the level of vibration as well as the duration.*

### Cosmetic damage

If vibration from construction works is sufficiently high it could potentially cause cosmetic damage to elements of affected buildings, although based on the distance of structures from the site impacts associated with vibration are not anticipated. Examples of potential damage include cracking or loosening of drywall surfaces, cracks in supporting columns and loosening of joints. The levels of vibration required to cause cosmetic damage tends to be at least an order of magnitude (10 times) higher than those at which people can perceive vibration (human comfort VDVs).

Industry standard cosmetic damage vibration limits are contained in Australian Standard AS 2187-2, British Standard BS 7385 and German Standard DIN 4150, which are referenced in the Sydney Metro Construction Noise and Vibration Standard. The Sydney Metro Construction Noise and Vibration Standard recommends limits for transient vibration which correspond to minimal risk of cosmetic damage for residential and industrial buildings.

The Sydney Metro Construction Noise and Vibration Standard notes that where dynamic loading caused by continuous vibration may give rise to dynamic magnification due to resonance, especially at the lower frequencies where lower guide values apply, then the guide values in British Standard BS 7385:2 – 1993 may need to reduce by up to 50 per cent. On this basis, the Sydney Metro Construction Noise and Vibration Standard recommends the adoption of conservative cosmetic damage screening limits shown in Table 7-9.

Table 7-9 Transient vibration values for minimal risk of cosmetic damage

| Type of building | Peak component particle velocity |
|---|---|
| Reinforced or framed structures<br>Industrial and heavy commercial buildings | 25 millimetres per second |
| Unreinforced or light framed structures<br>Residential or light commercial type buildings | 7.5 millimetres per second |

#### Heritage buildings and structures

The Sydney Metro Construction Noise and Vibration Standard states that heritage buildings and structures should be assessed according to the cosmetic damage screening criteria outlined in Table 7-9 and should not be assumed to be more sensitive to vibration unless found to be structurally unsound.

Condition surveys of potentially affected buildings and structures near to the project would be carried out prior to the commencement of construction, where appropriate. Where heritage buildings and structures are found to be structurally unsound, a more conservative cosmetic damage screening level of 2.5 millimetres per second peak particle velocity (PPV) (from DIN 4150) would be adopted prior to more specific consideration of appropriate levels for each building or structure.

### 7.3.8 Operational motorsport noise

Motorsport noise has been part of the local environment at the project site for around 30 years and is commonly regarded as an integral part of the patron experience for motorsport activities. The aim of assessment guidelines is to provide a framework to achieve balance between the need for development, the desired operations of the development, and the protection of noise amenity in the community. For this project, this means a balance between maintaining operations of the Speedway industry in NSW, patron experience of motorsport (including noise), and minimising noise at nearby non-patron noise-sensitive receivers.

A three-dimensional noise model of the study was developed to predict operational motorsport noise levels to the surrounding receivers. The model incorporated local terrain, receiver buildings and structures to create a digital representation of the surrounding areas.

Details of the assumptions used in the development of the noise model, including details of the proposed events at Sydney International Speedway, noise source levels of vehicles and meteorological conditions are provided in Technical Paper 2 (Noise and vibration).

The assessment of operational motorsport noise impacts on sensitive receivers is based on whether the noise is considered offensive and how frequently the events would occur. The methodology for assessing operational noise impacts from the project related to motorsports events included:

- An assessment of the predicted impacts of from Speedway events at noise sensitive receivers against the measured existing background levels
- A comparison of predicted noise levels from Speedway events at noise sensitive receivers to predicted noise levels from existing operations from Sydney Dragway and Sydney Motorsport Park events at the same receivers.
- An assessment of predicted impacts from Speedway events at noise-sensitive receivers when events are held concurrently with events at Sydney Dragway
- An offensive noise test in accordance with the Noise Guide for Local Government (NGLG).

In order to compare the noise levels from the Sydney International Speedway with those of the Sydney Dragway and Sydney Motorsport Park, modelling was carried out to provide indicative noise level contours for various representative events at Sydney Dragway and Sydney Motorsport Park. The complete description of assumptions used to undertake this modelling are provided in Technical Paper 2 (Noise and vibration). The following race events were modelled to provide indicative noise level contours for the following existing race events at the Sydney Dragway and Sydney Motorsport Park:

- V8 Supercar race at Sydney Motorsport Park
- Top Fuel Race at Sydney Dragway
- Sydney Motorsport Park Track Day (Porsche 911)
- Super Stock event at Sydney Dragway.

Noise monitoring was carried out at NSW Atura Drag Racing Series event at Sydney Dragway in February 2020 to validate the model. This series event consisted of modified and performance vehicles that are likely comparable to Super Stock vehicles.

#### Offensive noise test

The NGLG is administered by the Environment Protection Authority and provides guidance for councils on the assessment of noise from sporting venues including motorsports on private land. The NGLG specifies that proposed motorsports facilities must consider the following:

- The sound power level of the different types of racing vehicles
- The number and type of events planned for the facility (for example drag racing, motocross, circuit racing, speedway or go-karts)
- The number and location of racing cars on the circuit and in any pit or warm-up areas
- Potential meteorological effects on noise propagation and impacts in the surrounding area.

In addition to this, the NGLG specifies that motorsports facilities must be assessed against an offensive noise test (described in section 2.1.4 of the NGLG), which is a checklist that considers:

- Is the noise loud in an absolute sense? Is it loud relative to other noise in the area?
- Does the noise include characteristics that make it particularly irritating?
- Does the noise occur at time when people expect to enjoy peace and quiet?
- Is the noise typical for the area?
- Does the noise occur often?
- Are a number of people affected by the noise?

The checklist is intended as a guide for council officers and authorised persons to make a systematic judgement about whether a particular noise is offensive. However, the offensive noise checklist is typically applied in respect of enforcement actions rather than assessment of environmental impact to support consideration of an application for planning approval.

The NGLG provides a case study for motorsports events which requests noise assessments to consider noise mitigation strategies including receiver noise controls such as treatment of affected properties. In this way, the NGLG aims to guide councils, as the Appropriate Regulatory Authority (ARA), to apply case-by-case judgement to achieve a solution which balances the noise expectations of the patrons with the amenity needs of the affected community.

### 7.3.9 Operational noise from facility operations

*The Noise Policy for Industry* (NPfI) was released in 2017 and sets out the NSW *Environment Protection Authority*'s requirements for the assessment and management of noise from industry in NSW. Assessment of potential impacts when the facility is not holding a motorsport event, i.e. when undertaking general maintenance and office activities, have been assessed against the Policy.

The NPfI describes 'trigger levels' which indicate the noise level at which feasible and reasonable noise management measures should be considered. Two forms of noise criteria are provided – one to account for 'intrusive' noise impacts and one to protect the 'amenity' of particular land uses.

- The **intrusiveness** of an industrial noise source is generally considered acceptable if the $L_{Aeq}$ noise level of the source, measured over a period of 15 minutes, does not exceed the background noise level by more than 5 dB. Intrusive noise levels are only applied to residential receivers. For other receiver types, only the amenity levels apply.
- To limit continual increases in noise levels from the use of the intrusiveness level alone, the ambient noise level within an area from all industrial sources should remain below the recommended **amenity** levels specified in the NPfI for that particular land use.

For this assessment, the area surrounding the project is considered to be 'suburban'.

On days when no events occur at Sydney International Speedway, the operations would be expected to be limited to the general running of the facility (such as car parking and office-based activities) along with maintenance activities, as required. Information relating to these activities is limited at this early stage in the project and a qualitative assessment of the potential impacts has been completed.

### 7.3.10 Outdoor open areas (parklands)

The NGLG does not specify guidance for the assessment of outdoor recreational area such as the parklands and open spaces which are located next to the project site. To assess potential noise impacts at these areas during construction and operation, a trigger level of $L_{Aeq(period)}$ 50 dBA (while the area is in use) has been used. This level is consistent with guidance for similar areas contained in the NSW *Noise Policy for Industry*, and lower than guidance in the NSW *Road Noise Policy* ($L_{Aeq(15hour)}$ 55 dBA). While neither of these guidelines are considered to apply to motorsport noise, the nominated noise goal is considered a reasonable guide to identify and assist in guiding the need for mitigation as a result of facility operations.

### 7.3.11 Road traffic noise

The potential impacts to road traffic noise from construction traffic travelling on public roads has been assessed under the *NSW Road Noise Policy* (Department of Environment, Climate Change and Water, 2011a) and has been estimated using the *Calculation of Road Traffic Noise* (CoRTN) algorithm.

When traffic related to the project is on the public road network, vehicle movements are regarded as 'additional road traffic' (rather than as part of the site operations) and are assessed under the *NSW Road Noise Policy* (Department of Environment, Climate Change and Water, 2011a).

For the purpose of this assessment, Ferrers Road has been considered as a sub-arterial road.

An initial screening test was applied to evaluate if existing road traffic noise levels are expected to increase by more than 2 dB due to traffic from construction and operation of the project. Where this is considered likely, further assessment is required using the following relevant road traffic noise criteria:

- Existing freeway/arterial/sub-arterial roads:
  - $L_{Aeq(15hour)}$ 60 dBA day
  - $L_{Aeq(9hour)}$ 55 dBA night
- Existing local roads:
  - $L_{Aeq(1hour)}$ 55 dBA day
  - $L_{Aeq(1hour)}$ 50 dBA night.

Consistent with the traffic, transport and parking assessment prepared for this project, (refer to Chapter 6 (Traffic, transport and parking) for more information), the screening for the assessment of operational road traffic noise has been carried out for events at the Sydney International Speedway only, and concurrently with the Sydney Dragway.

### 7.3.12 Sleep disturbance

Where night works are located close to residential receivers there is potential for sleep disturbance impacts.

The ICNG lists five categories of works that might be carried out outside the standard construction hours:

- The delivery of oversized equipment or structures that require special arrangements to transport on public roads
- Emergency work to avoid the loss of life or damage to property, or to prevent environmental harm
- Maintenance and repair of public infrastructure where disruption to essential services and/or considerations of worker safety do not allow work within standard hours
- Public infrastructure works that shorten the length of the project and are supported by the affected community
- Works where a proponent demonstrates and justifies a need to operate outside the recommended standard hours.

Where construction works are planned to extend over more than two consecutive nights, the ICNG recommends an assessment of sleep disturbance impacts should be completed. Sleep disturbance impacts from construction of the project has been carried out in accordance with the Environment Protection Authority's *Noise Policy for Industry* (NPfI) (Environment Protection Authority, 2017). The NPfI defines sleep disturbance criteria as being 52 dBA $L_{AFmax}$ or a maximum level of 15 dB above the RBL, whichever is the greater.

Where this criterion is met, sleep disturbance is not likely, but where it is not met, a more detailed analysis is required.

Events at the project site would take place between 6pm and 10pm. As motorsport events are not proposed during the night-time (i.e. after 10pm), the project is therefore not expected to result in any additional sleep disturbance impacts during operation and sleep disturbance has not been considered further as part of the operational noise and vibration impact assessment.

### 7.3.13 Operational vibration assessment

A review of the project design was used to identify whether any new sources of vibration would be introduced due to the operation of the project, and whether there would be any associated potential impacts.

## 7.4 Existing environment

### 7.4.1 Noise catchment areas and sensitive receivers

The study area and NCAs for the project are described Table 7-10 and shown in Figure 7-1.

Receiver types and locations are shown in Figure 7-1. The Warragamba Pipelines are part of Sydney's bulk water supply infrastructure and are therefore also considered to be sensitive to vibration impacts.

Table 7-10 Noise catchment areas and surrounding land uses

| NCA | Minimum distance from project site | Description |
|---|---|---|
| **NCA01** | 200 metres | South of the project in Horsley Park. This catchment is mainly residential except for the area immediately south of the project which is commercial/industrial. Residential receivers beyond are sparsely distributed on either side of the Westlink M7 Motorway. The nearest residential receivers to the project in NCA01 are about 800 metres to the south of the project site.<br>NCA01 includes the Austral Bricks Horsley Park facility, which is positioned south of the project and between the project site and the nearest residential receivers. |
| **NCA02** | 1 kilometre | West of the project, in Eastern Creek. NCA02 consists of mostly commercial and industrial receivers to the west of the M7 Motorway. A small number of residential receivers located about one kilometre northwest of the project site have been included in the assessment, however, it is not clear if these are currently occupied. These receivers are within the proposed Light Horse Interchange Business Hub Eastern Creek project area. |
| **NCA03** | 2.5 kilometres | Northwest of the project, in Minchinbury. NCA03 is mainly residential, however, the nearest receivers are over two kilometres from the project, beyond both the M7 Motorway and M4 Motorway. |
| **NCA04** | 1.5 kilometres | North of the project, in Huntingwood and Arndell Park. NCA04 consists of mostly commercial and industrial receivers beyond the M4 Motorway. |
| **NCA05** | 3 kilometres | Northeast of the project, in Blacktown. NCA05 consists of mostly residential receivers to the north of the Great Western Highway, however, the nearest receivers are over three kilometres from the project beyond the intervening commercial/industrial areas. |
| **NCA06** | 3.2 kilometres | East of the project, in Pemulwuy. The nearest receivers to the project in NCA06 are commercial and industrial receivers along Prospect Highway, with residential receivers being further east and about five kilometres from the project. |
| **NCA07** | 1.8 kilometres | Southeast of the project, in Wetherill Park. NCA07 consist mostly of commercial and industrial receivers. |
| **Parklands** | | Open space and parklands (including Prospect Park and Nature Reserve, Western Sydney Parklands and Walder Park) are located adjacent to the project site and extend east around the Prospect Reservoir. |

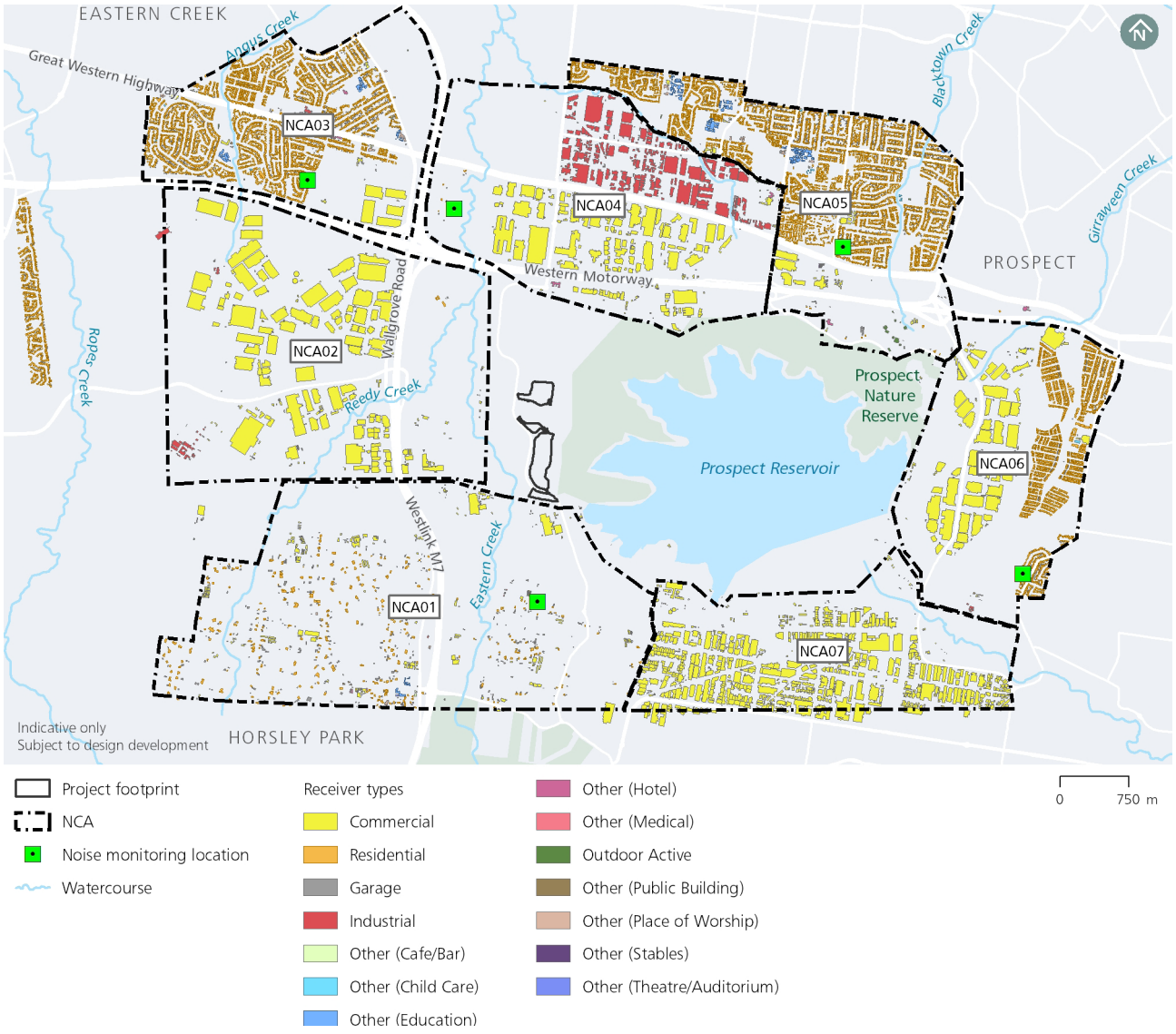


Figure 7-1 Noise catchment areas and sensitive receiver types

### 7.4.2 Existing noise sources

Existing noise level sources in the study area include existing commercial/industrial facilities, road traffic noise and noise from existing motorsport events at Sydney Motorsport Park and Sydney Dragway. Indicative noise level contours were modelled for various representative events at Sydney Dragway and Sydney Motorsport Park and the predicted noise levels at each of the sensitive receivers are summarised in Table 7-11.

Due to restrictions in place at the time of this assessment being completed, site measurements could not be carried out to verify the proposed source noise levels or measure existing motorsport noise levels in the study area. Various assumptions have therefore been made to establish realistic worst-case source data and predict existing levels.

Table 7-11 Noise levels at the existing motorsport operators

| NCA | Predicted noise level (dBA) | | | |
|---|---|---|---|---|
| | Sydney Motorsport Park[1] | | Sydney Dragway[1] | |
| | Noisy events | Typical events | Noisy events | Typical events |
| **NCA01** | 50-52 | 40-42 | 60-62 | 40-45 |
| **NCA02** | 60-65 | 50-55 | 54-56 | <40 |
| **NCA03** | 50-52 | 40-44 | 45-47 | <40 |
| **NCA04** | 60-62 | 48-51 | 45-47 | <40 |
| **NCA05** | 48-50 | 39-41 | 44-46 | <40 |
| **NCA06** | 50-52 | 39-41 | 40-45 | <40 |
| **NCA07** | n/a - no residential receivers identified in this NCA | | | |

*1 Estimate based on indicative contours for neutral weather conditions at the nearest residential locations*

### 7.4.3 Noise surveys and monitoring locations

Unattended noise monitoring was carried out in the study area in January and February 2020. The measured noise levels have been used to determine the existing noise environment and to set criteria to assess the potential impacts from the project. The monitoring locations are shown in Figure 7-1 and the results of the unattended noise monitoring and associated criteria are summarised in Table 7-12.

Short-term attended noise monitoring was completed at each ambient noise monitoring location. The attended measurements allow the contributions of the various noise sources at each location to be determined.

Prevailing meteorological conditions including air temperature, relative humidity and wind velocity were taken into consideration in assessing background noise levels.

Table 7-12 Summary of unattended noise monitoring

| Location ID | Address | Noise level (dBA)[1, 2] | | | | | |
|---|---|---|---|---|---|---|---|
| | | Background noise (RBL) | | | Average noise level ($L_{Aeq}$) | | |
| | | Day | Evening | Night | Day | Evening | Night |
| **L01** | 150-151 Chandos Road, Horsley Park (NCA01) | 39 | 39[3] (actual 40) | 39[3] (actual 40) | 49 | 49 | 48 |
| **L02** | 8 Farrington Street, Minchinbury (NCA03) | 41 | 41[3] (actual 45) | 41 | 55 | 57 | 49 |
| **L03** | 94 Ollier Crescent, Prospect (NCA05) | 43 | 43 | 38 | 54 | 54 | 49 |
| **L04** | 48 Munro Street, Greystanes (NCA06) | 35 | 35[3] (actual 36) | 35[3] (actual 39) | 48 | 48 | 47 |
| **L05** | 51 Pikes Lane, Eastern Creek (NCA04) | 47 | 47 | 41 | 52 | 51 | 52 |

*1 The RBL and $L_{Aeq}$ noise levels have been obtained using the calculation procedures documented in the Noise Policy for Industry.*
*2 Daytime is from 7am to 6pm, evening is from 6pm to 10pm and night time is from 10pm to 7am.*
*3 RBL for evening set at no greater than the daytime, and RBL for night-time set no greater than the day or evening following principles outlined in the NPfI.*

## 7.5 Avoidance and minimisation of impacts

The design development of the project has aimed to avoid or minimise potential noise and vibration impacts of the project. This has been primarily by establishing the project within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, where motorsport noise has been part of the local environment at the project site for around 30 years and residential receivers are located about 800 metres away from the project.

## 7.6 Assessment of potential construction impacts

### 7.6.1 Airborne construction noise

Construction noise levels are generally predicted to be below the relevant noise management levels due to the large separation distance between the project site and the nearest receivers. The residual minor potential exceedances would be managed in accordance with the Sydney Metro Construction Noise and Vibration Standard (Appendix C), which aims to manage noise and vibration levels through feasible and reasonable measures. The Standard provides a process for the development of site or activity specific Construction Noise and Vibration Impact Statements, standard mitigation measures and additional mitigation measures to be implemented based on noise and vibration trigger levels.

#### Standard construction hours

No exceedances of the noise management levels are predicted at any receiver during daytime construction.

A summary of the predicted construction airborne noise levels (without mitigation) in each noise catchment area for the various construction activities is shown in Table 7-13 for residential, commercial, and 'other sensitive' receivers. Construction noise level contours during the noisiest construction scenario assessed ('site clearance' scenario for Stage 1) are shown in Figure 7-2.

In terms of the potential impacts on the outdoor open areas that form part of the Western Sydney Parklands, 'site clearance' during Stage 1 would result in exceedance of the noise goal for outdoor open areas (50 dBA) at adjacent areas surrounding the Prospect Reservoir up to around 1200 metres from construction works within the project site. This means that passive/contemplative activities may be impacted in these areas during construction.  Active users of outdoor open areas (for example running, jogging and cycling) would be less impacted by noise than passive users. The majority of the outdoor open areas to the east of the project (surrounding Prospect Reservoir) is not predicted to experience exceedances of the relevant noise management levels. Management and mitigation measures relating to construction noise are discussed further in Section 7.8.

The noise levels presented in this chapter for construction noise are based on a realistic worst-case assessment of each construction scenario assessed. For most construction activities, it is expected that the construction noise levels during less intensive activities would frequently be lower than predicted.

#### Night-time works

The assessment shows that night-time noise levels are also generally expected to be compliant with the management levels. A potential 'minor' 1 dB temporary exceedance of the night-time noise management level is predicted in NCA01 and NCA02 during 'site clearance' activities as part of Stage 1 and Stage 2 Carpark works (refer to Table 7-3 for description of construction scenarios). It is understood that the receivers in NCA02 are not currently occupied and, as such, are not noise sensitive. These minor temporary exceedances are due to the use of a wood chipper and could be mitigated through positioning or shielding of equipment, restricting the use of the wood chipper to daytime construction hours, or through the early implementation of at-property treatments required to reduce operational noise.

A summary of the predicted construction airborne noise levels (without additional mitigation) for construction scenarios which may occur during the night-time is shown in Table 7-14.

#### Sleep disturbance

A review of the predictions shows that most scenarios are also below the sleep disturbance screening criterion, however, potential 'minor' temporary exceedances are expected at some of the nearest receivers in NCA01 and NCA02 during 'utilities connections' for Stage 1 (refer to Table 7-3 for description of construction scenarios), due to the use of a concrete saw.

The sleep disturbance screening assessment carried out for construction of the project is provided in Table 7-15. Mitigation and management measures to address these potential impacts are discussed further in Section 7.7.1.

Table 7-13 Predicted worst-case construction noise impacts – standard construction hours

| NCA | NML (dBA) | Predicted worst-case $L_{Aeq(15minute)}$ noise level (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Stage 1 – Construction areas 1, 5, 6 and 7 | | Stage 2 – Construction areas 2, 4 and 7 | | Stage 3 – Construction area 3 | | Stage 4 – Construction areas 4, 5 and 6 | | Southern area stockpiling works |
| | | Low | High | Low | High | Low | High | Low | High | |
| | | Racing and event support infrastructure | Site clearance | Drainage works | Site clearance | Earthworks | Site clearance | Signage and line marking | Asphalting | Earthworks |
| **Residential – daytime** | | | | | | | | | | |
| **NCA01** | 49 | 38 | 45 | 36 | 41 | 35 | 40 | 37 | 43 | 41 |
| **NCA02** | 49 | 35 | 45 | 40 | 45 | 38 | 43 | 34 | 40 | 33 |
| **NCA03** | 51 | <30 | 34 | <30 | 34 | <30 | 33 | <30 | 31 | <30 |
| **NCA04** | 57 | 30 | 38 | 33 | 38 | 32 | 37 | <30 | 34 | <30 |
| **NCA05** | 53 | <30 | 33 | <30 | 33 | <30 | 32 | <30 | 30 | <30 |
| **NCA06** | 45 | <30 | 34 | <30 | 33 | <30 | 32 | <30 | 31 | <30 |
| **NCA07** | n/a – no residential receivers in this NCA | | | | | | | | | |
| **Most affected commercial receivers** | | | | | | | | | | |
| **Varies** | 70 | 48 | 58 | 47 | 52 | 45 | 50 | 49 | 55 | 57 |
| **Most affected 'other sensitive' receivers** | | | | | | | | | | |
| **NCA04**[1] | 70 | 36 | 47 | 40 | 45 | 38 | 43 | 34 | 40 | 33 |

*1 Hotel located on Peter Brock Drive, Eastern Creek*

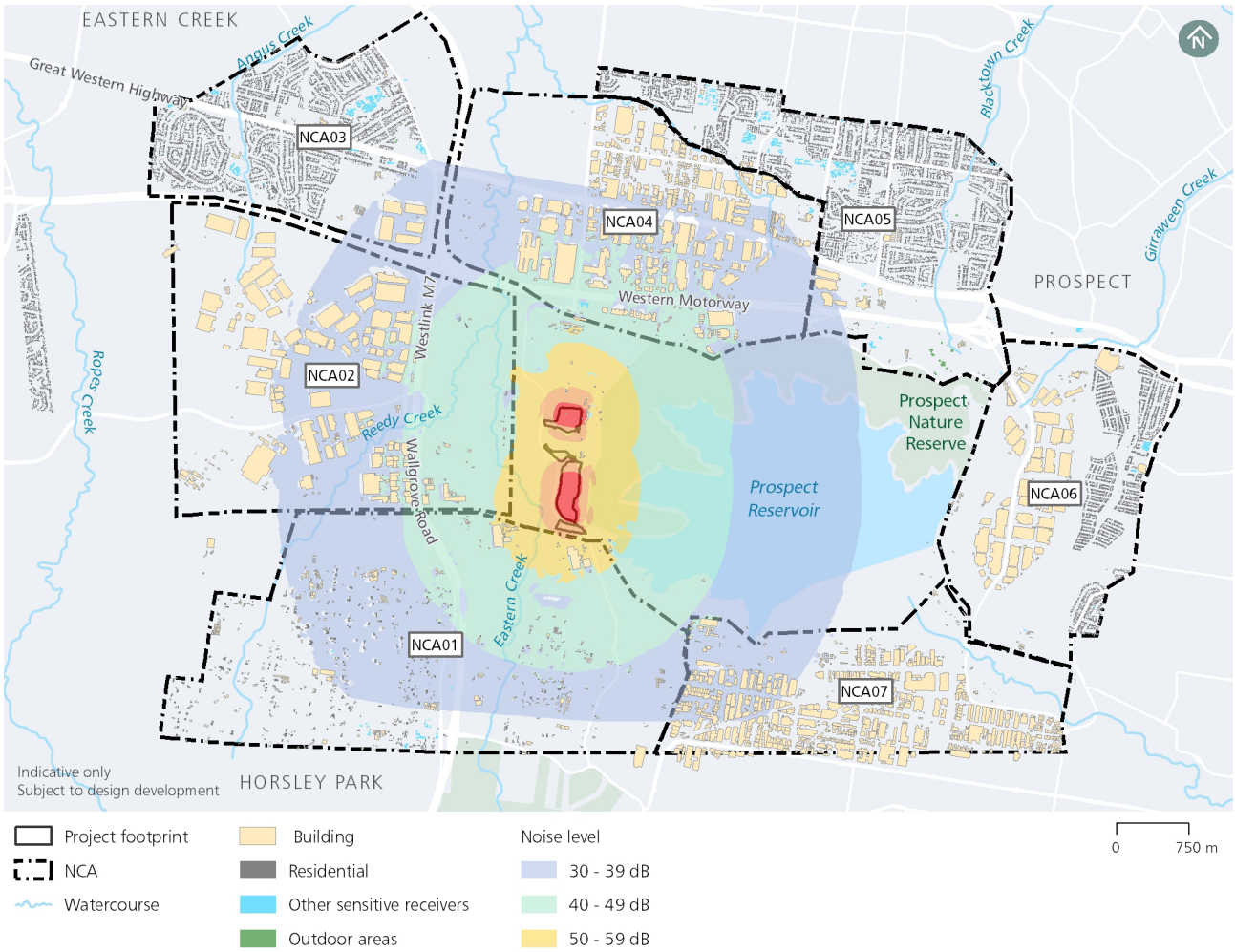


Figure 7-2 Predicted construction noise contours during standard hours

Table 7-14 Predicted worse case construction noise impacts - night time

| NCA | NML (dBA) | Predicted worst-case $L_{Aeq(15minute)}$ noise level (dBA) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Stage 1 – Construction areas 1, 5, 6 and 7 | | Stage 2 – Construction areas 2, 4 and 7 | | Stage 3 – Construction area 3 | | Stage 4 – Construction areas 4, 5 and 6 | | Southern area stockpiling works |
| | | Low | High | Low | High | Low | High | Low | High | |
| | | Racing and event support infrastructure | Site clearance | Drainage works | Site clearance | Drainage works | Site clearance | Signage and line marking | Asphalting | Earthworks |
| **Residential – night time** | | | | | | | | | | |
| **NCA01** | 44 | 38 | 45 | 36 | 41 | 35 | 40 | 37 | 43 | 41 |
| **NCA02** | 44 | 35 | 45 | 40 | 45 | 38 | 43 | 34 | 40 | 33 |
| **NCA03** | 46 | <30 | 34 | <30 | 34 | <30 | 33 | <30 | 31 | <30 |
| **NCA04** | 46 | 30 | 38 | 33 | 38 | 32 | 37 | <30 | 34 | <30 |
| **NCA05** | 43 | <30 | 33 | <30 | 33 | <30 | 32 | <30 | 30 | <30 |
| **NCA06** | 40 | <30 | 34 | <30 | 33 | <30 | 32 | <30 | 31 | <30 |

| NCA | NML (dBA) | Predicted worst-case $L_{Aeq(15minute)}$ noise level (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Stage 1 – Construction areas 1, 5, 6 and 7 | | Stage 2 – Construction areas 2, 4 and 7 | | Stage 3 – Construction area 3 | | Stage 4 – Construction areas 4, 5 and 6 | | Southern area stockpiling works |
| | | Low | High | Low | High | Low | High | Low | High | |
| | | Racing and event support infrastructure | Site clearance | Drainage works | Site clearance | Drainage works | Site clearance | Signage and line marking | Asphalting | Earthworks |
| **Residential – night time** | | | | | | | | | | |
| **NCA01** | 44 | 38 | 45 | 36 | 41 | 35 | 40 | 37 | 43 | 41 |
| **NCA02** | 44 | 35 | 45 | 40 | 45 | 38 | 43 | 34 | 40 | 33 |
| **NCA07** | n/a – no residential receivers in this NCA | | | | | | | | | |
| **Most affected commercial receivers** | | | | | | | | | | |
| **Varies** | 70 | n/a – no commercial receivers identified to operate during the night-time | | | | | | | | |
| **Most-affected 'Other Sensitive' receivers** | | | | | | | | | | |
| **NCA04**[1] | 60 | 36 | 47 | 40 | 45 | 38 | 43 | 34 | 40 | 33 |

Table 7-15 Sleep disturbance screening assessment – construction

| NCA | NML (dBA) | Predicted worst-case $L_{Aeq(15minute)}$ noise level (dBA) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Stage 1 – Construction areas 1, 5, 6 and 7 | | Stage 2 – Construction areas 2, 4 and 7 | | Stage 3 – Construction area 3 | | Stage 4 – Construction areas 4, 5 and 6 | | Southern area stockpiling works |
| | | Low | High | Low | High | Low | High | Low | High | |
| | | Racing and event support infrastructure | Utilities connections | Drainage works | Site clearance | Drainage works | Site clearance | Signage and line marking | Asphalting | Earthworks |
| **Residential – night time** | | | | | | | | | | |
| **NCA01** | 54 | 44 | 56 | 42 | 48 | 41 | 47 | <30 | <30 | 46 |
| **NCA02** | 54 | 41 | 57 | 46 | 52 | 44 | 50 | <30 | <30 | 47 |
| **NCA03** | 56 | 33 | 46 | 36 | 42 | 34 | 40 | <30 | <30 | 36 |
| **NCA04** | 56 | 35 | 50 | 40 | 46 | 38 | 44 | <30 | <30 | 40 |
| **NCA05** | 53 | 33 | 46 | 34 | 40 | 32 | 38 | <30 | <30 | 36 |
| **NCA06** | 50 | 33 | 44 | 34 | 40 | 33 | 39 | <30 | <30 | 34 |

### 7.6.2 Concurrent project construction impacts

The program for construction of the project (refer to Chapter 5 (Project description) for more information) includes some overlapping of construction stages, including periods where construction of Stage 1, Stage 2, Stage 3 and Stage 4 may occur concurrently (month five to month 10 of the construction program). The potential impacts of overlapping construction scenarios, assuming all worst-case activities for each stage occur concurrently, are shown in Table 7-16. Concurrent construction noise impacts have been assessed considering a 'realistic worst-case' scenario to determine the impacts from the noisiest 15-minute period that could occur. In reality, it is unlikely that the 'worst-case' activities as part of these construction stages would occur at the same time, Any overlapping construction would be temporary and short-term in duration, and would be manageable with the implementation of the mitigation measures included in Section 7.8.

The concurrent impact assessment indicates that all potential concurrent construction scenarios are predicted to be below the noise management levels at noise sensitive receivers during daytime construction, with the exception of a minor (1 dB) temporary exceedance in NCA02, associated with concurrent construction of Stage 1 (construction of racing infrastructure, event support infrastructure, construction of internal roads, construction of carpark and construction of the racetrack), Stage 2 (construction of carpark) and Stage 3 (site clearance).

During night time construction under the concurrent construction scenario, minor (less than 10 dB) temporary exceedances of noise management levels may occur at noise sensitive receivers in NCA01 and NC02. These potential temporary exceedances would be minor, with the greatest exceedance predicted to be 6 dB at NCA02. These potential impacts would be managed through appropriate scheduling of night-time activities.

Table 7-16 Predicted concurrent worst-case noise levels

| NCA | NML (dBA) | Predicted worst-case $L_{Aeq(15minute)}$ noise level (dBA) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Concurrent 1 (Month 5) | Concurrent 2 (Month 6) | Concurrent 3 (Month 7) | Concurrent 4 (Month 8) | Concurrent 5 (Month 9) | Concurrent 6 (Month 10) |
| **Residential – daytime** | | | | | | | |
| **NCA01** | 49 | 48 | 48 | 47 | 47 | 45 | 46 |
| **NCA02** | 49 | 49 | 50 | 49 | 49 | 45 | 45 |
| **NCA03** | 51 | 38 | 39 | 38 | 38 | 35 | 35 |
| **NCA04** | 57 | 42 | 43 | 42 | 42 | 38 | 38 |
| **NCA05** | 53 | 37 | 38 | 37 | 37 | 34 | 34 |
| **NCA06** | 45 | 38 | 38 | 38 | 38 | 34 | 35 |
| **NCA07** | n/a – no residential receivers in this NCA | | | | | | |
| **Residential – night time** | | | | | | | |
| **NCA01** | 44 | 48 | 48 | 47 | 47 | 45 | 46 |
| **NCA02** | 44 | 49 | 50 | 49 | 49 | 45 | 45 |
| **NCA03** | 46 | 38 | 39 | 38 | 38 | 35 | 35 |
| **NCA04** | 46 | 42 | 43 | 42 | 42 | 38 | 38 |
| **NCA05** | 43 | 37 | 38 | 37 | 37 | 34 | 34 |
| **NCA06** | 40 | 38 | 38 | 38 | 38 | 34 | 35 |
| **NCA07** | n/a – no residential receivers in this NCA | | | | | | |
| **Most affected commercial receiver** | | | | | | | |
| **NCA02** | 70 | 60 | 58 | 58 | 58 | 56 | 56 |
| **Most affected 'other sensitive' receiver** | | | | | | | |
| **NCA04**[1] | 70 | 50 | 50 | 50 | 49 | 46 | 46 |

*1 Hotel located on Peter Brock Drive, Eastern Creek.*

### 7.6.3 Construction vibration

Construction of the project would require the use of high vibration intensive equipment, such as vibratory rollers, throughout the project site.

The predicted vibration levels would be below the cosmetic damage criterion at all nearby structures and below the human comfort vibration criteria for all nearby sensitive receivers.

The nearest heritage building or structure sensitive to vibration is the structure of the Prospect Reservoir. There are no impacts predicted to this heritage item from construction vibration, or any other heritage structures or buildings due to vibration.

The Warragamba Pipelines are located to the south of the project site, about 20 metres from the edge of the area to the south of Ferrers Road. Assuming a reinforced concrete structure, vibration levels from a vibratory roller operating at the nearest point of the project site to the Warragamba Pipelines would not reach the threshold for cosmetic damage and so no impacts are predicted.

### 7.6.4 Construction road traffic noise

The potential noise impacts from construction traffic would be determined by construction vehicle movements on Ferrers Road. From Ferrers Road, vehicles would access the Westlink M7 (via The Horsley Drive) where the existing traffic volumes are sufficiently high that change in noise levels from additional construction vehicles would not be expected to be discernible.

An assessment of construction traffic noise along Ferrers Road shows that construction traffic from the project would not result in an increase in road traffic noise levels of more than 2.0 dB. The project therefore does not trigger the requirement for consideration of additional noise mitigation relating to construction road traffic noise.

## 7.7 Assessment of potential operational impacts

### 7.7.1 Motorsport noise

**Motorsport noise from the Sydney International Speedway**

Predicted worst-case noise levels from motorsport events at the project site for neutral and adverse weather conditions are below existing background levels for most receiver locations, in the absence of mitigation measures. Where noise levels at receivers are predicted to exceed background noise levels (RBL) by more than 5 dB, Sydney Metro would provide at-property treatment at each affected property to mitigate the impact, consistent with the NGLG. Where possible, at-property treatment would be provided prior to and at the start of the construction program.

Table 7-17 and Table 7-18 show the predicted worst-case noise levels for neutral and adverse weather conditions for the NCAs where potential exceedances of the existing background noise levels while racing is underway have been predicted. In the absence of at-property treatments, residential receivers to the south of the project in NCA01 are expected to be most affected due to receivers in this catchment being the closest to the project.

During neutral weather conditions and in the absence of at-property treatment of affected properties:

- Potential temporary exceedances of up to 12 dB are predicted in NCA01 while racing is underway during the noisiest sprint car events. Noise levels in NCA01 during less noisy events, such as V8 modifieds, are predicted to result in potential temporary exceedances of up to 8 dB. The average exceedance of the background level in NCA01 is predicted to be 7 dB during neutral weather for events held at the Sydney International Speedway
- Worst-case noise levels in NCA02, NCA05 and NCA06 during neutral weather conditions are predicted to temporarily exceed background levels by up to 7 dB, 1 dB and 8 dB, respectively while racing is underway during a sprint car event. Less noisy events would result in temporary exceedances of the background noise levels by less than 5 dB for all other events in NCA02 and NCA06
- Noise levels in NCA03 and NCA04 during neutral weather conditions are predicted to be below background levels during all race events at the Sydney International Speedway.

Adverse weather conditions, including wind conditions which enhance noise effects at receivers, are predicted to increase noise levels by around 3 to 4 dB compared to neutral weather conditions for all race events at NCAs. The weather analysis carried out as part of the assessment indicated that the wind direction towards the receivers in NCA01, where the greatest exceedances are predicted, occur for less than 30 per cent of the time and the prevailing wind direction is away from NCA01 (i.e. towards the project site). The predicted noise levels under adverse weather in NCA01 are therefore conservative and the predictions for neutral conditions are considered more representative of the likely impacts in this catchment.

Residential receivers are sparsely distributed in NCA01 and only a relatively small number of properties are likely to be affected by motorsports noise.

Where noise levels at receivers are predicted to exceed background noise levels (RBL) by more than 5 dB, Sydney Metro would provide at-property treatment at each affected property to mitigate the impact, consistent with the NGLG. The need for mitigation would be assessed against the average source level and neutral weather for NCA01. NCA01 is south of the project site and identified to be unlikely to experience a source to receiver wind for a significant 'frequency of occurrence'. Predicted noise levels at other NCAs would be less than 5 dB above RBLs except for the closest receivers in NCA02. It is understood that these receivers are not currently occupied. The location of these receivers is also within the planned Light Horse Business Hub development.

Table 7-17 Worst-case predicted motorsport noise levels during neutral weather

| NCA | Background noise level (RBL) | Event | Assumed number of events | Noise level $L_{Aeq(15minute)}$ (dBA) | | |
|---|---|---|---|---|---|---|
| | | | | Predicted | Exceedance of background[1] | Average exceedance |
| **NCA01** | 39 | Sprint cars | 17 | 51 | 12 | 7 |
| | | Wingless Sprints | 4 | 42 | 3 | |
| | | Formula 500s | 4 | 40 | 1 | |
| | | Street stocks | 4 | 42 | 3 | |
| | | V8 Dirt modifieds | 4 | 47 | 8 | |
| | | Motorcycles | 4 | 40 | 1 | |
| **NCA02** | 39 | Sprint cars | 17 | 46 | 7 | 2 |
| | | V8 Dirt modifieds | 4 | 42 | 3 | |
| **NCA05** | 43 | Sprint cars | 17 | 44 | 1 | 0 |
| **NCA06** | 35 | Sprint cars | 17 | 43 | 8 | 3 |
| | | V8 Dirt modifieds | 4 | 37 | 2 | |

*1 Background levels during the daytime and evening are the same for all NCAs*

Table 7-18 Worst-case predicted motorsport noise levels during adverse weather

| NCA | Background noise level (RBL) | Event | Assumed number of events | Noise level $L_{Aeq(15minute)}$ (dBA) | | |
|---|---|---|---|---|---|---|
| | | | | Predicted | Exceedance of background[1] | Average exceedance |
| **NCA01[2]** | 39 | Sprint cars | 17 | 55 | 16 | 112 |
| | | Wingless Sprints | 4 | 46 | 7 | |
| | | Formula 500s | 4 | 43 | 4 | |
| | | Street stocks | 4 | 46 | 7 | |
| | | V8 Dirt modifieds | 4 | 50 | 11 | |
| | | Motorcycles | 4 | 43 | 4 | |

| NCA | Background noise level (RBL) | Event | Assumed number of events | Noise level $L_{Aeq(15minute)}$ (dBA) | | |
|---|---|---|---|---|---|---|
| | | | | Predicted | Exceedance of background[1] | Average exceedance |
| **NCA02** | 39 | Sprint cars | 17 | 50 | 11 | 6 |
| | | Wingless Sprints | 4 | 41 | 2 | |
| | | Street stocks | 4 | 41 | 2 | |
| | | V8 Dirt modifieds | 4 | 45 | 6 | |
| **NCA03** | 41 | Sprint cars | 17 | 42 | 1 | 0 |
| **NCA05** | 43 | Sprint cars | 17 | 47 | 4 | 0 |
| **NCA06** | 35 | Sprint cars | 17 | 45 | 10 | 5 |
| | | Wingless Sprints | 4 | 37 | 2 | |
| | | Street stocks | 4 | 37 | 2 | |
| | | V8 Dirt modifieds | 4 | 40 | 5 | |

*1 Background levels during the daytime and evening are the same for all NCAs*
*2 Prevailing adverse wind direction is away from NCA01 receivers (towards the noise source) and therefore NCA01 results are conservative.*

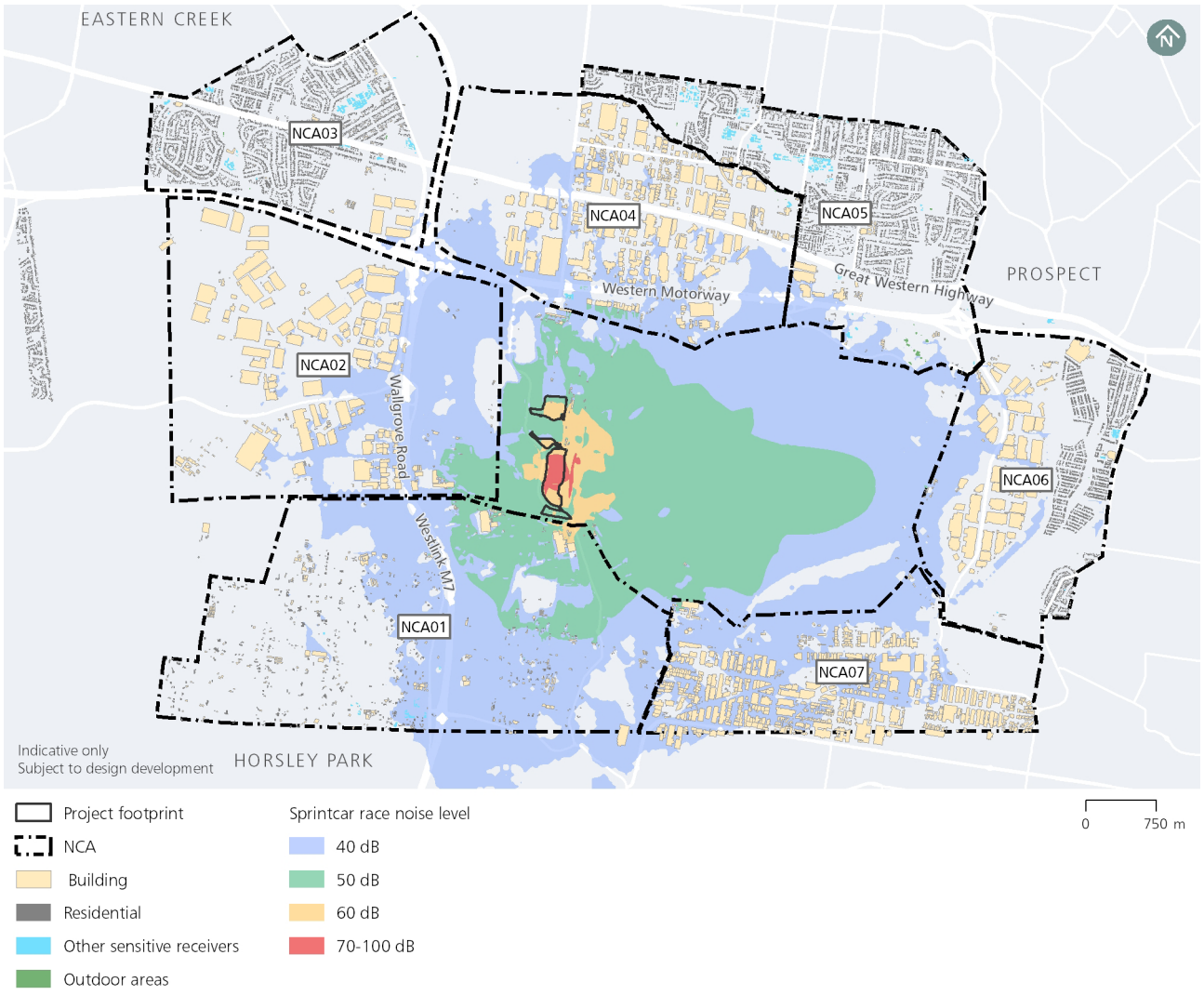


Figure 7-3 Predicted noise impacts for the highest noise events during operation

The noise goal for open areas (50 dBA) is predicted to be exceeded at adjacent areas (pathways) surrounding the Prospect Reservoir and up to around 1500 metres from the facility, as well as over the reservoir. This means that passive/contemplative activities may be impacted in these areas during the works. Active users (for example running, jogging, cycling etc) would be less impacted by noise than passive users of the parkland. Lower noise events are typically 5-10 dB lower than the Sprint Car races and therefore would impact a much smaller area, limited generally to paths immediately adjacent to the facility.

Areas of the parkland to the east (surrounding Prospect Reservoir) are not predicted to experience noise goal exceedances during the Sprint Car races.

### Comparison with existing motorsport events

To provide context for the predicted noise levels of the Sydney International Speedway, the levels have been compared to the indicative predicted noise levels at surrounding motorsport operators. Noise levels at the surrounding receivers during events at the Sydney International Speedway are generally expected to be comparable to, or lower than, noise levels from existing motorsport events at Sydney Motorsport Park and Sydney Dragway, as shown in Table 7-19. This is most apparent in NCA02 to NCA06 (i.e. to the west, north and east of the project site) due to the existing venues being closer to receivers in these catchments than the project.

Events at Sydney International Speedway are, however, predicted to result in worst-case noise levels that would be slightly higher than noise from typical events at the existing venues for receivers to the south in NCA01, which is due to Sydney International Speedway being closer to these receivers.

It is noted that noise from existing events at Sydney Motorsport Park and Sydney Dragway already impact the most parkland (outdoor open) areas to a greater extent than noise from events at Sydney International Speedway would.

Table 7-19 Comparison of motorsport noise levels with existing events

| NCA | Predicted noise level (dBA) | | | | | |
|---|---|---|---|---|---|---|
| | Sydney International Speedway | | Sydney Motorsport Park[1] | | Sydney Dragway[1] | |
| | Noisy events | Typical events | Noisy events | Typical events | Noisy events | Typical events |
| **NCA01** | 51 | 41-48 | 50-52 | 40-42 | 60-62 | 40-45 |
| **NCA02** | 46 | 34-42 | 60-65 | 50-55 | 54-56 | <40 |
| **NCA03** | <40 | <40 | 50-52 | 40-44 | 45-47 | <40 |
| **NCA04** | 42 | <40 | 60-62 | 48-51 | 45-47 | <40 |
| **NCA05** | 44 | <40 | 48-50 | 39-41 | 44-46 | <40 |
| **NCA06** | 43 | <40 | 50-52 | 39-41 | 40-45 | <40 |
| **NCA07** | n/a - no residential receivers identified in this NCA | | | | | |

*1 Estimate based on indicative contours for neutral weather conditions at the nearest residential locations*

### Offensive noise test

A qualitative evaluation of the potential noise impacts from the Sydney International Speedway was carried out using the 'offensive noise test' defined in the Environment Protection Authority's Noise Guidelines for Local Government. The test is provided in Technical Paper 2 (Noise and vibration).

The project is not expected to result in offensive noise levels for the majority of receivers surrounding the project site, particularly as motorsport noise is an existing feature of the area, and the predicted exceedance of the background levels are relatively low for most NCAs.

Receivers to the south in NCA01 are, however, expected to be subject to an increase in motorsport noise levels from the project meaning noise levels in this area are likely to be noticeable for residents for temporary periods when noisy events occur. This impact would be mitigated through the implementation of at-property treatments at affected properties.

Overall, due to motorsport being a feature of the area, it is considered unlikely that Speedway events compared to existing operations would significantly change the result of a subjective offensive noise test.

### 7.7.2 Noise from fireworks displays

Fireworks displays may be provided at the end of major Speedway events. An assessment of noise impacts from the firework displays would be carried out when further information is available on the format of the displays. However, impacts are expected to be minimal due to the limited number of events each year and the short duration of fireworks displays.

### 7.7.3 Operational road traffic noise

An assessment of operational traffic noise for residential receivers along Ferrers Road to the south of the project site, shows that the project is predicted to result in an increase in road traffic noise levels of less than 1.0 dB, which does not trigger the requirement for consideration of additional noise mitigation for increases over 2.0 dB. No residential receivers were identified adjacent to Ferrers Road to the north of the project.

### 7.7.4 Vibration impacts

There are not expected to be any vibration impacts from operation of the Sydney International Speedway.

The nearest heritage building or structure identified in the study area is within the Prospect Reservoir and Surrounding Area heritage item, 300 metres east of the project site. The separation distance is sufficient to mitigate potential vibration impacts and no exceedance of the heritage vibration damage criterion is expected during operation of the project.

The Warragamba Pipelines are about 20 metres south of the area to the south of Ferrers Road; however, as the project is not expected to introduce any new sources of operational vibration near this area no vibration impacts on the pipeline are expected.

### 7.7.5 Concurrent operational impacts

**Concurrent racing events within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports**

Existing motorsport events at the Sydney Dragway and the Sydney Motorsport Park are likely to occur on the same days as the proposed Sydney International Speedway events. The common days are Wednesdays, Fridays and Saturdays.

The assessment presented in Section 7.7.1 predicts that receivers to the south of the project are the only receivers expected to be subject to motorsport noise levels that are potentially higher than existing motorsport noise levels.

Noise from existing high noise events at Sydney Motorsport Park (for example V8 Supercars) are estimated to be higher in NCA02 to NCA07, and similar in NCA01 compared to events associated with the project. High noise events at Sydney Dragway (for example Top Fuel) are also likely to be higher in all NCAs than events associated with the project. This means that the potential for increased noise levels due to concurrent events is dependent on the events occurring on any given day, their relative noise emissions and their proximity to receivers.

In general, noise levels during multiple events are expected to be controlled by the noisiest and/or closest event to a particular receiver. As a result, concurrent events are not anticipated to result in an increase in noise levels, however there may be a potential increase in the duration of noise impacts at the affected receivers.

**Concurrent operational road traffic noise**

In instances where there are events at both the Sydney Dragway and the Sydney International Speedway at the same time, the increase in traffic volume is still predicted to result in an increase in road traffic noise levels of less than 2.0 dB and does not trigger the requirement for consideration of additional noise mitigation.

## 7.8 Management and mitigation measures

### 7.8.1 Approach to management and mitigation

#### Construction

Potential construction noise and vibration would be managed in accordance with Sydney Metro's Construction Environmental Management Framework as described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) and the Sydney Metro Construction Noise and Vibration Standard (Appendix C).

The Construction Environmental Management Framework would require the preparation of a Construction Noise and Vibration Management Plan in line with the requirements of the ICNG and the Sydney Metro Construction Noise and Vibration Standard. The Construction Noise and Vibration Management Plan would be prepared before any works begin and would define how the predicted impacts would be mitigated and managed, including procedures for notification of potentially affected receivers prior to works commencing.

The Sydney Metro Construction Noise and Vibration Standard provides:

- A list of standard mitigation measures that would be implemented where feasible and reasonable at all construction sites which includes measures such as prior notification of the works, monitoring of the impacts and offers of alternative accommodation where night-time impacts are expected to be high
- Trigger levels (based on exceedances of airborne and ground-borne NMLs) for the implementation of additional mitigation measures.

These standard and additional mitigation measures would be applied to the project.

#### Operation

Operational noise would be managed in accordance with an Operational Environmental Management Plan (OEMP) to be prepared by the operator, once appointed.

The OEMP would include the following measures to manage and mitigate noise:

- Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits
- Managing the use of the public address system to minimise noise
- Coordination with other motorsports operators to minimise noise from concurrent events
- Establishment of a complaints handling and response procedure.

### 7.8.2 Mitigation measures

The mitigation measures that would be implemented to address potential noise and vibration impacts are described in Table 7-20.

The predicted motorsport noise levels as described in Section 7.7.1 may exceed the nominated background level +5 dB noise goal for motorsport venues at some of the nearest receivers. Consistent with the mitigation approach in NSW for other types of project such as roads, rail and industrial projects, at-property treatment is recommended to be considered to mitigate noise impacts at these receivers.

Fifteen residential receivers (thirteen in NCA01 and two in NCA02) have been identified with predicted average noise levels of more than 5 dBA above the background level. The locations of these receivers are provided in Technical Paper 2 (Noise and vibration). The two identified buildings in NCA02 are possibly unoccupied and therefore not currently considered to be noise sensitive. The occupation status of these dwellings would be confirmed during detailed design.

Typical at-property treatment may consist of mechanical ventilation to allow windows to be kept closed on affected facades while providing adequate ventilation. Other options may include window upgrades to glazing and/or acoustic seals. The extent and type of treatment would be confirmed during detailed design following inspection of the properties.

Table 7-20 Mitigation measures – noise and vibration

| Reference | Impact/issue | Mitigation measures | Relevant locations |
|---|---|---|---|
| **Construction** | | | |
| **NV01** | Night time impacts | Feasible and reasonable options to reduce night-time noise impacts associated with the wood chipper would be investigated including positioning or shielding of equipment, restricting the use of the wood chipper to daytime construction hours, or through the early implementation of at-property treatments required to reduce operational noise. | Carparks A, C and D |
| **Operation** | | | |
| **NV02** | Operational motorsport noise | At-property treatment would be provided to noise sensitive receivers where the predicted average event noise level $L_{Aeq(15minute)}$ is more than 5 dB above the background noise level. | At relevant receivers |
| **NV03** | Firework displays | An evaluation of the potential noise impacts from occasional firework displays during some events would be carried out when more information is available regarding the proposed displays associated with the project | Main operational site |
| **NV04** | Operational Environmental Management Plan | An Operational Environmental Management Plan (OEMP) (to be prepared by the operator, once appointed) would include the following measures to manage and mitigate noise:<br>• Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits<br>• Managing the use of the public address system to minimise noise<br>• Coordination with other motorsports operators to minimise noise from concurrent events<br>• Establishment of a complaints handling and response procedure. | Main operational site |

### 7.8.3 Interaction between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential noise and vibration impacts include:

- Chapter 6 (Traffic, transport and parking), specifically measures to manage construction and operation traffic would potentially assist in reducing road traffic noise by minimising vehicle numbers where feasible and reasonable and limiting the use of local streets.

Together, these measures would help to minimise the potential noise and vibration impacts associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of noise and vibration impacts.

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# 8 Biodiversity

# 8 Biodiversity

This chapter assesses the potential impacts of construction and operation of the Sydney International Speedway on biodiversity and identifies mitigation measures to minimise these impacts. This chapter is based on information in Technical Paper 3 (Biodiversity Development Assessment Report).

## 8.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to biodiversity, and where these requirements are addressed in the Environmental Impact Statement, are outlined in Table 8-1.

A detailed assessment of biodiversity has been carried out for the project and is included as Technical Paper 3 (Biodiversity Development Assessment Report) of this Environmental Impact Statement.

Table 8-1 Secretary's Environmental Assessment Requirements – Biodiversity

| Reference | Requirement | Where addressed |
|---|---|---|
| **4. Biodiversity** | | |
| **2.4.1** | The Proponent must assess biodiversity impacts in accordance with s7.9 of the *Biodiversity Conservation Act 2016* (BC Act), the Biodiversity Assessment Method (BAM), and be documented in a Biodiversity Development Assessment Report (BDAR). | Section 8.6 |
| **2.4.2** | The BDAR must include information in the form detailed in s6.12 of the BC Act, cl6.8 of the Biodiversity Conservation Regulation 2017 and the BAM. | Technical Paper 3 (Biodiversity Development Assessment Report) |
| **2.4.3** | The BDAR must be submitted with all digital spatial data associated with the survey and assessment as per Appendix 10 of the BAM. | Technical Paper 3 (Biodiversity Development Assessment Report) |
| **2.4.4** | The BDAR must be prepared by a person accredited in accordance with the Accreditation Scheme for the Application of the Biodiversity Assessment Method Order 2017 under s6.10 of the BC Act. | Technical Paper 3 (Biodiversity Development Assessment Report) |
| **2.4.5** | The BDAR must include details of the measures proposed to address offset obligations. | Section 8.7.2 |
| **2.4.6** | The Proponent must assess any impacts on biodiversity values not covered by the BAM. | Section 8.6 |
| **2.4.7** | The Proponent must identify whether the project, or any component of the project, would be classified as a Key Threatening Process (KTP) in accordance with the listings in the BC Act, *Fisheries Management Act 1994* (FM Act) and the *Environment Protection and the Biodiversity Conservation Act 1999* (EPBC Act). | Section 8.6.8 |

## 8.2 Legislative and policy framework

Technical Paper 3 (Biodiversity Development Assessment Report) has been prepared for the project as required under the *Biodiversity Conservation Act 2016* and the Biodiversity Assessment Method.

The project has been assessed in relation to key biodiversity legislation and policy including:

- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)
- *Biodiversity Conservation Act 2016* (BC Act)
- *Biosecurity Act 2015*
- *Environmental Planning and Assessment Act 1979*
- *Fisheries Management Act 1994*
- *NSW Biodiversity Assessment Method* (Office of Environment and Heritage, 2017).

## 8.3 Assessment methodology

The biodiversity assessment for the project involved:

- Definition of the study area for the project
- A desktop assessment to describe the existing environment and landscape features, and to identify threatened flora and fauna that may be potentially affected
- Field surveys to identify the biodiversity values within the study area, identify plant community types (PCTs) and to determine the likelihood of threatened species and their habitats occurring in the project site
- Targeted threatened species surveys for animals that have potential habitat within the project site and study area
- Identification and assessment of likely direct and indirect impacts to biodiversity
- Identification of mitigation measures for avoiding, managing or reducing impacts on biodiversity values
- Identification of any residual impacts that cannot be avoided, minimised or mitigated which must be offset.

### 8.3.1 Study area and landscape buffer

The study area for the biodiversity assessment considered all areas where biodiversity values are potentially affected by the project within a 50 metre buffer applied to capture areas that may be subject to indirect impacts. A separate landscape buffer area of 1500 metres around the project site was also considered.

### 8.3.2 Assessment method

The existing environment and likely biodiversity impacts of the project were assessed using the Biodiversity Assessment Method. The impact assessment also included an assessment of likely impacts to the aquatic environment and impacts on biodiversity related matters of national environmental significance in accordance with the *Environment Protection and Biodiversity Conservation Act 1999*, including nationally listed threatened and migratory species and ecological communities.

The Biodiversity Assessment Method also requires assessment of species credit species and ecosystem credit species. Species credit species are species where the likelihood of occurrence of a species or elements of suitable habitat for that species cannot be confidently predicted by vegetation surrogates and landscape features. Ecosystem credit species are those threatened species where the likelihood of occurrence of a species or elements of the species habitat can be predicted by vegetation surrogates and landscape features, or for which targeted survey has a low probability of detection. Species credit and ecosystem credit species within the project site are discussed in Section 8.4.5 and Section 8.4.6.

### 8.3.3 Desktop research

A review of publicly available information was carried out to identify the existing biodiversity and natural environment features, such as landscape features, plant community types, threatened species, populations and communities as well as important habitat for migratory species, within 10 kilometres of the project site ('the locality').

The following databases were searched or viewed:

- BioNet Atlas of NSW Wildlife and Threatened Biodiversity Data Collection (Department of Planning, Industry and Environment) (searched 5 March 2020)
- BioNet NSW Vegetation Classification database (Department of Planning, Industry and Environment) (viewed February 2020)
- NSW Department of Primary Industries' freshwater threatened species distribution maps (viewed 5 March 2020)
- The Australian Government Department of Agriculture, Water and the Environment's Protected Matters Search Tool (searched 5 March 2020)
- Atlas of Living Australia (viewed April 2020)
- The Australian Government's Bureau of Meteorology's Atlas of Groundwater Dependent Ecosystems (viewed April 2020)
- The Australian Department of Agriculture, Water and the Environment's directory of important wetlands (viewed April 2020).

Regional vegetation mapping, geology and soil mapping projects were reviewed including:

- *The Native Vegetation of the Sydney Metropolitan Area – Version 3, VIS_ID 4489* (State Government of NSW and Office of Environment and Heritage, 2016)
- *Remnant Vegetation of the western Cumberland subregion, 2013 Update, VIS_ID 4207* (State Government of NSW and Office of Environment and Heritage, 2015)
- *Southeast NSW Native Vegetation Classification and Mapping – SCIVI, VIS_ID 2230* (State Government of NSW and Office of Environment and Heritage, 2010)
- *Penrith 1:100 000 Geological Sheet 9030* (Clarke and Jones, 1991)
- *Soil landscapes of the Penrith 1:100,000 Sheet 9030* (Hazelton et al.,1989)
- *Australian Soil Classification (ASC) Soil Type map of NSW* (State Government of NSW and Office of Environment and Heritage, 2012).

### 8.3.4 Habitat suitability for threatened species

The Biodiversity Assessment Calculator was used to derive the list of candidate species relevant to the project. The results were also supplemented with database searches, to identify the threatened species that have been previously recorded or are considered likely to occur in the locality.

Some species returned from the database searches were removed from the assessment due to the absence of suitable habitat in the project site. The project site itself is highly disturbed and lacks high quality natural habitats, and species that are known to no longer occur in the Sydney urban area were removed from the assessment based on the lack of these habitat types at the project site.

### 8.3.5 Field survey

Field surveys were carried out in December 2019 and February 2020 and involved:

- Establishing the extent of native vegetation within the project site
- Identifying and mapping the type and distribution of plant community types
- Plot based floristic vegetation surveys to identify the condition and integrity of native vegetation
- Assessing the potential habitat for flora and fauna species previously recorded within the locality
- Targeted threatened species surveys for the Green and Golden Bell Frog (*Litoria aurea*) and the Southern Myotis (*Myotis Macropus*).

### 8.3.6 Biodiversity offsets

An offset, in the form of a biodiversity credit, is required for impacts to plant community types and threatened (species credit) species. The biodiversity credit obligation has been calculated using the Biodiversity Assessment Method Calculator. Areas of the study area that do not possess plant community types have not been assessed and offset credits are not required.

## 8.4 Existing environment

### 8.4.1 General landscape features

Table 8-2 summarises the general landscape features of the study area.

Table 8-2 Landscape features of the study area

| Landscape features | Description |
|---|---|
| **Bioregion and subregions** | The study area is in the Sydney Basin bioregion (as defined by *Interim Biogeographic Regionalisation for Australia* (Thackway and Creswell, 1995)) within the Cumberland subregion. |
| **BioNet NSW landscapes** | The project site is located on the Cumberland Plain landscape (as mapped by NSW National Parks and Wildlife Service (2002) and described by the NSW Department of Environment and Climate Change (2001)). |
| **Rivers, streams and estuaries** | The project site is located entirely within the Hawkesbury catchment. There are no rivers, streams or estuaries within the project site. However, a section of Eastern Creek (Strahler class 3) is about 160 metres west of the project site. A small unnamed and unmapped artificial drainage line runs in a northwest direction through woodland in part of the study area and outside of the project site. This appears to drain stormwater from parts of Sydney Dragway northwest through woodland and under Ferrers Road, where it eventually feeds into Eastern Creek. |
| **Wetlands** | Prospect Reservoir (artificial dam) is located about 600 metres to the east of the project site. There are no other wetlands located within the 1500 metre landscape buffer. |
| **Habitat connectivity** | The habitats surrounding Prospect Reservoir and Eastern Creek are not continuously connected to the vegetation in the project site. However, there is woody vegetation separated by around 100 metres from the next area of intact native vegetation creating corridors. |
| **Areas of outstanding biodiversity value** | The study area does not contain any areas of outstanding biodiversity value as declared by the NSW Minister for Energy and Environment. |
| **Native vegetation extent** | Within the 1500 m landscape buffer, there is about 373 hectares of native vegetation present, which is about 29 per cent of the landscape buffer. For this assessment, native vegetation cover is considered to be in the '30 to 70 per cent' category. |

### 8.4.2 Vegetation characteristics

Table 8-3 describes the plant community types within the project site as defined in the BioNet Vegetation Classification database. The location of this vegetation is shown in Figure 8-1.

Table 8-3 Plant Community Types within the project site and study area

| Plant community type ID No. | Plant community type name | Broad condition class | Area (ha) | | Corresponding Threatened Ecological Community |
|---|---|---|---|---|---|
| | | | Project site | Study area | |
| **849** | Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion | Moderate | 0.1 | 0.28 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **849** | Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion | Poor | 0.07 | 0.83 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **850** | Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion | Poor | 0.3 | 0.34 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **850** | Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion | Revegetation | 0.16 | 2.29 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **849** | Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion | Blackberry dominant | 0 | 0.06 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **850** | Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion | Moderate | 0 | 0.85 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **850** | Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion | Regeneration | 0 | 0.08 | Cumberland Plain Woodland in the Sydney Basin Bioregion (Critically Endangered). |
| **1071** | Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion | Drainage line | 0 | 0.07 | - |
| **835** | Forest Red Gum - Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion | Moderate | 0 | 0 | - |

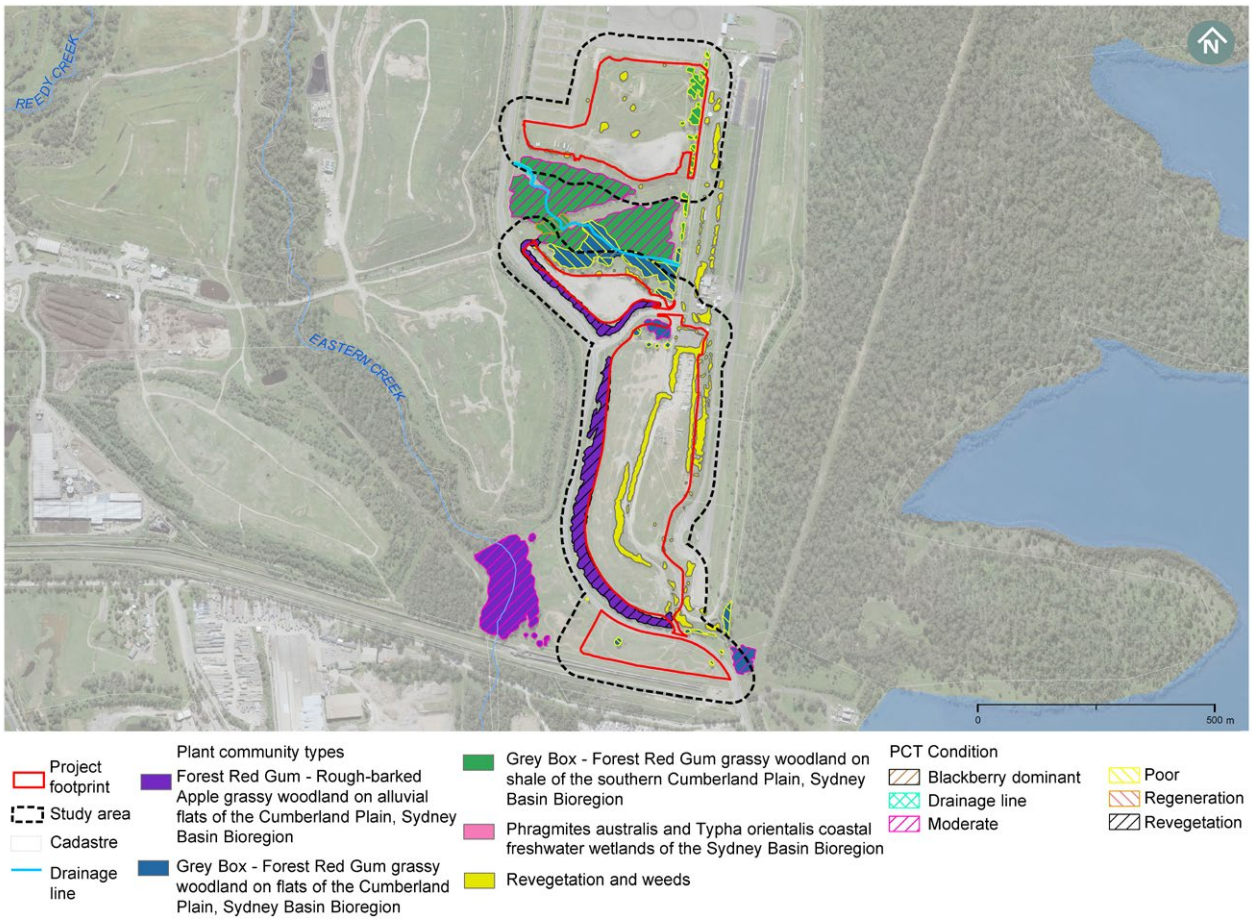


Figure 8-1 Plant community types in the study area

### 8.4.3 Threatened ecological communities

Cumberland Plain Woodland in the Sydney Basin, a threatened ecological community (TEC) listed under the *Biodiversity Conservation Act 2016*, occurs within the project site. This corresponds to PCT 849 and PCT 850 as detailed in Table 8-3. The areas containing the TEC are mostly in poor condition represented by regrowth native species amongst plantings and weed growth. The largest occurrence of this TEC is represented by revegetated areas along Ferrers Road (refer to Figure 8-2).

No other threatened ecological communities listed under the *Biodiversity Conservation Act 2016* or *Environment Protection Biodiversity Conservation Act 1999* were recorded within the project site.

The occurrence of Cumberland Plain Woodland within the project site is too small and degraded to meet the condition threshold criteria for the EPBC Act listed Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest TEC. The study area (outside the project site) does include moderately quality vegetation which forms part of the Commonwealth EPBC Act listed Cumberland Plain Shale Woodlands and Shale-Gravel Transition Forest ecological community (listed as Critically Endangered). The study area also contains BC Act listed River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions.

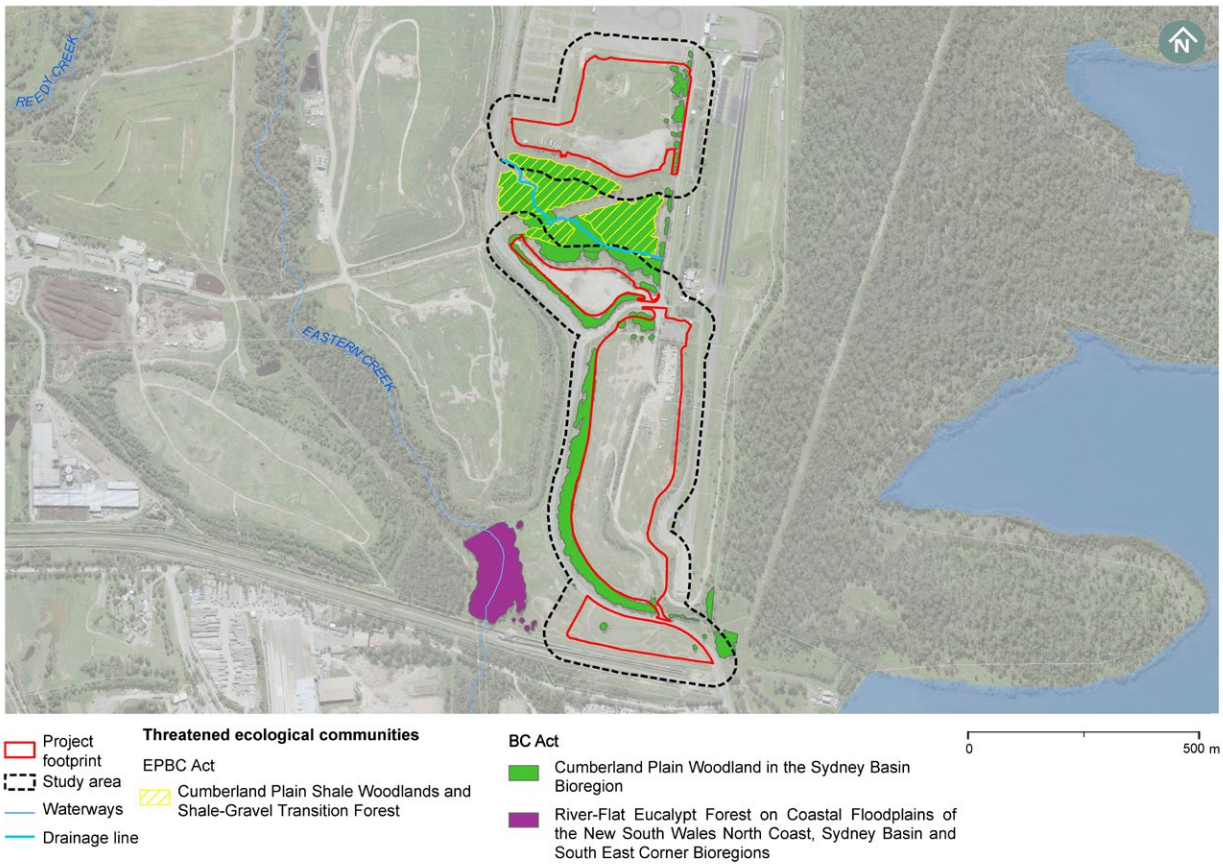


Figure 8-2 Threatened ecological communities in the study area

### 8.4.4 Groundwater dependent ecosystems

There are no mapped aquatic groundwater dependent ecosystems within the project site or the 1500 metre landscape buffer. However, the Australian Government's Bureau of Meteorology's Atlas of Groundwater Dependent Ecosystems identifies portions of the study area as containing some areas of high potential groundwater dependent terrestrial vegetation.

Based on the results of the field surveys, there is potential for groundwater dependent terrestrial vegetation types to be present, including:

- Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion PCT (PCT849)
- Forest Red Gum – Rough-barked Apple grassy woodland on alluvial flats of the Cumberland Plain, Sydney Basin Bioregion PCT (PCT835)
- *Phragmites australis* and *Typha orientalis* coastal freshwater wetlands of the Sydney Basin Bioregion (PCT1071).

These plant community types have a moderate to high likelihood to be terrestrial groundwater dependant ecosystems but are not entirely dependent on groundwater. They are likely to be opportunistic groundwater dependent ecosystems that may depend on the subsurface presence of groundwater in some locations but not in others. Groundwater may be accessed by these plant community types in instances where an alternative source of water (such as rainfall) cannot be accessed to maintain ecological function.

### 8.4.5 Threatened flora species

Based on the assessment of habitat in the locality, and a review of databases and published information, the eighteen species credit plant species in Table 8-4 were considered 'candidate species' for assessment.

These threatened plant species were targeted during surveys of the project site, however no threatened plant species were identified during the surveys.

The full assessment for threatened plant species is provided in Technical Paper 3 (Biodiversity Development Assessment Report).

Table 8-4 Candidate threatened flora species identified for assessment

| Species name | Common name | *Biodiversity Conservation Act 2016* status | *Environment Protection and Biodiversity Conservation Act 1999* status |
|---|---|---|---|
| ***Acacia bynoeana*** | Bynoe's Wattle | Vulnerable | Endangered |
| ***Acacia pubescens*** | Downy Wattle | Vulnerable | Vulnerable |
| ***Cynanchum elegans*** | White-flowered Wax Plant | Endangered | Endangered |
| ***Dillwynia tenuifolia*** | Dillwynia tenuifolia | - | Vulnerable |
| ***Dillwynia tenuifolia – endangered population*** | Dillwynia tenuifolia, Kemps Creek | | |
| ***Eucalyptus benthamii*** | Camden White Gum | Vulnerable | Vulnerable |
| ***Eucalyptus nicholii*** | Narrow-leaved Black Peppermint | Vulnerable | Vulnerable |
| ***Grevillea juniperina subsp. juniperina*** | Juniper-leaved Grevillea | - | Vulnerable |
| ***Marsdenia viridiflora subsp. viridiflora - endangered population*** | Marsdenia viridiflora R. Br. subsp. viridiflora population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas | - | Endangered population |
| ***Persoonia bargoensis*** | Bargo Geebung | Vulnerable | Endangered |
| ***Persoonia nutans*** | Nodding Geebung | Endangered | Endangered |
| ***Pilularia novae-hollandiae*** | Austral Pilwort | - | Endangered |
| ***Pimelea curviflora var. curviflora*** | Pimelea curviflora var. curviflora | Vulnerable | Vulnerable |
| ***Pimelea spicata*** | Spiked Rice-flower | Endangered | Endangered |
| ***Pultenaea parviflora*** | Sydney-bush Pea | Vulnerable | Endangered |
| ***Pultenaea pedunculata*** | Matted Bush-pea | - | Vulnerable |
| ***Syzygium paniculatum*** | Magenta Lilly Pilly | Vulnerable | Endangered |
| ***Thesium australe*** | Austral Toadflax | Vulnerable | Vulnerable |

### 8.4.6 Threatened fauna species

Thirty two threatened fauna species were derived from the plant community types on the project site as predicted ecosystem credit species. Of these 32 fauna species, 18 were identified as having potential habitat within the project site and study area.

A summary of the threatened fauna species with potential habitat in the project site is provided in Table 8-5. The remaining 14 threatened fauna ecosystem credit species were excluded from the assessment, as the habitat features associated with these species are not present within the project site. Additional information about these species is provided in Technical Paper 3 (Biodiversity Development Assessment Report).

Species credit species are those species for which the likelihood of occurrence, or elements of suitable habitat, cannot be confidently predicted by vegetation surrogates or landscape features. Species credit species can be reliably detected by survey. Once the initial list of predicted candidate species credit species was generated, the geographic limitations of each species (where applicable) were examined to see if they were met. Where the project site is not within the geographic limitation described for a species, the species was removed from the predicted list of threatened species and no further assessment was carried out. Based on the assessment of habitat in the project site, and review of databases and published information, a further three threatened fauna species were identified as having the potential to be present on the project site and are included in Table 8-5.

The field survey for the biodiversity assessment (refer to Section 8.3.5) included assessing the project site to determine the presence of any habitat or microhabitats for the threatened species listed in Table 8-5.

There is limited habitat in the project site for most threatened fauna species. However, two species were considered moderately likely to occur in the project site and study area based on the presence of suitable habitat:

- The Green and Golden Bell Frog (*Litoria aurea*)
- Southern Myotis (*Myotis macropus*).

Targeted surveys for these species were carried out in February 2020 to determine the species presence or absence within the study area.

The Cumberland Plain Land Snail (*Meridolum corneovirens*) is considered likely to occur within the moderate quality woodland in the study area based on the presence of suitable habitat. None of this habitat is located within the project site, therefore this species would not be directly impacted by the project and has not been subject to any further survey.

One other threatened species, the Eastern Coastal Free-tailed Bat (*Micronomus norfolkensis*), was positively identified during the targeted surveys, however the study area is only likely to provide foraging habitat for this species.

### Green and Golden Bell Frog

Potential habitat for the Green and Golden Bell Frog was identified within and adjacent to the study area during initial surveys of the project site in December 2019. Targeted nocturnal surveys were conducted at three locations identified as being potential habitat for the Green and Golden Bell Frog over four nights, between the 17 February and 20 February 2020. Amphibian activity was moderate during the surveys and seven common species were recorded across the three locations. The Green and Golden Bell Frog was not identified during these surveys.

Based on the results of the targeted surveys, distribution of recent recorded sightings, the distance of the project site from a key population in Parramatta and the relatively disconnected nature of the project site to surrounding potential habitats, it is considered that the potential for the Green and Golden Bell Frog to occur within the project site is low.

### Southern Myotis

Surveys targeting the Southern Myotis were completed around the project site from 17 February to 20 February using harp traps and call detectors. No bats were captured in the harp traps. Six calls were thought to be very likely from Southern Myotis; however, the call quality and duration was insufficient to be certain of their identities.

Table 8-5 Threatened fauna species with potential habitat in the project site

| Species name | Common name | BC Act[1] | EPBC Act[1] | Commentary | Likelihood of occurrence |
|---|---|---|---|---|---|
| **Birds** | | | | | |
| ***Anthochaera Phrygia*** | Regent Honeyeater (foraging) | CE | CE | May occasionally forage in vegetation, particularly winter flowering species such as *Eucalyptus tereticornis*. | High |
| ***Artamus cyanopterus cyanopterus*** | Dusky Woodswallow | V | - | Species is commonly seen in the locality and may forage in or over the vegetation in and adjacent to the project site. | Moderate |
| ***Callocephalon Fimbriatum*** | Gang-gang Cockatoo (foraging) | V | - | May occur in study area on occasion in winter.<br>No breeding habitat in project site. | Moderate |

| Species name | Common name | BC Act[1] | EPBC Act[1] | Commentary | Likelihood of occurrence |
|---|---|---|---|---|---|
| ***Daphoenositta chrysoptera*** | Varied Sittella | V | - | Commonly seen in the locality and may forage in or over the vegetation in and adjacent to the project site. | Moderate |
| ***Glossopsitta pusilla*** | Little Lorikeet | V | - | Commonly seen in the locality and may forage in or over the vegetation in and adjacent to the project site. | High |
| ***Hieraaetus morphnoides*** | Little Eagle (foraging) | V | - | Species may fly over and perch in the project site on occasion. There is unlikely to be any suitable breeding habitat present. | Moderate |
| ***Lathamus discolor*** | Swift Parrot (foraging) | E | CE | Vegetation in the project site does not represent any substantial foraging or nesting opportunities for this species. Temporary foraging cannot be discounted. | Moderate |
| ***Lophoictinia isura*** | Square-tailed Kite (foraging) | V | - | Species may fly over and perch in the project site on occasion. There is unlikely to be any suitable breeding habitat present. | Moderate |
| ***Ninox connivens*** | Barking Owl (foraging) | V | - | Species may fly over and perch in the project site on occasion. There is unlikely to be any suitable breeding habitat present. | High |
| ***Ninox strenua*** | Powerful Owl (foraging) | V | - | Species may fly over and perch in the project site on occasion. There is unlikely to be any suitable breeding habitat present. | High |
| ***Tyto novaehollandiae*** | Masked Owl (foraging) | V | - | Species may fly over and perch in the project site on occasion. There is unlikely to be any suitable breeding habitat present. | High |
| Mammals | | | | | |
| ***Falsistrellus tasmaniensis*** | Eastern False Pipistrelle | V | - | Highest-quality foraging habitat is around the drainage line, adjacent to the project site. This species may also forage around trees within the project site. No hollow-bearing trees were identified within the project site; however, some roosting habitat may be present. There is unlikely to be any breeding habitat in the project site. | High |
| ***Micronomus norfolkensis*** | Eastern Coastal Free-tailed Bat | V | - | Analysis of bat calls recorded along the drainage line as part of this assessment identified this species on one night. Highest-quality foraging habitat is around the drainage line, adjacent to the project site. This species may also forage around trees within the project site. No hollow-bearing trees were identified within the project site; however, some roosting habitat may be present. There is unlikely to be any breeding habitat in the project site. | High |
| ***Miniopterus australis*** | Little Bent-winged Bat (foraging) | V | - | Species is most likely to forage in the woodland around the drainage line (outside of the project site) and may occur in the project site as it flies around. However, there is no high-quality foraging habitat or breeding habitat in the project site. | High |

| Species name | Common name | BC Act[1] | EPBC Act[1] | Commentary | Likelihood of occurrence |
|---|---|---|---|---|---|
| ***Miniopterus orianae oceanensis*** | Large Bent-winged Bat (foraging) | V | - | Species is most likely to forage in the woodland around the drainage line (outside of the project site) and may occur in the project site as it flies around. However, there is no high-quality foraging habitat or breeding habitat in the project site. | High |
| ***Myotis macropis*** | Southern Myotis | V | - | Potential habitat associated with vegetation within 200 metres of Eastern Creek. | High |
| ***Pteropus poliocephalus*** | Grey-headed Flying-fox (foraging) | V | V | Species is assumed to occur based on the presence of suitable foraging habitat and the proximity of several camps. There are no camps within the project site. | High |
| ***Saccolaimus flaviventris*** | Yellow-bellied Sheathtail-bat | V | - | Highest-quality foraging habitat is around the drainage line, though this species may also forage around trees within the project site. No hollow-bearing trees were identified within the project site; however, some roosting habitat may be present. There is unlikely to be any breeding habitat in the project site. | High |
| ***Scoteanax rueppellii*** | Greater Broad-nosed Bat | V | - | Highest-quality foraging habitat is around the drainage line, though this species may also forage around trees within the project site. No hollow-bearing trees were identified within the project site; however, some roosting habitat may be present. There is unlikely to be any breeding habitat in the project site. | High |
| **Frogs** | | | | | |
| ***Litoria aurea*** | Green and Golden Bell Frog | E | V | Potential habitat along Eastern Creek near to Carpark B and sections of the artificial drainage line within woodland located between Carpark C and Carpark D, outside of the project site. | High |
| **Invertebrates** | | | | | |
| ***Meridolum corneovirens*** | Cumberland Plain Land Snail | E | - | Suitable habitat within the study area, represented by the moderate quality woodland between Carpark C and Carpark D, outside of the project site. | High |

*1 CE=Critically Endangered, E=Endangered, V=Vulnerable*

### 8.4.7 Migratory species

Based on the desktop assessment, the following species are considered moderately likely to occur in, or adjacent to, the project site based on the presence of suitable habitat:

- Migratory marine birds – Fork-tailed Swift
- Migratory terrestrial species – White-throated Needletail.

While some migratory species of bird are likely to use the project site and locality, the project site would not be classed as an 'important habitat' according to the guidance provided in the *EPBC Act Policy Statement 3.21: Industry guidelines for avoiding, assessing and mitigating impacts on EPBC Act listed migratory shorebird species* (Australian Government Department of the Environment and Energy, 2015).

### 8.4.8 Aquatic ecology

The project site is located entirely within the Hawkesbury-Nepean catchment, which includes Eastern Creek to the west. The catchment area around the project site is highly modified from its original state, being cleared for rural, urban, waste and industrial land use. The project site is currently used as an entertainment and motorsport area, and the landform and drainage has been substantially modified to accommodate large cleared areas sealed by concrete and asphalt. These land uses influence the water quality and quantity/velocity of flows within the catchment.

Three waterways have been identified surrounding the project site and a description of each is provided in Table 8-6.

Table 8-6 Key watercourses within the study area

| Watercourse | Description | Mapped as key fish habitat? | Waterway class | Habitat for threatened fish species? | SEPP (Coastal Management) wetland? |
|---|---|---|---|---|---|
| **Sydney Dragway drainage line** | • Small unnamed and unmapped artificial drainage line<br>• Runs in a northwest direction through woodland within the study area but outside of the project site<br>• Drains stormwater runoff from parts of Sydney Dragway and feeds into Eastern Creek | No | Class 4 (unlikely key fish habitat) | No | No |
| **Eastern Creek** | • Generally flows north<br>• 180 metres west of the project site<br>• Section of Eastern Creek closest to the project site is a third order stream<br>• Surrounded by a disturbed riparian corridor that aligns with PCT835 | Yes | Class 2 (minimal fish habitat) | No | No |
| **Prospect Reservoir** | • Around 600 metres from the project site<br>• Constructed in 1888 to supply Sydney with water<br>• Remains an integral part of Sydney's drinking water supply<br>• Surrounded by significant high quality remnant of Cumberland Plain woodland | No | Potentially Class 2 (minimal fish habitat) | No | No |

The drainage line between Sydney Dragway and Eastern Creek is an unmapped and artificial waterway, draining runoff into Eastern Creek. There is no upstream connectivity within Eastern Creek and only very common fish species are likely to inhabit this drainage line. No threatened aquatic species have been recorded. One introduced species, the Eastern Gambusia (*Gambusia holbrooki*) was identified in Eastern Creek during surveys for this assessment.

There is no mapped threatened fish habitat within or adjacent to the project site. The Nepean River (west) and Georges River (south) are the closest waterways that are mapped habitat for a threatened fish species, the Macquarie Perch.

## 8.5 Avoidance and minimisation of impacts

Chapter 2 (Strategic need, justification and project alternatives) of this Environmental Impact Statement outlines the options considered for the location and design of the Sydney International Speedway. Three options for the project were evaluated within the Western Sydney Parklands at Eastern Creek. Following assessment against the site suitability criteria and consultation with key stakeholders, the project site was identified as the preferred option. Part of the justification for the project site selection included the consideration that the project site would result in the least direct impact to biodiversity compared to the other two sites considered.

The project site is located within a highly developed area that does not possess large expanses of intact native vegetation with high biodiversity value. As most of the development is within previously modified and built-up areas, direct impacts to terrestrial biodiversity have been avoided and/or minimised. The development would result in minimal disturbance of native vegetation. Where this disturbance cannot be avoided, the vegetation is of poor to moderate quality and/or provides limited habitat for threatened species. Opportunities to further minimise native vegetation clearance would be refined during detailed design.

## 8.6 Assessment of potential impacts

### 8.6.1 Loss of native vegetation

No areas of land declared as an area of outstanding biodiversity value in accordance with section 3.1 of the *Biodiversity Conservation Act 2016* would be affected by the project. There would be no direct impacts to *Environment Protection and Biodiversity Conservation Act 1999* listed Threatened Ecological Communities.

The project would result in the direct removal of 0.63 hectares (6,312 square metres) of native vegetation from the project site consisting of the following PCTs:

- Grey Box - Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (PCT 849) – 0.17 hectares (1,696 square metres)
- Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (PCT 850) – 0.46 hectares (4,616 square metres).

One Threatened Ecological Community listed under the BC Act would be impacted by the development:

- Cumberland Plain Woodland in the Sydney Basin Bioregion – 0.63 hectares comprising the combined extent of the two PCTs noted above.

### 8.6.2 Impacts to threatened species

One species credit species, the Southern Myotis, is assumed to be directly impacted by the project. The extent of impact to this species is limited to a very small area of habitat (305 square metres) that is within 200 metres of Eastern Creek.

No significant impacts to threatened species listed under the EPBC Act are likely to occur.

Targeted surveys for the Green and Golden Bell Frog did not identify this species around the Sydney Dragway drainage line or along Eastern Creek, though these two areas meet many of the known habitat requirements for this species. Regardless, the project would not actually impact the potential habitat for this species. Due to the absence of the species from the survey, the fact there are no known populations close to the project site, and that all previous recordings are very old, it is considered unlikely the Green and Golden Bell Frog would be impacted and species offsets are not required.

### 8.6.3 Loss of fauna habitat

Due to the marginal, unnatural structure of the vegetation present in the project site, it is unlikely to be used as breeding habitat by any threatened species. Therefore, it is unlikely that the project would detrimentally affect any species if they are present.

Up to 1.2 hectares of revegetation and weeds would be impacted by the project. This includes some areas of planted native trees.

Twelve threatened species may use the vegetation found within the project site, including both native and exotic planted trees and shrubs.

The Grey-headed Flying-fox, Swift Parrot and Little Lorikeet are considered likely to forage on the flowers and/or fruit of both planted and exotic trees within the project site. The Dusky Woodswallow may forage in the air space above the planted trees and may use the vegetation for perching. The Eastern Coastal Free-tail Bat, Large Bent-winged Bat, Little Bent-winged Bat, Eastern False Pipistrelle, Yellow-bellied Sheathtail-bat and Greater Broad-nosed Bat may forage in the air spaces around areas of vegetation, feeding on the insects attracted to the vegetation.

Although no high quality hollow bearing trees were identified on the project site, potential roosting habitat in the form of small tree hollows may also be present in some of the larger trees for the Eastern Coastal Free-tailed Bat, Eastern False Pipistrelle, Yellow-bellied Sheathtail-bat and Greater Broad-nosed Bat.

In the case of the Southern Myotis, only tree hollows within 200 metres of water bodies are likely to be utilised, which are unlikely to be present. Large predatory birds such as the Powerful Owl and Masked Owl may also perch on larger exotic and planted trees while travelling through the project site.

### 8.6.4 Impacts to habitat connectivity

The project site is a highly disturbed landscape where the majority of habitats have been cleared. However, the project site is located directly between two areas that have been mapped as a biodiversity corridor of regional significance. These areas are the vegetated riparian zone of Eastern Creek and the significant area of Cumberland Plain Woodland surrounding Prospect Reservoir, outside of the project site. These corridors are only likely used by flying species or local common mammals, reptiles and amphibians. Neither of these areas would be directly impacted by the project.

The vegetation on the project site may facilitate movement between the corridors for highly mobile species. Flying animals such as birds and bats use the airspace to move between natural habitats and the patches of vegetation within the project site are likely to be used as a foraging or perching resource as part of daily movements. Threatened species known from the locality including the Grey-headed Flying-fox, Swift Parrot and Southern Myotis (and other threatened bats) are powerful flyers capable of covering large distances between habitat patches. The landscape of the locality in its current form is permeable to these species and habitat connectivity for these species would not be detrimentally affected.

### 8.6.5 Impacts on aquatic habitats and groundwater dependent ecosystems

The project would not result in any direct impacts to waterways, waterbodies or aquatic habitats. The project is unlikely to directly impact on any areas that would affect the water quality and hydrological processes that sustain threatened species and threatened ecological communities.

There is potential for indirect impacts to surrounding habitats from erosion and contaminated runoff from the project. The main potential risk would be to Eastern Creek via the artificial drainage line designed to drain stormwater from Sydney Dragway. These impacts would be mitigated through the implementation of erosion and sediment controls as detailed in Chapter 13 (Soils and surface water quality) and Appendix C (Construction Environmental Management Framework).

Earthworks are not expected to intercept substantial groundwater. Groundwater level drawdown is unlikely and Groundwater Dependent Ecosystems are not expected to be impacted as a result of construction and/or operation of the project. Additionally, indirect impacts such as those from groundwater drawdown are not expected to impact the habitat of threatened species. Groundwater related impacts to threatened ecological communities are expected to be minimal as the threatened ecological communities are likely to be opportunistic facultative groundwater dependent ecosystems that depend on the subsurface presence of groundwater in some locations but not in others, particularly where an alternative source of water (such as rainfall) cannot be accessed to maintain ecological function.

### 8.6.6 Fauna injury or mortality

The potential risk of an increase in the frequency of vehicle strike due to the project is low and would generally be limited to vehicle movements along Ferrers Road, which already experiences moderate traffic levels. There is a chance of fauna mortality during construction through vehicle collision (i.e. roadkill). Mammals, reptiles, amphibians and birds are all at risk of vehicle strike, particularly those common species (for example birds) that are tolerant of disturbance and remain in the project site.

After the completion of the construction of the project, there would be an increase in traffic along the surrounding local road network as a result of events at the project site. Traffic movements within the project site are not expected to significantly increase fauna injury or mortality as the project site is fenced. Additional traffic movements along Ferrers Road are also not expected to have a significant impact because of the existing moderate levels of traffic. Vehicle strike associated with the project is not expected to affect any threatened fauna species with the potential to occur within or near the project site.

### 8.6.7 Assessment against the Biodiversity Assessment Method

An offset is required for the impacts to plant community types and threatened (species credit) species. The biodiversity credit obligation has been calculated using the Biodiversity Assessment Method Calculator. Only areas of the project site that contain PCTs have been assessed and the offset credits that are required were determined.

Ecosystem credit requirements for the project include:

- Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 849) – Moderate: One credit
- Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 850) – Poor: Three credits
- Grey Box - Forest Red Gum grassy woodland on shale of the southern Cumberland Plain, Sydney Basin Bioregion (Plant Community Type 850) – Revegetation: Two credits.

No species credits are required for the Southern Myotis (*Myotis macropus*) as the predicted impacts do not meet the threshold for offset credits.

### 8.6.8 Key threatening processes

A key threatening process is a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, population or ecological community. The project may directly or indirectly contribute to the following key threatening processes as outlined in Table 8-7.

Table 8-7 Summary of key threatening processes that the project may directly or indirectly contribute to

| Key threatening process | Act designated under[1] | Likelihood of project directly or indirectly contributing to the key threatening process |
|---|---|---|
| **Clearing of native vegetation** | BC Act | High – clearing of native vegetation would occur. However, the magnitude of clearing is small (0.63 hectares). |
| **Land clearance** | EPBC Act | High – clearing of native vegetation would occur. However, the magnitude of clearing is small (0.63 hectares). |
| **Infection of frogs by amphibian chytrid causing the disease chytridiomycosis** | BC Act | Low – mitigation measures would be implemented to prevent the spread or introduction of amphibian chytrid fungus. |
| **Infection of amphibians with chytrid fungus resulting in chytridiomycosis** | EPBC Act | Low – mitigation measures would be implemented to prevent the spread or introduction of amphibian chytrid fungus. |
| **Infection of native plants by *Phytophthora cinnamomi*** | BC Act | Low – mitigation measures would be implemented to prevent the spread or introduction of *Phytophthora cinnamomi*. |
| **Dieback caused by the root-rot fungus (*Phytophthora cinnamomi*)** | EPBC Act | Low – mitigation measures would be implemented to prevent the spread or introduction of *Phytophthora cinnamomi*. |
| **Introduction and establishment of Exotic Rust Fungi of the order Pucciniales pathogenic on plants of the family Myrtaceae** | BC Act | Low – mitigation measures would be implemented to prevent the spread or introduction of Exotic Rust Fungi. |
| **Invasion and establishment of exotic vines and scrambler** | BC Act | Low – mitigation measures would be implemented to prevent the spread of weeds. |
| **Invasion of native plant communities by African Olive *Olea europaea* subsp. *cuspidata* (Wall. ex G. Don) Cif.** | BC Act | Low – mitigation measures would be implemented to prevent the spread of weeds. |
| **Invasion of native plant communities by *Chrysanthemoides monilifera*** | BC Act | Low – mitigation measures would be implemented to prevent the spread of weeds. |
| **Invasion of native plant communities by exotic perennial grasses** | BC Act | Low – mitigation measures would be implemented to prevent the spread of weeds. |

| Key threatening process | Act designated under[1] | Likelihood of project directly or indirectly contributing to the key threatening process |
|---|---|---|
| **Invasion, establishment and spread of Lantana (*Lantana camara* L. sens. Lat)** | BC Act | Low – mitigation measures would be implemented to prevent the spread of weeds. |
| **Degradation of native riparian vegetation along New South Wales water courses** | FM Act | Low – mitigation measures would be implemented to avoid inadvertent impacts to vegetation outside of the project site associated with Eastern Creek. |

1 *BC Act: NSW Biodiversity Conservation Act 2016, FM Act: NSW Fisheries Management Act 1994, EPBC Act: Commonwealth Environment Protection and Biodiversity Conservation Act 1999*

### 8.6.9 Cumulative impacts

Potential cumulative impacts were considered for assessment based on the likely interactions of the project with other projects and plans that met the adopted screening criteria. The approach to assessment and the other projects considered are described further in Chapter 23 (Cumulative impacts) of this Environmental Impact Statement.

The cumulative impacts of historic vegetation clearing for agriculture, urban development, and development and maintenance of infrastructure will likely include continued loss of biodiversity on the Cumberland Plain. The Cumberland Plain is an over cleared landscape and due to the expansion of western Sydney and creation of housing and associated infrastructure, further impacts to biodiversity are likely to result in this region.

Available information on recent projects with biodiversity impacts relevant to the Cumberland Plain is as follows:

- Sydney Metro West (Stage 1): Estimated clearing is about 0.18 hectares; consisting of two PCTs, 0.03 hectares of Cumberland Plain Woodland in the Sydney Basin Bioregion (listed under the BC Act) and 0.15 hectares of habitat for the Southern Myotis
- Archbold Road Upgrade, Old Wallgrove Road to the Great Western Highway: Removal of about 9.81 ha of vegetation, of which 7.60 ha is native vegetation and is consistent with a threatened ecological community and habitat for threatened species
- Parramatta Light Rail (Stage 1): Direct impact to 0.62 hectares of native vegetation. Removal of about 300 individual trees that are mostly horticultural plantings
- Clyde Terminal Conversion Project: No impacts to native vegetation. Impact to tank farm habitat for the Green and Golden Bell Frog
- Viva Energy Clyde Western Area Remediation Project: No direct impacts to native vegetation. Removal of foraging habitat for the Green and Golden Bell Frog, however this was not considered to have a significant impact on the species. Potential direct and indirect impacts were identified (for example fragmentation of movement corridors and water quality impacts) but were considered manageable with mitigation measures (Biosis, 2018)
- WestConnex program of works: This includes M4 Widening (direct impact on up to 8.86 hectares of planted and remnant vegetation), M4 East (around 15.7 hectares of vegetation of which 12.9 hectares comprises of planted trees and landscaped areas) and M4-M5 Link (with no direct impacts to native vegetation). Other impacts (direct and indirect) were unlikely (including groundwater dependent ecosystems), insignificant or minimal and manageable.

When the impacts of the Sydney International Speedway project are considered together with the impacts of the above projects, the contribution of Sydney International Speedway to cumulative biodiversity impacts in the Cumberland Plain region is relatively low. While there would be some limited biodiversity impacts from the project, no substantial increase to cumulative impacts would occur.

## 8.7 Management and mitigation measures

### 8.7.1 Approach to management and mitigation

Biodiversity impacts would be managed in accordance with the Construction Environmental Management Framework (Appendix C). Of relevance, the Construction Environmental Management Framework includes biodiversity management objectives to maximise workers' awareness of biodiversity values and avoid or minimise potential impacts to biodiversity.

The Construction Environmental Management Framework also requires the preparation and implementation of a Flora and Fauna Management Plan, including as a minimum:

- Procedures for the demarcation and protection of retained vegetation, including all vegetation outside and adjacent to the project site
- Measures to reduce disturbance to sensitive fauna
- Procedures for the clearing of vegetation and the relocation of flora and fauna, including pre clearing surveys and hollow bearing tree identification
- Procedures for dealing with unexpected Endangered Ecological Communities or threatened species identified during construction
- Weed management measures in accordance with the *Biosecurity Act 2015*
- Pathogen management measures to prevent introduction and spread of amphibian chytrid fungus, *Phytophthora cinnamomi* and Exotic Rust Fungi
- Inspection and monitoring requirements.

### 8.7.2 Mitigation measures

The mitigation measures in Table 8-8 would be implemented to further reduce the potential biodiversity impacts of the project.

Table 8-8 Mitigation measures – Biodiversity

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Design** | | |
| **B1** | Vegetation clearance | Opportunities to minimise the amount of vegetation clearance within the project site would be considered as part of further design development where feasible and reasonable. |
| **Construction** | | |
| **B2** | Biodiversity offsets | Biodiversity offsets (ecosystem credits) would be acquired in accordance with the Biodiversity Assessment Method due to impacts on native vegetation. |

### 8.7.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to the management of biodiversity include:

- Chapter 13 (Soil and surface water quality), specifically measures which address water quality impacts and erosion and sediment control.
- Chapter 15 (Groundwater and geology) with respect to protection of groundwater dependent ecosystems.

Together, these measures would help to minimise the potential biodiversity impacts associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of biodiversity.

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# 9 Air quality

# 9 Air quality

This chapter assesses the potential impacts of construction and operation of the Sydney International Speedway on air quality and identifies mitigation measures to minimise these impacts. It draws on the information provided in Technical Paper 4 (Air quality).

## 9.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to air quality, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 9-1.

A detailed assessment of air quality has been carried out for the project and is included as Technical Paper 4 (Air quality) of this Environmental Impact Statement.

Table 9-1 Secretary's Environmental Assessment Requirements - Air quality

| Reference | Secretary's Environmental Assessment Requirement | Where addressed |
|---|---|---|
| **6. Air quality** | | |
| **6.1.** | The Proponent must undertake an air quality impact assessment (AQIA) for construction and operation of the project in accordance with the current guidelines. | This chapter. |
| **6.2.** | The Proponent must ensure the AQIA includes the following:<br>a. Identification of receivers sensitive to changes in air quality likely to result from construction or operation | Section 9.5.4 |
| | b. the source and intensity of emissions during construction and operation that could reduce air quality in the vicinity; | Section 9.7<br>Section 9.8 |
| | c. demonstrated ability to comply with the relevant regulatory framework; and | Section 9.7<br>Section 9.8 |
| | d. appropriate measures to avoid, minimise and/or mitigate potential impacts during construction and operation. | Section 9.9 |
| **6.3.** | The Proponent must assess the impacts of dust generation during construction and operation, including impacts affecting the safe operation of the adjacent drag strip and how the design has responded to address identified impacts, including any proposed mitigation measures. | Section 9.7<br>Section 9.8<br>Section 9.9 |

## 9.2 Legislative and policy framework

### 9.2.1 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* provides the statutory framework for managing pollution in NSW, including procedures to regulate the potential for pollution.

Air pollution-related sections 124 to 126 of the Act require activities to be conducted in a proper and efficient manner, whilst section 128 of the Act requires that all necessary workable means would be used to prevent or minimise air pollution.

### 9.2.2 National Environment Protection (Ambient Air Quality) Measure

The National Environment Protection (Ambient Air Quality) Measure sets national air quality standards for particulate matter with an aerodynamic diameter of less than 10 microns ($PM_{10}$), and for particulate matter with an aerodynamic diameter of less than 2.5 microns ($PM_{2.5}$). The relevant standards under the National Environment Protection (Ambient Air Quality) Measure are reproduced in the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (Environment Protection Authority, 2016), which was used to guide this air quality impact assessment.

## 9.3 Assessment methodology

### 9.3.1 Overview

The general methodology applied to assess potential air quality impacts of the Sydney International Speedway included:

- Identification of the key air quality issues and potential sources of emissions generated by the project
- Establishment of the prevailing climate and meteorological conditions around the project site using publicly available data
- Identification of air quality sensitive receivers that may be affected by the project
- Use of an air quality model to quantify potential air quality impacts during construction and operation of the project including comparison against the relevant criteria
- Identification of controls and safeguards to mitigate the potential impacts of the project.

Full details of the assessment methodology are provided in Technical Paper 4 (Air quality).

The assessment also considered potential impacts from racing vehicles including nitrogen dioxide, carbon monoxide and sulfur dioxide. There are no specific criteria to carry out a quantitative assessment for non-road vehicles, however exhaust emissions from racing vehicles were not identified as a key air quality issue generated by the project, given that the fuel used by speedway vehicles typically cause lower levels of exhaust gases compared to road vehicles and the existing background levels are well below threshold levels. As such, exceedances are not anticipated (see Section 9.5.2).

### 9.3.2 Dispersion modelling

The assessment of project air quality impacts has been carried out in accordance with the EPA's Approved Methods which specifies and provides guidelines on how assessments based on the use of air dispersion models should be carried out. The methodology involves using computer-based air dispersion model predictions to predict air quality during the construction and operational phases of this project and assess these against the EPA's air quality assessment criteria.

The CALPUFF computer-based air dispersion model was used to predict ground-level concentrations of particle and dust deposition levels due to the identified emission sources. This model considered the expected transport distances for the emissions, as well as considering variances due to terrain, surrounding land uses, wind speeds and wind directions. These predicted emissions are compared to relevant air quality criteria.

Predictions were made at 640 discrete receivers (including the five nearby sensitive receivers shown in Figure 9-1) to allow for contouring of results. The locations of the model receivers and positioning of source of emissions during construction and operation are presented in Technical Paper 4 (Air quality).

### Construction

During construction potential temporary air quality impacts would primarily be dust generated from materials excavation, handling, transport and placement of materials, as well as from wind erosion of stored materials and exposed surfaces resulting in impacts at surrounding sensitive receivers. To quantify this, key inputs to the construction assessment included an indicative list of construction plant and equipment and their locations during use within the project site. Wind erosion from exposed areas and stockpiles was captured in the model based on indicative sizes and locations. The total dust emissions assumed for each dust generating activity, along with emission factors used in the assessment are provided in Technical Paper 4 (Air quality). The emissions factors have been drawn largely from the following sources:

- *Emission Estimation Technique Manual for Mining* (National Pollution Inventory, 2012)
- *AP 42: Compilation of Air Emissions Factors* (United States Environmental Protection Agency, 1985 and updates).

Standard emission control measures such as dampening down exposed surfaces (for example excavated material during transport and when in stockpiles) were applied to the assessment using efficiency factors.

Emissions from construction sources/activities were evaluated as occurring under two scenarios:

- During standard hours of construction (7am–6pm, Monday to Friday and 8am–1pm on Saturdays)
- Where works could take place outside standard construction hours.

For the standard hours assessment scenario, wind-erosion of exposed areas/stockpiled materials were set in the model to take place on a 24 hour basis.

### Operation

The primary operational impacts and the focus of the operational air quality assessment is the generation of dust resulting from motorsport racing and wind erosion when the track is not in use. Whilst AP-42 contains emission factors for vehicle movements along unpaved roads, the weights and the speeds of racing vehicles are outside the range of conditions expected in AP-42, so it was not appropriate to use these factors for the assessment.

Instead, emissions factors were back-calculated using air quality data from monitoring carried out in January 2020 during an event at Sydney Speedway (at Clyde). This involved the development of a model to calculate hourly emission rates for $PM_{10.}$ Guidance from the US EPA's AP-42 was used to estimate total suspended particulate (TSP) and $PM_{2.5}$ emission rates from the back-calculated $PM_{10}$ values. Full details of these calculations are provided in Technical Paper 4 (Air quality).

Emissions to air during operations would also arise from wind erosion when the track is not in use. Guidance from Sections 1.1.17 and 1.1.18 of '*Emission Estimation Technique Manual for Mining*' (National Pollution Inventory, 2012) was used to estimate these emissions.

## 9.4 Objectives and criteria

Typically, air quality is quantified by the concentrations of air pollutants in the ambient air. Air pollution occurs when the concentration (or some other measure of intensity) of substances known to cause health, nuisance and/or environmental effects, exceeds a certain level. With regard to human health and nuisance effects, the air pollutants most relevant to the project are dust including TSP, deposited dust and particulate matter ($PM_{10}$ and $PM_{2.5}$).

The EPA has developed impact assessment criteria for these pollutants that were applied to this air quality impact assessment. Most of the EPA criteria are drawn from national standards for air quality set by the National Environmental Protection Council of Australia as part of the National Environment Protection Measures (NEPM). These criteria are reproduced below in Table 9-2.

The criteria relate to the total concentration of air pollutant in the air (that is, cumulative) and not just the contribution from project-specific sources (or incremental). Therefore, some consideration of background levels needs to be made when using these criteria to assess the potential impacts. Further discussion of background levels in the study area is provided below.

Operations at the adjacent Sydney Dragway may also be sensitive to dust emitted from the project. The criteria in Table 9-2 are intended to protect from human health and nuisance effects at locations with near continuous occupation (for example homes, school, hospital, office or public recreational area). These criteria are not intended to be used for the purpose of evaluating whether dust emissions from the project would impact on operations at the Sydney Dragway and so have not been applied for the assessment of dust deposition at the Sydney Dragway site. Project specific dust management criteria would be developed for Sydney Dragway based on dust monitoring and dispersion modelling, with the construction contractor and the operator of Sydney International Speedway required to limit dust deposition on the Sydney Dragway within agreed levels. This is described further in Sections 9.6.

Table 9-2 Environment Protection Authority impact assessment criteria

| Substance | Averaging time | Percentile | Criterion |
|---|---|---|---|
| **Particulate matter ($PM_{10}$)** | 24-hour | 100th | 50 µg/m³ |
| | Annual | - | 25 µg/m³ |
| **Particulate matter ($PM_{2.5}$)** | 24-hour | 100th | 25 µg/m³ |
| | Annual | - | 8 µg/m³ |
| **Particulate matter (TSP)** | Annual | - | 90 µg/m³ |
| **Deposited dust** | Annual (maximum increase) | - | 2 g/m²/month |
| | Annual (maximum total) | - | 4 g/m²/month |
| | 1 hour | 100th | 570 µg/m³ |
| | 24 hour | 100th | 228 µg/m³ |
| | Annual | - | 60 µg/m³ |

## 9.5 Existing environment

### 9.5.1 Climate and meteorology

Meteorological conditions (particularly wind speed and direction) are important for determining the direction and rate at which emissions from a source would disperse. Meteorological data was recorded at the Department of Planning, Industry and Environment operated air quality monitoring station at Prospect, and the Bureau of Meteorology operated monitoring station at Horsley Park. The locations of these monitoring stations are shown on Figure 9-1.

Five recent years (2015 to 2019) of meteorological data from these monitoring stations were reviewed to understand local meteorological conditions. The data indicated that the most common wind direction throughout the year was south westerly, though winds blowing from the north and southeast were also common during summer, autumn and spring. The average wind speed for each year was about two metres per second. Calm conditions (when the wind speed is less than 0.5 metres per second, occurred between 13.4 and 14.9 per cent of the time at Horsley Park monitoring station and between 18.6 and 20.8 per cent of the time at Prospect monitoring station.

Long term climate data is useful for identifying periods throughout the year when conditions conducive to dust generation are most likely (such as warm and/or dry periods). Meteorological conditions recorded at the Bureau of Meteorology station at Horsley Park indicate that January is the warmest month with a mean maximum temperature of 28.6 degrees Celsius (°C) and July is the coolest, with a mean maximum temperature of 17.4°C. Rainfall data shows that February is the wettest month with a mean rainfall of about 119 millimetres over about seven rain days.

### 9.5.2 Background air quality

Background air quality was established in order to understand the change to existing conditions as a result of the project and allow a comparison against the assessment criteria. Although there is no air quality monitoring carried out at or directly around the project site, the Department of Planning, Industry and Environment operates an air quality monitoring station at Prospect, 4.7 kilometres to the northeast. The concentrations of pollutants associated with the project (particulate matter as $PM_{10}$, particulate matter as $PM_{2.5}$) are measured at the station, along with the pollutants nitrogen dioxide ($NO_2$), carbon monoxide (CO) and sulfur dioxide ($SO_2$). The air quality data recorded at the Prospect monitoring station has been summarised in Table 9-3.

There were several days from 2015 to 2019 where particulate matter as $PM_{10}$ and $PM_{2.5}$ concentrations, from all sources, exceeded the NSW EPA's impact assessment criteria. $PM_{10}$ and $PM_{2.5}$ had a higher frequency of exceedances over the EPA's air quality criteria in 2019, compared with previous years. A high number of these occurred in the fourth quarter, corresponding to an unprecedented fire season, causing a significant deterioration in air quality throughout Central and Eastern Australia.

Monitoring data for $NO_2$, CO and $SO_2$ concentrations were measured well below the impact assessment criteria for all five years reviewed. As noted earlier, emissions of these pollutants from racing vehicles were not identified as a key air quality issue generated by the project therefore these pollutants were not considered further in the assessment.

TSP and deposited dust are not monitored at the Prospect monitoring station. However, both pollutants were measured at a number of private monitors at Blacktown International Sportspark between late 2015 and mid 2018. This site is located about five kilometres to the north of the project, as shown on Figure 9-1. Publicly reported annually averaged TSP and deposited dust results for the two completed years of monitoring (2016 and 2017) are summarised in Table 9-3. These data indicate that TSP concentrations and deposited dust levels have not exceeded relevant EPA criteria.

Table 9-3 Background air quality monitoring data

| Pollutant | Averaging period | Air quality assessment criteria | Prospect | | | | | Blacktown International Sportspark | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 2015 | 2016 | 2017 | 2018 | 2019 | 2016 | 2017 |
| **$PM_{10}$ ($\mu g/m^3$)** | Maximum 24 hour | 50 | 69 | 110 | 61 | 113 | 183 | - | - |
| | Annual | 25 | 18 | 19 | 19 | 22 | 26 | - | - |
| | Number of days above 24 hour average criteria | - | 1 | 4 | 2 | 8 | 24 | - | - |
| **$PM_{2.5}$ ($\mu g/m^3$)** | Maximum 24 hour | 25 | 30 | 85 | 30 | 48 | 134 | - | - |
| | Annual | 8 | 8.2 | 8.7 | 7.7 | 8.5 | 111.9 | - | - |
| | Number of days above 24 hour average criteria | - | 1 | 5 | 3 | 4 | 24 | - | - |
| **$NO_2$** | Maximum 1 hour | 246 | 100 | 100 | 113 | 96 | 92 | - | - |
| | Annual | 62 | 20 | 18 | 18 | 17 | 16 | - | - |
| **CO** | Maximum 1 hour | 30 | 2 | 2 | 2 | 2 | 6 | - | - |
| | Maximum 8 hour | 10 | <1 | 2 | 1 | 1 | 3 | - | - |
| **$SO_2$** | Maximum 1 hour | 570 | 71 | 55 | 60 | 66 | 55 | - | - |
| | Maximum 24 hour | 228 | 8 | 10 | 26 | 13 | 11 | - | - |
| | Annual | 60 | 1 | 2 | 2 | 2 | 2 | - | - |
| **Particulate matter (TSP) ($\mu g/m^3$)** | Annual | 90 | - | - | - | - | - | 26 | 40 |
| **Deposited dust ($g/m^2$/month)** | Annual | 4 | - | - | - | - | - | 3.2 | 1.7 |

The air quality impact assessment has taken 2017 as the representative assessment year. Given the 24 hour averaged $PM_{10}$ and $PM_{2.5}$ concentrations were measured at or exceeding the NSW EPA's impact assessment criteria (see Table 9-3), it was identified that an assessment demonstrating "that no additional exceedances of the impact assessment criteria will occur as a result of the proposed activity and that best management practices will be implemented to minimise emissions of air pollutants as far as is practical" was required, consistent with the Approved Methods.

### 9.5.3 Local emissions sources

Air quality in Sydney is influenced by a variety of different anthropogenic and natural sources. The EPA has investigated the relative contribution to the levels of relevant pollutants in the Sydney region from different anthropogenic sources (Environment Protection Authority, 2012), including:

- Domestic activities (such as wood-fired home heaters and lawn mowing) are major contributors to the total emissions of $PM_{10}$, $PM_{2.5}$, carbon monoxide and volatile organic compounds
- Road traffic and off-road mobile equipment (such as construction plant and boats) are major contributors to the total emissions of carbon monoxide and nitrogen dioxide, while making a smaller but still significant contribution to total emissions of $PM_{10}$, $PM_{2.5}$ and volatile organic compounds
- Industrial and commercial activities are major contributors to the total emissions of $PM_{10}$, while making a smaller but still significant contribution to total emissions of $PM_{2.5}$, nitrogen dioxide, and volatile organic compounds.

The existing environment surrounding the project site is mainly industrial, with a review of the Commonwealth Department of Agriculture, Water and the Environment's National Pollutant Inventory identifying several facilities near the project site. These facilities include Austral Bricks brickworks (Ceramic product manufacturing), SUEZ Eastern Creek Resource Recovery Park, Global Renewables Eastern Creek Waste Management Facility, Horsley Park Meter Station and Coca-Cola warehousing and storage services. Any emissions from these sources contribute to existing background air quality conditions and are therefore captured within the assessment.

### 9.5.4 Sensitive receivers

The nearest sensitive receivers are residential properties located about one kilometre south of the project site. There is a school about 3.7 kilometres north east in Huntingwood and hospitals around six kilometres to the north east and north west of the project in Blacktown and Mount Druitt respectively. The Sydney Dragway is also considered a sensitive receiver as project-specific consultation has identified airborne dust settling on the dragway track as a key issue for concern given the potential to disrupt racing.

For the air quality impact assessment, five representative sensitive receivers were identified, as shown on Figure 9-1.

Figure 9-1 Locations of air quality monitoring stations and representative receivers

## 9.6 Avoidance and minimisation of impacts

The racetrack design, layout and operational procedures include dust control and mitigation measures to minimise dust generation and offsite settlement, including:

- Vegetation along the boundary between the speedway racetrack and Sydney Dragway
- Installation of dust screens to reduce windspeed and migration of dust
- Curation of the track including water suppression during race events and potentially combining the clay used in the track with additives, which would minimise the mobilisation of dust during the use of the racetrack.

### 9.6.1 Construction dust mitigation and control measures

Following consultation with Sydney Dragway, agreement has been reached for a range of dust mitigation and control measures to be implemented during the construction of the Sydney International Speedway.

In summary, the contractor would be required to monitor and manage dust conditions on the construction site and the adjacent Sydney Dragway site. This would include:

- Dust monitors on the adjacent Sydney Dragway site to acquire and measure baseline dust levels
- Installation of two real-time dust monitors within the construction area, prior to construction commencing, to monitor dust generated from the construction site that might impact the dragstrip. These monitors would also be used to monitor dust during operation of the project.

During construction if the monitors indicate potential impacts on the dragstrip during or in the lead-up to a Dragway event, construction works would cease until the construction site is appropriately treated. Construction works which generate dust would not take place during a Sydney Dragway event.

An air quality management plan would be developed and implemented to minimise the generation of dust and set trigger values to enable the project site to be managed in a proactive manner as well as a reactive manner. The contractor would continuously monitor, and regularly sample during construction, the dust levels at the site and at the Sydney Dragway with measurement and testing reports made available to Sydney Metro, Sydney Dragway and Western Sydney Parklands Trust.

During construction four permanent dust monitoring stations would be installed at Sydney Dragway to monitor, measure and report the Sydney Dragway baseline dust levels during the period up to commencement of operations. Data gathered would be used to establish a baseline for safe operational dust levels at the dragstrip.

### 9.6.2 Operations dust mitigation and control measures

Following consultation with Sydney Dragway, agreement has been reached for a range of dust mitigation and control measures to apply for the operation of the project.

During construction, four real-time dust monitoring stations would be installed on the Sydney Dragway site during the period up to commencement of operations and would monitor, measure and report the Sydney Dragway baseline dust level. Subject to final review, the monitors would likely include at least one adjacent to the Sydney Dragway racing area, one adjacent to the dragway's timing marker and one adjacent to the dragway braking area.

The maximum allowable ground level dust deposition rate would be determined based on the results of dust monitoring, dispersion modelling and discussions with the Dragway operator. Based on the deposition rates of concern, two to three trigger values would be developed which would then be used to manage dust generation from operations of the Sydney International Speedway.

During operation of the project, the dust level at both the Sydney International Speedway and the Sydney Dragway would be required to be continuously monitored and regularly sampled on speedway event days, with measurement and testing reports made available to the dragway operator and Western Sydney Parklands Trust. The position of two real-time operational dust monitors would be finalised during track testing ahead of full operations at Sydney International Speedway. This monitoring would be used to establish the appropriate dust trigger level.

The Speedway operator would be responsible for the implementation and management of dust mitigation and control measures to achieve compliance with the requirement of not exceeding the Sydney International Speedway dust trigger level.

The operator of the Sydney International Speedway would be required to ensure compliance with the above obligations through the implementation of:

- A Dust Mitigation and Control Plan
- A Rectification Action Plan (in the event of a breach)
- Dragway dragstrip dust level monitoring and reporting
- Adoption of approved track curation and preparation procedures
- Use and maintenance of approved track material
- Conducting and reporting of annual track condition audits
- Repair and maintenance of natural and engineered physical barriers.

In the event the dust trigger level is exceeded, then the speedway would cease to operate until the operator completes all necessary action to rectify the breach and perform a test that it can comply with its dust control obligations.

## 9.7 Assessment of potential construction impacts

### 9.7.1 Dust

Potential dust emissions during construction of the Sydney International Speedway would be temporary in nature and comparable to other similar infrastructure projects. Best-practice management measures (as identified in Section 9.9) would be implemented during all construction works to adequately manage potential dust impacts. This would include regularly wetting down exposed and disturbed areas and adjusting construction activities based on observed dust levels and weather forecasts.

Construction activities would involve clearing, excavation, materials handling, stockpiling and compaction activities. Dust potentially generated from these activities is expected to be the main potential air quality impact during construction. The predicted contributions from the project and comparison to assessment criteria are summarised in Tables 9-4 to 9-7. As noted earlier, the EPA assessment criteria relate to the total concentration of air pollutant in the air (that is, cumulative) and not just the contribution from project-specific sources (or incremental).

Given the distance to the identified sensitive receiver locations, the project would not result in unacceptable changes to their local air quality. As shown in Tables 9-4 to 9-7, it was predicted that for both standard and 24 hour construction works, the annually averaged impact assessment criteria for $PM_{10}$, $PM_{2.5}$, TSP and deposited dust would not be exceeded.

An assessment to determine whether the activities would result in any additional exceedances of the daily criterion based on predicted maximum project 24 hour contributions determined that:

- There would be no additional days where the daily $PM_{10}$ impact assessment criterion would be exceeded at the identified representative sensitive receivers
- There would be no additional days where the daily $PM_{2.5}$ impact assessment criterion would be exceeded at the identified representative sensitive receivers.

In the absence of project specific mitigation measures described in Section 9.9, the Sydney Dragway may be subject to increased concentrations of dust generated as a result of construction of the project as follows:

- $PM_{10}$ contributions of up to 6.2 micrograms per cubic metre were predicted for the 24 hour construction assessment scenario, compared to 2 micrograms per cubic metre during standard construction
- $PM_{2.5}$ contributions up to 1.1 and 0.3 micrograms per cubic metre (24 hour and standard construction hours respectively)
- Annually averaged total suspended particles contributions up to 11.7 and 4.5 micrograms per cubic metre (24 hour and standard construction hours respectively)
- Deposited dust levels of 0.9 and 0.5 grams per square metre per month (24 hour and standard construction hours respectively).

As shown in Tables 9-4 to 9-7, there are no currently applicable assessment criteria relevant to assessing the potential impact on dragway operations. Project specific criteria would be developed based on monitoring data and further dispersion modelling as described in Section 9.6. The construction contractor would be required to manage their works within these levels.

Table 9-4 Predicted annual $PM_{10}$ concentrations ($\mu g/m^3$), construction

| Receiver | Predicted project contribution ($\mu g/m^3$) | | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| | Construction 7am–6 pm | Construction 24 hours | | Construction 7am–6 pm | Construction 24 hours | |
| **R1** | 0.1 | 0.1 | 19 | 19.1 | 19.1 | 25 |
| **R2** | <0.1 | 0.1 | | <19.1 | 19.1 | |
| **R3** | <0.1 | 0.1 | | <19.1 | 19.1 | |
| **R4** | <0.1 | 0.1 | | <19.1 | 19.1 | |
| **R5** | <0.1 | 0.1 | | <19.1 | 19.1 | |
| **Sydney Dragway** | Up to 2.0 | Up to 6.2 | | 21.0 | 25.2 | n/a |

Table 9-5 Predicted annual $PM_{2.5}$ concentrations ($\mu g/m^3$), construction

| Receiver | Predicted project contribution ($\mu g/m^3$) | | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| | Construction 7am–6 pm | Construction 24 hours | | Construction 7am–6 pm | Construction 24 hours | |
| R1 | 0.01 | 0.03 | 7.7 | 7.71 | 8 | 8 |
| R2 | <0.01 | 0.02 | | <7.71 | 7.9 | |
| R3 | <0.01 | 0.02 | | <7.71 | 7.9 | |
| R4 | <0.01 | 0.02 | | <7.71 | 7.9 | |
| R5 | <0.01 | 0.01 | | <7.71 | 7.9 | |
| Sydney Dragway | Up to 0.3 | Up to 1.1 | | 8 | 8.8 | n/a |

Table 9-6 Predicted annual TSP concentrations ($\mu g/m^3$), construction

| Receiver | Predicted project contribution ($\mu g/m^3$) | | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|---|---|
| | Construction 7am–6 pm | Construction 24 hours | | Construction 7am–6 pm | Construction 24 hours | |
| R1 | 0.1 | 0.1 | 40 | 40.1 | 40.1 | 90 |
| R2 | <0.1 | 0.1 | | <40.1 | 40.1 | |
| R3 | <0.1 | 0.1 | | <40.1 | 40.1 | |
| R4 | <0.1 | <0.1 | | <40.1 | <40.1 | |
| R5 | <0.1 | <0.1 | | <40.1 | <40.1 | |
| Sydney Dragway | Up to 4.5 | Up to 11.7 | | 44.5 | 51.7 | n/a |

Table 9-7 Predicted deposited dust ($g/m^2$/month), construction

| Receiver | Predicted project contribution ($g/m^2$/month) | | Background ($g/m^2$/ month) | Cumulative ($g/m^2$/month) | | Criterion ($g/m^2$/ month) |
|---|---|---|---|---|---|---|
| | Construction 7 am to 6 pm | Construction 24-hours | | Construction 7 am to 6 pm | Construction 24-hours | |
| R1 | 0.01 | 0.01 | 1.7 | 1.71 | 1.71 | 4 |
| R2 | 0.01 | 0.01 | | 1.71 | 1.71 | |
| R3 | 0.01 | 0.01 | | 1.71 | 1.71 | |
| R4 | <0.01 | <0.01 | | <1.71 | <1.71 | |
| R5 | 0.01 | 0.01 | | 1.71 | 1.71 | |
| Sydney Dragway | Up to 0.5 | Up to 0.9 | | 2.2 | 2.6 | n/a |

### 9.7.2 Other emissions to air

Exhaust emissions generated during construction would be temporary and would not significantly contribute to emissions in the local area given the high existing levels of vehicle use in urban areas surrounding the project site. These emissions would be adequately managed by the implementation of standard construction mitigation measures, described in Section 9.9. No long term adverse impacts to air quality are anticipated.

The main source of potential air emissions would be from the combustion of diesel fuel and petrol in the construction plant, machinery and equipment. The volume of emissions from construction vehicles and machinery would depend on the type of fuel used, the power output and condition of the engine, and duration of use.

## 9.8 Assessment of potential operational impacts

### 9.8.1 Dust

The racetrack design, layout and operational procedures include dust control and mitigation measures to minimise dust generation and offsite settlement, as described earlier.

Given the distance to the identified sensitive receiver locations, the project would not result in unacceptable changes to their local air quality. As shown in Tables 9-8 to 9-11, it was predicted that:

- The annually averaged impact assessment criteria for $PM_{10}$, $PM_{2.5}$, TSP and deposited dust would not be exceeded
- There would be no additional days where the EPA's daily $PM_{10}$ impact assessment criterion would be exceeded at the identified representative sensitive receivers
- There would be no additional days where the EPA's daily $PM_{2.5}$ impact assessment criterion would be exceeded at the identified representative sensitive receivers.

The dust control and mitigation measures referred to earlier are designed to avoid impact on the operations of Sydney Dragway as a result of the project. There are no established air quality criteria to assess operational impacts of dust settlement. A monitoring program would be implemented during construction and operation of the project to be used as the basis of establishing project specific criteria, trigger levels and management responses to avoid impact on the operations of Sydney Dragway as a result of dust settlement from the project. The operator of the Sydney International Speedway would be required to manage operations within these levels.

In the absence of project specific mitigation measures described in Section 9.6, and 9.9, it was predicted that the neighbouring Sydney Dragway may experience increases in dust concentrations due to operation of the project. The predicted contributions as a result of the project are:

- $PM_{10}$ concentrations of up to 6.6 micrograms per cubic metre
- $PM_{2.5}$ concentrations of up to 0.7 micrograms per cubic metre
- Annually averaged total suspended particles contributions up to 15.6 micrograms per cubic metre
- Predicted deposited dust of up to 1.2 grams per square metre per month.

Table 9-8 Predicted annual $PM_{10}$ concentrations ($\mu g/m^3$), operations

| Receiver | Predicted project contribution ($\mu g/m^3$) | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|
| **R1** | 0.1 | 19 | 19.1 | 25 |
| **R2** | 0.1 | | 19.1 | |
| **R3** | <0.1 | | <19.1 | |
| **R4** | <0.1 | | <19.1 | |
| **R5** | <0.1 | | <19.1 | |
| **Sydney Dragway** | Up to 6.6 | | 25.6 | n/a |

Table 9-9 Predicted annual $PM_{2.5}$ concentrations ($\mu g/m^3$), operations

| Receiver | Predicted project contribution ($\mu g/m^3$) | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|
| **R1** | 0.01 | 7.7 | 7.71 | 8 |
| **R2** | 0.01 | | 7.71 | |
| **R3** | <0.01 | | <7.71 | |
| **R4** | <0.01 | | <7.71 | |
| **R5** | <0.01 | | <7.71 | |
| **Sydney Dragway** | Up to 0.7 | | 8.4 | n/a |

Table 9-10 Predicted annual TSP concentrations ($\mu g/m^3$), operations

| Receiver | Predicted project contribution ($\mu g/m^3$) | Background ($\mu g/m^3$) | Cumulative ($\mu g/m^3$) | Criterion ($\mu g/m^3$) |
|---|---|---|---|---|
| **R1** | <0.1 | 40 | <40.1 | 90 |
| **R2** | 0.1 | | 40.1 | |
| **R3** | <0.1 | | <40.1 | |
| **R4** | <0.1 | | <40.1 | |
| **R5** | <0.1 | | <40.1 | |
| **Sydney Dragway** | Up to 15.6 | | 55.6 | n/a |

Table 9-11 Predicted deposited dust (g/m2/month), operations

| Receiver | Predicted project contribution ($g/m^2$/month) | Background ($g/m^2$/month) | Cumulative ($g/m^2$/month) | Criterion ($g/m^2$/month) |
|---|---|---|---|---|
| **R1** | <0.01 | 1.7 | <1.71 | 4 |
| **R2** | 0.01 | | 1.71 | |
| **R3** | <0.01 | | <1.71 | |
| **R4** | <0.01 | | <1.71 | |
| **R5** | <0.01 | | <1.71 | |
| **Sydney Dragway** | Up to 1.2 | | 2.9 | n/a |

### 9.8.2 Other emissions to air

The potential for air quality impacts during operation from other sources is low.

Potential air quality impacts would be generated from exhaust emissions from the combustion of fossil fuels in race vehicles. Roadside air pollutant concentrations also have potential to increase due to changes in traffic volumes on the local road network by spectators and users of the Sydney International Speedway. However potential increases in emissions would be intermittent, and unlikely to be high enough to reach threshold levels, given that the background concentrations of pollutants typically associated with vehicle exhaust emission in the local area are low.

## 9.9 Management and mitigation measures

### 9.9.1 Approach to management and mitigation

As identified in Section 9.6, construction activities and operation of the project would be managed to achieve dust deposition levels designed to avoid impacting on dragway operations, determined in consultation with Sydney Dragway based on additional monitoring and dispersion modelling.

Potential temporary impacts to air quality during construction would be managed in accordance with the Construction Environmental Management Framework, as provided in Appendix C and described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement). The Construction Environmental Management Framework requires the preparation of an Air Quality Management Plan to define how predicted impacts would be mitigated and managed. This would include standard air quality management measures such as dampening down exposed materials and haulage routes. Additional, project-specific measures are provided in Table 9-12.

An Operations Air Quality Management Plan would be developed which incorporates the maintenance procedures and operational conditions that need to be in place to minimise the generation of dust by the project and deposition on to Sydney Dragway, as described in Section 9.6. This would include adoption of approved track curation and preparation procedures and use and maintenance of approved track materials, among others. At times, additional controls may also be required and may involve measures such as applying additional water or other dust suppression agents to the track, adjusting race times or ceasing races in extreme circumstances.

The air quality management plan would also require monitoring of dust levels at the Sydney International Speedway and Sydney Dragway on speedway event days.

### 9.9.2 Mitigation measures

Mitigation measures that would be implemented to address potential air quality impacts are described in Table 9-12.

Table 9-12 Mitigation measures – Air quality

| Reference | Impact/issue | Mitigation measures | Applicable locations |
|---|---|---|---|
| **Construction** | | | |
| **AQ01** | Dust generation during construction | The following best-practice dust management measures would be implemented during all construction works:<br>• Apply water sprays during loading and unloading of materials<br>• Regularly wet-down exposed and disturbed areas including stockpiles and haulage routes, especially during dry weather<br>• Adjust the intensity of activities based on measured and observed dust levels and weather forecasts<br>• Minimise the amount of materials stockpiled and position stockpiles away from surrounding receivers<br>• Regularly inspect dust emissions and apply additional controls as required. | All |
| **AQ2** | Exhaust emissions from the combustion of fossil fuels during construction | Plant and equipment would be maintained in a proper and efficient manner. | All |
| **AQ3** | Dust generation during construction and operation | Four permanent dust monitoring stations would be installed across the project site and at Sydney Dragway. These stations would acquire and measure baseline dust levels in real time to inform thresholds for safe operational dust levels at the Sydney Dragway and to monitor dust levels during construction and operation of the project. | Main operational site and Sydney Dragway |
| **AQ4** | Dust generation during construction and operation | An on-site meteorological station would be installed, sited in accordance with the relevant standards and guidelines, to inform the dust monitoring programme. | Main operational site |

### 9.9.3 Interaction between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential air quality impacts include:

- Chapter 6 (Traffic, transport and parking), specifically measures to manage construction and operation traffic would potentially assist in reducing air quality impacts by minimising vehicle numbers where feasible and reasonable and limiting the use of local streets.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of air quality impacts.

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# 10 Aboriginal heritage

# 10 Aboriginal heritage

This chapter assesses the potential impacts of construction and operation the Sydney International Speedway on Aboriginal heritage sites, items, and areas of archaeological potential, and identifies mitigation measures to minimise these impacts. It draws on information provided in Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

## 10.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to Aboriginal heritage, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 10-1.

Table 10-1 Secretary's Environmental Assessment Requirements - Aboriginal heritage

| Reference | Requirement | Where addressed |
|---|---|---|
| **5. Heritage** | | |
| **2.5.1** | The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:<br>a. Aboriginal places, objects and cultural heritage values, as defined under the *National Parks and Wildlife Act 1974* and in accordance with the principles and methods of assessment identified in the current guidelines; | Section 10.6 and Section 10.7 |
| | b. Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan; | Section 10.6 and Section 10.7 |
| | c. environmental heritage, as defined under the *Heritage Act 1977*; and | Section 10.6 and Section 10.7 |
| | d. items listed on the State, National and World Heritage lists; | Section 10.6 and Section 10.7 |
| | e. heritage items and conservation areas identified in environmental planning instruments applicable to the project area. | Section 10.6 and Section 10.7 |
| **2.5.3** | Where archaeological investigations of Aboriginal objects are proposed these must be conducted by a suitably qualified archaeologist, in accordance with section 1.6 of the *Code of Practice for Archaeological Investigation of Aboriginal Objects in NSW* (DECCW 2010).4. | No archaeological investigations proposed, refer to Section 10.6 |
| **2.5.4** | Where impacts to Aboriginal objects and/or places are proposed, consultation must be undertaken with Aboriginal people in accordance with the current guidelines. | Section 10.3.2 |

## 10.2 Legislative and policy framework

The main statutory protection of Aboriginal heritage is provided by the *National Parks and Wildlife Act 1974*. The following guidelines are relevant to the assessment of Aboriginal heritage:

- *Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (Department of Environment, Climate Change and Water, 2010a) outlines the requirements for archaeological investigations of Aboriginal objects in NSW, and sets out:
  - Assessment steps to be carried out for all archaeological investigations
  - Analytical steps to characterise the Aboriginal objects being investigated
  - When an Aboriginal Heritage Impact Permit is not required for test excavations
  - Minimum qualifications for persons undertaking archaeological investigations under the code in NSW

- The *Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage in NSW* (Office of Environment and Heritage, 2011) provides a process for the investigation and assessment of Aboriginal cultural heritage including identifying values of Aboriginal cultural heritage, and the assessment of potential harm of a proposed activity on Aboriginal objects and declared Aboriginal places. Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report) (ACHAR) has been prepared in accordance with this guide.
- *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (Department of Environment, Climate Change and Water, 2010b) outlines the requirements for proponents to consult with Aboriginal stakeholders during heritage assessment and/or applications for an Aboriginal Heritage Impact Permit. The document describes the following four stages with mandatory timeframes:
  - Notification of project proposal and invitation to register interest (14 days for receipt of registrations)
  - Presentation of information about the proposed project
  - Gathering information about cultural significance (allowing 28 days for comments)
  - Review of draft Aboriginal cultural heritage assessment report (allowing 28 days for comments).

    Consultation carried out as part of the assessment has been conducted in accordance with the requirements of this document
- *The Burra Charter: The Australia ICOMOS Charter for Places of Cultural Significance* (The Burra Charter) (Australia ICOMOS, 2013) provides guidance for the conservation and management of places of cultural significance (cultural heritage places). The Burra Charter sets a standard of practice for those who provide advice, make decisions about, or undertake works to places of cultural significance, including owners, managers and custodians. The Burra Charter also provides several significance criteria that attempt to define why a site is important. Such assessment recognises that sites may be important for different reasons to different people, and even at different times.

## 10.3 Assessment approach

### 10.3.1 Methodology

The Aboriginal heritage assessment comprised:

- A desktop review of archaeological literature and databases to identify listed Aboriginal sites and places including:
  - A search of the Aboriginal Heritage Information Management System (AHIMS) for listed Aboriginal sites, carried out on 10 February 2020.
  - A search of relevant local environmental plans for listed Aboriginal places
- Consultation with registered Aboriginal parties (described in Section 10.3.2)
- Field surveys:
  - The study area comprised nine survey units, defined by the surrounding landforms. The survey units included the project site as well as the area of Cumberland Plain woodland located between carpark C and carpark D of the project site and areas of terrain south of Ferrers Road, sloping towards Eastern Creek. The survey units for the Aboriginal heritage assessment are shown on Figure 10-1
  - A survey was carried out on 17 February 2020 to locate previously identified and registered Aboriginal sites and assess the Aboriginal archaeological potential within the study area
  - An additional survey was carried out with a representative of the Deerubbin Local Aboriginal Land Council on 7 April 2020 (refer to Section 10.3.2)
- Development of a predictive model to assist in determining archaeological potential
- Assessment of the significance of the archaeological potential (refer to Section 10.5)
- Assessment of the potential impacts of the project
- Identification of mitigation measures to minimise the risk of impacting Aboriginal items or areas of Aboriginal cultural sensitivity.

Direct impacts may occur as a result of activities which disturb the ground surface including site preparation activities, earthworks and ground excavation, and the installation of services and infrastructure. Indirect impacts may occur as result of vibration, erosion and increased visitation to features located within the proposed construction sites, or immediately beyond.

Registered Aboriginal sites which are in the vicinity of the project site are comprised of artefact sites or areas of potential archaeological deposit. Any buried Aboriginal objects would not be subject to impacts as a result of vibration, therefore indirect impacts on items of Aboriginal heritage have not been considered any further as part of this assessment.

Further details on the Aboriginal heritage assessment methodology are provided in Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

### 10.3.2 Aboriginal consultation

Aboriginal community consultation has been conducted in accordance with the *Aboriginal Cultural Heritage Consultation Requirements for Proponents* (Department of Environment, Climate Change and Water, 2010). Consultation was carried out with Aboriginal Land Councils, Local Councils and Aboriginal stakeholders in March and April 2020 to identify Aboriginal people who may hold cultural knowledge relevant to determining the Aboriginal significance of Aboriginal objects and/or places within the study area. Advertisements were also placed in the *Koori Mail* and *Blacktown Advocate*. A total of 17 Aboriginal stakeholder groups registered their interest in the consultation process.

A representative of Deerubbin Local Aboriginal Land Council carried out a site survey in April 2020. The aim of the site survey was to locate previously identified and registered Aboriginal sites and to assess the Aboriginal archaeological potential within the project site. The representative noted the level of 'destruction from levelling and landscaping' in areas within the project site and as a result no Aboriginal cultural material was identified. Two areas of Potential Archaeological Deposit (PAD) were identified within the study area in areas which had not been subject to widespread landscaping work, and test excavation was recommended. As detailed in Chapter 2 (Strategic need, justification and project alternatives) of this Environmental Impact Statement, design refinements have included amending the project construction methodology and site layout to avoid impacts to the PAD site south of Ferrers Road. Therefore, both PAD sites are outside the project site and would not be disturbed or impacted so no test excavation is proposed.

A copy of the proposed assessment methodology was distributed to Aboriginal stakeholders on 24 April 2020, with a 28 day period for review and comment. The document included project details and a summary of the proposed ACHAR assessment methodology. Comments were received from six Aboriginal stakeholder groups. All comments supported the assessment methodology for the project. In addition, comments noted that Eastern Creek is highly spiritual and significant to Aboriginal people and recommended that test excavation investigation be carried out. Given the heavily modified nature of the project site and wider study area, and the fact that the project would not disturb areas of natural ground which have been determined to be areas of PAD, no test excavation has been proposed.

Further consultation would be carried out with Aboriginal stakeholders during the exhibition of the Environmental Impact Statement and any outcomes would be incorporated into the final version of Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

### 10.3.3 Significance assessment

An assessment of the cultural heritage significance of an item or place is required in order to form the basis of its management. *The Code of Practice for Archaeological Investigation of Aboriginal Objects in New South Wales* (OEH 2011) provides guidelines for heritage assessment with reference to the *Burra Charter* (Australia ICOMOS 2013). The assessment is made in relation to four values or criteria that apply to the item or place: social, historic, scientific and aesthetic (refer to Table 10-2 for more information). In relation to each of the four values or criteria, the significance of the item or place is ranked as high, moderate or low.

Cultural heritage consists of places, or objects, that are of significance to Aboriginal people. Cultural heritage values are the attributes of these places or objects that allow the assessment of levels of cultural significance.

Assessing the cultural significance of a place or object means defining why a place or object is culturally important. It is only when these reasons are defined that measures can be taken to appropriately manage possible impacts on this significance. Assessing cultural significance involves two main steps, identifying the range of values present across the project site and assessing why they are important.

Cultural heritage significance should be addressed by the Aboriginal people who have a connection to, or interest in, the site. As part of the consultation process, the Aboriginal stakeholders were asked to provide information on the cultural significance of the project site. Additional information regarding the consultation carried out with Aboriginal stakeholders as part of the development of the project is provided in Section 10.3.2.

Table 10-2 Burra Charter Heritage significance criteria

| Criteria | Description of value |
|---|---|
| **Social** | The spiritual, traditional, historical or contemporary associations and attachments the place or area has for Aboriginal people. Social or cultural value is how people express their connection with a place and the meaning that place has for them.<br>Does the subject area have strong or special association with the Aboriginal community for social, cultural or spiritual reasons? |
| **Historic** | Historic value refers to the associations of a place with a historically important person, event, phase or activity in an Aboriginal community.<br>Is the subject area important to the cultural or natural history of the local area and/or region and/or state? |
| **Scientific** | This refers to the importance of a landscape, area, place or object because of its rarity, representativeness and the extent to which it may contribute to further understanding and information. Information about scientific values will be gathered through any archaeological investigation undertaken.<br>Does the subject area have potential to yield information that will contribute to an understanding of the cultural or natural history of the local area and/or region and/or state? |
| **Aesthetic** | This refers to the sensory, scenic, architectural and creative aspects of the place. It is often linked with the social values. It may consider form, scale, colour, texture and material of the fabric or landscape, and the smell and sounds associated with the place and its use.<br>Is the subject area important in demonstrating aesthetic characteristics in the local area and/or region and/or state? |

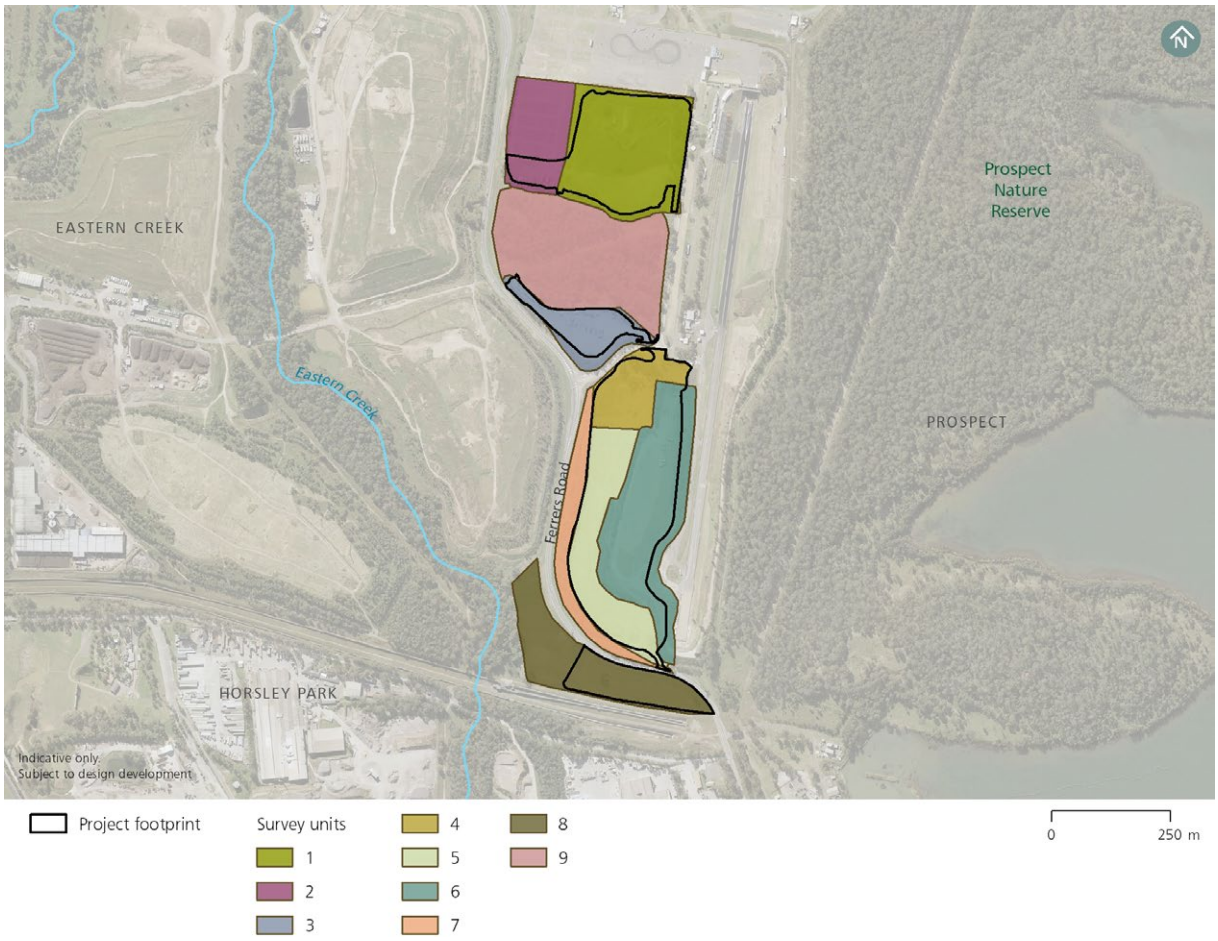


Figure 10-1 Aboriginal heritage survey units

## 10.4 Existing environment

The environmental context of the project site as it relates to Aboriginal heritage, including geology, soil characteristics, hydrology, vegetation, and European land use is provided in Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

### 10.4.1 Archaeological context

Aboriginal people have lived in the Sydney area for more than 20,000 years. The oldest securely dated site in the greater Sydney region is 17,800 years Before Present, which was recorded in a rock shelter at Shaw's Creek (Nanson, G et. al, 1987). Evidence of Aboriginal occupation has been found dating to 50-60,000 years Before Present at Lake Mungo in NSW, so it is likely that Aboriginal people have lived in the Sydney region for even longer than indicated by the oldest recorded dates we have at present. The archaeological material record provides evidence of this long occupation, but also provides evidence of a dynamic culture that has changed through time.

Prior to the appropriation of their land by Europeans, Aboriginal people lived in small bands and were part of clan groups that were associated with particular territories or places. It seems that territorial boundaries were fairly fluid, although details are not known. The language group spoken on the Cumberland Plain is known as Darug (Dharruk – alternative spelling).

The Darug language group is thought to have extended from Appin in the south to the Hawkesbury River, west of the Georges River, Parramatta, the Lane Cove River and to Berowra Creek. This area was home to a number of different clan groups throughout the Cumberland Plain. It is possible that the project site is within the country of the Warrawarry clan of the Darug people.

The British initially thought that Aboriginal people did not live inland but were confined to the coast taking advantage of the abundant marine resources available. The first major expeditions into the interior did not witness any Aboriginal people, but evidence of their existence was noted. In April 1788 Governor Philip led an expedition west to Prospect Hill.

It was not until rural settlement began in the western Cumberland Plain, around 1791 that the colonists and Aboriginal people came face to face. Although tensions existed between Aboriginal people and colonists on the Cumberland Plain, a number of Aboriginal families continued to live semi-traditional lives in the area. The project site is located in close proximity to a number of sites of importance in the early history of Aboriginal and colonial interaction.

The government policy of removal of Aboriginal children from their parents in order to assimilate them into white society began fairly early on in the colony's history and was epitomized by the development of the Native Institution at Parramatta in 1814. This facility was moved to the Black Town settlement in 1823 about nine kilometres to the north of the current project site. It was closed in 1829 and the land subsequently used for farming.

Descendants of Darug language speakers continued to live in Western Sydney into the nineteenth, twentieth and twenty-first centuries, along with Aboriginal people from other areas of NSW.

### 10.4.2 Archaeological survey results

The site inspection identified that three of the nine survey units within the study area included previously registered AHIMS sites and/or areas of archaeological potential. These three survey units (survey units six, eight and nine) are summarised in Table 10-3. The results of the archaeological survey of the other six survey units are provided in Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

Table 10-3 Existing environment of archaeological survey units

| Survey unit | Summary of survey results | Previously registered AHIMS sites | Areas of archaeological potential |
|---|---|---|---|
| **Survey unit 6** | Survey unit 6 (located directly to the west of the Sydney Dragway) is located on an artificial terrace about six metres higher in elevation than the adjacent racetrack. Exposures on the eastern embankment of the survey unit show that the slope has been stabilised using modern fill materials (rubber tyres, metal slag, broken sandstone). This survey unit is used for unsealed road vehicle racing, as well as overflow parking for motorsport events, with imported sand, gravel and stone used to stabilise the surface for racing. A construction compound site is also located in the north of the survey unit. | AHIMS site IF2 (AHIMS# 45-5-2602) (refer to Section 10.4.4) | Nil |
| **Survey unit 8** | Survey unit 8 (located at the southern end of the study area) is situated between Ferrers Road and the easement for the Warragamba Pipeline. Eastern Creek directly borders the survey unit to the west. The survey unit consists of an open area that is used as an off-road vehicle racing area by car racing clubs. A demarcated area in the eastern portion of the survey unit has been established for racing on stable ground, with gravels imported to stabilise the surface. A drainage channel has been excavated through the centre of the survey unit, running east to west from a culvert underneath Ferrers Road through the open field to Eastern Creek. Eastern Creek, to the west of the survey unit, is in poor condition, and there is substantial erosion along the edges of the creek, with weedy vegetation throughout the area.<br>The western portion of the survey unit, located outside of the project site, is relatively flat and waterlogged and may be associated with former ephemeral tributaries or braids of Eastern Creek that have since disappeared. The western and northern portion of the survey unit consists of gently sloped ground with low relief finger spurs extending towards the creek. While the eastern portion of this survey unit shows generalised shallow ground disturbance and evidence of ground stabilisation for raceway tracks, the western portion of the survey unit shows a greater degree of intact ground, despite some localised areas of disturbance. | Nil | Sydney International Speedway PAD 01 (SIS PAD 01) (refer to Section 10.4.5 for additional information) |

| Survey unit | Summary of survey results | Previously registered AHIMS sites | Areas of archaeological potential |
|---|---|---|---|
| **Survey unit 9** | Survey unit 9 is located outside of the project site and is about seven metres lower in elevation than the nearby survey units. This survey unit contains a transmission line easement, as well as Commonwealth and State protected Cumberland Plain woodland vegetation, with sparse regrowth eucalypt species present. Trees have been cleared directly underneath the transmission line. The ground surface in this location is largely unmodified compared to the surrounding artificial hills. Thick grass is present over much of this survey unit, and ground exposures are rare. | AHIMS site EC6 (AHIMS# 45-5-2580/45-5-2596) (refer to Section 10.5.4 for additional information)<br>AHIMS site EC7 (AHIMS# 45-5-2581/<br>45-5-2597) (refer to Section 10.4.4 for additional information) | Sydney International Speedway PAD 02 (SIS PAD 02) (refer to Section 10.4.5 for additional information) |

### 10.4.3 Registered Aboriginal sites

A total of 53 registered Aboriginal sites were identified in the extensive AHIMS search area. Of these, two have been listed as destroyed, deleted or not a site. Of the 53 registered Aboriginal sites in the extensive search area, 52 were artefact sites and one was a PAD site. One artefact site is located within the project site, and an additional two are located within the study area. The three AHIMS registered sites located within the study area for the Aboriginal heritage assessment are discussed in Section 10.4.4.

### 10.4.4 Previously registered AHIMS sites within the project site

#### AHIMS site 'IF2' (AHIMS# 45-5-2602)

This site was listed as an artefact site located immediately to the west of the Sydney Dragway racetrack on the artificially constructed terrace within survey unit 6. There was no site card available. The site area was reinspected, however despite reasonable ground visibility in the area of the site, no Aboriginal artefacts were identified.

The site location consisted of a level artificial terrace with a cleared access road. The access road was unsealed but was covered with substantial quantities of road base and gravels to stabilise the track. AHIMS information for this site indicated that a permit to harm Aboriginal objects was associated with the site. As the landform where this site was recorded as located was artificially constructed in 2004, there is potential that this artefact site may have been impacted during that previous construction activity.

#### AHIMS site 'EC6' (AHIMS# 45-5-2580/45-5-2596)

This site is located in the remnant Cumberland Plain woodland outside of the project site between carpark C and carpark D, about 22 metres to the south of an artificially constructed hill where overflow parking for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) and Sydney Dragway is located. The available AHIMS information indicated that this was an artefact site. Site card information for this site was not available and archaeological reports associated for this site on the AHIMS database had been indexed in error and were for a different series of sites. The site area was reinspected, however there was poor ground visibility and no Aboriginal artefacts were identified in this area.

The location of this AHIMS site consisted of level ground with thick grass and sparse eucalypt tree cover in the vicinity. The site is located immediately south of a steep (about seven metres high) embankment. This embankment was constructed in 2004 when parking facilities were expanded for the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) (operated by the Australian Racing Drivers' Club) and the Sydney Dragway. AHIMS information for this site indicated that an AHIP to harm Aboriginal objects was associated with the site. Due to the proximity of this site to the edge of the artificial embankment, it is considered likely that this site was surface collected or destroyed during construction works on the nearby carpark.

#### AHIMS site 'EC7' (AHIMS# 45-5-2581/45-5-2597)

This site is located in the remnant Cumberland Plain woodland outside of the project site between carpark C and carpark D, about 60 metres south of the transmission line easement and 90 metres to the west of the north-south link road for the Sydney Dragway. AHIMS information indicated that this was an artefact site. Site card information for this site was not available and archaeological reports associated with this site on the AHIMS database had been indexed in error and were for a different series of sites. The site area was reinspected, however even though there was good ground visibility no Aboriginal artefacts were identified.

The site location consisted of level ground with light grass and soil exposures within a small clearing within the woodland used for additional Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) visitor parking. AHIMS information for this site indicated that a permit to harm Aboriginal objects was associated with the site. Due to the proximity of this site to parking areas it is considered possible that this site was surface collected during Sydney Motorsports Park (operated by the Australian Racing Drivers' Club) expansion works.

### 10.4.5 Areas of archaeological potential identified within the study area

#### Sydney International Speedway PAD 01 (SIS PAD 01)

SIS PAD 01 is located outside of the project footprint, as shown on Figure 10-2. It is within the western side of survey unit 8 and is associated with a gently undulating series of small spur lines and gentle slopes that overlook Eastern Creek about 20 metres to the west. The southern portion of the PAD is lower in elevation and slightly more level ground.

Surface visibility across SIS PAD 01 was poor due to dense grass cover. There was evidence of localised areas of ground disturbance. While portions of SIS PAD 01 have been used for off road vehicle racing, soil deposits near to Eastern Creek are expected to be comparatively deep. The degree of relatively shallow surface ground disturbance was assessed as likely to locally displace Aboriginal objects within the site but would not be likely to remove all archaeological remains.

The representative from the Deerubbin LALC, also confirmed during the site inspection that the proximity to Eastern Creek and the relative intactness of the ground in this area indicated that this area was likely a PAD.

#### Sydney International Speedway PAD 02 (SIS PAD 02)

SIS PAD 02 is located outside of the project footprint as shown on Figure 10-3. It encompasses the majority of survey unit 9, between carpark C and carpark D. This area consists of Cumberland Plain remnant woodland which has been preserved while extensive earthwork and construction activities have taken place around it. The ground is largely level, with a gentle slope on the southern side of the PAD. An ephemeral drainage channel runs southeast to northwest through the central portion of the PAD. Regrowth eucalypt is present throughout the PAD.

A transmission line easement is located through the centre of the PAD. Ground disturbance caused by tree clearing is considered to be relatively minor and has been assessed as not substantially impacting the soil profile. Aboriginal artefacts would not have been removed from these activities.

The representative from the Deerubbin LALC, also confirmed during the site inspection that the proximity to a former well drained water course and the intactness of the ground in this area indicated that this area was likely a PAD.

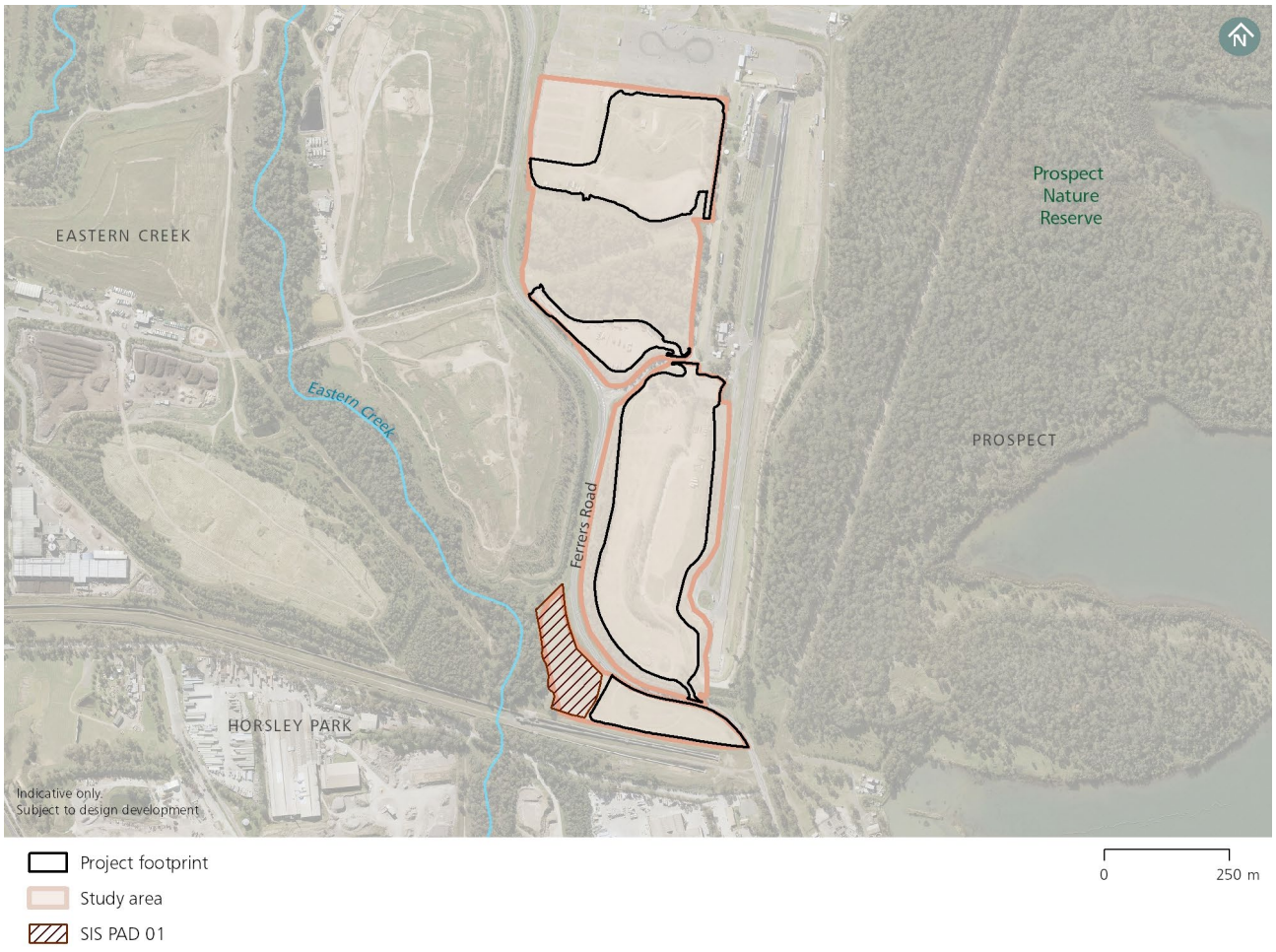


Figure 10-2 Location of SIS PAD 01

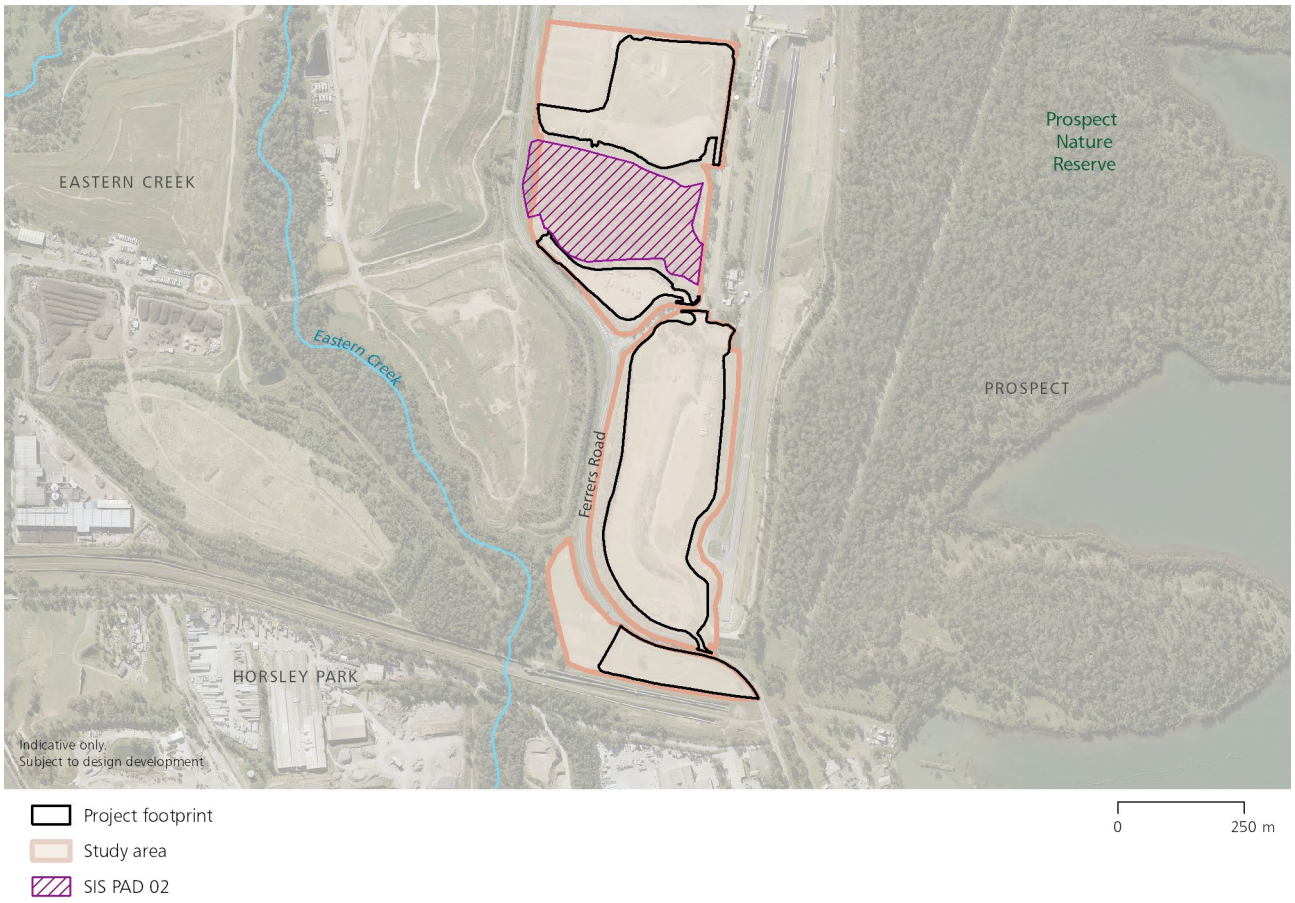


Figure 10-3 Location of SIS PAD 02

## 10.5 Avoidance and minimisation of impacts

The potential for Aboriginal heritage impacts was considered throughout the design development process. This included:

- Considering Aboriginal heritage values and impacts from the project during the planning phase of the project
- Avoiding direct impacts to identified Aboriginal sites through design refinements, particularly the PAD next to the southern area of the project site.

## 10.6 Significance assessment

This section presents a significance assessment for all identified Aboriginal sites within the project site. Many of the significance values of any identified area of PAD would not be known with certainty until after archaeological excavation is completed (no excavations are proposed for the project because the project footprint has avoided the identified PADs) and the significance of archaeological deposits can be assessed. The significance assessment criteria are outlined in Section 10.3.3.

### 10.6.1 Social significance

Aboriginal stakeholders have identified that the Eastern Creek area was considered a highly spiritually significant place, and that the confluence of creek lines would have ensured that food resources would have been abundant in the area for Aboriginal people.

While the Eastern Creek area is considered culturally significant, the high degree of disturbance to the local landform which characterises the majority of the project site impacts this significance. Areas of less ground disturbance within the study area still demonstrate this cultural significance, although these are relatively small compared with the overall study area. Overall, the study area demonstrates moderate cultural significance.

### 10.6.2 Historical significance

Sydney Metro will seek comment from registered Aboriginal stakeholders with respect to the historic cultural values identified in the study area during the public exhibition of the Environmental Impact Statement (refer to section 10.3.2). The outcomes of this will be documented within the final version of Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

### 10.6.3 Scientific significance

Archaeological values refer to the archaeological or scientific attributes of a landscape or area. These are characterised using archaeological criteria such as archaeological potential, rarity or the archaeological resource and disturbance.

A summary of the predicted scientific significance of Aboriginal sites and areas of PAD identified in the study area is provided in Table 10-4.

Table 10-4 Summary of predicted scientific significance of identified Aboriginal sites

| Aboriginal site | Research potential | Scientific value | Representative value | Rarity value | Overall indicative significance assessment |
|---|---|---|---|---|---|
| **IF2 (AHIMS# 45-5-2602)** | Nil | Nil | Nil | Nil | Nil |
| **EC6 (AHIMS# 45-5-2580/45-5-2596)** | Nil | Nil | Nil | Nil | Nil |
| **EC7 (AHIMS# 45-5-2581/45-5-2597)** | Nil | Nil | Nil | Nil | Nil |
| **SIS PAD 01** | Moderate | Unknown (not yet excavated) | Unknown (not yet excavated) | Unknown (not yet excavated) | Unknown (not yet excavated) |
| **SIS PAD 02** | Moderate | Unknown (not yet excavated) | Unknown (not yet excavated) | Unknown (not yet excavated) | Unknown (not yet excavated) |

### 10.6.4 Aesthetic significance

Aesthetic value refers to the sensory value of place, which may include form, texture and colour, and can also include smell and sound elements associated with use or experience of a site (Australia ICOMOS, 2000).

Sydney Metro will seek comment from registered Aboriginal stakeholders with respect to the aesthetic cultural values identified in the study area during the public exhibition of the Environmental Impact Statement (refer to section 10.3.2). The outcomes of this will be documented within the final version of Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report).

### 10.6.5 Statement of significance

A final statement of significance will be documented within the final version of Technical Paper 5 (Aboriginal Cultural Heritage Assessment Report), following comment from Aboriginal stakeholders during the public exhibition of the Environmental Impact Statement with regards to the historical and aesthetic cultural value(s) of the project site.

## 10.7 Impact assessment

The project is not anticipated to impact on any items or areas with potential Aboriginal heritage.

Construction of the project would involve widespread earthworks, land forming activities and infilling across most of the project site. However, most of the project site consists of heavily modified artificial landforms and no new Aboriginal sites were identified within these areas.

One previously identified Aboriginal site, listed on the AHIMS database, is located within the project site – IF2 (AHIMS# 45-5-2602). This site was removed as part of the development of the Sydney Dragway and as such, no impacts to this site would occur as a result of the construction and/or operation of the project.

The remaining Aboriginal sites identified in this assessment within the study area are located outside of the project site boundaries and would not be impacted by the construction or operation of the project.

A summary of impacts to Aboriginal sites in the study area are provided in Table 10-5.

Table 10-5 Summary of Impacts to identified Aboriginal sites in the study area

| AHIMS ID | Survey unit | Type of harm | Degree of harm | Consequence of harm |
|---|---|---|---|---|
| **IF 2 (AHIMS ID 45-5-2602)** | Six | Direct | Total | Not a site – no loss of value |
| **EC6 (AHIMS ID 45-5-2580/45-5-2596)** | Nine | None | None | No loss of value |
| **EC7 (AHIMS ID 45-5-2581/45-5-2597)** | Nine | None | None | No loss of value |
| **SIS PAD 01 (AHIMS ID pending)** | Eight | None | None | No loss of value |
| **SIS PAD 02 (AHIMS ID pending)** | Nine | None | None | No loss of value |

## 10.8 Management and mitigation measures

### 10.8.1 Approach to management and mitigation measures

Impacts to Aboriginal heritage would be managed in accordance with the Construction Environmental Management Framework, which is described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) and provided in Appendix C of this Environmental Impact Statement. The Construction Environmental Management Framework would specify the requirement for a Heritage Management Plan that would include measures to minimise potential impacts on adjacent heritage items and the Sydney Metro Unexpected Finds Protocol comprising procedures for unexpected heritage finds.

### 10.8.2 Mitigation measures

The mitigation measures that would be implemented to address potential Aboriginal heritage impacts are described in Table 10-6.

Table 10-6 Mitigation measures - Aboriginal heritage

| Reference | Impacts/ issue | Mitigation Measure | Application location(s) |
|---|---|---|---|
| **Construction** | | | |
| **AH1** | Aboriginal site protection | Prior to the commencement of construction works, exclusion areas would be established around the following identified Aboriginal sites, to prevent inadvertent impacts during works:<br>• SIS PAD 01 (AHIMS ID pending)<br>• SIS PAD 02 (AHIMS ID pending) | SIS PAD 01 (adjacent to the southern area)<br>SIS PAD 02 (between Carparks C and D) |
| **AH2** | Unexpected finds | Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented. | All |

| Reference | Impacts/ issue | Mitigation Measure | Application location(s) |
|---|---|---|---|
| **AH3** | Unexpected finds | In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented. | All |

### 10.8.3 Interaction between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential Aboriginal heritage impacts include:

- Chapter 13 (Soils and surface water quality), specifically relating to erosion and sediment controls for the southern area of the project site that would avoid potential impacts to SIS PAD 01.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of potential Aboriginal heritage impacts.

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# 11 Non-Aboriginal heritage

# 11 Non-Aboriginal heritage

This chapter assesses the potential impacts during construction and operation of the Sydney International Speedway on Non-Aboriginal heritage items and archaeological remains and identifies mitigation measures to minimise these impacts. This chapter draws on information provided in Technical Paper 6 (Non-Aboriginal heritage).

## 11.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to non-Aboriginal heritage, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 11-1.

Table 11-1 Secretary's Environmental Assessment Requirements - Non-Aboriginal heritage

| Reference | Requirement | Where addressed |
|---|---|---|
| **5. Heritage** | | |
| **2.5.1** | The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:<br>c. environmental heritage, as defined under the *Heritage Act 1977*; and | Section 11.4 and Section 11.6 |
| | d. items listed on the State, National and World Heritage lists; | Section 11.4 and Section 11.6 |
| | e. heritage items and conservation areas identified in environmental planning instruments applicable to the project area. | Section 11.4 and Section 11.6 |
| **2.5.2** | Where impacts to State or locally significant heritage items are identified, the assessment must:<br>a. include a significance assessment, a statement of heritage impact for all heritage items and a historical archaeological assessment; | Section 11.6.1 |
| | b. consider the conservation policies of any relevant conservation management plan; | Section 11.2 and Section 11.6 |
| | c. consider impacts to the item caused by, but not limited to, vibration, demolition, archaeological disturbance, altered historical arrangements and access, visual amenity, landscape and vistas, curtilage, subsidence and architectural noise treatment, drainage infrastructure, contamination remediation and site compounds (as relevant) | Section 11.6 |
| | d. outline measures to avoid and minimise those impacts during construction and operation in accordance with the current guidelines; and | Section 11.5 and Section 11.7 |
| | e. be undertaken by a suitably qualified heritage consultant(s) and/or historical archaeologist (note: where archaeological excavations are proposed the relevant consultant must meet the NSW Heritage Council's Excavation Director criteria). | Technical Paper 6 (Non-Aboriginal heritage) |

## 11.2 Legislative and policy framework

### 11.2.1 World and Commonwealth

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance. This includes heritage places of national and international importance which are protected through their inclusion on the World Heritage List, Commonwealth Heritage List or the National Heritage List.

### 11.2.2 New South Wales

The NSW *Heritage Act 1977* (Heritage Act) provides protection for items of 'environmental heritage' in NSW. 'Environmental heritage' includes places, buildings, works, relics, movable objects or precincts considered significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. Items considered to be significant to the state are listed on the State Heritage Register.

Although an approval under Part 4, or an excavation permit under section 139, of the Heritage Act are not required for an approved State significant infrastructure project, the Heritage Act is relevant in that it guides assessment and defines statutory listed items. Relevant regulations are required to be used under the Secretary's Environmental Assessment Requirements and certain sections of the Heritage Act are potentially relevant to the project, such as Section 146 (notification of a relic), which would still be applicable to approved State significant infrastructure projects.

Statutory registers provide legal protection for heritage items. The State Heritage Register, NSW government agency heritage and conservation registers established under Section 170 of the Heritage Act, and the environmental heritage schedules of Local Environmental Plans (LEPs) and State Environmental Planning Policies (SEPPs) are statutory listings.

## 11.3 Assessment methodology

### 11.3.1 Study area

For the non-Aboriginal heritage assessment, the study area was defined as the project footprint and an additional 50 metre buffer. The study area is used to identify potential impacts to heritage items as a result of the project including direct impacts (such as from construction, excavation or vibration) and indirect impacts (such as items within the visual catchment of the project).

### 11.3.2 Identification of heritage items

Heritage register searches were carried out in February 2020. Heritage items within the study area were identified through a search of relevant State and Federal statutory and non-statutory heritage registers. A list of the registers searched is provided in Section 3.2 of Technical Paper 6 (Non-Aboriginal heritage).

Items listed on these registers have been previously assessed against the NSW Heritage Office guideline *Assessing heritage significance* (NSW Heritage Office, 2001). Statements of heritage significance identified in this chapter are consistent with those included in relevant heritage inventory sheets and are based on the guideline.

### 11.3.3 Site inspection

A site inspection was completed in February 2020. The inspection was carried out on foot, using physical maps and GPS. Photographs were taken to record different aspects of the project site including vegetation, levels of disturbance and any areas of archaeological sensitivity, in addition to heritage items within the vicinity of the study area.

### 11.3.4 Significance of heritage items

Determining the significance of heritage items or a potential archaeological resource is carried out by using a system of assessment based on the *Australia ICOMOS Burra Charter, 2013* (Burra Charter). The principles of the Burra Charter are relevant to the assessment, conservation and management of sites and relics.

If an item meets one of seven heritage criteria, and retains the integrity of its key attributes, it can be considered to have heritage significance. The significance of an item or potential archaeological site can then be assessed as being of local or State significance depending on its importance in a local or NSW State context.

The seven heritage criteria include:

- Criterion (a): Historical significance
- Criterion (b): Associative significance
- Criterion (c): Aesthetic significance
- Criterion (d): Social significance
- Criterion (e): Research potential
- Criterion (f): Rarity
- Criterion (g): Representativeness.

The heritage significance of all identified relics, items, areas and/or landscapes that are considered to be potentially directly or indirectly affected by the project are identified in Technical Paper 6 (Non-Aboriginal heritage).

### 11.3.5 Assessment of heritage impact

For the assessment of non-Aboriginal impacts as a result of the project, impacts on heritage have been identified as:

- Direct impacts, resulting in the demolition or alteration of fabric of heritage significance or significant archaeological remains
- Indirect impacts, resulting in changes to the setting or curtilage of heritage items or places, historic streetscapes and landscapes, visual amenity or views.

Once the level of direct and indirect impacts to listed items are assessed, adverse and positive impacts to aspects of significance are considered to determine an overall level of impact to the heritage significance of the listed item as a result of the project. The terminology and definitions used in the assessment are shown in Table 11-2.

Table 11-2 Terminology for assessing the magnitude of heritage impact

| Magnitude | Definition |
|---|---|
| **Major** | Actions that would have a long term and substantial impact on the significance of a heritage item.<br>Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource.<br>It is assumed that these actions cannot be fully mitigated. |
| **Moderate** | Actions that would involve the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures.<br>It is assumed the impacts from such actions may be able to be partially mitigated. |
| **Minor** | Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of a historical item.<br>It is assumed the impacts arising from such actions can usually be mitigated. |
| **Negligible** | Actions that would result in very minor changes to heritage items. |
| **Neutral** | Actions that would have no heritage impact. |

#### Assessment of visual impacts

Heritage items that fall within the study area have been assessed for potential visual impacts. In order to assess visual impact on heritage significance, sightlines from the heritage item to the project have been established. Both the views towards the heritage item (whether the project would impair views of the item's significant visual characteristics) and views away from the item (whether the project would impair views of the heritage-significant surroundings or character of the item) have been assessed.

### 11.3.6 Assessment of archaeological impact

Historical archaeological potential is defined as the potential of a site to contain significant archaeological remains, including works or relics as identified in the *Heritage Act 1977*.

The first step in the archaeological assessment is to determine the presence of any archaeological relics on the project site. This is based on the review and understanding of the site's land use and development (site formation processes) and evaluating whether subsequent actions (either natural or human) may have impacted on evidence of former land use phases. There are four grades of archaeological potential, as described in Table 11-3. For the purposes of this assessment, the potential archaeology of the project site has been divided into the following phases:

- Phase one – early land use and grants (c1810-c1900)
- Phase two – agricultural and industrial development (c1900-2004)
- Phase three – Sydney Dragway (2004-present).

Table 11-3 Grades of archaeological potential

| Grading | Justification |
|---|---|
| **Nil** | No evidence of historical development or use, or where previous impacts such as deep basement structures would have removed all archaeological potential. |
| **Low** | Research indicates little or low intensity historical development, or where there have been substantial previous impacts, disturbance and truncation in locations where some archaeological remains such as deep subsurface features may survive. |
| **Moderate** | Analysis demonstrates known historical development and some previous impacts, but it is likely that archaeological remains survive with some localised truncation and disturbance. |
| **High** | Evidence of multiple phases of historical development and structures with minimal or localised twentieth century development impacts, and it is likely the archaeological resource would be largely intact. |

## 11.4 Existing environment

### 11.4.1 Historical context

#### Early land use and agricultural development

Prior to the European settlement of the Prospect and Greater Blacktown region, the area formed part of the traditional lands of the Darug nation. Prospect Hill (about four kilometres east of the project site) was referred to as 'Marrong' and has high cultural significance as an Aboriginal meeting place. European exploration within Prospect began within the first year of European settlement in 1788, with Prospect Hill being used as a reference point for expedition parties. A farming settlement was established and land parcels were granted in the region, and by 1820 much of the land within the area had been cleared. Farms and estates, including several residences, were constructed throughout the Prospect area, though not directly within the project site.

The development of infrastructure and transport through the region supported the successful agriculture industry during the 1800's. In the 1870's, when Prospect shifted from crop growing to livestock rearing, many of the earliest structures made by the first settlers had been demolished and land was used for agricultural purposes up until the construction of the Prospect Reservoir.

Land within the project site and around Prospect continued to be utilised for agricultural purposes throughout the remainder of the nineteenth and into the twentieth century. Aerial imagery from the c1960s indicates that Prospect was characterised by large lot rural residences (Figure 11-1). At the project site, development along Ferrers Road was limited to a number of rural residences and associated outbuildings, large barn structures, open paddocks and crop fields. In addition, aerial photography and historic mapping indicate that Ferrers Road, formerly known as Horsley Road, had been formally developed by the late nineteenth - early twentieth century.

### Prospect Reservoir

Designed and constructed by the Public Works Department of NSW, Prospect Reservoir was completed in 1888. It was an engineering feat employing over 700 people, 1000 horses and 5000 sheep for the compaction of the soil within the dam base. It served as the storage facility for the Nepean River as part of the Upper Nepean Scheme. Capacity increases to the dam were the result of the construction of multiple dams, including the Warragamba Dam. The reservoir, situated about 40 metres east of the project site, remains an integral part of Sydney's drinking water supply.

### Project site

The project site falls within the Parish of Prospect, directly east of Eastern Creek and west of Prospect Reservoir. Consistent with the surrounding area, land within the project site was largely maintained for agricultural purposes into the twentieth century. Aerial imagery from c1960 indicates that much of the project site remained undeveloped, with the exception of a few rural residences and associated outbuildings (i.e. sheds).

Today, the project site is defined by the Sydney Dragway constructed in 2004 and associated carparking facilities. The development of Sydney Dragway substantially altered the existing landscape, with extensive excavation and building of embankments.

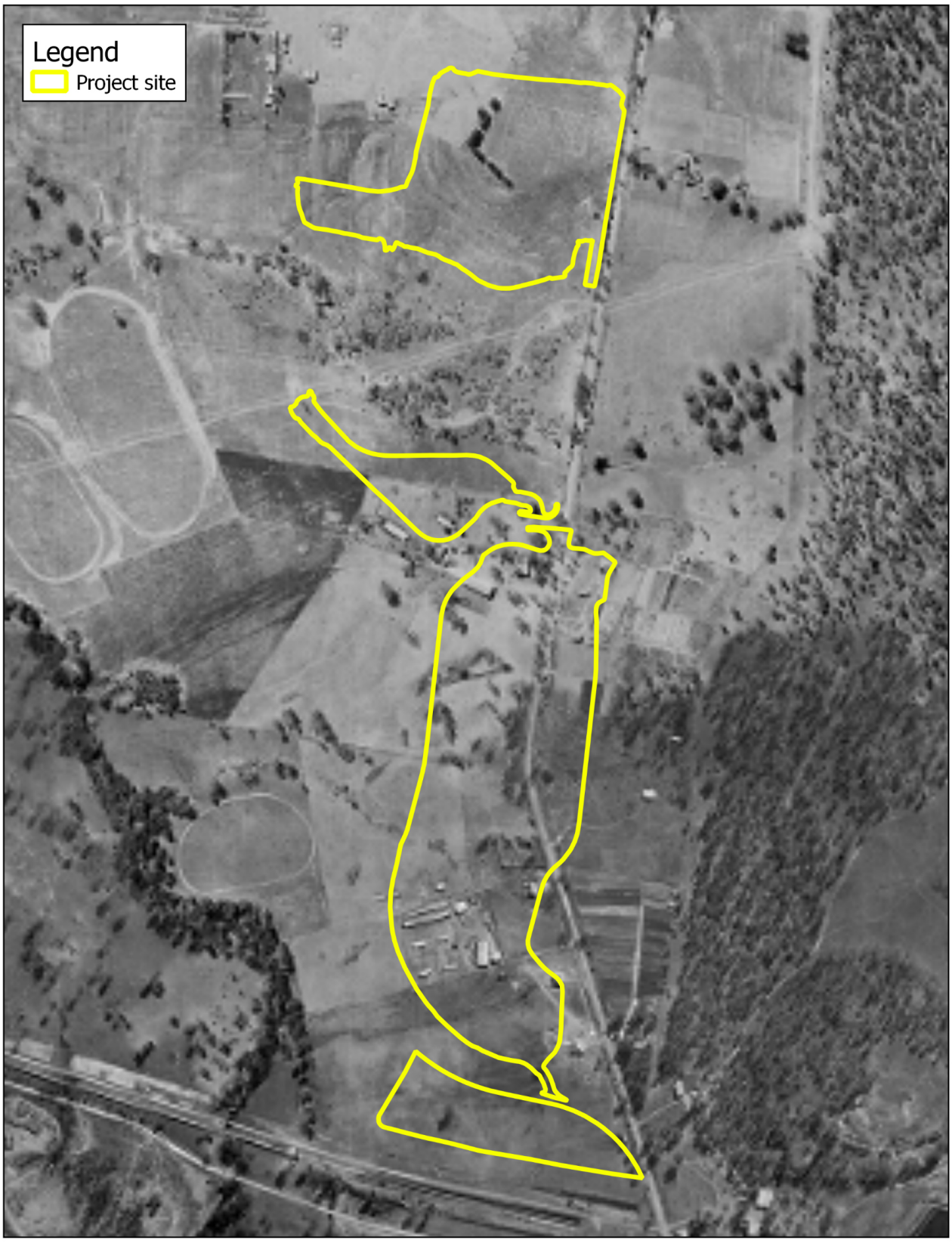


Figure 11-1 c1960 aerial photography showing minor development within the project site

### 11.4.2 Heritage listed items

No heritage listed items are identified within the project site. There is one heritage listed item within the study area, 'Prospect Reservoir and surrounding area', located 40 metres east of the project site at its nearest point, and is listed on four statutory and three non-statutory heritage registers, as summarised in Table 11-4.

The listing for the Prospect Reservoir and surrounding area contained in the *Holroyd Local Environmental Plan 2013* only covers the area of the heritage item which falls within the now Cumberland Local Government Area located 4.4 kilometres east of the project. The remainder of the area of the heritage item falls within the Blacktown Local Government Area on land that is subject to the *State Environmental Planning Policy (Western Sydney Parklands) 2009* (Western Sydney Parklands SEPP). The Western Sydney Parklands SEPP prescribes that the provisions of the *Blacktown Local Environmental Plan 2015* do not apply to land within the Western Sydney Parklands. The portion of the Prospect Reservoir and surrounding area that is located within the Blacktown Local Government Area is listed as an item of heritage significance under the Western Sydney Parklands SEPP.

Table 11-4 Summary of Prospect Reservoir heritage listings

| Item | Listing | Level of significance | Address | Distance from project site |
|---|---|---|---|---|
| **Prospect Reservoir and surrounding area** | State Heritage Register Listing No. 01370 | State | Reservoir Road, Prospect, NSW 2148 | 40 metres east of project site |
| | *Holroyd Local Environmental Plan 2013* Item No. I01370 & A8 | Local | | |
| | *State Environmental Planning Policy (Western Sydney Parklands) 2009* – Item No. 4 | State | | |
| | Sydney Water s170 Listing No. 4575804* | State | | |

* *The Prospect Reservoir and surrounding area under the Sydney Water s170 register is listed as 'Prospect Reservoir Operational Land'*

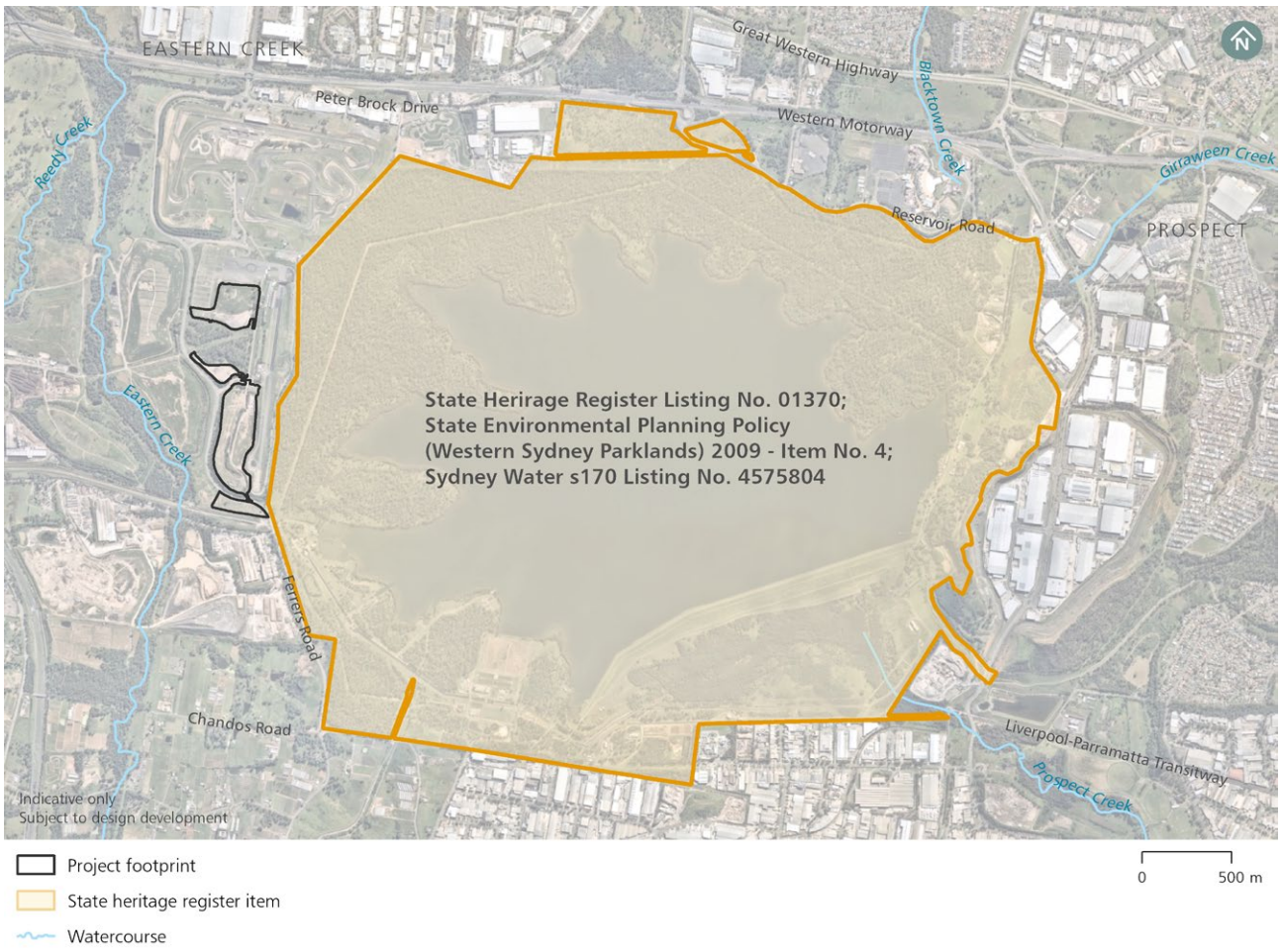


Figure 11-2 Heritage listed items near the project site

### 11.4.3 Site inspection

The site inspection identified the landscape within the project site had been largely modified with significant introduction of imported fill including associated with the construction of Sydney Dragway. Large portions of the landscape had been built up by as much as 15 metres above surrounding ground levels, roads and associated Dragway infrastructure installed, vegetation cleared, and various landscaping elements introduced.

Sydney Dragway is located directly east of the project site, between the project and the Prospect Reservoir and surrounding area heritage item. The landscape within and around the Sydney Dragway site has been significantly altered, including cutting and levelling of the original landform, while building up embankments on either side. Views east towards Prospect Reservoir are entirely shielded by expansive and high-lying forest/woodland to the west of the reservoir. This vegetated area, which is included within the State Heritage Register listing for Prospect Reservoir and surrounding area, extends roughly between 0.4 to 1.2 kilometres wide.

The project is located on the western side of the 'Prospect Reservoir and surrounding area' heritage listing, about 400 metres from the inlet of the Upper Canal and nearly 700 metres to the shoreline of the Reservoir. The western side of the Reservoir has low hills with light woodland, which have an approximate maximum elevation of 80 metres above sea level in the north and about 70 metres above sea level in the south. These low hills effectively screen significant elements of the Reservoir (inlet of the upper canal, pump house, dam, spillway and public recreational areas) from views to and from the project site.

## 11.5 Avoidance and minimisation of impacts

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential non-Aboriginal heritage impacts. This has included:

- The project landscape design would include screening vegetation along the eastern embankment of the project site, to conceal the grandstand from the point of view of the Prospect Reservoir and surrounding area heritage item to the greatest extent possible, minimising any indirect visual impacts.

## 11.6 Prospect Reservoir and surrounding area assessment of heritage significance and impact

### 11.6.1 Prospect Reservoir assessment of significance

A summary of the significance of 'Prospect Reservoir and surrounding area' is provided below (adapted from the NSW State Heritage Inventory entry) and in Table 11-5. A detailed assessment of significance is provided in Technical Paper 6 (Non-Aboriginal heritage).

Prospect Reservoir is historically significant at the State level as it is a central element of the Sydney water supply system. As a part of the Upper Nepean Scheme, the Reservoir has continued to supply water to Sydney for over 120 years, and generally still operates in the same way as it was originally constructed. Its continued use reflects the inventive and progressive design and build and contributes greatly to its significance.

The Reservoir reflects three significant changes in municipal life during the late nineteenth century:

- The development of water and general public utility services
- The importance of ensuring an adequate and dependable centralised water supply
- The collective bureaucratic response to the delivery of capital works of this nature.

Built between 1882 and 1888, it was an outstanding achievement in civil engineering technology at the time, using innovative design and construction methods. It displays a high level of historical engineering significance.

The Reservoir area is aesthetically significant, as a picturesque site with a large expanse of water, parklands, landscaping and bush which has been used by the community for generations as a place of passive recreational amenity, breaking the monotony of the surrounding urban landscape. The place also contains examples of functional colonial architecture.

Table 11-5 Summary of significance assessment for 'Prospect Reservoir and surrounding area'

| Item | Criterion met |
|---|---|
| **A – Historic** | State level |
| **B – Associative** | Local level |
| **C – Aesthetic** | State level |
| **D – Social** | Local level |
| **E – Research potential** | State level |
| **F – Rarity** | State level |
| **G – Representativeness** | Local level |

### 11.6.2 Direct impacts to the Prospect Reservoir and surrounding area

The 'Prospect Reservoir and surrounding area' heritage item is located 40 metres to the east of the project site boundary. There would be no works within the curtilage of this heritage item and the project would result in neutral direct impacts to the 'Prospect Reservoir and surrounding area' heritage item and would not alter any element of significant fabric.

The nearest significant element of the Prospect Reservoir to the project site is the inlet (Upper Canal), which is about 400 metres to the south-east of the closest part of the project boundary. At this distance, vibration from construction or operational activities of the project would have no physical effect on these structures.

### 11.6.3 Indirect (visual) impacts to the Prospect Reservoir and surrounding area

The project would result in negligible indirect (visual) impacts to 'Prospect Reservoir and surrounding area' heritage item.

The Prospect Reservoir and surrounding area heritage item is very large in size, and heritage significant views and viewsheds for the item are primarily located within the curtilage of the item.

Given the elevation of the hills to the west of the Reservoir, tree cover and the long distance to significant elements of the Reservoir, the project is not expected to be visible from the 'Prospect Reservoir and surrounding area' heritage item. The final elevation of the project site as a result of earthworks activities would not substantially alter the existing elevations of the project site. Similarly, the elevation of the grandstand, western track embankment and racing support infrastructure is not expected to be visible from the 'Prospect Reservoir and surrounding area' heritage item.

As the project is similar in scope, size and form to existing development surrounding the item it is not expected to introduce additional visual clutter. Due to the size and distances of the proposed speedway and the scale of the 'Prospect Reservoir and surrounding area' heritage item, the proposed speedway would not result in overshadowing impacts.

### 11.6.4 Archaeological assessment

It has been assessed that there is no potential for significant archaeological remains to be located within the project site and the proposed works are not considered to result in archaeological impact. A summary of assessment of archaeological potential is provided in Table 11-6. A detailed assessment is provided in Technical Paper 6 (Non-Aboriginal heritage).

Intact archaeological structures or deposits related to pre-2004 development within the study area are predicted not to remain within the study area. As such, no assessment of significance has been provided.

Although the potential for subsurface archaeological remains related to post-2004 activities associated with the current Sydney Dragway is high, they are of low archaeological significance and are not considered to reach the threshold for local heritage significance.

Table 11-6 Summary of archaeological potential and significance

| Phase | Description | Archaeological significance | Archaeological Potential |
|---|---|---|---|
| **One c1810-c1900** | Footings, occupation deposits, evidence of fence lines, remains of undocumented structures | Local | Nil |
| **Two c1900-2004** | Footings, occupation deposits, evidence of industrial and agricultural activities, evidence of fence lines | Local | Nil |
| | Mid-late twentieth century building remains, footings, occupation deposits evidence of industrial and agricultural activities, evidence of fence lines | Nil | Nil |
| **Three 2004-present** | Existing development | Nil | High |

## 11.7 Management and mitigation measures

### 11.7.1 Approach to management and mitigation

Impacts to non-Aboriginal heritage would be managed in accordance with the Construction Environmental Management Framework. A Construction Environmental Management Plan (CEMP) would be prepared and would include procedures for unexpected heritage finds. More details of the Construction Environmental Management Framework are included in Chapter 25 (Synthesis and conclusion of the Environment Impact Statement).

### 11.7.2 Mitigation measures

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential non-Aboriginal heritage impacts (refer Section 11.5). No specific mitigation measures are recommended to address residual potential impacts on non-Aboriginal heritage.

### 11.7.3 Interactions between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential non-Aboriginal heritage impacts include:

- Chapter 12 (Landscape character and visual amenity), specifically measures which address the management of potential visual impacts to the Prospect Reservoir and surrounding area heritage item

Together, these measures would help to minimise the potential non-Aboriginal heritage impacts associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of non-Aboriginal heritage impacts.

# 12 Landscape character and visual amenity

# 12 Landscape character and visual amenity

This chapter assesses the potential impacts during construction and operation of the Sydney International Speedway on landscape character and visual amenity, and identifies mitigation measures to minimise these impacts. This chapter draws on information provided in Technical Paper 7 (Landscape and visual impact assessment).

## 12.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to landscape character and visual amenity, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 12-1.

Table 12-1 Secretary's Environmental Assessment Requirements – Landscape character and visual amenity

| Reference | Requirement | Where addressed |
|---|---|---|
| **7. Design, Sustainability and Visual Amenity** | | |
| **2.7.1** | The Proponent must identify how the project will demonstrate public benefit outcomes, including design principles, strategies and initiatives that:<br>a. achieve quality design (landscaping, streetscape, and architectural) consistent with the existing and desired future character of the area as defined in the Eastern Creek Motor Sports Precinct, part of the Western Sydney Parklands Plan of Management; | Section 12.6 |
| | b. identify opportunities to reduce urban heat island effects, including in parking areas; and | Section 12.4<br>Section 12.9 |
| | c. address the ongoing maintenance of the space. | Section 12.9.1 |
| **2.7.2** | The Proponent must provide visual representations of the project from key receiver locations and assess the visual impact of the project on:<br>a. views and vistas; | Section 12.8 |
| | b. the Western Sydney Parklands; and | Section 12.8 |
| | c. heritage items including Aboriginal places and environmental heritage. | Chapter 11 (Non-Aboriginal heritage) |
| **2.7.3** | The Proponent must assess open space and tree impacts, including:<br>a. the provision of green infrastructure; | Section 12.7 |
| | b. estimating the number of trees to be cleared that will not be covered by a biodiversity offset strategy (a tree is defined by Australian Standard 4970); and | Section 12.7.1 and Chapter 8 (Biodiversity) |
| | c. describe how the project will achieve a net increase in tree numbers and canopy within proximity of the impacted area. | Section 12.7.1 |

## 12.2 Legislative and policy framework

State and local authority planning documents provide guidance for the management of landscape character and visual amenity of the study area. The landscape character and visual impact assessment was carried out with reference to the following legislation, policies and planning strategies:

- *A Metropolis of Three Cities – the Greater Sydney Region Plan* (Greater Sydney Commission, 2018)
- *Our Greater Sydney 2056 Central City District Plan – connecting communities* (Greater Sydney Commission, 2018)
- *State Environmental Planning Policy (Western Sydney Parklands) 2009* (NSW Government, 2009)
- *Western Sydney Parklands Plan of Management 2030* (Western Sydney Parklands Trust, 2019)

- *Blacktown Development Control Plan 2015* (Blacktown City Council, 2015)
- *Blacktown Local Environmental Plan 2015* (Blacktown City Council, 2015)
- *Draft Blacktown Local Strategic Planning Statement 2019* (Blacktown City Council, 2019).

The following guidelines were also used as a reference to complete the assessment:

- *The Western Sydney Parklands Design Manual* (Western Sydney Parklands Trust, 2018)
- *Guidance note EIA-N04 Guidelines for Landscape Character and Visual Impact Assessment* (Transport for NSW, 2018)
- *The Guidance Note for Landscape and Visual Assessment* (Australian Institute of Landscape Architects Queensland, 2018).

## 12.3 Assessment methodology

The assessment methodology for landscape and visual impacts has been carried out in the following steps:

- A review of the relevant legislative and policy framework
- Identification of the existing environment (i.e. the existing landscape and visual conditions), including desk based research and a site visit carried out in February 2020
- Description of the components and character of the project
- An assessment of potential landscape character impacts during construction and operation
- An assessment of potential daytime visual impacts during construction and operation
- An assessment of potential night time visual impacts during construction and operation
- Identification of mitigation measures.

### 12.3.1 Landscape character impact assessment

Landscape as defined by Transport for NSW (2018) is 'All aspects of a tract of land, including landform, vegetation, buildings, villages, towns, cities and infrastructure.' It also defines landscape character as the 'combined quality of built, natural and cultural aspects which make up an area and provide its unique sense of place'.

The Western Sydney Parklands has been divided into management precincts based on character, context, land use and function. These management precincts align with landscape character and have been used for the landscape character impact assessment. The landscape character impact assessment was carried out by identifying the sensitivity of each precinct and the likely magnitude of change expected as a result of the project.

Landscape sensitivity refers to the value placed on a landscape and the level of service it provides to the community. The sensitivity of a landscape may also reflect the frequency and volume of users. Landscapes can also be valued for characteristics such as tranquillity, visual relief and contribution to microclimate. Landscape sensitivity can range from national to neighbourhood sensitivity.

Magnitude of change refers to changes to the landscape that would occur as a result of the project. This considers direct impacts on the landscape such as the removal of trees and tree canopy, open space and public realm areas, as well as indirect impacts, such as changes to the function of an area of open space or the public realm. The magnitude of change levels that apply to this assessment are:

- Considerable reduction or improvement (with substantial contrast to the surrounding landscape)
- Noticeable reduction or improvement (with contrast to the surrounding landscape)
- No perceived reduction or improvement (compatible with the area and its use).

An assessment of landscape impact has been made by combining the landscape sensitivity and magnitude of change levels for each element and assigning an impact level using the matrix provided in Table 12-2.

Table 12-2 Landscape impact level matrix

| Landscape magnitude of change | Landscape sensitivity | | | | |
|---|---|---|---|---|---|
| | National | State | Regional | Local | Neighbourhood |
| **Considerable reduction** | Very high adverse | Very high adverse | High adverse | Moderate adverse | Minor adverse |
| **Noticeable reduction** | Very high adverse | High adverse | Moderate adverse | Minor adverse | Negligible |
| **No perceived change** | Negligible | Negligible | Negligible | Negligible | Negligible |
| **Noticeable improvement** | Very high beneficial | High beneficial | Moderate beneficial | Minor beneficial | Negligible |
| **Considerable improvement** | Very high beneficial | Very high beneficial | High beneficial | Moderate beneficial | Minor beneficial |

### 12.3.2 Daytime visual amenity impact assessment

This visual impact assessment considers visual amenity as experienced by various people (referred to as receivers) and aims to identify the range of views to the project site which may be impacted, including views from adjacent roads, open space areas and sporting facilities. The assessment of daytime visual impacts of the project involved identifying:

- Visual conditions around the project site
- Views that are representative of these visual conditions
- The sensitivity of the view, and magnitude of potential change to the view as a result of the project
- The overall impact of the project on the existing visual conditions during construction and operation of the project.

The sensitivity of a viewpoint is considered in the broadest context of possible views, ranging from national to neighbourhood importance. The magnitude of change describes the extent of change expected from the project. To assess the overall impact on daytime visual amenity, the visual sensitivity (Table 12-3) and magnitude of change (Table 12-4) assessments are combined (Table 12-5).

Table 12-3 Visual sensitivity levels – daytime

| Visual sensitivity | Description |
|---|---|
| **National** | Heavily experienced view to a national icon, for example view to the Sydney Opera House from Circular Quay or Lady Macquarie's Chair.<br>There are no nationally sensitive views within this assessment. |
| **State** | Heavily experienced view to a feature or landscape that is iconic to the State, for example views to Old Government House from within Parramatta Park.<br>There are no State sensitive views within this assessment. |
| **Regional** | Heavily experienced view to a feature or landscape that is iconic to a major portion of a city or a non metropolitan region, or an important view from an area of regional open space, for example view from George Maunder Lookout over Prospect Reservoir. |
| **Local** | High quality view experienced by concentrations of residents and/or local recreational users, local commercial areas and/or large numbers of road or rail users. Views with local visual features and/or landmarks. For example, view to the outlet tower from Prospect Reservoir foreshore, view along the pine tree lined entrance road at Prospect Reservoir. |
| **Neighbourhood** | Viewers whose interest is not specifically focused on views, for example workers. Views where visual amenity is appreciated by a small number of isolated residents, not particularly valued by the wider community. |

Table 12-4 Visual magnitude of change levels – daytime

| Magnitude of change | Description |
|---|---|
| **Considerable reduction or improvement** | A substantial part of the view is altered.<br>The project is not compatible and/or contrasts substantially with the surrounding landscape. |
| **Noticeable reduction or improvement** | A small to moderate part of the view is altered.<br>The project contrasts with the surrounding landscape. |
| **No perceived reduction or improvement** | Either the view is unchanged or if it is, the change in the view is unlikely to result in a change in the amenity of the view.<br>The project does not contrast with the surrounding landscape. |

Table 12-5 Visual impact levels – daytime

| Visual magnitude of change | Visual sensitivity (daytime) | | | | |
|---|---|---|---|---|---|
| | National | State | Regional | Local | Neighbourhood |
| **Considerable reduction** | Very high adverse | Very high adverse | High adverse | Moderate adverse | Minor adverse |
| **Noticeable reduction** | Very high adverse | High adverse | Moderate adverse | Minor adverse | Negligible |
| **No perceived change** | Negligible | Negligible | Negligible | Negligible | Negligible |
| **Noticeable improvement** | Very high beneficial | High beneficial | Moderate beneficial | Minor beneficial | Negligible |
| **Considerable improvement** | Very high beneficial | Very high beneficial | High beneficial | Moderate beneficial | Minor beneficial |

### 12.3.3 Night time visual impact assessment

The assessment of night time impact has been carried out with a similar methodology to the daytime assessment. However, the assessment also draws upon the guidance of *AS4282 Control of the obtrusive effects of outdoor lighting* (2019).

AS4282 identifies environmental zones, useful for categorising night time landscape settings. The environmental zone which best describes the existing night time visual condition of the project site has been selected. These zones are typical night time settings and reflect the predominant light level of the project site. Each environmental zone has an inherent level of sensitivity as described in Table 12-6.

Table 12-6 Environmental zone sensitivity - night time

| Environmental zone | Description |
|---|---|
| **A0/A1: Dark/Intrinsically dark landscapes** | Very high sensitivity visual settings at night including national parks, state forests etc. |
| **A2: Low district brightness areas** | Highly sensitive visual settings at night including rural, small village, or relatively dark urban locations. |
| **A3: Medium district brightness areas** | Moderately sensitive visual settings at night including small town centres or urban locations. |
| **A4: High district brightness areas** | Low sensitivity visual settings at night including town/city centres with high levels of night time activity. |

Following the sensitivity assessment, the magnitude of change that would be expected within the study area is then identified. These changes are described, as relevant, in terms of:

- Sky glow – the brightening of the night sky
- Glare – condition of vision in which there is discomfort or a reduction in ability to see
- Light spill – light emitted by a lighting installation that falls outside of the design area.

The categories used to describe the visual magnitude of change at night are:

- Considerable reduction or improvement (with substantial contrast to the surrounding landscape)
- Noticeable reduction or improvement (with contrast to the surrounding landscape)
- No perceived reduction or improvement (compatible with the area and its use).

An assessment of night time visual impact has been made by combining the visual sensitivity of the environmental zone with the night time visual magnitude of change for each area generally and assigning an impact level according to the matrix provided in Table 12-7.

Table 12-7 Visual impact levels: night time

| Visual magnitude of change | Visual sensitivity (night time) | | | |
|---|---|---|---|---|
| | AO/A1 Intrinsically dark/Dark | A2 Low district brightness | A3 Medium district brightness | A4 High district brightness |
| **Considerable reduction** | Very high adverse | High adverse | Moderate adverse | Minor adverse |
| **Noticeable reduction** | High adverse | Moderate adverse | Minor adverse | Negligible |
| **No perceived change** | Negligible | Negligible | Negligible | Negligible |
| **Noticeable improvement** | High beneficial | Moderate beneficial | Minor beneficial | Negligible |
| **Considerable improvement** | Very high beneficial | High beneficial | Moderate beneficial | Minor beneficial |

## 12.4 Urban design strategy

The urban design for the Sydney International Speedway project aims to balance the technical requirements of a sports racing venue with the environmental and design objectives of the Western Sydney Parklands Trust. This includes the aspirations and requirements of the *Western Sydney Parklands Plan of Management 2030*, as it relates to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports.

The key elements of the urban design strategy for the project which are relevant to this landscape and visual impact assessment are outlined below.

### Planting and soft landscape

The layout of the facility protects the regrowth Cumberland forest vegetation and new planting areas would use vegetation endemic to the region. The landscape plans propose about 1000 new trees and areas of mass planting which would have a bushland character and assist with the integration of the precinct into the surrounding landscape.

### Car parking and spectator areas

Dense vegetation is proposed along the perimeter of each large car parking area to visually soften and filter views to these areas from surrounding venues and roads. Where possible, car parking and spectator seating areas would incorporate turf and other permeable surfaces to minimise heat absorption and reduce the potential urban heat island effect.

### Built form

The grandstand design aims to achieve a pavilion style design with a long and low building form and generous roof overhangs that offer shade and weather protection to spectators. The smaller ancillary buildings would be a collection of shaded pavilions and sports garages with a similar architectural form and design quality to the grandstand. Trees would be located around the buildings and public realm areas to provide amenity and shade.

### Sustainability

Building design aims to create a legible identity for the sport while responding sustainably to the context. Water sensitive urban design principles would be incorporated into the design including water harvesting and the use of permeable surfaces. Solar power would be used for carpark lighting.

The *Western Sydney Parklands Design Manual* (Version 2) (Western Sydney Parklands Trust, 2018) provides specific design guidelines for a range of standard elements including roads, barriers, signage, lighting, planting and landscape management. It also includes sustainability principles in accordance with its 'whole of life' approach to facilities planning and implementation. The project has consulted the Design Manual throughout the design process to ensure the vision of *Western Sydney Parklands Plan of Management 2030* is achieved.

A detailed assessment of the consistency of the project design with the Design Manual is included in Chapter 5 (Project description) of the Environmental Impact Statement.

## 12.5 Existing environment

The project site is situated in the Western Sydney Parklands, at Eastern Creek. The project site is located to the south of the Sydney Motorsport Park and to the west and southwest of the Sydney Dragway. This area is identified as a Sport and Structured Recreation Hub in the *Western Sydney Parklands Plan of Management 2030*.

The areas proposed for Carparks C and D are currently informal gravel overflow car parking areas situated on mounded platforms and used for events at the Sydney Dragway. The area for the main operational site is currently used for maintenance and materials storage areas, informal parking, and off-road driver training.

A transmission line crosses the area between proposed Carparks C and D outside of the project site. Existing bushland, located to the north and south of the transmission line easement, visually separates Carpark D from Carpark C and the project's main operational site.

Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports is a developed landscape containing two major sport venues, Sydney Motorsports Park and Sydney Dragway. Aerial imagery from c1960 indicates that much of the project site remained undeveloped, with the exception of a few rural residences and associated outbuildings. More recently, parts of the project site have been used as overflow parking areas for the neighbouring Sydney Dragway, and for off-road track race training. Landform within the project site is highly modified, with mounded areas of the project site assumed to contain fill of unknown origin.

Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports is surrounded by a range of large scale industrial character land uses, including landfill sites, quarries, a brickworks, and resource recovery centres to the west. This includes a former landfill site, which is currently being rehabilitated, located to the west of the project site and creating an artificial landform which rises to a similar height to the southern areas of the project site.

To the east of the project site, there are mainly open space and environmental land uses, including the Prospect Reservoir and a nature reserve. There are also areas of the Western Sydney Parklands to the northwest of the project site, beyond the Sydney Motorsport Park, which are not developed for recreation but are the subject of an application to develop the Light Horse Interchange Business Hub.

### 12.5.1 Existing landscape and visual sensitivity

#### Landscape sensitivity

The landform at Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports is heavily modified and shaped to accommodate the race tracks, spectator facilities and training areas. While the focus of this precinct is for race activities, events, exhibitions and facilities, the landscape setting and amenity of each race locality is an important part of the venue. This precinct is valued by the wider community as a sporting venue and has a regional landscape sensitivity.

#### Visual sensitivity – daytime

Based on the existing landscape setting of the project, six viewpoints with views to the project site have been identified as representative of the existing visual conditions. The six viewpoints, and the visual sensitivity are detailed in Table 12-8, and their locations shown on Figure 12-1 and Figure 12-2.

Table 12-8 Viewpoint sensitivity

| Viewpoint | | Visual sensitivity |
|---|---|---|
| No. | Location | |
| 1 | View southwest from Sydney Dragway spectator seating area | Local |
| 2 | View southeast from main entrance to Sydney Motorsport Park and Sydney Dragway | Local |
| 3 | View southeast to proposed main entrance to Sydney International Speedway | Local |
| 4 | View southeast from Ferrers Road | Neighbourhood |
| 5 | View northwest from Ferrers Road | Neighbourhood |
| 6 | View west from George Maunder Lookout, Prospect Reservoir | Regional |

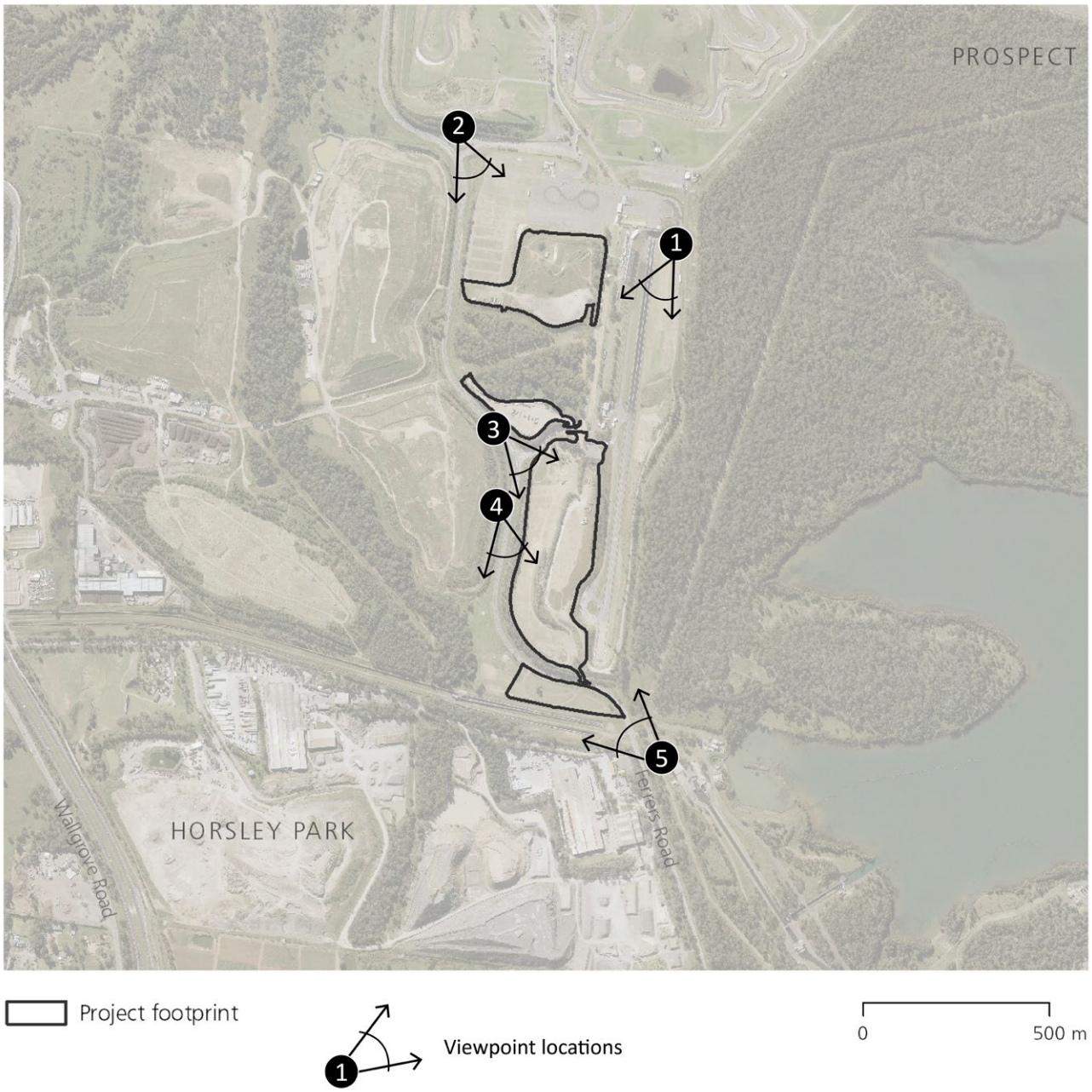


Figure 12-1 Viewpoint location plan - short range views (viewpoints 1 to 5)

Figure 12-2 Viewpoint location plan - long range view (viewpoint 6)

**Visual sensitivity – night time**

The project site is located within an existing motorsports precinct, which includes Sydney Dragway and Sydney Motorsport Park which are flood lit during night time racing events. This includes lighting of the tracks, vehicle entries and access roads, spectator stands, surrounding pathways and car parking areas. While some of this lighting would be contained by the existing vegetation within and on the perimeter of the project site, there would be a general skyglow above the project site and numerous bright sources of light seen in this area. The headlights from traffic moving along Ferrers Road would also contribute to the night time setting of the project site together with lighting at nearby industrial sites to the south and west.

The very low levels of lighting at Prospect Reservoir and surrounding reserve would be contrast to the brightly lit motorsports precinct. The dense mature vegetation within this reserve would contain light spill from the project site to areas in the east. Views from the recreational areas of the reserve would not be experienced during night time hours as the reserve is closed after hours.

Overall, the Sydney International Speedway project site has been identified as within a medium district brightness area, with moderately sensitive visual settings at night, referred to as Zone A3 in Table 12-6.

## 12.6 Avoidance and minimisation of impacts

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential landscape character and visual amenity impacts. This has included:

- Alignment of relevant aspects of design with the *Western Sydney Parklands Urban Design Manual* (Version 2) (Western Sydney Parklands Trust, 2018) (refer Section 12.4 and Chapter 5 (Project description))
- Locating the construction compound within the project's operational footprint to avoid additional disturbance of land
- Trees removed by the project would be replaced as part of the project design to achieve no net loss to tree numbers and/or canopy in proximity to the project site in the long term
- Integration of soft landscape works and trees in the design to provide screening of built elements, shade and reduce 'heat island' effects.

## 12.7 Assessment of potential construction impacts

### 12.7.1 Landscape character

During construction, large scale earthworks would be carried out across the project site including removal of 148 canopy trees. However, much of the bushland vegetation along the transmission easement and around the perimeter of the project site would be retained and about 1000 trees would be planted as part of the design landscape plan. As a result, the magnitude of change to landscape quality would be considered a 'noticeable reduction'. The landscape is of regional sensitivity, and as a result there would be a moderate adverse landscape impact during construction.

### 12.7.2 Visual impacts during daytime construction

Overall, the project would have negligible to minor temporary impacts on visual amenity during construction. A summary of the visual impact from each of the viewpoints considered as part of the visual impact assessment during daytime construction is provided in Table 12-9.

Viewpoints one to five would be subject to a noticeable reduction of visual amenity during construction. The majority of ground level activity would be screened by existing vegetation and landform around the perimeter of the project site, with only glimpses of construction machinery and works experienced. A temporary reduction in visual amenity would be a result of:

- Construction of the grandstand being visible above the existing tree line at viewpoints one, three, four and five
- Large scale earth moving activities in Carpark D and erection of construction fencing, retaining wall and stockpiles at viewpoint two
- Presence of construction vehicles at viewpoint three
- Earthworks, large machinery and vegetation clearing for the construction of Carpark A at viewpoint three
- Construction of the new southern exit to the main operational site from viewpoint five.

Given the local sensitivity of viewpoints one to three, construction of the project would have a temporary minor impact on visual amenity at these locations. Viewpoints four and five are of neighbourhood sensitivity, and as a result, impacts to visual amenity from these locations are considered to be negligible.

Given the location of the project in the background of the view from viewpoint six, construction would mostly be screened by large areas of vegetation and intervening landform. Installation of the grandstand structure and the use of other tall construction equipment may be glimpsed but these would be absorbed into the background of the view such that there would be no perceived change in amenity, resulting in a negligible visual impact to this regionally sensitive view.

Table 12-9 Summary of daytime visual impacts of the project during construction

| Viewpoint | | Sensitivity | Magnitude | Impact |
|---|---|---|---|---|
| No. | Location | | | |
| 1 | View southwest from Sydney Dragway spectator seating area | Local | Noticeable reduction | Minor adverse |
| 2 | View southeast from main entrance to Sydney Motorsport Park and Sydney Dragway | Local | Noticeable reduction | Minor adverse |
| 3 | View southeast to proposed main entrance to Sydney International Speedway | Local | Noticeable reduction | Minor adverse |
| 4 | View southeast from Ferrers Road | Neighbourhood | Noticeable reduction | Negligible |
| 5 | View northwest from Ferrers Road | Neighbourhood | Noticeable reduction | Negligible |
| 6 | View west from George Maunder Lookout, Prospect Reservoir | Regional | No perceived change | Negligible |

### 12.7.3 Visual impacts during night time construction

Construction of the project, including deliveries of plant and equipment, would be carried out up to 24 hours a day, for the duration of construction. Night time works would require task lighting and low level security lighting within the project site.

This lighting would be readily absorbed into the existing moderately lit setting of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports and adjacent industrial areas which surround the project site to the south and west. As a result, there would not be a perceived change in the amenity of views at night, resulting in a negligible visual impact.

## 12.8 Assessment of potential operational impacts

### 12.8.1 Landscape character

The project would be consistent with the desired future character of the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports, as identified in the *Western Sydney Parklands Plan of Management 2030*.

The layout and treatment of accesses to and from the project site would be in keeping with the principles of the Western Sydney Parklands Design Manual and would reflect the intentions of the Design Manual to 'establish sense of arrival and legible wayfinding through the use of entry features, tree avenues and signage'.

About 1000 trees would be planted as part of the landscape plan for the project, replacing 148 canopy trees cleared during construction providing an overall increase in tree canopy in the long term.

The design has consciously surrounded all car parking areas with new vegetation to better integrate into the precinct. Vegetation is selected from the Western Sydney Parklands Trust endemic species list, and where possible the car parking spaces and spectator seating have incorporated turf and permeable surfaces to reduce the urban heat island effect.

Overall, despite the introduction of new infrastructure as part of the Sydney International Speedway, the project would result in no perceived change in the landscape character of this area, which is of regional landscape sensitivity. The project would have a negligible landscape impact during operation.

### 12.8.2 Visual impacts during daytime operation

Overall, the project would result in negligible visual impacts from all assessed viewpoints. A comparison of the existing view from viewpoints one to six with the indicative views resulting from the project during operation (for viewpoints three and five) are provided in Figure 12-3 to Figure 12-10. A summary of the visual impact assessment of the project is provided in Table 12-10. The visual impacts to each of these viewpoints are provided in more detail in Technical Paper 7 (Landscape and visual impact assessment).

Table 12-10 Summary of daytime visual impacts of the project during operation

| Viewpoint | | Sensitivity | Magnitude | Impact |
|---|---|---|---|---|
| No. | Location | | | |
| 1 | View southwest from Sydney Dragway spectator seating area | Local | No perceived change | Negligible |
| 2 | View southeast from main entrance to Sydney Motorsport Park and Sydney Dragway | Local | No perceived change | Negligible |
| 3 | View southeast to proposed main entrance to Sydney International Speedway | Local | No perceived change | Negligible |
| 4 | View southeast from Ferrers Road | Neighbourhood | Noticeable reduction | Negligible |
| 5 | View northwest from Ferrers Road | Neighbourhood | Noticeable reduction | Negligible |
| 6 | View west from George Maunder Lookout, Prospect Reservoir | Regional | No perceived change | Negligible |

During operation, there would be no perceived change at viewpoints one, two, three and six and therefore negligible visual impacts. Screening would largely be provided by existing vegetation and topography, with any project features that are visible consistent in character with the current land use and would therefore be absorbed into the view, with no change in amenity.

Viewpoints four and five would be subject to noticeable reductions in amenity of views due to the introduction of built features including signage at the project access and entry points and the grandstand and associated lighting would be seen rising above existing vegetation along Ferrers Road. Increased volumes of traffic would also result in noticeable visual changes pre and post events. However, given the neighbourhood sensitivity of these viewpoints, the project would result in negligible impacts to views from these viewpoints.

Figure 12-3 Existing view from viewpoint 1

Figure 12-4 Existing view from viewpoint 2

Figure 12-5 Existing view from viewpoint 3

Figure 12-6 Photomontage of future view with the project from viewpoint 3

Figure 12-7 Existing view from viewpoint 4

Figure 12-8 Existing view from viewpoint 5

Figure 12-9 Photomontage of future view with the project from viewpoint 5

Figure 12-10 Existing view from viewpoint 6

### 12.8.3 Visual impacts during night time operation

Most events at the Sydney International Speedway would occur during the evening, requiring the project site to be brightly flood lit to provide visibility for competitors and spectators. Lighting would also be provided in all external vehicle circulation areas, including vehicle entrances, roadways, pedestrian pathways and carparks. Lighting would generally be pole mounted and would incorporate full cut-off optics to minimise light spill beyond the boundaries of the project site.

While the Sydney International Speedway would increase the level of lighting in this location, the project site is located in an existing motorsports precinct, where there are similarly brightly lit facilities. The proposed lighting of Sydney International Speedway would be consistent with the existing setting of the project site at night, which is of medium district brightness and, as such, there would be a negligible visual impact at night during operation of the project.

## 12.9 Management and mitigation measures

### 12.9.1 Approach to management and mitigation

Landscape character and visual amenity impacts during construction would be managed in accordance with the Construction Environmental Management Framework (provided as Appendix C) which includes requirements for the urban design of temporary works.

More details of the Construction Environmental Management Framework are provided in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement).

An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway that would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. This would include measures and procedures relating to the ongoing maintenance of the landscaped areas of the project site to ensure the long term viability of planting.

### 12.9.2 Mitigation measures

Mitigation measures that would be implemented to address potential landscape and visual impacts are listed in Table 12-11.

Table 12-11 Mitigation measures – Landscape character and visual amenity

| Reference | Impact/issue | Mitigation Measure | Applicable location |
|---|---|---|---|
| **Design** | | | |
| **LV1** | Removal of trees | Opportunities to minimise the area of vegetation clearance and for the retention and protection of existing trees within the project site would be identified during detailed construction planning. | All |
| **LV2** | Urban heat island effects | Opportunities for the incorporation of trees and low heat absorbing ground surface finishes in car parking areas to be identified and implemented where feasible and reasonable. | All |
| **Construction** | | | |
| **LV3** | Visual impacts | Where feasible and reasonable, the elements within the construction site would be located to minimise visual impacts (for example storing materials and machinery behind fencing). | All |
| **LV4** | Lighting impacts | Lighting of the construction site would be orientated to minimise glare and light spill impacts on adjacent receivers. | All |
| **LV5** | Trees | Existing trees to be retained would be protected prior to the commencement of construction in accordance with Australian Standard AS4970 the *Australian Standard for Protection of Trees on Development Sites and Adjoining Properties.* | All |

### 12.9.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to landscape character and visual amenity impacts include:

- Chapter 8 (Biodiversity), which includes measures to replace cleared vegetation and provide additional tree planting
- Chapter 11 (Non-Aboriginal heritage), measures which address the consideration of the Prospect Reservoir and Surrounding Area heritage item and the retention of view lines.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of landscape character and visual impacts.

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# 13 Soils and surface water quality

# 13 Soils and surface water quality

This chapter assesses the potential impacts of construction and operation of the Sydney International Speedway on soils and surface water quality and identifies mitigation measures to minimise these impacts.

## 13.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to soils and surface water quality, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 13-1.

Table 13-1 Secretary's Environmental Assessment Requirements – Soils and water quality

| Reference | Requirement | Where addressed |
|---|---|---|
| **9. Water – Quality** | | |
| **2.9.1.** | The Proponent must:<br>a. identify the ambient NSW Water Quality Objectives (NSW WQO) and environmental values for the receiving waters relevant to the project, including the indicators and associated trigger values or criteria for the identified environmental values; | Section 13.3.2 |
| | b. demonstrate how construction and operation of the project will, to the extent that the project can influence:<br>– where the NSW WQOs for receiving waters are currently being met, they will continue to be protected; and<br>– where the NSW WQOs are not currently being met, activities will work toward their achievement over time; | Section 13.7.2 |
| | c. justify, if required, why the WQOs cannot be maintained or achieved over time; | Section 13.7.2 |
| | d. identify and estimate the quality and quantity of pollutants that may be discharged and an analysis of the likely nature and degree of impact that any discharge(s) may have on the receiving environment; | Section 13.6.2<br>Section 13.7.2 |
| | e. identify the rainfall event that water quality protection measures will be designed to cope with; | Section 13.3.4<br>Section 13.5 |
| | f. demonstrate that all practical measures to avoid or minimise water pollution and protect human health and the environment from harm are investigated and implemented; and | Section 13.8 |
| | g. identify sensitive receiving environments (which may include estuarine and marine waters downstream) and develop a strategy to avoid or minimise impacts on these environments; and | Section 13.4.2 |
| | h. identify proposed monitoring and indicators of surface and groundwater quality. | Section 13.8 |
| **10. Soils and Contamination** | | |
| **2.10.2** | The Proponent must assess the impacts on soil and land resources (including erosion risk or hazard). Particular attention must be given to soil erosion and sediment transport consistent with the practices and principles in the current guidelines. | Section 13.6.1<br>Section 13.7.1 |

| Reference | Requirement | Where addressed |
|---|---|---|
| **11. Water – Hydrology** | | |
| **2.11.1** | The Proponent must:<br>a. describe any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the project, including stream orders, as per the BAM. | Section 13.4 |
| | b. prepare a water balance for ground and surface water for construction. | Chapter 22 (Waste management and resource use) |
| | c. assess (and model if appropriate) the impact of the construction and operation of the project (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines. | Section 13.6.2<br>Section 13.7.2 |
| | d. identify any requirements for baseline monitoring of hydrological attributes. | Section 13.8 |
| | e. outline opportunities for the use of integrated water cycle management practices and principles to optimise opportunities for sustainable water supply, wastewater and stormwater management across the project. | Chapter 22 (Waste management and resource use) |
| | f. assess impacts of the development on drainage paths and on the Warragamba Pipelines Corridor. | Section 13.7.2 |

## 13.2 Legislative and policy framework

Surface water quality is assessed and regulated by a suite of NSW strategy, policy and legislation. Relevant strategies, policies and legislation are listed and outlined briefly below.

### National Water Quality Management Strategy (NWQMS)

*The Australian Government Department of Agriculture's National Water Quality Management Strategy* (Australian Department of Agriculture and Water Resources, 2018) is the adopted national approach to protecting and improving water quality in Australia. The National Water Quality Management Strategy contains guidelines for setting water quality objectives to sustain current or likely future environmental values for water resources. Ultimately, the National Water Quality Management Strategy and its guidelines require that current groundwater and surface water uses must not be degraded as a result of construction or operation of the project.

### State Environmental Planning Policy (Western Sydney Parklands) 2009

The purpose of the *State Environmental Planning Policy (Western Sydney Parklands) 2009* is to set planning controls to enable the Western Sydney Parklands Trust to develop the Western Parklands into a multi-use urban parkland for the region of western Sydney. In determining a development application for development on land in the Western Parklands, the consent authority must consider matters outlined in the SEPP, including whether the development will have a 'neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure'.

### Water Management Act 2000 (WM Act)

The *Water Management Act 2000* is administered by the NSW Department of Planning, Industry and Environment – Water as the regulator and policy maker for water resource management in NSW. The objectives of the Act are to provide for sustainable and integrated management of the water sources of the State for present and future generations.

The Act recognises the need to allocate and provide water for the environmental health of rivers and groundwater systems, while also providing licence holders with more secure access to water and greater opportunities to trade water through the separation of water licences from land. The Act enables the State's water resources to be managed under water sharing plans, which establish the rules for the sharing of a water source between water users and the environment, and rules for trading of parts of a water source.

The project site is located within the Hawkesbury-Nepean water management area and is therefore covered by the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources* (NOW, 2011), made under Section 50 of the Act. This plan applies to surface water sources and includes rules for protecting the environment, water extraction, managing licence holders' water accounts, and water trading within the plan area.

Section 5.23 of the EP&A Act specifies that no water management work approvals under Section 90 of the *Water Management Act 2000* are required for approved State significant infrastructure (SSI).

### Fisheries Management Act 1994

The *Fisheries Management Act 1994* (the FM Act) provides for the protection of threatened fish and marine vegetation and it is administered by the Department of Planning, Industry and Environment (Regions, Industry, Agriculture and Resources), formerly known as the Department of Primary Industries – Fisheries.

The project is not expected to impact on any FM Act listed threatened species, populations or ecological communities, and is not likely to involve any 'key threatening processes' that are listed under the FM Act. Waterways within and near the project site have been categorised with regards to the Department of Planning, Industry and Environment (Regions, Industry, Agriculture and Resources) key fish habitat (KFH) mapping (DPI, 2007), and Key Fish Habitat 'type' has been determined by using the *Policy and Guidelines for Fish Habitat Conservation and Management* (DPI, 2013). Further information is provided in Section 13.4.2.

### Protection of the Environment and Operations Act 1997 (POEO Act)

The *Protection of the Environment and Operations Act 1997* (POEO Act) regulates air and water pollution, noise control and waste management. Section 120 of the POEO Act lists the pollution of waters as an offence. Chapter 3 of the Act states Environment Protection Licenses (EPL) are required for a range of activities listed under Schedule 1.

The project (including construction) does not constitute any of the scheduled activities and therefore does not require an Environmental Protection Licence. Section 120 of the Act prohibits the pollution of waters.

### Relevant guidelines

The relevant guidelines used to carry out the assessment of surface water quality, and where the guideline has been used are listed in Table 13-2.

Table 13-2 Soils and surface water guidelines used as part of the assessment

| Guideline/policy name | Overview of guideline and where guideline has been used |
|---|---|
| ***Guidelines for Development Adjacent to the Upper Canal and Warragamba Pipelines*** **(Water NSW, 2018).** | In consideration of the potential water quality risks to the Warragamba Pipelines, including erosion and sedimentation. |
| ***Neutral or Beneficial Effect on Water Quality Assessment Guidelines*** **(Sydney Catchment Authority, 2015)** | To inform the Neutral of Beneficial Impact Assessment required under Clause 13 of the State Environmental Planning Policy (Western Sydney Parklands) 2009.<br>The project is not within the Sydney Drinking Water Catchment Area as defined in the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011*, therefore a Neutral of Beneficial Effect (NorBE) water quality assessment using the NorBE tool is not required. However, development consent cannot be granted for development in the Western Sydney Parklands unless the consent authority is satisfied that the development 'will have a neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure'. While the NorBE test does not apply, it has been used to inform a qualitative assessment to demonstrate that the project will have a neutral impact on water quality in the bulk water infrastructure. The NorBE assessment is detailed in Section 13.7.2. |
| ***Using MUSIC in Sydney Drinking Catchment guidelines*** **(Water NSW, 2019)** | To determine typical stormwater run-off concentrations for the Neutral of Beneficial Impact Assessment. Stormwater management and water quality control assessment has been carried out as per the guidelines. |

| Guideline/policy name | Overview of guideline and where guideline has been used |
|---|---|
| ***Australian and New Zealand Water Quality Guidelines*** **(ANZG, 2018)** | The recommended ANZG guideline values for water quality have been used to describe and assess the existing water quality of the receiving environments of the project, the potential impacts of the project on water quality, and the development of the mitigation measures for the project. |
| ***Australian Drinking Water Guidelines*** **(NHMRC, 2011)** | The primary guidance document on drinking water quality in Australia has been used to describe the existing water quality of Prospect Reservoir, and considered as part of the water quality impact assessment and development of the mitigation measures for the project. |
| ***NSW Water Quality and River Flow Objectives*** **(DECCW, 2006), and the** ***Healthy Rivers Commission Inquiry*** **(HRC, 1998)** | These guidelines provide the agreed environmental values and long term goals for surface water in NSW and have been used to consider the environmental values for the project and to describe existing water quality.<br>At the time that the Water Quality Objectives were approved for catchments across NSW (September 1999), the Hawkesbury-Nepean catchment was subject to an independent inquiry by the Healthy Rivers Commission (HRC) (HRC, 1998). The HRC inquiry into the Hawkesbury-Nepean system determined water quality objectives which recognised the communities 'environmental values' and uses of the waterways. These water quality objectives were agreed to by the NSW Government through a statement of Joint Intent in 2001.<br>The Healthy Rivers Commission (HRC) guidelines are relevant to the project as they establish environmental values for different regions of the Hawkesbury-Nepean River Catchment, within which the project is located. The HRC water quality objectives have been adopted as the relevant water quality objectives for the project, however the associated water quality criteria for protection of these values will be adopted from the ANZG (2018) Water Quality Guidelines, as these were established more recently than the HRC guidelines. As such, the ANZG (2018) water quality guideline values take precedence for assessment of the existing water quality of the receiving environments. |
| ***Policy and Guidelines for Fish Habitat Conservation and Management*** **(DPI, 2013)** | In identification of the sensitive receivers for the project. |
| ***Approved Methods for the Sampling and Analysis of Water Pollutants in NSW*** **(Department of Environment and Conservation, 2004)** | To determine the water quality monitoring program for the project. |
| ***Acid Sulfate Soils Assessment Guidelines*** **(Ahern et al, 1998)** | Used to develop mitigation and management measures associated with the exposure of acid sulfate soils on the project site. |

## 13.3 Assessment methodology

The soils and surface water quality assessment for the project included:

- A desktop review of publicly available information relating to the physical environment within and around the project site (including climate, catchment history, topography, hydrology, the soil landscape and environmental values) to determine the baseline (existing) environmental conditions for the assessment of potential project impacts on soils and surface water quality. Information was collated from the following sources:
  - Australian Department of Agriculture, Water and the Environment
  - NSW Department of Planning, Industry and Environment
  - Water NSW
  - Australian Bureau of Meteorology (BoM)
  - Sydney Water
  - Blacktown City Council

- Identification of sensitive receiving environments using aquatic habitat and proximity to drinking water supply as indicators
- A site walkover inspection conducted in February 2020 to validate the results of the desktop review and gather any additional site information
- A review of relevant water quality monitoring data provided by Sydney Water and Blacktown City Council
- An assessment of potential impacts related to construction of the project including identifying potential risks to soils and surface water quality
- An assessment of potential impacts related to the operation of the project, including a qualitative Neutral or Beneficial Effect (NorBE) assessment, accounting for proposed operational conditions of the project site
- Identification of mitigation and management measures, including water quality controls and recommendations for a Water Quality Monitoring Program during pre-construction, construction and operation of the project.

The assessment of potential impacts on soil was limited to issues relating to erosion and sedimentation. Potential contamination of soils has been assessed in Technical Paper 8 (Contamination), and the results of the assessment summarised in Chapter 14 (Contamination).

### 13.3.1 Study area

The study area for the surface water quality assessment was defined based on the area directly affected by the project and any additional areas likely to be indirectly affected by the project. As a result, the study area comprises the project footprint, with a 500 metre buffer, as shown on Figure 13-1.

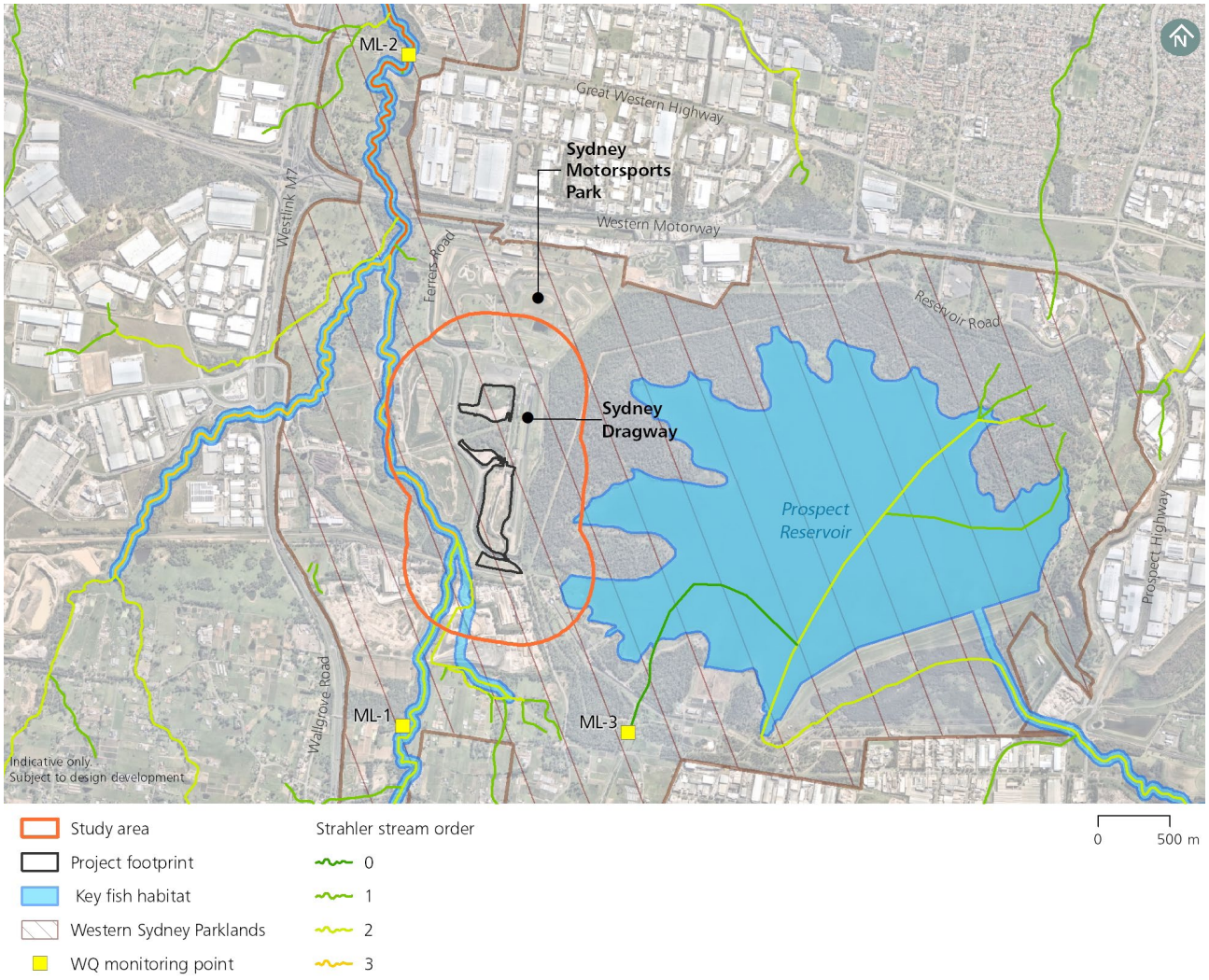


Figure 13-1 Soils and surface water study area

### 13.3.2 Water quality objectives and trigger values

The water quality objectives and associated trigger values considered in the assessment of surface water impacts of the project are provided in Table 13-3.

The *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (2018) (ANZG) are the updated national water quality guidelines and replace the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ, 2000). ANZG (2018) Water Quality Guidelines provide a framework for conserving ambient water quality in rivers, lakes, estuaries and marine waters.

The ANZG (2018) guidelines for Fresh and Marine Water Quality indicate default guideline values for most water quality indicators and list a range of environmental values assigned to a specific waterbody. The ANZG (2018) Guidelines for Fresh and Marine Water Quality have been considered when describing the existing water quality of the receiving environments, as well as during the impact assessment and development of the recommended mitigation strategy. The available monitoring data for existing water quality has been compared to the default guideline values for 95 per cent species protection in aquatic ecosystems to determine baseline conditions, in accordance with the ANZG (2018) Guidelines recommendations for slightly to moderately disturbed systems.

The ANZECC/ARMCANZ Water Quality Guidelines (2000) have remained where default trigger values have not yet been developed, i.e. for physiochemical indictors.

Table 13-3 Water quality objectives and trigger values considered in the assessment

| Water quality objective | Indicators | Associated guideline/trigger values and criteria |
|---|---|---|
| **Aquatic ecosystems** | | |
| **Maintaining or improving the ecological condition of waterbodies and riparian zones over the long term** | Total phosphorus | 25 micrograms per litre (µg/L) |
| | Total nitrogen | 350 µg/L |
| | Chlorophyll-a | 3 µg/L |
| | Turbidity | 6-50 Nephelometric Turbidity Units (NTU) |
| | Salinity (electrical conductivity) | 125-2200 microsiemens per centimetre (µS/cm) |
| | Dissolved oxygen | 85-110 per cent saturation |
| | pH | 6.5-8.5 |
| | Toxicants | As per ANZG (2018) toxicant default guideline values (95 per cent level of protection for slightly to moderately disturbed ecosystems and 99 per cent level of protection for toxicants that bioaccumulate). |
| **Visual amenity** | | |
| **Aesthetic qualities of waters** | Visual clarity and colour | Natural visual clarity should not be reduced by more than 20 per cent. Natural hue of water should not be changed by more than 10 points on the Munsell Scale. The natural reflectance of the water should not be changed by more than 50 per cent. |
| | Surface films and debris | Oils and petrochemicals should not be noticeable as a visible film on the water, nor should they be detectable by odour.<br>Waters should be free from floating debris and litter. |
| | Nuisance organisms | Macrophytes, phytoplankton scums, filamentous algal mats, blue-green algae, sewage fungus and leeches should not be present in unsightly amounts. |

| Water quality objective | Indicators | Associated guideline/trigger values and criteria |
|---|---|---|
| **Secondary contact recreation** | | |
| **Maintaining or improving water quality of activities such as boating and wading, where there is a low probability of water being swallowed** | Faecal coliforms, enterococci, algae and blue-green algae | As per the NHMRC 2008 Guidelines for managing risks in recreational water. |
| | Nuisance organisms | As per the visual amenity guidelines. Large numbers of midges and aquatic worms are undesirable. |
| | Chemical contaminants | Waters containing chemicals that are either toxic or irritating to the skin or mucous membranes are unsuitable of recreation.<br>Toxic substances should not exceed values in Table 9.3 of NHMRC (2008) guidelines. |
| | Visual clarity and colour | As per the visual amenity guidelines. |
| | Surface films | As per the visual amenity guidelines. |
| **Irrigation water supply** | | |
| **Protecting the quality of waters applied to crops and pastures** | Algae and blue-green algae | Should not be visible. No more than low algae levels are desired to protect irrigation equipment. |
| | Salinity (electrical conductivity) | To assess the salinity and sodicity of water for irrigation use, a number of interactive factors must be considered including irrigation water quality, soil properties, plant salt tolerance, climate, landscapes and water and soil management. For more information, refer to Chapter 4.2.4 of ANZECC/ARMCANZ (2000) Guidelines. |
| | Thermotolerant coliforms (faecal coliforms) | Trigger values for thermotolerant coliforms in irrigation water used for food and non-food crops are provided in Table 4.2.2 of the ANZECC/ARMCANZ (2000) Guidelines. |
| | Heavy metals and metalloids | Long term trigger values (LTV) and short-term trigger values (STV) for heavy metals and metalloids in irrigation water are presented in Table 4.2.10 of the ANZECC/ARMCANZ (2000) guidelines. |
| **Homestead water supply** | | |
| **Protecting water quality for domestic use in homesteads, including drinking, cooking and bathing** | Blue-green algae | Recommended twice weekly inspections during danger period for storages with history of algal blooms. No guideline values are set for cyanobacteria in drinking water. In water storages, counts of less than (<) 1000 algal cells per millilitre (mL) (cells/mL) are of no concern.<br>Greater than (>) 500 algal cells/mL - increase monitoring.<br>>2000 algal cells/mL – immediate action indicated; seek expert advice.<br>>6500 cells/mL – seek advice from health authority. |
| | Turbidity | 5 NTU; <1NTU desirable for effective disinfection; >1 NTU may shield some micro-organisms from disinfection. |
| | Total dissolved solids | 500 milligrams per litre (mg/L) is regarded as good quality drinking water based on taste.<br>500-1000mg/L is acceptable based on taste.<br>>1000mg/L may be associated with excessive scaling, corrosion and unsatisfactory taste. |

| Water quality objective | Indicators | Associated guideline/trigger values and criteria |
|---|---|---|
| **Protecting water quality for domestic use in homesteads, including drinking, cooking and bathing cont.** | Faecal coliforms | Zero faecal coliforms per 100mL (0/100mL). If micro-organisms are detected in water, advice should be sought from the relevant health authority.<br>See also the guidelines for Microbiological Quality in relation to Monitoring, Monitoring Frequency and Assessing Performance in the Australian Drinking Water Guidelines (NHMRC and NRMMC, 2018). |
| | pH | 6.5 - 8.5 |
| | Chemical contaminants | See Guidelines for Inorganic Chemicals in the Australian Drinking Water Guidelines (NHMRC and NRMMC, 2018). |

### 13.3.3 Neutral or Beneficial Impact (NorBI) assessment

In accordance with Clause 13 of the *State Environmental Planning Policy (Western Sydney Parklands) (2009)*, an assessment was carried out to determine whether the project would have a neutral or beneficial impact on the quality of the water in the bulk water supply infrastructure within the Western Sydney Parklands, being the Prospect Reservoir and the Warragamba Pipelines. The Neutral or Beneficial Impact (NorBI) assessment was carried out in line with the *Neutral or Beneficial Effect on Water Quality* (NorBE) *Assessment Guideline (2015)* event though NorBE does not apply in this case, because there is no such guideline for NorBI assessments.

The Neutral or Beneficial Effect on Water Quality Assessment Guideline indicates that a neutral or beneficial effect on water quality is satisfied if the development:

- Has no identifiable potential impact on water quality, or
- Will contain any water quality impact on the development site and prevent it from reaching any watercourse, waterbody or drainage depression on the site, or
- Will transfer any water quality impact outside the site where it is treated and disposed to standards approved by the consent authority.

MUSIC water quality modelling was carried out for the Prospect Reservoir to estimate current pollutant loads, compare the estimated pollutant loads to the proposed pollutant loads and identify water quality controls (if any) that may be required. MUSIC is a modelling software that simulates rainfall, stormwater runoff and pollution. It also simulates pollution removal and flow reduction through stormwater management systems such as sediment ponds, wetlands, bioretention and harvesting. The MUSIC model used half-hourly rainfall data from the Bureau of Meteorology's monitoring station at Liverpool, and typical run off concentrations for pavement and landscaped areas based on WaterNSW's *Using Music in Sydney Drinking Catchment guidelines* (2019). Three pollutants, Total Suspended Solids (TSS), Total Nitrogen (TN) and Total Phosphorus (TP) were modelled.

Given that the water within the Warragamba Pipelines is enclosed within the Bulk Water Supply infrastructure, there is no pollution pathway for run off from the project site to impact the water quality. Therefore, the neutral or beneficial effect assessment was limited to a qualitative assessment, rather than quantitative modelling, for water quality in the Pipelines.

### 13.3.4 Water quality controls

The most critical erosion and sediment controls during the construction stage are diversion drains and sediment basins. The diversion drains ensure that:

- External 'clean' runoff does not enter and mix with site runoff
- Internal 'dirty' runoff is conveyed to the proposed sediment basin for treatment.

The sediment basins capture coarse and fine sediments and release treated runoff into the downstream receivers. An assessment was carried out to identify the indicative location of the proposed temporary sediment basins that would likely be required for the construction stages of the project. Site specific design parameters were used to size the sediment basins including rainfall intensity for two year Average Recurrence Interval (ARI) rainfall event. Indicative sediment basin volumes were derived from these key elements and the design methodology of *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book'. More information on the locations and volumes of the sediment controls to be implemented as part of construction of the project are provided in Chapter 5 (Project description).

## 13.4 Existing environment

### 13.4.1 Soils

#### Soil types

The *Soil Landscapes of Sydney 1:100,000 Sheet* (Department of Conservation and Land Management, 1989) shows the study area is located within the Blacktown and South Creek soil landscapes.

The Blacktown soil landscape comprises most of the study area (including the project footprint), and is characterised by shallow to moderately deep hard setting mottled texture contrast soils (clays and loams) occurring on gently undulating rises. Limitations of this soil landscape include localised seasonal waterlogging, localised water erosion hazard and localised surface movement potential.

Towards the west of the study area is the floodplain of Eastern Creek. This area is mapped on the *Soil Landscapes of Sydney 1:100,000 Sheet* as the South Creek soil landscape that is typical of the floodplains of drainage network throughout the Cumberland Plain. This soil landscape is comprised of clayey and loamy alluvial topsoils, that in this location would be associated with the fluvial soils of Eastern Creek.

Large areas of the project site have been raised above the natural levels by fill materials of unknown composition. Previous site investigations found that residual soils (where not replaced by fill) are clayey and derived from weathered siltstone and sandstone rock, typically three to six metres thick. However, widespread fill material has been identified by site investigations carried out for the project (see Chapter 14 (Contamination) for more information).

#### Acid sulfate soils

Acid sulfate soils are the common name given to naturally occurring sediments and soils containing iron sulfides. Excavation, drainage or groundwater drawdown of this soil type can result in exposure of the sulfides within these soils to oxygen which can generate sulfuric acid. Areas of acid sulfate soils are typically found in low-lying and flat locations that are often swampy or prone to flooding.

Based on the project site elevation of 50 – 60 metres Australian Height Datum (AHD) and the acid sulfate soils risk maps from the NSW Department of Planning, Industry and Environment, acid sulfate soils are considered very unlikely in the residual natural soils present within the project site. However, the existing fill material within the man-made mounds could potentially contain soils with acid sulfate soils risk (refer to Chapter 14 (Contamination) and Technical Paper 8 (Contamination) for more information).

### Soil salinity

Soil salinity refers to the movement and concentration of salt in soils as a result of weathering rock materials, historic inland seas and deposition of salt from the ocean onto land by wind or rain. Soil salinity mapping by the NSW Department of Planning, Industry and Environment identifies high land salinity potential in the study area, with frequent small to moderate (0.1 to one hectares) cyclic salt sites in the landscape. Some larger sites also occur along drainage lines and colluvial slopes. Localised salt cycling and deeper groundwater rise may contribute to the total salt affected land. Salt load (the amount of salt carried in rivers, streams and groundwater) in the study area is high, with potentially high salt export driven by groundwater discharge and surface water runoff into streams.

## 13.4.2 Surface water

### Catchments

The project site and associated study area are located within the South Creek sub catchment of the Hawkesbury-Nepean surface water catchment. The Hawkesbury-Nepean catchment covers an area of more than 22,000 square kilometres and provides drinking water, recreational opportunities, agricultural and fisheries produce, and tourism resources for the Sydney Metropolitan area.

The South Creek sub catchment encompasses most of the Cumberland Plain of Western Sydney, covering an area of 620 square kilometres. The sub catchment has been extensively modified and disturbed due to land clearing and urbanisation resulting in substantial degradation of water quality, habitat and geomorphology. Drainage within the South Creek sub catchment is from south to north, towards the Hawkesbury River, which is located about 27 kilometres north of the study area.

The main watercourses within the South Creek sub catchment comprise perennial streams including South Creek and its major tributaries: Lowes Creek, Rileys Creek, Kemps Creek, Ropes Creek and Eastern Creek (Department of Planning, Industry and Environment, 2019), which generally flow in a northerly direction toward the Hawkesbury River. Of these watercourses only Eastern Creek is located within the study area, about 130 metres west of the project site.

The project is not located within the Sydney drinking water catchment (as defined by the *State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011)*. However, Prospect Reservoir (located to east of the project site and within the study area) is an integral part of Sydney's drinking water supply and is used regularly in times of high demand for water and when other parts of the water supply system are taken offline for maintenance. Prospect Nature Reserve forms a major part of the catchment area for Prospect Reservoir and is located within a Special Area under the *Sydney Water Catchment Management Act 1998* to protect its role as part of Sydney's water supply.

### Key watercourses

Eastern Creek receives stormwater discharge from the study area via a series of culverts and ephemeral drains. It is a third order Strahler stream that flows into South Creek about 24 kilometres to the north of the study area. An analysis of discharge rates and water levels of Eastern Creek are suggestive of high magnitude and short duration discharges (i.e. flashy responses) in response to rainfall, with baseflow maintaining water levels at around 0.76 metre depths within the channel.

At the time of the site inspection in February 2020, Eastern Creek had no visible flow, and low water depth. Visual assessment of water quality identified high turbidity and a slight hydrogen sulfide odour. The channel was about three metres wide and 1.5 metres deep. Channel definition was apparent on both banks, which had steep gradients. The substrate was predominantly silt and clay, and there was evidence of active erosion, including undercutting, along both banks.

Instream aquatic habitat was present, including emergent macrophytes, large woody debris, large native tree species and overhanging vegetation. Several weed species including Lantana (*Lantana camara*) and Blackberry weed (*Rubus friticosus agg.*) were also established extensively along the banks and in the riparian zone. Due to the aquatic habitat features present, Eastern Creek has been classified as "Type 2 – Moderately sensitive key fish habitat".

Drainage across the study area is generally to the west, towards Eastern Creek, however the southern portion of the study area is observed to drain to the east towards the Prospect Reservoir. An un-named and un-mapped ephemeral creek intersects the centre of the study area along the shallow valley that separates Carpark C and Carpark D. The creek line flows through a culvert which passes under Ferrers Road and discharges across the adjacent land to the west of the study area before forming a confluence with Eastern Creek.

### Water quality

The available water quality monitoring data for Eastern Creek was provided by Sydney Water and Blacktown City Council, and is summarised in Table 13-4. All water quality monitoring locations are outside of the study area, as shown on Figure 13-1. Data from the Upper Canal at the entrance to the Prospect Reservoir was collected by Sydney Water between August 2019 and February 2020 and was considered indicative of the water quality of Prospect Reservoir for the purposes of this assessment. Water quality monitoring data for Prospect Reservoir was not available.

Table 13-4 Available water quality monitoring data

| Reference | Location description | Data source | Data range |
|---|---|---|---|
| **ML-1** | Eastern Creek, about 3.5 kilometres downstream of the project site | Blacktown City Council | 2014-2019 |
| **ML-2** | Eastern Creek, about 1.5 kilometres upstream of the project site | Sydney Water | 1989-1990, 2006-2007, May 2017, Nov 2018 |
| **ML-3** | The Upper Canal at the entrance to Prospect Reservoir, about one kilometre southeast of the project site | Sydney Water | 2019-2020 |

As the Upper Canal is part of the Sydney drinking water supply system, parameters that have been reported are related to drinking water quality (rather than the ANZG (2018) Water Quality Guidelines) and include pH, turbidity, colour, odour and some toxicants. pH remained within the recommended guideline range outlined in the *Australian Drinking Water Guidelines* at all times (6.5 – 8.5). Concentrations of heavy metals and chlorine were always found to be below the recommended default trigger values, but the trigger value for turbidity was exceeded 15 per cent of the time.

A review of the available water quality monitoring data and comparison to the ANZG (2018) Water Quality Guidelines is provided in Table 13-5. Monitoring data in red denotes an exceedance of the ANZG Water Quality Guidelines. Degraded in-stream conditions are present within Eastern Creek at both monitoring sites, resulting from elevated concentrations of total nitrogen, total phosphorous, and chlorophyll-a, along with low levels of dissolved oxygen, and high turbidity. High salinity is also observed downstream of the project site; however, this is limited to 80th percentile conditions and is likely reflective of saline landscape conditions. Elevated ammonia concentrations are observed upstream of the project site at 80th percentile values and above, exceeding the ANZG (2018) criteria for 95 per cent species protection.

Table 13-5 Percentile distributions for Eastern Creek water quality data

| Parameter | Water quality monitoring location | | | | | | ANZG (2018) Criteria |
|---|---|---|---|---|---|---|---|
| | ML-1 20%ile* | ML-1 Median | ML-1 80%ile** | ML-2 20%ile* | ML-2 Median | ML-2 80%ile** | |
| **Electrical conductivity (µS/cm)** | 776.40 | 1690.00 | 4228.00 | 759.60 | 1019.00 | 1471.00 | 125-2200 |
| **pH (units)** | 7.17 | 7.35 | 7.57 | 7.32 | 7.43 | 7.77 | 6.5-8.5 |
| **Turbidity (NTU)** | 5.43 | 12.90 | 58.52 | 38.86 | 86.05 | 357.40 | 6-50 |
| **Dissolved oxygen (% sat)** | 18.76 | 34.90 | 63.84 | 14.22 | 26.85 | 48.50 | 80-110 |
| **Temperature (°C)** | 11.34 | 14.90 | 20.96 | 10.58 | 17.35 | 20.30 | - |

| Parameter | Water quality monitoring location | | | | | | ANZG (2018) Criteria |
|---|---|---|---|---|---|---|---|
| | ML-1 20%ile* | ML-1 Median | ML-1 80%ile** | ML-2 20%ile* | ML-2 Median | ML-2 80%ile** | |
| **Total suspended solids (mg/L)** | 5.00 | 10.00 | 27.20 | ND | ND | ND | - |
| **Total nitrogen (mg/L)** | 1.06 | 1.50 | 2.00 | 1.36 | 4.2 | 5.18 | 0.35 |
| **Ammonia (mg/L)** | 0.02 | 0.06 | 0.15 | 0.192 | 0.42 | 1.91 | 0.9 |
| **Total oxidised nitrogen (mg/L)** | 0.01 | 0.08 | 0.42 | 0.03 | 0.7 | 2.42 | - |
| **Total Kjeldahl nitrogen (mg/L)** | 0.86 | 1.30 | 1.80 | ND | ND | ND | - |
| **Total phosphorous (mg/L)** | 0.17 | 0.32 | 0.62 | 0.21 | 0.262 | 0.41 | 0.025 |
| **Chlorophyll-a (mg/m3)** | 2.00 | 5.00 | 36.80 | 6.24 | 28.45 | 42.78 | 3 |
| **Enterococci (CFU/100mL)** | ND | ND | ND | 74.4 | 125 | 476 | - |
| **Faecal coliforms (CFU/100mL)** | ND | ND | ND | 31.2 | 124 | 238 | - |

* *The 20%ile is the value below which 20 per cent of data fall. It is often used in analysis of parameters where lower concentrations indicate poorer water quality (for example dissolved oxygen).*

** *The 80%ile is the value below which 80 per cent of data fall. It is often used in analysis of parameters where higher concentrations indicate poorer water quality (for example toxicants).*

#### Sensitive receiving environments

A sensitive receiving environment has a high conservation or community value or supports ecosystems or human uses of water that are particularly sensitive to pollution or degradation of water quality. Eastern Creek and Prospect Reservoir have been assessed as sensitive receiving environments for the Sydney International Speedway due to their identification as Type 2 – Moderate Key Fish Habitat', and the classification of the Prospect Reservoir as bulk drinking water supply infrastructure.

## 13.5 Avoidance and minimisation of impacts

The construction methodology and design development of the Sydney International Speedway has aimed to avoid or minimise potential soils and surface water impacts. This has included:

- Provision of an operational stormwater drainage system that would have the capacity to convey stormwater flows from the entire project site to the on-site detention storage tanks during a 100 year average recurrence interval (ARI) rainfall event
- Heights and slopes of temporary and permanent stockpiles and batters have been designed to provide adequate stabilisation of material.

## 13.6 Assessment of potential construction impacts

Construction activities, including vegetation clearance, earthworks and stockpiling present a potential risk to soils and water quality if management measures are not implemented, monitored and maintained throughout the construction phase of the project. Potential impacts of the project to soils and surface quality throughout construction of the project are described in Section 13.6.1 and 13.6.2, respectively.

### 13.6.1 Soils

#### Soil erosion and sedimentation

Mitigation measures would be implemented to manage potential impacts of construction on the soil environment. It is expected that soil erosion would be adequately managed in accordance with measures applied from the Blue Book (*Managing Urban Stormwater: Soils and Construction Volume 1 (Landcom, 2004) and Managing Urban Stormwater: Soils and Construction Volume 2* (Department of Environment and Climate Change, 2008a)). Relevant measures would be designed for the 80th percentile; five day rainfall event.

Potential impacts could include temporary exposure of the natural ground surface and subsurface through the removal of vegetation and earthworks. The temporary exposure of soil to water runoff and wind erosion could potentially increase soil erosion potential. There is the potential that exposed soils – and other unconsolidated materials, such as spoil, sand and other aggregates – could be transported from the construction site into surrounding waterways via stormwater runoff.

Potential impacts and mitigation measures associated with contaminated soils have been assessed within Technical Paper 8 and Chapter 14 (Contamination).

#### Acid sulfate soils

While it is not expected to encounter acid sulfate soils within the residual natural soils present within the project site (refer to Section 13.4.1), the excavation of existing fill material within the man made mounds could result in exposure of acid sulfate soils if present. If acid sulfate soils are encountered, they would be effectively managed in accordance with the *Acid Sulfate Soil Manual* (Acid Sulfate Soil Management Advisory Committee, 1998). The manual includes procedures for the investigation, handling, treatment and management of such soils.

Exposure of acid sulfate soils could result in the release of acid sulfates, which would potentially damage surrounding vegetation, or cause acidic runoff offsite which would damage aquatic habitats.

#### Saline soils

Any potential salinity impacts would be managed in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008). Excavation and earthworks during construction of the project, if not managed appropriately may cause salinity impacts where there is disturbance of saline soils, often associated with changes to the groundwater system. Salinity impacts may include locally severe salt scalding across landscape elements, damage to buildings and infrastructure, fluvial and sheet erosion, high instream salinity, localised waterlogging, flood hazard, and a potential decline in water quality.

### 13.6.2 Surface water

Standard construction management measures would be implemented to minimise potential temporary risks to downstream water quality from construction.

Construction of the project may have a temporary, potential impact on watercourses through the disturbance of soil or other materials from within the project site and mobilisation into nearby waterways, which may affect water quality and ecosystem health. The potential impacts to surface water quality from construction of the project are summarised in Table 13-6.

Table 13-6 Potential surface water impacts during construction

| Construction activity | Potential impacts |
|---|---|
| **Earthworks and stockpiling** | Potential exposure of soils during earthworks (including stripping of topsoil, excavation, stockpiling and transport of materials), could result in temporary movement of eroded sediments and exposed contaminated soils by wind and/or stormwater into receiving waterways. If sediments enter waterways, they could potentially directly and/or indirectly impact on the aquatic environment by increasing turbidity, reducing dissolved oxygen levels, and increasing the concentration of nutrients and heavy metals. |
| **Earthworks – change in site topography** | Changes in site topography has the potential to alter existing drainage regimes, causing the whole site to drain towards Eastern Creek, rather than some areas of the project site draining eastwards to the Prospect Reservoir. This increase in run off volume towards Eastern Creek may increase the potential for erosion. |

| Construction activity | Potential impacts |
|---|---|
| **Discharge of water from sediment basins** | Discharge of water from sediment basins into local waterways during construction may mobilise sediments and contaminants and increase the turbidity of the receiving environments along the project. This may potentially impact on water quality. If large volumes of water are discharged, the potential for scour in downstream waterways may be increased. |
| **Removal of vegetation** | The removal of vegetation has the potential to increase the risk of erosion and sedimentation, particularly in areas near drainage lines. Vegetation removal would reduce the absorption capacity of the ground surface which may also increase the velocity of the flow of stormwater across the project site.<br>Tannins from mulching vegetation can also result in dark coloured water being discharged from construction sites into downstream waterways. This could potentially affect the visual amenity of the waterway, alter the pH, reduce visibility and reduce light penetration. |
| **Accidental spills** | Accidental spills or leaks could occur from the maintenance or re-fuelling of construction plant and equipment machinery, or from vehicle/truck incidents travelling to and from the project site. Contaminants could potentially be transported downstream to receiving waters via drainage infrastructure. |
| **Concrete activities** | Concreting activities could result in the discharge of concrete dust, concrete slurries or washout water to downstream waterways. This could potentially increase the alkalinity and pH of downstream waterways which can be harmful to aquatic life. Concrete solids contained in the discharge also have the potential to clog stormwater pipes and cause flooding. |

**Performance against NSW water quality objectives**

The proposed diversion drains and temporary sediment basins proposed for construction of the project to manage the discharge of runoff and sedimentation, would be designed to minimise pollutant loading to downstream waterways during the construction of the project. Runoff from the construction phase of the project is designed to meet standards outlined in the Blue Book, including less than 50 milligrams per litre total suspended solids and pH concentration between 6.5 and 8.5. It is expected that the mitigation measures described in Table 13-8, would minimise potential surface water quality impacts such that there would not be any additional exceedances of the relevant criteria in the ANZG (2018) Water Quality Guidelines.

As there is limited data to inform the characterisation of existing water quality, additional baseline monitoring would be required before construction starts to assist in determining whether the current water quality objectives are being met and to establish discharge criteria for sediment basins. This would include reference and control sites (upstream and downstream of the project).

## 13.7 Assessment of potential operational impacts

### 13.7.1 Soils

During the operation of the project, the potential impacts on soils are limited, as there would be no ongoing ground disturbance and the majority of surfaces exposed during construction would be sealed or landscaped. The racetrack itself would have an exposed clay surface with other composite materials added to assist with dust minimisation. The racetrack would be subject to a dust suppression regime as described in Chapter 9 (Air quality), in order to minimise the generation of airborne dust that could be blown into local watercourses. Drainage infrastructure around the racetrack would capture surface water runoff in an on-site detention tank, where it would be treated to remove sediment before being discharged.

### 13.7.2 Surface water

#### Performance against NSW water quality guidelines

Permanent water quality controls including the provision of on-site detention tanks would be provided as part of the project design, which would aim to capture stormwater runoff from the project site during operations and treat water to an appropriate standard prior to discharge to receiving waterways so that there is no impact to downstream water quality. As such, the relevant criteria in the ANZG (2018) Water Quality Guidelines would continue to be met during the operational phase of the project. In addition, the on-site detention tanks would divert existing surface water flows away from Prospect Reservoir, resulting in a beneficial impact on the water quality of Prospect Reservoir, as described below.

Potential risks to surface water quality during operation of the Sydney International Speedway are associated with runoff of pollutants from new impervious surfaces (i.e. the grandstand and new car parking areas), and pollution associated with the use of vehicles, including increased vehicular traffic, refuelling, accidental spills or major vehicle incidents on the racetrack. Potential water quality impacts may include:

- An increase in surface water runoff which contains pollutants from vehicles (for example fuel spillage, tyre wear, vehicle incidents etc) being discharged to nearby watercourses
- An increase in the pollution load of road run off being discharged to nearby watercourses due to an increase in traffic associated with the project
- Changes to current hydrological regimes.

Surface water monitoring of nearby waterways would continue during operation of the project until the permanent water quality structures are deemed to be operating satisfactorily. Additional information about the monitoring and management of impacts to water quality are provided in Section 13.8.

#### Neutral or Beneficial Impact (NorBI) water quality assessment

The project would have a neutral impact on the water quality of the Warragamba Pipelines, given that the water within the Warragamba Pipelines is enclosed within the Bulk Water Supply infrastructure and there is no pollution pathway for run off from the project site to impact the water quality.

There would be no change to the existing hydrology of the southern area of the project site, which would continue to drain westwards into Eastern Creek, rather than south to the Warragamba Pipelines. In the unlikely event that water does flow into the Warragamba Pipeline corridor, it would not be able to enter the pipeline itself and there would be no potential for the water quality inside to be impacted.

The vibration assessment carried out for this Environmental Impact Statement concluded that vibration generated by construction equipment would not be of sufficient levels to cause damage to bulk water supply infrastructure, including the Warragamba Pipelines corridor (see Chapter 7 (Noise and vibration)).

The introduction of on-site detention tanks within the project site would alter the existing site hydrology, as catchments that currently discharge to Prospect Reservoir would ultimately discharge into Eastern Creek via the culverts underneath Ferrers Road. As a result of the altered hydrology, there is expected to be a small reduction in average annual pollutant loads for surface run off that discharge into Prospect Reservoir, as shown in the modelling results summarised in Table 13-7. This means that the project would result in a beneficial impact to the water quality of Prospect Reservoir and address the neutral or beneficial impact requirement of Clause 13 of the *State Environmental Planning Policy (Western Sydney Parklands) 2009* without the need for further mitigation during operation.

Table 13-7 MUSIC modelling results for surface run off into Prospect Reservoir

| Pollutant | Existing conditions | Proposed conditions | |
|---|---|---|---|
| | kilograms per year | kilograms per year | Per cent change in pollutant load |
| **Total suspended solids** | 13,300 | 12,500 | -6 |
| **Total nitrogen** | 22.4 | 22.2 | -1 |
| **Total phosphorous** | 96.5 | 94.6 | -2 |

## 13.8 Mitigation measures

### 13.8.1 Approach to mitigation measures

Potential construction related soils and surface water impacts would be managed in accordance with the Construction Environmental Management Framework, described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) and provided in Appendix C of this Environmental Impact Statement. The Construction Environmental Management Framework aims to minimise surface water pollution through erosion and sediment control, maintain the existing water quality of surrounding watercourses, and prioritise the use of non-potable water sources where feasible and reasonable. The Construction Environmental Management Framework specifically requires the preparation of a Soil and Water Management Plan and progressive erosion and sediment control plans that would be updated as needed to reflect site conditions.

The Construction Environmental Management Framework and any associated management plans would specify typical measures in accordance with *Soils and Construction: Managing Urban Stormwater* (Landcom, 2004; DECCW, 2008).

The operator of the Sydney International Speedway would prepare and implement an Operational Environmental Management Plan that would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. This would include measures and procedures for the ongoing maintenance of the stormwater management infrastructure.

### 13.8.2 Mitigation measures

Project specific mitigation measures that would be implemented to avoid, minimise and manage potential impacts to soils and surface water quality are listed in Table 13-8.

Table 13-8 Mitigation measures - soils and surface water quality

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Construction** | | | |
| **SSW1** | Acid sulfate soils | Prior to ground disturbance in areas of potential acid sulfate soil occurrence, testing would be carried out to determine the presence of actual and/or potential acid sulfate soils. If acid sulfate soils are encountered, they would be managed in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998). | All |
| **SSW2** | Soil salinity | Prior to ground disturbance in high probability salinity areas, testing would be carried out to determine the presence of saline soils. If salinity is encountered, excavated soils would be managed in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008) and would not be reused in other areas of the project site. Erosion controls would be implemented in accordance with Blue Book (Landcom, 2004). | All |
| **SSW3** | Erosion and sedimentation | Erosion and sedimentation measures would be implemented in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book'. | All |
| **SSW4** | Management of surface runoff | Any water collected on the project site during construction would be appropriately treated and discharged to avoid any potential contamination or local stormwater impacts.<br>Temporary sediment basins would be designed in accordance with *Managing Urban Stormwater: Soils and Construction and Managing Urban Stormwater, Volume 2D: Main Road Construction* (DECC, 2008). | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **SSW5** | Water quality monitoring | A surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to the project and inform appropriate management responses.<br>The program would be developed in consultation with the EPA and relevant Councils. Monitoring would occur prior to and during construction at all waterways with the potential to be impacted, including the unnamed drainage line between Carpark C and Carpark D, Eastern Creek and Prospect Reservoir.<br>Monitoring sites could be located upstream and downstream of the potential discharges and would include sampling for key indicators of concern. | All |
| **Operation** | | | |
| **SSW6** | Waste water discharge | Water treatment infrastructure would be designed so that surface water runoff/waste water is treated to a level that is compliant with the ANZECC/ARMCANZ (2000) and ANZG (2018) default guidelines for 95 per cent species protection. | All |
| **SSW7** | Water quality monitoring | An operational surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to the project and inform appropriate management responses. The monitoring program would be developed and implemented to align with the preconstruction and construction monitoring described in SSW5. | All |

### 13.8.3 Interactions between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential groundwater impacts include:

- Chapter 14 (Contamination), specifically measures that address contamination risks or the disturbance of contaminated land during construction
- Chapter 15 (Groundwater and geology), specifically measures that address groundwater levels and the migration of contaminants through groundwater
- Chapter 16 (Flooding and hydrology), specifically measures relating to stormwater flows.

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# 14 Contamination

# 14 Contamination

This chapter assesses the suitability of the project site for the Sydney International Speedway, having regard to any potential contamination, and identifies mitigation measures to minimise potential contamination impacts. This chapter draws on information provided in Technical Paper 8 (Contamination).

## 14.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to contamination, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 14-1.

Table 14-1 Secretary's Environmental Assessment Requirements – Contamination

| Reference | Requirement | Where addressed |
|---|---|---|
| **10. Soils and contamination** | | |
| **2.10.1** | The Proponent must assess whether the land is likely to be contaminated and identify if remediation of the land is required, having regard to the ecological and human health risks posed by the contamination in the context of past, existing and future land uses. Where assessment and/or remediation is required, the Proponent must document how the assessment and/or remediation would be undertaken in accordance with current guidelines. | Section 14.4 to Section 14.7 |

## 14.2 Legislative and policy framework

The contamination assessment considered the following guidelines:

- *Contaminated Land Management Act 1997*
- *Managing Land Contamination: Planning Guidelines SEPP 55 – Remediation of Land* (Department of Urban Affairs and Planning and Environment Protection Authority, 1998)
- *Consultants reporting on contaminated land: Contaminated Land Guidelines* (NSW EPA, 2020)
- *National Environment Protection (Assessment of Site Contamination) Measure 1999* (NEPM) (as revised 2013) (NEPC, 2013)
- *Protection of the Environment Operations Act 1997*
- *PFAS National Environmental Management Plan 2.0* (Department of Agriculture, Water and the Environment, 2020).

## 14.3 Assessment methodology

The preliminary site investigation for the project included the following key activities:

- A site inspection of the project site by an experienced contamination specialist
- Desktop review of available information sources and observations from site inspections to understand the existing environment and potential for contamination within the study area
- A high level prioritisation exercise including identification of areas of environmental interest with respect to contamination and assessment of potential impacts to environmental and human receptors (with no mitigation measures) as a result of proposed construction activities
- Identification of appropriate management and mitigation responses for contamination, or where further investigation or remediation may be required.

Additional detail about the assessment methodology for the preliminary site investigation is provided in Technical Paper 8 (Contamination).

### 14.3.1 Study area

The study area for the preliminary site investigation was defined as the project site and surrounding land within a 500 metre buffer.

For the purpose of the preliminary site investigation, the project site was divided into seven areas representing the various aspects of the proposed operation of the project, as shown in Figure 14-1:

- Area one – Carpark D (north)
- Area two – Carpark D (south)
- Area three – Carpark C
- Area four – Carpark A and amenities
- Area five – Speedway
- Area six – Carpark B and pits
- Area seven – permanent stockpile area south of Ferrers Road.

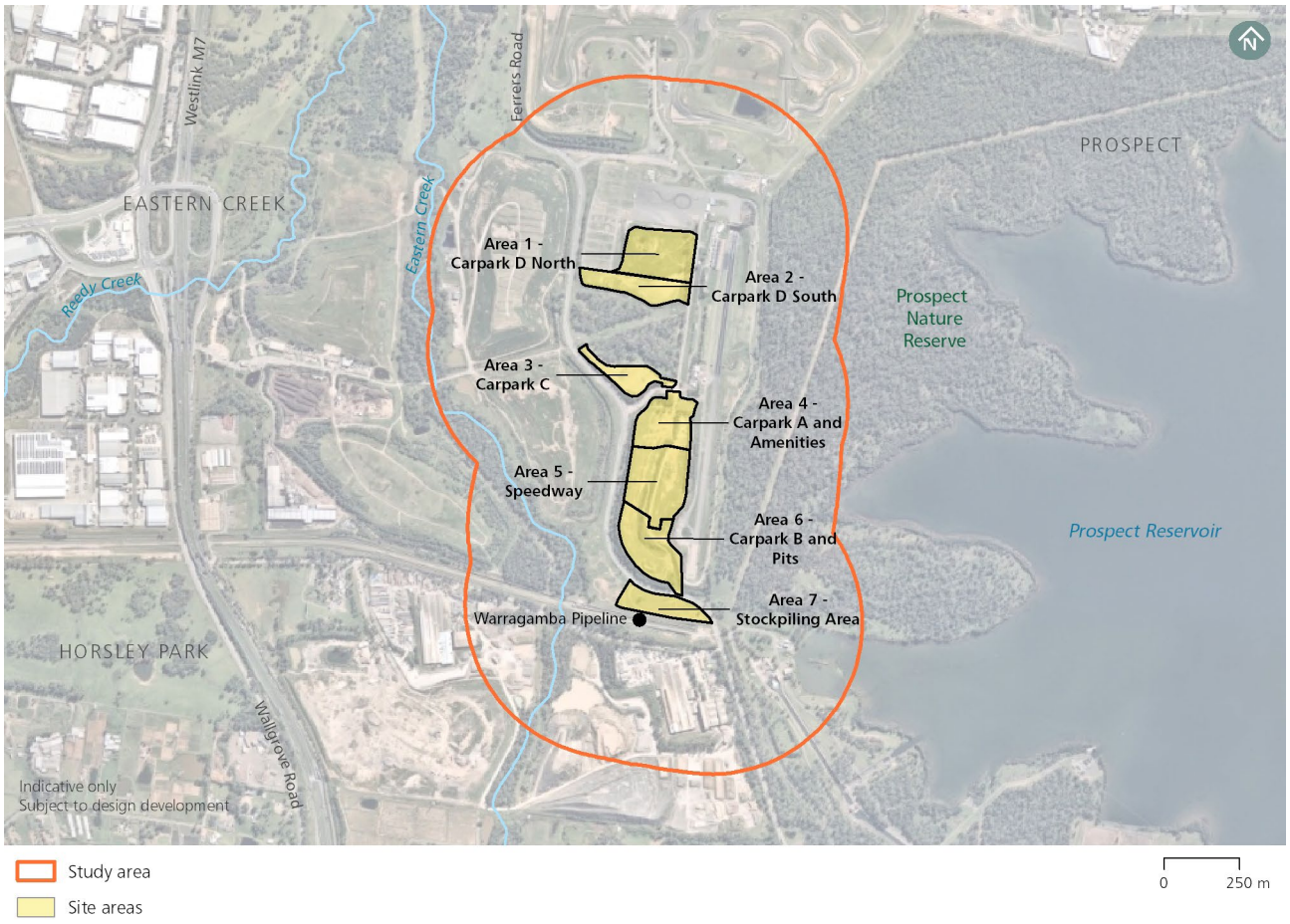


Figure 14-1 Contamination assessment areas

### 14.3.2 Risk prioritisation

A high level prioritisation exercise was carried out to assist in assessing the potential impact for construction to expose contamination to human and/or ecological receptors. The exercise considered source-pathway-receptor relationships consistent with a conceptual site model as defined by the *National Environment Protection (Assessment of Site Contamination) Measure 1999*, as revised 2013 (NEPC, 2013). The prioritisation exercise considered the severity and extent of contamination sources (refer to Table 14-2), and the potential pathways from contamination sources to human and ecological receptors (refer to Table 14-3) for each media, that is soil, groundwater and vapour.

Consideration was given to potential pathways for dust generation, vapour/gas emissions, excavation and disposal or reuse of soils, extraction and disposal or reuse of groundwater from dewatering or drainage, migration of groundwater via preferential pathways and surface water erosion. It is assumed that where construction activities would expose known or potential areas of contamination, there could be exposure pathways to construction workers. Where construction activities would be located within and/or adjacent to sensitive environmental receptors, pathways could exist as a result of uncontrolled site discharges during construction.

Potential human and ecological receptors could potentially include project construction workers and visitors, the public and nearby residents and commercial workers in the surrounding land use, maintenance workers, receiving water bodies and ecological receptors. Exposure could potentially result in direct dermal contact, ingestion or inhalation by human receptors and uptake by aquatic flora and intake by aquatic fauna.

Table 14-2 Contamination severity and extent categories

| Contamination severity and extent category | Description |
|---|---|
| **SE1** | Low potential for contamination to be present in the media of concern at concentrations above the relevant assessment criteria and is limited in spatial extent |
| **SE2** | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and is limited in spatial extent |
| **SE3** | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and potentially spatially widespread |
| **SE4** | Known contamination present in the media of concern at concentrations above the relevant assessment criteria and limited in spatial extent |
| **SE5** | Known contamination present in the media of concern at concentrations above the relevant assessment criteria and spatially widespread |

Table 14-3 Contamination pathways and receptor categories

| Pathways and receptors category | Description |
|---|---|
| **PR1** | Media of concern is unlikely to coincide with or otherwise impact construction areas and/or there is no or an unlikely exposure pathway for human or ecological receptors during construction of the project |
| **PR2** | Media of concern may intersect construction areas and exposure pathway for human or ecological receptors that could be present and complete during construction of the project |
| **PR3** | Media of concern would intersect construction areas and exposure pathway for human or ecological receptors that could be present and complete during construction of the project |

To provide the overall potential contamination risk for the project site, a matrix was used to combine the consideration of contamination severity and extent with contamination pathways and receptors as provided in Table 14-4.

Table 14-4 Potential contamination risk categories

| | | Contamination severity and extent | | | | |
|---|---|---|---|---|---|---|
| | | **SE1** | **SE2** | **SE3** | **SE4** | **SE5** |
| **Pathways and receptors** | **PR1** | Very low | Low | Low | Moderate | Moderate |
| | **PR2** | Low | Moderate | Moderate | High | High |
| | **PR3** | Moderate | Moderate | High | High | Very high |

The categories of potential contamination impact to construction activities as determined by the use of the matrix in Table 14-4 represent a qualitative assessment. Although not definitive, examples of the contamination status represented by the categories is provided below:

- *Very low to low impact* could represent smaller volumes of contaminated materials, likely to be limited to surface soils, with pathways readily managed with typical soil and water controls and personnel protective equipment, and readily remediated by standard construction methods
- *Moderate impact* could represent larger volumes of contaminated materials, with pathways readily managed with typical soil and water controls and personal protective equipment and readily remediated by standard construction methods or smaller volumes of more complex contamination which may require specialised remediation methods and specialised mitigation measures for pathways
- *High to very high impact* could represent greater exposure risks, contaminated groundwater and gas/vapours, increased quantum of contaminated materials and wider contamination extent requiring remediation and specialised remediation methods. Pathways may require specialised mitigation measures for example, positive pressure tents and odour control.

## 14.4 Existing environment and site history

The existing environment and site history as it relates specifically to contamination is described in Section 14.4.1 to Section 14.4.6. The zoning and land use context of the project site and surrounds is described in Chapter 1 (Introduction) and Chapter 18 (Property and land use).

### 14.4.1 Soils, geology, topography and drainage

The Penrith 1:100,000 surface geology mapping sheet (Clark & Jones, 1991) indicates the study area is underlain by Bringelly Shale of the Wianamatta Group. A narrow strip of Quaternary alluvium is present to the west of the project site along the general alignment of Eastern Creek. A geological fault line is located west of the project site trending along a north-south direction.

A review of the Penrith 1:100,000 soil landscape mapping sheet (Chapman and Murphy, 1989) identifies that the study area generally overlies residual soils belonging to the Blacktown Soil Landscape. A narrow strip of alluvial soils belonging to the South Creek Soil Landscape is present to the west of the project site, coincident with Quaternary alluvium geological features at this location, and the general alignment of Eastern Creek.

Site drainage is generally to the west towards Eastern Creek. Drainage from the southern portion of the project site towards Eastern Creek is facilitated through several culverts which extend from the project site and under Ferrers Road. Surface flows from the central and northern portions of the project site are directed to a wooded area at the centre of the project site, which is bisected by an unnamed Creek which flows west towards Eastern Creek via a culvert under Ferrers Road.

Additional information about the soils, geology and drainage of the project site are provided in Chapter 13 (Soils and surface water quality) and Chapter 15 (Groundwater and geology) of this Environmental Impact Statement.

### 14.4.2 Site history

A review of historic aerial imagery identified several potential sources of contamination within the project site and study area, including:

- Earthworks and emplacement of fill materials of unknown composition and thickness across the project site
- Earthworks and landfilling at the former SUEZ landfill (west of the project site) and Veolia Horsley Park Waste Management Facility (south of the project site)
- Waste recovery activities at the SUEZ Eastern Creek Resource Recovery Park, Veolia Horsley Park Waste Management Facility and Global Renewables resource recovery facility
- Use of the project site for four wheel drive training, off-road car racing and overflow parking for the Sydney Dragway
- Emplacement of small stockpiles in the southern portion of the project site.

The potential sources of contamination have been inspected as part of a site walkover carried out to inform Technical Paper 8 (Contamination).

### 14.4.3 Database searches

#### NSW EPA Contaminated sites register

There are no sites listed on the NSW Environmental Protection Authority Contaminated Sites Register within 500 metres of the project site.

#### NSW EPA Protection of the Environment Operations Act 1997 Public Register

There are five sites listed on the NSW EPA *Protection of the Environment Operations Act 1997* public register within 500 metres of the project that have Environmental Protection Licences. Details of the listings are provided in Table 14-5.

Table 14-5 Sites with current environment protection licences within 500 metres of the project site

| Address | Licence holder | Activity | Location relative to project* |
|---|---|---|---|
| **Wallgrove Road** | Waste Assets Management Corporation | Non thermal treatment of general waste | Adjacent (west of Ferrers road) |
| | | Waste disposal by application to land | |
| **Ferrers Road** | LMS Energy Pty Ltd | Generation of electrical power otherwise than from coal, diesel or gas | Adjacent (west of Ferrers road) |
| **Wallgrove Road** | Suez Recycling & Recovery Pty Ltd | Composting | 100 metres west |
| **738 – 780 Wallgrove Road** | The Austral Brick Co Pty Ltd | Ceramic waste generation | 200 metres south |
| | | Ceramics production | |
| | | Crushing, grinding or separating | |
| | | Land based extractive activity | |
| | | Mining for minerals | |
| **Wallgrove Road, Horsley Park**<br>**Wallgrove Road** | Veolia Environmental Services (Australia) Pty Ltd | Non thermal treatment of general waste, recovery of general waste, waste storage of other types of waste. | 500 metres southwest and west |
| | | Composting | |
| | | Non thermal treatment of waste | |
| | | Waste disposal by application to land | |

* *Location is taken from closest point between the licensed area and project site*

A search of sites with licensed activities under the *Protection of the Environment Operations Act 1997* identified landfill activities on adjacent properties that could potentially contaminate soil, groundwater and ground gas at the site due to migration of landfill leachate and/or landfill gas.

Former licenced activities indicate broad acre application of herbicides to control weeds in waterways, which represents potential legacy contamination issues.

### 14.4.4 Site inspection

A suitably experienced contamination specialist conducted a site inspection on 17 February 2020. The purpose of the site inspection was to make observations about the current conditions and adjacent land uses with respect to potential contamination.

The site inspection identified the following potential sources of contamination:

- Historic bulk earthworks and filling activities carried out on-site to form the current profile, and the unknown nature, extent, depth and contamination status of these fill materials
- Adjacent land uses to the west comprising waste recovery facilities, within which are known organic and putrescible wastes with potential to generate ground gas and leachate
- Waste materials (tyres, oil drums, construction and demolition waste, steel beams, cement bags, large plastic containers, fencing)
- Stockpiled soils.

### 14.4.5 Contaminants of potential concern and potential exposure pathways

The following potential contaminants of concern were identified:

- Soil and groundwater contamination from unknown fill material and soil contamination from waste storage on-site: Heavy metals, total recoverable hydrocarbons (TRH), polycyclic aromatic hydrocarbons (PAH), organochlorine pesticides (OCPs), organophosphate pesticides (OPPs), volatile organic compounds (VOCs)/ semi volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), and asbestos
- Soil and groundwater impacted by adjacent waste management facilities: VOCs, SVOCs, organic contaminants, hydrocarbons, heavy metals, and per and polyfluoroalkyl substances (PFAS) compounds
- Ground gas impacted by adjacent waste management facilities: Methane, carbon dioxide, carbon monoxide and hydrogen sulfate
- Soil and groundwater contamination from historical broad acre application of herbicides: OCPs, and OPPs.

Potential exposure pathways are direct contact, ingestion, and inhalation for human health (except for potential ground gas contamination where inhalation is the only exposure pathway). The exposure pathway for sensitive receiving ecological environments is biological uptake.

Vapours have the potential to accumulate within excavations and enclosed structures at the project site at concentrations which could represent an asphyxiation, explosion or acute/chronic health risk.

Landfill ground gas can also cause potential temporary odour issues that may impact nearby stakeholders. This may be particularly prevalent during construction, during which time mass soil disturbance could liberate ground gas contained within subsurface voids.

### 14.4.6 Existing contamination risk

The potential contamination risks within the project site during construction is described in Table 14-6. Areas of the project site have been categorised into five categories of potential contamination risk (very low, low, moderate, high and very high) based on the impact prioritisation methodology (refer to Section 14.3 and Technical Paper 8 (Contamination)).

Areas one to six have been identified as having a high contamination risk, due to historic bulk earthworks and filling activities carried out on-site to form the current landform profile, and the unknown nature, extent, depth and contamination status of these fill materials.

Moderate potential contamination impact from on-site waste materials and stockpiled soils have been identified in areas one to six. Moderate potential impacts from ground gas have been identified across the site because of gas migration from adjacent land uses (waste recovery). Moderate potential impacts from subsoils, groundwater and ground gas have been identified in area seven from adjacent land use (waste recovery facilities).

The potential impacts associated with these contamination risks during construction and operation of the project is detailed in Section 14.5 and Section 14.6.

Table 14-6 Contamination risks across the project site

| Area and construction activity | Potential contamination source | Contamination severity and extent assessment | | | Pathways and receptors<br>Assessment of relationship to construction and operational footprint and scope | | | Potential contamination risk |
|---|---|---|---|---|---|---|---|---|
| | | Media and COPCs | Contamination status | Rating | Potential for contamination to be intersected | Exposure pathways | Rating | |
| **Areas 1 to 6: Cut and fill** | Subsurface fill material and perched groundwater | Soil, groundwater, ground gas:<br>Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/ SVOCs, PCBs, asbestos, | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and potentially widespread | SE3 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include direct contact, ingestion, and inhalation for human health, and uptake for ecology [1,2,3,4,5] | PR3 | High |
| **Area 1: Cut and fill** | Waste materials (steel beams, cement bags, Intermediate Bulk Containers, fencing) | Soil:<br>Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/ SVOCs, PCBs, asbestos. | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent | SE2 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include direct contact, ingestion, and inhalation for human health [1] | PR3 | Moderate |
| **Area 2: Cut and fill** | Waste materials (tyres, oil drums, and construction/ demolition waste waste) | Soil:<br>Heavy metals, TRH, PAH, OCPs, OPPs, VOCs/ SVOCs, PCBs, asbestos. | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent | SE2 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include direct contact, ingestion, and inhalation for human health [1] | PR3 | Moderate |

| Area and construction activity | Potential contamination source | Contamination severity and extent assessment | | | Pathways and receptors<br>Assessment of relationship to construction and operational footprint and scope | | | Potential contamination risk |
|---|---|---|---|---|---|---|---|---|
| | | Media and COPCs | Contamination status | Rating | Potential for contamination to be intersected | Exposure pathways | Rating | |
| **Area 6: Cut and fill** | Stockpiled soils and construction/ demolition waste | Soil:<br>Heavy metals, TRH, TPH, PAH, OCPs, OPPs, VOCs/SVOCs, PCBs, asbestos. | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent | SE2 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include direct contact, ingestion, and inhalation for human health (1) | PR3 | Moderate |
| **Area 7: stockpiling area** | Contaminated subsoils, groundwater and ground gas | Soil, groundwater and/or ground gas: Heavy metals, TRH, TPH, PAH, OCPs, OPPs, VOCs/ SVOCs, PCBs, asbestos, | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and limited in extent | SE2 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include direct contact, ingestion, and inhalation for human health (1,3) | PR2 | Moderate |
| **Site wide cut and fill activities** | Ground gas impacted by adjacent waste management facilities (landfills) | Ground gas:<br>Methane, carbon dioxide, carbon monoxide, hydrogen sulfate. | Contamination possibly present in the media of concern at concentrations above the relevant assessment criteria and potentially widespread | SE3 | Contamination (if present) could be exposed during excavation. | Potential exposure pathways include inhalation for human health (3,4) | PR2 | Moderate |

*1 Construction workers and site users could be exposed to contamination via contact (dermal, ingestion, inhalation) with contaminated soils and dust.*
*2 Adjacent site users could be exposed to contamination via dust emissions (inhalation), namely asbestos.*
*3 Construction workers and site users could be exposed to contamination via vapour emissions.*
*4 Adjacent site users could be exposed to contamination via vapour emissions (inhalation).*
*5 Ecosystems of Eastern Creek, on-site native woodland, and associated tributaries could be exposed to contamination via uncontrolled releases (sediment and water) during construction.*

## 14.5 Assessment of potential construction impacts

Appropriate mitigation measures (as described in Section 14.7) would be implemented to manage potential contamination risks so that the overall risk would be low.

Contamination risks and impacts during construction can be broadly divided into two categories:

- Those that already exist on-site from previous activity
- Those that may be introduced or created from construction of the project.

The exposure of any contaminated materials during construction may increase the potential for contaminant mobilisation and may create additional exposure pathways to sensitive receivers (including environmental receptors), surface water bodies and groundwater bodies.

Earthworks during construction of the project could intersect areas of potential contamination identified in Table 14-6. These construction works would be appropriately managed to reduce the following potential impacts:

- Potential exposure of construction workers via pathways described in Section 14.4.6.
- Potential mobilisation of contamination into stormwater such that it impacts sensitive receiving ecological environments (on-site and off-site due to migration)
- Potential cross contamination of otherwise clean spoil and areas of the project site
- Potential direct contact with and discharge of potentially contaminated groundwater during any dewatering activities.

Higher risks would occur, and increased remediation or management effort would be required where materials have the potential to:

- Contain dispersible fibres (for example asbestos)
- Generate vapours (for example hydrocarbons and volatile organic compounds)
- Contain concentrations of contaminants that categorise the material at a higher waste classification (for example restricted waste, special waste, hazardous waste).

During construction there is also a potential general risk of spills of fuel, other hydrocarbons and waste material generated from storage of those products and from construction vehicles, plant and equipment at the project site that have the potential to contaminate soils. The risk associated with potential spills is manageable through the implementation of standard environmental management measures.

## 14.6 Assessment of potential operational impacts

The mitigation of any existing potential contamination risk within the project site would be subject to further review, assessment and remediation as part of future design development and construction, in accordance with the mitigation measures in Section 14.7. With the implementation of appropriate mitigation, the risk to visitors of the Sydney International Speedway and/or the local environment during operation of the project is low.

The relevant legislative and policy framework (refer Section 14.2) requires that the project site is determined to be suitable for the proposed land use in terms of any contamination (soil, groundwater or ground gas). The project site would be used as a speedway facility, with associated racing and event support infrastructure, as detailed in Chapter 5 (Project description) of this Environmental Impact Statement. Further site investigations would be carried out to quantify potential impacts and identify any mitigation measures that may be required for operation of the project (refer to Section 14.7 for more information).

The maintenance and refuelling of race cars within the project site during operation would require the storage and use of chemicals including fuels, solvents, oils, fluids, grease and detergents and generate wastes including (but not limited to) radiator fluids, degreasing fluids, hydraulic fluids, waste oils, batteries and tyres. Accidental spills and leaks of the oils, fuels and chemicals have the potential to result in contaminants being transported into the surrounding environment and groundwater. As most of the main operational site and competitor carpark and pits would comprise areas of hardstand, the potential for the migration of fuels and chemicals to soil, groundwater and nearby waterways is considered low. Waste materials would be stored appropriately and disposed of in accordance with relevant waste policy and guidelines, as detailed in Chapter 22 (Waste management and resource use) of this Environmental Impact Statement.

Leakage or malfunction of the sewer also potentially poses a risk to soils and groundwater but is unlikely. All project site infrastructure would be designed according to relevant building codes and standards and maintained regularly to minimise the potential for leakages or malfunction, in accordance with an Operational Environmental Management Plan.

## 14.7 Management and mitigation measures

### 14.7.1 Approach to management and mitigation

Potential contamination impacts during construction would be managed in accordance with the Construction Environmental Management Framework. The Construction Environmental Management Framework (provided in Appendix C of this Environmental Impact Statement) includes a requirement to prepare a Soil and Water Management Plan which would include management measures for contaminated material (soils, water and building materials) and a contingency plan in the case of unanticipated discovery of contaminated material.

More details of the Construction Environmental Management Framework are provided in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement).

Management and mitigation measures adopted during construction would remove potential for contamination impacts from existing contamination to occur during operation of the project.

The Operational Environmental Management Plan for the project would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill.

### 14.7.2 Mitigation measures

Specific mitigation measures to address potential contamination risks are listed in Table 14-7. These investigations and mitigation measures are designed to ensure that the project site is suitable or is made suitable for the proposed land use in terms of any existing potential contamination.

Table 14-7 Contamination mitigation measures

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Construction** | | | |
| **C1** | Management of low risk contamination | For areas that have been identified as having moderate, or high contamination impact potential, a further review of data would be performed, including review of any additional preliminary contamination site investigations conducted following desktop assessment to refine impact assessment.<br>Where the additional data review confirm that contamination is likely to have a very low or low impact potential, the areas would then be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal. | All Areas |
| **C2** | Detailed Site Investigation | Where data from the additional data review (mitigation measure C1) is insufficient to understand the impact of contamination, a Detailed Site Investigation would be carried out in accordance with the NEPM (2013) and other guidelines made or endorsed by the NSW EPA.<br>Construction areas requiring Detailed Site Investigation would be confirmed following the additional data review (mitigation measure C1), however based on the findings of this Preliminary Site Investigation, it is anticipated that Detailed Site Investigations would likely be required throughout the project site (within all areas). | Dependant on the outcomes of mitigation measure C1, locations may include some or all of areas one to seven |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **C3** | Remediation | Where data from additional data review (mitigation measure C1) or the Detailed Site Investigation (mitigation measure C2) confirms that contamination would have a moderate to high risk, a Remedial Action Plan (RAP) would be developed for the relevant construction area.<br>The RAP would detail remediation works required to mitigate impacts from contamination throughout and following completion of construction. The RAP would be prepared in accordance with relevant NSW EPA guidelines and where applicable, detail remediation methodologies in accordance with Australian Standards and other relevant Australian and NSW government guidelines and codes of practice.<br>Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.<br>Construction areas requiring a RAP would be confirmed following the additional data review (mitigation measure C1) and Detailed Site Investigation (mitigation measure C2), however on the basis of this Preliminary Site Investigation, it is anticipated that a RAP and remediation could be required to manage widespread contaminated fill materials at the project site. | Dependant on the outcomes of mitigation measures C1 and C2, locations may include areas one to seven |
| **C4** | Site Audit Statement | Where contamination is highly complex, such as groundwater contamination; contamination associated with vapour; contamination that requires specialised remediation techniques; or contamination that requires ongoing active management during and beyond construction, an accredited Site Auditor would review and approve the RAP and would develop a Site Audit Statement and Site Audit Report upon completion of remediation.<br>The requirement for auditor involvement would be confirmed following the completion of the Detailed Site Investigation (mitigation measure C2) and prior to the preparation of the RAP (mitigation measure C3). | Dependent on outcomes of the C1, C2 and C3, locations may include areas one to seven |
| **C5** | Residual contamination following construction | Ongoing management and monitoring measures would be documented in an appropriate form and implemented for any areas where minor, residual contamination remains following construction. | As applicable |
| **Operation** | | | |
| **C6** | Accidental leaks or spills during operation | The Operational Environmental Management Plan would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill. | All areas |

### 14.7.3 Interactions between mitigation measures

There are no mitigation measures in other chapters of the Environmental Impact Statement that are relevant to the management of potential contamination impacts.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of potential contamination impacts.

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# 15 Groundwater and geology

# 15 Groundwater and geology

This chapter assesses the potential impacts during construction and operation of the Sydney International Speedway on groundwater and geology and identifies mitigation measures to minimise these impacts.

## 15.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to groundwater and geology and where these requirements are addressed in this Environmental Impact Statement, are provided in Table 15-1.

Table 15-1 Secretary's Environmental Assessment Requirements - Groundwater and geology

| Reference | Requirement | Where addressed |
|---|---|---|
| **11. Water - Hydrology** | | |
| **2.11.1** | The Proponent must:<br>a. describe any surface and groundwater resource (including reliance by users and for ecological purposes) likely to be impacted by the project, including stream orders, as per the BAM. | Section 15.4 |
| | b. prepare a water balance for ground and surface water for construction. | Chapter 22 (Waste management and resource use) |
| | c. assess (and model if appropriate) the impact of the construction and operation of the project (both built elements and discharges) on surface and groundwater hydrology in accordance with the current guidelines. | Section 15.6 and 15.7 |
| | d. identify any requirements for baseline monitoring of hydrological attributes. | Section 15.7.4 |
| | e. outline opportunities for the use of integrated water cycle management practices and principles to optimise opportunities for sustainable water supply, wastewater and stormwater management across the project. | Chapter 22 (Waste management and resource use) |

## 15.2 Legislative and policy framework

Surface water quality, groundwater quality and groundwater interference are assessed and regulated by a suite of NSW strategy, policy and legislation. Surface water quality is relevant to this chapter due to its potential recharge to groundwater. Relevant strategies, policies and legislation are listed and outlined below.

### 15.2.1 National Water Quality Management Strategy (NWQMS)

The National Water Quality Management Strategy is the adopted national approach to protecting surface water and groundwater resources and improving water quality in Australia. Key guideline documents included in the strategy include:

- *Guidelines for Groundwater Quality Protection in Australia* (Australian Government, 2013), which sets out a high level risk-based approach to protecting or improving groundwater quality for a range of groundwater beneficial uses (called environmental values), including for aquatic ecosystem protection, primary industries, recreational use, drinking water, industrial water and cultural values
- Guideline documents containing specific water quality objectives values that are relevant to the project including:
  - *Australian and New Zealand Guidelines for Fresh and Marine Water Quality* (ANZECC/ARMCANZ, 2019)
  - *Guidelines for Managing Risks in Recreational Water* (National Health and Medical Research Council (NHMRC) 2008)
  - *Australian Drinking Water Guidelines* (NHMRC/NRMMC, 2011).

Where these specific water quality objectives are identified, the groundwater component of the surface water discharge should meet the guideline values. For the project, this means that the current uses of groundwater or surface water must not be degraded as a result of the construction and operation of the project.

### 15.2.2 Water Management Act 2000

The *Water Management Act 2000* presents the framework for sustainable and integrated water management in NSW. The primary instruments applied to achieve its objectives are water sharing plans and the *NSW Aquifer Interference Policy* (NSW Office of Water, 2012).

Sydney Metro, as a transport authority, is exempt from the requirement to hold an access licence under clause 18(1) and schedule 5 of the *Water Management (General) Regulation 2011*. Transport for NSW is also exempt under clause 31(1) of the regulation from the requirement to hold a water use approval.

Transport authorities are not exempt, however, from the requirement to hold a water supply work approval.

#### Water sharing plans

The project site lies within the Sydney Basin Central Groundwater Source of the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* (Department of Industry, 2020a) and within the Northern Sydney Rivers Water Source of the *Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011* (Department of Industry, 2020b).

Rules for granting access licences, managing access licences, water supply works approvals and access licence dealings are provided in the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*. A review of the rules of the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* indicates the project would have a negligible impact, and would comply with the plan as:

- The project is unlikely to take groundwater. Therefore, an access licence for the taking of groundwater is not required.
- Water supply works (groundwater supply bores) lie outside the project site. Groundwater level drawdown due to the project is not anticipated and therefore impact to groundwater availability in groundwater supply bores is not expected.

#### NSW Aquifer Interference Policy (NSW Office of Water, 2012)

The *NSW Aquifer Interference Policy* defines the regime for protecting and managing impacts of aquifer interference activities on water resources in NSW and strikes a balance between the water needs of towns, farmers, industry and the environment. It clarifies the requirements for obtaining groundwater extraction licences and the assessment process under the *Water Management Act 2000*.

The *Water Management Act 2000* defines a number of aquifer interference activities including penetration of, interference with, and obstruction of water flow within an aquifer. Taking and disposing of groundwater from an aquifer are also defined as being aquifer interference activities.

The AIP refers to the beneficial use of an aquifer, which is outlined in the National Water Quality Management Strategy (NWQMS, 2013). It is noted that within the management strategy the term beneficial use is replaced with environmental value. Beneficial uses include aquatic ecosystems, primary industries, recreation and aesthetic values, drinking water, industrial water and cultural and spiritual values. Each beneficial use has a unique set of water quality criteria designed to protect the environmental value of the groundwater resource. The AIP also requires that for an aquifer interference activity to meet the minimal impact considerations, any change in groundwater quality should not lower the beneficial use category of the groundwater source beyond 40 metres from the activity.

The AIP also provides a framework for assessing the impacts of aquifer interference activities on water resources. To assess potential impacts, groundwater sources are categorised as either highly productive or less productive, with sub categories for alluvial, coastal sands, porous rock, and fractured rock aquifers. For each category, there are a number of prescribed minimal impact considerations relating to the groundwater table and groundwater pressure drawdown, and changes to groundwater and surface water quality.

Two levels of minimal impact considerations are specified. If the predicted impacts are less than the Level 1 minimal impact considerations, then these impacts would be considered as acceptable.

The project would comply with the considerations of the AIP. An assessment of compliance of the project against the minimal impact considerations of the AIP notes:

- High priority groundwater dependent ecosystems (terrestrial vegetation) include the Cumberland Shale Plains Woodland within the project site. Potential changes to groundwater availability to this groundwater dependent ecosystem are expected to be negligible due to the project.
- The *Water Sharing Plan for the Greater Metropolitan Regional Groundwater Sources 2011* does not list any high priority culturally significant groundwater dependent sites in the vicinity of the project.
- Water supply works are at a distance and are not expected to be impacted by the project.
- With the implementation of construction management and mitigation measures to limit saline water intrusion or contaminants into the groundwater system, potential changes to groundwater quality would be negligible.

### 15.2.3 NSW Groundwater Quality Protection Policy (DLWC, 1998)

The *NSW Groundwater Quality Protection Policy* (DLWC, 1998) outlines guidelines for groundwater resource protection and water quality characteristics based on its identified beneficial use or environmental value. The objectives of the Policy are:

- All groundwater systems should be managed such that their most sensitive identified beneficial use (or environmental value) is maintained
- Town water supplies should be afforded special protection against contamination
- Groundwater pollution should be prevented so that future remediation is not required
- For new developments, the scale and scope of work required to demonstrate adequate groundwater protection shall be commensurate with the risk the development poses to a groundwater system and the value of the groundwater resource
- A groundwater user shall bear the responsibility for environmental damage or degradation caused by using groundwater that is incompatible with soil, vegetation or receiving waters
- Groundwater dependent ecosystems will be afforded protection
- Groundwater quality protection should be integrated with the management of groundwater quantity
- The cumulative impacts of developments on groundwater quality should be recognised by all those who manage, use, or impact on the resource
- Where possible and practical, environmentally degraded areas should be rehabilitated and their ecosystem support functions restored.

The following beneficial uses (in decreasing order of water quality) are adopted by the *NSW Groundwater Quality Protection Policy* from the National Water Quality Management Strategy *Guidelines for Groundwater Quality Protection in Australia* (ANZECC, 2019):

- Ecosystem protection
- Recreation and aesthetics
- Raw water for drinking water supply
- Agricultural water
- Industrial water.

Specific water quality characteristics are determined on a case by case basis with due consideration of existing site conditions and uses within each beneficial class.

### 15.2.4 Contaminated Land Management Act 1999

The *Contaminated Land Management Act 1999* is relevant where contaminated groundwater might be impacted and sets out the best practice framework for assessing and managing contaminated groundwater. Additional information relating to potential contamination impacts of the project are provided in Chapter 14 (Contamination) and Technical Paper 8 (Contamination) of this Environmental Impact Statement.

### 15.2.5 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* regulates the potential for contamination to impact the environment including groundwater. Additional information relating to potential contamination impacts of the project is provided in Chapter 14 (Contamination) and Technical Paper 8 (Contamination) of this Environmental Impact Statement.

### 15.5.6 NSW Groundwater Dependent Ecosystems Policy

The *NSW State Groundwater Dependent Ecosystems Policy* (Department of Land and Water Conservation, 2002) implements the *Water Management Act 2000* by providing guidance on the protection and management of Groundwater Dependent Ecosystems.

As groundwater availability is not expected to be reduced by the project, impacts to groundwater dependent ecosystems are not expected.

### 15.5.7 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) prescribes the Australian Government's role in environmental assessment, biodiversity conservation and the management of protected areas and species, population and communities and heritage items.

The EPBC Act considers impacts to groundwater where groundwater is shown to support matters of national environmental significance, such as groundwater dependent wetlands, ecological communities or water resources. Impacts to matters of national environmental significance are assessed through a referral process to the Commonwealth Department of the Environment. If the Commonwealth Minister for the Environment determines that a project is likely to have a significant impact on a matter of national environmental significance, then the project becomes a controlled action, and approval by the Commonwealth Minister for the Environment would be required before groundwater investigations and construction can start.

However, this Environmental Impact Statement has found that the project would not impact on matters of national environmental significance as they relate to groundwater.

## 15.3 Assessment methodology

The assessment of potential groundwater impacts involved the following:

- Desktop review of available information relating to the hydrogeological and hydrological environment within and around the project site, including topography, geology, hydrogeology, soils and surface waters
- Review of historic reports relevant to ground investigations carried out within and around the project site
- Review of publicly available databases, including groundwater records provided by WaterNSW
- Development of a conceptual model of the hydrogeological environment with reference to geological characteristics and available data for groundwater levels and quality. Information on sensitive assets, including groundwater supply bores and groundwater dependent ecosystems, was also considered
- Assessment of expected changes to groundwater level, flow and quality as a result of the project during construction and operation phases.

## 15.4 Existing environment

### 15.4.1 Geology and soils

The Penrith 1:100,000 Geological Map (Geological Survey of NSW, 1991) shows the project is located over the Bringelly Shale geological landscape, which forms part of the Shale Plains (Sydney Basin Sediments) of the Triassic Wianamatta Group, including shale, carbonaceous claystone, laminite, lithic sandstone and rare coal. These sedimentary rocks are categorised as being a 'lower aquifer'. Water is likely to move relatively slowly through this hydrogeological landscape due to the low gradient and is therefore likely to accumulate more salt out of the soils and bedrock.

Residual soils (where not replaced by fill) are clayey and derived from weathered siltstone and sandstone rock, typically three to six metres thick. However, widespread fill material has been identified by project site contamination investigations (refer Chapter 14 (Contamination) for more information).

Based on the project site elevation and available mapping (NSW Office of Environment and Heritage (2020) and the Australian Soil Resource Information System (ASRIS) (2013)), acid sulfate soils are unlikely in the residual natural soils present within the project site. However, previously imported fill material at the project site could potentially contain soils with acid sulfate soils risk (refer to Chapter 13 (Soils and surface water quality) for more information regarding acid sulfate soils).

Soil salinity mapping by the former NSW Office of Environment and Heritage (2020) identifies high land salinity potential, with frequent small to moderate (0.1 to one hectares) cyclic salt sites in the landscape. Some larger sites also occur along drainage lines and colluvial slopes. Localised salt cycling and deeper groundwater rise may contribute to the total salt affected land. Salt load is high, with potentially high salt export driven by groundwater discharge and surface water runoff into streams.

### 15.4.2 Groundwater

Douglas Partners Pty Ltd completed hydrogeological field investigations at the project site in 2001 and 2002. Groundwater levels measured in 17 bores across the project site in June 2002 ranged between about one metre below ground level and over 30 metres below ground level. The highest reported groundwater elevation across the project site was 68 metres (AHD). The groundwater table was typically in Bringelly Shale. Any perched groundwater table in the clayey residual soils, if present, was identified as intermittent and/or localised.

The recorded groundwater levels indicated a westerly and southerly direction of groundwater flow towards Eastern Creek. Groundwater is likely to move relatively slowly through the shale due to a low hydraulic gradient, resulting in a high residence time. The horizontal hydraulic conductivity of the Bringelly Shale has previously been reported as 0.03 metres per day (Douglas Partners Pty Ltd, 2002c). The permeability of overlying residual soils is also expected to be relatively low. Groundwater yield in the shale and soils is anticipated to be low to very low.

Prospect Reservoir has a maximum water surface level of about 60 metres AHD. Based on the water level in the reservoir, and groundwater levels recorded at the eastern edge of the project site of between 59 metres and 68 metres AHD, it is most likely that groundwater seeps into the Reservoir. However, it is possible that during drier periods, reservoir water may seep into the groundwater system. The flow between the groundwater system and the reservoir water is expected to be relatively low, due to the relatively low permeability of the soils and bedrock.

Groundwater levels recorded are from a single point in time in 2002 and that groundwater levels may vary in response to climatic conditions.

Based on records collected by other studies adjacent to the project site (Douglas Partners Pty Ltd (2002c), groundwater is generally slightly acidic to near neutral pH and potentially extremely saline. It is possible that groundwater at the project site is contaminated from historical site use and additional site investigation is recommended to assess potential site contamination (refer to Chapter 14 (Contamination) of this Environmental Impact Statement).

A review of Water NSW registered bores identified four monitoring bores within two kilometres of the project site. No groundwater supply bores were identified.

#### Conceptual hydrogeological model

A conceptual hydrogeological model is a qualitative description of the groundwater system, including groundwater levels and quality, inputs/outputs and the geological conditions and properties.

A conceptual model allows the effect of newly introduced changes to the hydrogeological system to be understood and assessed. The conceptual hydrogeological model for the project site is described as follows:

- The groundwater table is likely to be present within the Bringelly Shale across the project site. Based on the limited available data, it is likely to typically lie between about one and 12 metres below ground surface (between about 68 metres and 46 metres AHD). A perched groundwater table in the soils, where present, is expected to be localised and/or transient
- Soils are recharged by rainfall and localised irrigation, as well as incidental runoff from impervious surfaces. Recharge to the rock groundwater system is by downward percolation through soils. Net rainfall recharge to the groundwater systems is likely to be less than five per cent of mean annual rainfall
- Groundwater flow is primarily through joints in the rock, and in soils, with discharge expected to occur to drainage lines and water bodies
- Minor groundwater connection with the waters of Prospect Reservoir, with the direction of flow (groundwater into the reservoir, or reservoir water into the groundwater system) dependent on the reservoir water level

- Groundwater quality is typically fresh to brackish, with near neutral pH
- Groundwater yield in the shale and soils is anticipated to be low to very low.

### 15.4.3 Groundwater Dependent Ecosystems

As shown in Figure 15-1, there are several areas of vegetation within one kilometre of the project site that are identified as terrestrial Groundwater Dependent Ecosystems by the *Atlas of Groundwater Dependent Ecosystems* (Bureau of Meteorology, 2017) with a moderate to high potential for groundwater interaction:

- Cumberland Shale Plains Woodland (moderate potential for groundwater interaction)
- Cumberland Shale Hills Woodland (moderate potential for groundwater interaction)
- Cumberland River Flat Forest (high potential for groundwater interaction).

The *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011* lists Cumberland Plain Woodland as a high priority groundwater dependent ecosystem. Additional information regarding Groundwater Dependent Ecosystems is provided in Chapter 8 (Biodiversity).

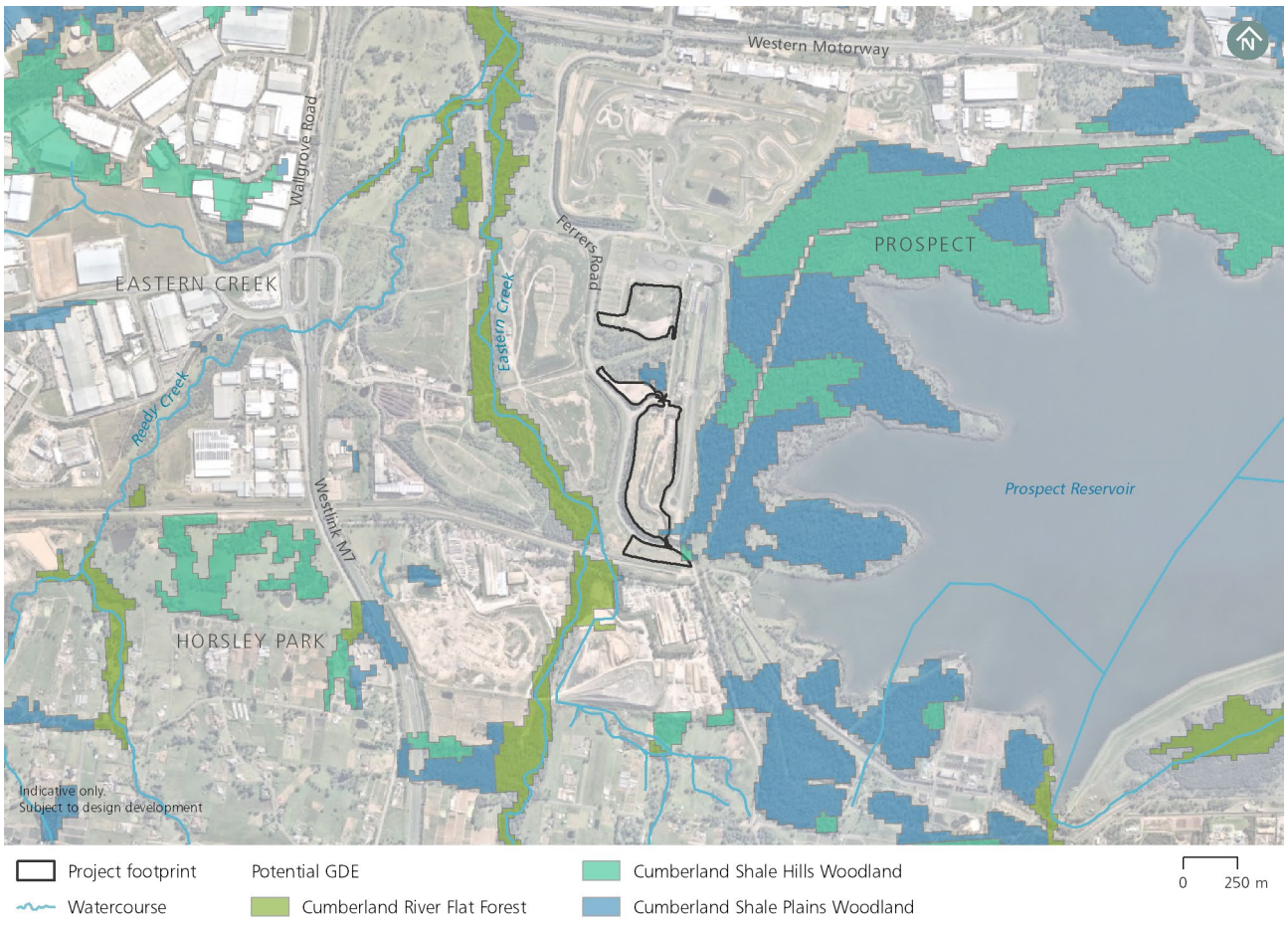


Figure 15-1 Groundwater Dependent Ecosystems

## 15.5 Avoidance and minimisation of impacts

The design development of Sydney International Speedway (refer to Chapter 5 (Project description) for more information) has included a focus on avoiding or minimising potential groundwater impacts. This has included:

- The operational stormwater system would be directed to a drainage network and retention system including pollution control devices prior to any offsite discharge into local waterways
- Runoff from the racetrack and racing infrastructure would be directed to a wastewater system including localised treatment mechanisms prior to any offsite discharge.

## 15.6 Assessment of potential construction impacts

### 15.6.1 Groundwater drawdown and dewatering

Excavation works as part of construction of the project would involve a maximum cut depth of around six metres with a lowest finished level of 68 metres AHD. The lowest finished level is consistent with the highest groundwater table previously recorded at the project site (refer toSection 15.4.2). Therefore, earthworks are not expected to intercept substantial groundwater. Any perched groundwater table in the clayey residual soils, if present, is intermittent and/or localised. Groundwater level drawdown and groundwater take is therefore unlikely as a result of construction, and Groundwater Dependent Ecosystems are not expected to be impacted.

### 15.6.2 Groundwater recharge

Potential groundwater recharge impacts during construction are expected to be negligible and would be limited to:

- Construction of hardstand areas and modifications to ground conditions during earthworks have the potential to increase runoff and reduce groundwater recharge
- Earthworks and/or imported fill are likely to temporarily increase soil permeability and therefore groundwater recharge in filled areas during bulk earthworks. However, this contribution is expected to be negligible given:
    - surface water would be directed away from earthworks and other construction areas
    - underlying in situ soils and bedrock are of low permeability
    - filled areas would ultimately be compacted and in some areas sealed.

### 15.6.3 Contamination of groundwater

The potential for the project to result in contamination of groundwater during construction is considered to be low given the implementation of mitigation measures (refer to Section 15.8).

The following construction activities have the potential to result in the contamination of existing groundwater:

- Exposed Bringelly Shale rock from ground surface disturbance and earthworks have the potential to contain sulfides that oxidise upon exposure to oxygen, and may potentially reducing the pH of water that comes into contact with the rock (acid rock drainage)
- Excavation of saline soils and bedrock, and reuse as fill could cause the release of additional salts into groundwater
- Migration of any site contamination (in situ or accidental leaks or spills) to groundwater (refer Chapter 14 (Contamination) for more information).

## 15.7 Assessment of potential operational impacts

### 15.7.1 Groundwater drawdown and dewatering

Operation of the project would not include any further earthworks or changes to finished levels across the project site and is not likely to cause groundwater level drawdown. Groundwater Dependent Ecosystems are not expected to be impacted.

### 15.7.2 Groundwater recharge

Reduced groundwater recharge due to increased areas of hardstand associated with the project is possible. However, the total increase in impermeable areas (hardstand) is about 10.5 hectares, representing about two per cent of the total size of the about 500 hectare regional surface water catchment. Accordingly, the estimated net reduction in regional groundwater recharge is expected to be negligible and groundwater baseflow to creeks is not expected to change appreciably.

### 15.7.3 Contamination of groundwater

The potential for the project to result in contamination of groundwater during operation is considered to be low given the implementation of design features which avoid and/or minimise impacts to groundwater (refer Section 15.5) combined with the operational mitigation measures proposed for the project to avoid, minimise and manage impacts to groundwater (refer to Section 15.8).

The following conditions have the potential to result in ongoing contamination of existing groundwater during operation of the project:

- Exposed Bringelly Shale rock potentially contains sulfides that oxidise upon exposure to oxygen and may reduce the pH of water that comes into contact with the rock (acid rock drainage).
- Excavation of saline soils and bedrock, and reuse as fill could cause the release of additional salts into groundwater.
- Migration to groundwater of any accidental leaks or spills of fuels, oils and other hazardous materials used or stored at Sydney International Speedway during operation (refer Chapter 14 (Contamination) of this Environmental Impact Statement for more information).

### 15.7.4 Consistency with legislation and policy

**NSW Aquifer Interference Policy (NSW Office of Water, 2012)**

The aquifers at the project site are considered to fall into the "less productive porous and fractured rock" category as defined in the *NSW Aquifer Interference Policy*, since yields are below the five litres per second threshold for highly productive porous and fractured rock aquifers.

It has been assessed that the project is unlikely to intercept groundwater within the bedrock or otherwise take substantial groundwater. Where groundwater is present in the soils, this would likely be localised and intermittent. Groundwater quality would not be appreciably impacted due to the project provided the proposed construction management and mitigation measures are implemented.

An assessment of compliance of the project against the *NSW Aquifer Interference Policy* Level 1 minimum impact considerations for less productive porous and fracture rock aquifers concludes that there would be no significant impacts to permanent groundwater. The project would comply with the Level 1 minimal impact considerations as:

- High priority groundwater dependent ecosystems (terrestrial vegetation) include the Cumberland Shale Plains Woodland within the project site. Groundwater availability to this groundwater dependent ecosystem is not expected to change appreciably due to the project.
- The *Water Sharing Plan for the Greater Metropolitan Regional Groundwater Sources 2011* does not list any high priority culturally significant groundwater dependent sites in the vicinity of the project site.
- Water supply works are at distance from the project which would not be impacted.
- It is not expected that groundwater quality would appreciably change due to the project, provided construction management and mitigation measures are in place to limit saline water intrusion or contaminants into the groundwater system.

**Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011**

Rules for granting access licences, managing access licences, water supply works approvals and access licence dealings are provided in the *Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011*. A review of the rules of the plan indicates the project would have a negligible impact, and would comply with the plan as:

- The project is unlikely to take groundwater. Therefore, an access licence for the taking of groundwater is not required.
- Water supply works (groundwater supply bores) lie outside the project site. Groundwater level drawdown due to the project is not anticipated and therefore impact to groundwater availability in groundwater supply bores is not expected.

## 15.8 Management and mitigation measures

### 15.8.1 Approach to management and mitigation

Groundwater would be managed in accordance with the Construction Environmental Management Framework as described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement). The CEMF requires the preparation of a Soil and Water Management Plan, as specified in Appendix C (Construction Environmental Management Framework and Construction Noise and Vibration Standard) of this Environmental Impact Statement. The Soil and Water Management Plan would include groundwater management and mitigation measures to be used to minimise surface and groundwater impacts, including identification of water treatment measures and discharge points, details of how spoil and fill material required by the project will be sourced, handled, stockpiled, reused and managed; erosion and sediment control measures; salinity control measures and the consideration of flood events.

An Operational Environmental Management Plan would be prepared and implemented by the operator of Sydney International Speedway to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. Policies and procedures within the Operational Environmental Management Plan would set out requirements for the storage of hazardous materials, refuelling, spill prevention and spill response, related to the management of potential impacts to groundwater during operation.

### 15.8.2 Mitigation measures

The mitigation measures that would be implemented to manage the potential impacts of the project on groundwater are listed in Table 15-2.

Table 15-2 Mitigation measures – groundwater

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Construction** | | |
| **GW1** | Potential contamination of groundwater from the discharge of construction water | Any stormwater, seepage or intercepted groundwater from earthworks, stockpiling and other construction activities would be collected and tested prior to reuse, offsite discharge or disposal as appropriate. Water quality testing would include pH (acidity), salinity and potential coChapter 15ntamination parameters. |
| **Operation** | | |
| **GW2** | Potential contamination of groundwater from long term leaching | A geotechnical assessment, contamination assessment and earthworks design would ensure that long term leaching of excavated materials (such as acid rock drainage from Bringelly Shale and saline soil and rock) does not pose a risk to groundwater. |
| **GW3** | Accidental spills and potential to contaminate groundwater | The Operational Environmental Management Plan would be implemented including appropriate procedures for storage of hazardous materials, refuelling, spill prevention and spill response. |

### 15.8.3 Interactions between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential groundwater impacts include:

- Chapter 13 (Soils and surface water quality) with respect to surface water quality
- Chapter 14 (Contamination), with respect to management of potential contamination.

Together, these measures would help to minimise the potential groundwater risks associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of groundwater.

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# 16 Flooding and hydrology

# 16 Flooding and hydrology

This chapter assesses the potential impacts during construction and operation of the Sydney International Speedway on flooding and hydrology, and identifies mitigation measures to minimise these impacts.

## 16.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to flooding and hydrology and where these requirements are addressed in this Environmental Impact Statement are outlined in Table 16-1.

Table 16-1 Secretary's Environmental Assessment Requirements - Flooding and hydrology

| Reference | Requirement | Where addressed |
|---|---|---|
| **Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and land use assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for flooding and hydrology are listed in Appendix A and are addressed in Sections 16.4 to 16.8. |

## 16.2 Legislative and policy framework

### 16.2.1 Australian Rainfall and Runoff: A Guide to Flood Estimation 2019

*Australian Rainfall and Runoff 2019* (ARR 2019) (Engineers Australia, 2019) is a national guideline used to predict extreme flood levels for projects, and provides the information and processes for policy decisions as they relate to flooding. The guideline specifies design rainfall parameters for flooding and hydrologic studies in Australia and provides industry guidance on technical analysis. These guidelines have been adopted for the hydrologic assessment carried out in this study.

Previous flood studies that have been reviewed in this assessment to describe the existing flooding and hydrology environment of the project were prepared using the design rainfall data provided in *Australian Rainfall and Runoff 1987* (ARR 1987), which ARR 2019 supersedes.

The ARR 2019 design rainfall data is based on an additional 30 years of rainfall records in addition to improved analytical techniques to provide an increased understanding of design rainfall conditions across Australia when compared to ARR 1987.

For Eastern Creek the ARR 2019 design rainfalls are up to 13 per cent higher for events shorter than one hour compared to the design rainfalls assumed in the drainage design of the project site. For the one per cent Annual Exceedance Probability (AEP) event the difference is +/- 5 per cent compared to ARR 1987, for storm durations between six and 12 hours, which are relevant to flooding in Eastern Creek at the project site.

### 16.2.2 Floodplain Development Manual (NSW Government, 2005)

The assessment of potential flooding impacts of the project on existing flood regimes has been conducted in accordance with the requirements of the *Floodplain Development Manual* (NSW Government, 2005), which incorporates the NSW Government's *Flood Prone Land Policy*. The key objectives of this policy are to identify potential hazards and risks, reduce the impact of flooding and flood liability on owners and occupiers of flood prone property, and to reduce public and private losses resulting from floods. This policy also recognises the benefits of the use, occupation and development of flood prone land.

### 16.2.3 State Environmental Planning Policy (Western Sydney Parklands) 2009

The objectives for flood planning within Clause 14A (Flood Planning) of the *State Environmental Planning Policy (Western Sydney Parklands) 2009* are to:

- Minimise the flood risk to life and property associated with the use of land
- Allow development on land that is compatible with the land's flood hazard, taking into account projected changes as a result of climate change
- Avoid significant adverse impacts on flood behaviour and the environment.

This clause applies to land at or below the flood planning level or the highest historical flood level.

Although this does not apply to the project as State significant infrastructure, the requirements of the SEPP have been considered in the development, design and assessment of the project. Development consent under the *State Environmental Planning Policy (Western Sydney Parklands) 2009* must not be granted to development on land to which this clause applies unless the consent authority is satisfied that the development—

a. is compatible with the flood hazard of the land, and
b. is not likely to significantly adversely affect flood behaviour resulting in detrimental increases in the potential flood affectation of other development or properties, and
c. incorporates appropriate measures to manage risk to life from flood, and
d. is not likely to significantly adversely affect the environment or cause avoidable erosion, siltation, destruction of riparian vegetation or a reduction in the stability of river banks or watercourses, and
e. is not likely to result in unsustainable social and economic costs to the community as a consequence of flooding.

In this clause—

- highest historical flood event means the highest recorded flood in the Blacktown local government area, which occurred in 1867
- land at or below the flood planning level means the level of a 1:100 ARI (average recurrence interval) (i.e. the one per cent AEP) flood event plus 0.5 metres freeboard.

The flood planning level of the project site has been adopted as the one per cent AEP flood level plus 0.5 metres freeboard, which is equivalent to the residential flood planning freeboard in the *Blacktown Local Environmental Plan 2015*, and higher than the prescribed 0.3 metres freeboard for industrial and commercial areas.

### 16.2.4 Blacktown City Council Engineering Guide for Development 2005

The *Blacktown City Council Engineering Guideline for Development 2005* (amended 2018) specifies design requirements for on-site stormwater detention, which are drainage facilities with the purpose of providing temporary storage for site runoff to manage the increases in peak flows from a site resulting from its development.

On-site stormwater detention is required to manage the increases in peak site runoff flows and resulting impacts to flooding conditions downstream of a development site, for flood events up to and including the one per cent annual exceedance probability (AEP) event. Sizing and permissible discharge rates for on-site stormwater detention systems are generally based on pro-rata values depending on the site area, for most catchment areas within Blacktown local government area.

On-site stormwater detention is required for all developments which drain to the Hawkesbury River catchment with a development area greater than 150 square metres. The project site is a greenfield site within "All other Hawkesbury River Catchment's – Areas no.4" which has a pro-rata on-site stormwater detention volume of 264 cubic metres per hectare (minimum). The on-site stormwater detention guidelines may be considered indicative only and for large developments such as the project a more detailed analysis of detention requirements would be justified.

## 16.3 Assessment methodology

The assessment of flooding and hydrology related impacts of the project included the following key steps:

- A desktop review of available flood study reports to characterise existing flooding conditions at the project site and the surrounding area. Parameters considered include:
  - The topography in the vicinity of the sites and presence of flow paths and watercourses, using aerial laser survey data
  - Flood depths and levels
  - Flood hazard
  - Flood hydraulic categories including floodway and flood storage
- Identification of the existing overland flooding conditions of the project site potential impacts to property and infrastructure
- Assessment of potential impacts to flooding as a result of the project for construction and operational phases
- Identification of potential impacts to the project caused by flooding
- Identification of management measures to avoid, minimise and manage any potential impacts of the project by flooding.

The project is located within the Hawkesbury-Nepean Catchment Area. The *Hawkesbury-Nepean Valley Regional Flood Study* (Infrastructure NSW, 2019) defines the regional flooding conditions, which, for the main tributaries of the Hawkesbury-Nepean River system, would be caused by backwater flooding from the main river itself. The study indicated the project site would not be impacted by flooding during the one per cent AEP flood event or the probable maximum flood. The Hawkesbury-Nepean probable maximum flood at Windsor is 26.72 metres Australian Height Datum (AHD), while the minimum ground level at the project site is 55 metres AHD.

The *Eastern Creek Hydraulic Assessment* (Catchment Simulation Solutions, 2014) was prepared for Blacktown City Council to define existing flooding behaviour in the Eastern Creek catchment. Flood behaviour including flood levels, depths, flood hazard and hydraulic categories were defined and mapped for a range of design flood events including the one per cent AEP and probable maximum flood events. The study was based on ARR 1987 design rainfall data and procedures. In the vicinity of the project site, the study analysed mainstream flooding conditions in Eastern Creek and excluded the minor overland flows to the east of Ferrers Road, including those within and immediately adjacent to the project site. The flood study was referenced in this flooding assessment to define mainstream flood behaviour in Eastern Creek.

## 16.4 Existing environment

### 16.4.1 Hydrology

The project site is located within the Eastern Creek catchment area which is a tributary of South Creek. South Creek is a subcatchment of the Hawkesbury-Nepean River catchment. The Hawkesbury-Nepean catchment covers an area of more than 22,000 square kilometres and provides drinking water, recreational opportunities, agricultural and fisheries produce, and tourism resources for the Sydney Metropolitan area.

The South Creek subcatchment encompasses most of the Cumberland Plain of Western Sydney, covering an area of 620 square kilometres. The subcatchment has been extensively modified and disturbed due to land clearing and urbanisation resulting in substantial degradation of water quality, habitat and geomorphology. Drainage within the South Creek subcatchment is from south to north, towards the Hawkesbury River. South Creek is located about 27 kilometres north of the project site.

Eastern Creek is located about 130 metres west of the project site and is a major tributary of South Creek, joining South Creek 27 kilometres downstream of the project site. It is a 3$^{rd}$ order Strahler stream and flows from south to north through the Western Sydney Parklands, then subsequently through a highly degraded urban landscape, north of the Westlink M7 motorway.

### 16.4.2 Topography and drainage

The overall topography of the project site and surrounds generally falls towards the west, in the direction of Ferrers Road, and toward Eastern Creek. Elevation of the project site is between 59 metres and 88 metres Australian Height Datum.

Site drainage is generally to the west, towards Eastern Creek. Locally, the existing site runoff flows off the filled embankments of the main operational site, Carpark C and Carpark D into open drains which convey flow to culverts which cross underneath Ferrers Road and discharge into additional open drains that continue to flow west and into Eastern Creek. Carpark C and Carpark D drain to the vegetated natural gully between the two carparking areas, which forms the main overland flow path through the area.

The eastern part of the main operational site drains eastwards into the southern portion of the Sydney Dragway. From Sydney Dragway, runoff drains by pipe to an open drain and into a culvert under Ferrers Road, before discharging overland to Eastern Creek. The northern and central portions of the Sydney Dragway drain to a constructed wetland on the eastern side of the Dragway, which is drained by culvert to the main vegetated gully and culvert under Ferrers Road.

The area to the south of Ferrers Road drains naturally overland westwards and directly to Eastern Creek.

To the west of Ferrers Road and outside of the project site, open drains are traversed by a number of access roads on the SUEZ Eastern Creek Resource Recovery Park property.

### 16.4.3 Flooding

#### Mainstream flooding

Under existing conditions, the entire project site is flood free in relation to mainstream flooding from Eastern Creek and the Hawkesbury-Nepean River. The elevation of the project site is above the probable maximum flood level of the Hawkesbury-Nepean River system at Windsor (26.72 metres AHD). Flood depths, levels and extents in Eastern Creek are shown on Figure 16-1, sourced from the *Eastern Creek Hydraulic Assessment* (Catchment Simulation Solutions, 2014).

The existing mainstream flooding conditions at the project site are as follows:

- The project site is wholly above the Eastern Creek probable maximum flood, and outside the probable maximum flood extent. Area D at the southern end of the project site encroaches closest to the mainstream probable maximum flood, and the lowest part of Area D is about 2.5 metres above the probable maximum flood in that location
- The one per cent AEP flood levels in Eastern Creek range from about 55 metres AHD south of the project site to about 48.5 metres AHD north of the project site
- The probable maximum flood levels in Eastern Creek range from about 56.5 metres AHD south of the project site to about 49 metres AHD north of the project site.

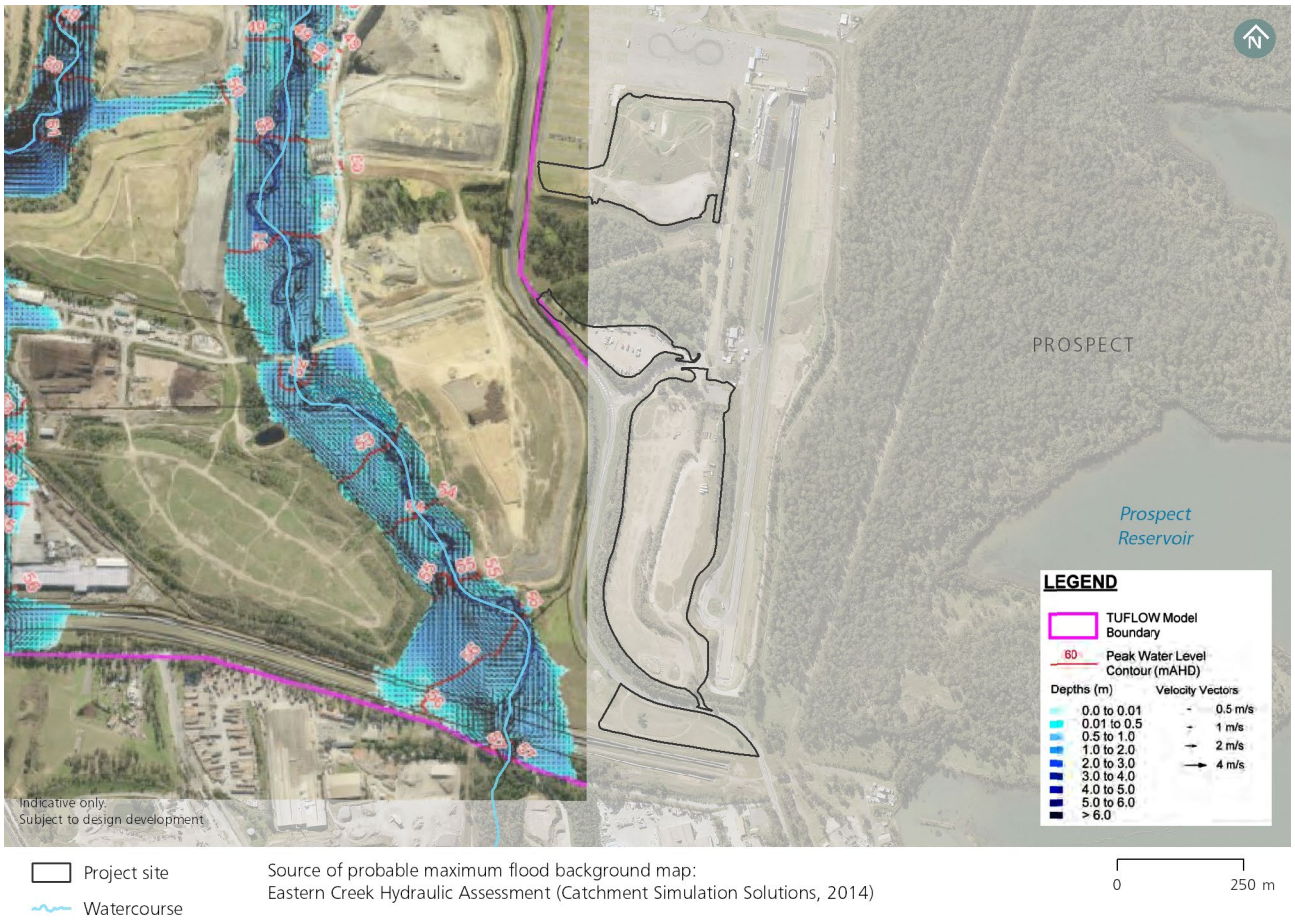


Figure 16-1 Eastern Creek flood levels and extent during the probable maximum flood

### Overland flooding

Local overland flooding describes inundation caused by flows running off from local catchments and being conveyed in flow paths towards their discharge points at downstream receiving waterways. Overland flows from the local catchments on and around the project site were considered in terms of the patterns of drainage and the magnitude of flows at key locations. The terrain data was reviewed and the area comprising the project site and surrounding areas split into subcatchments based on the drainage patterns of the existing terrain. Drainage flow paths were also identified from the terrain. The existing drainage patterns and flow paths are shown on Figure 16-2.

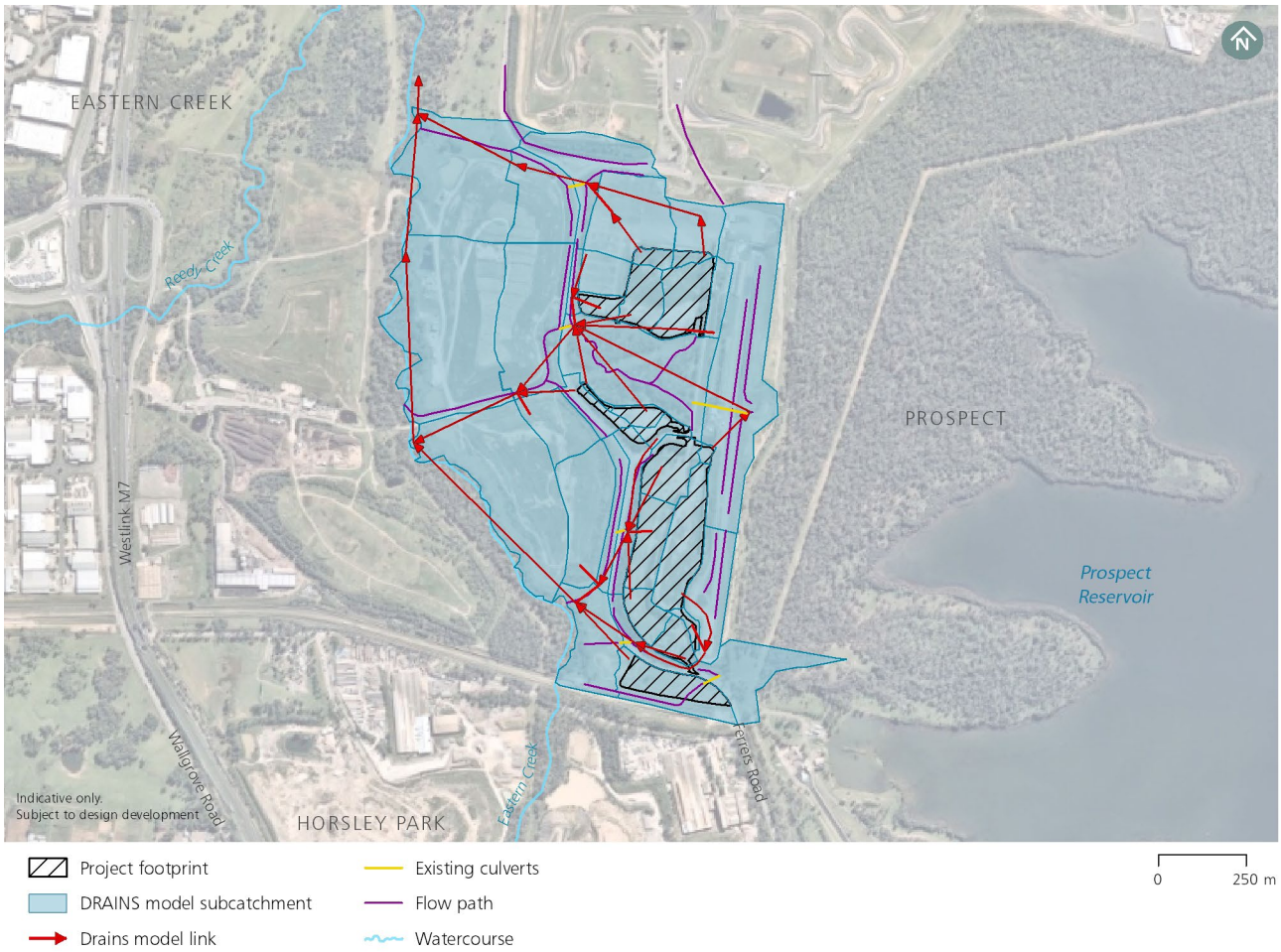


Figure 16-2 Local overland flooding – existing subcatchments and drainage patterns

Ferrers Road, which is a public road, is affected by overland flooding, namely at the four main culvert crossings of the overland flow paths during the five per cent and one per cent AEP events.

Overland flow flooding of Ferrers Road is experienced at Culvert 1 (refer to Figure 16-2), northwest of the project site under existing conditions during both the five and one per cent AEP rainfall events. The capacity of all four culverts near the project are exceeded during the one per cent AEP rainfall event under existing conditions.

There is an existing risk of visitors to the project site, which is currently used as overflow parking for visitors to the adjacent Sydney Dragway and other motorsports facilities in the area, being exposed to elevated flood hazard during overland flood events which cause inundation of Ferrers Road. This risk is largely unmanaged.

There are three access roads within the SUEZ Eastern Creek Resource Recovery Park property which cross the open channels and overland flow paths which convey overland flows from the project site. The existing flood impacts of these crossings could not be confirmed as the dimensions of the culvert crossings could not be identified from the available data.

Parts of the Sydney Dragway are expected to be currently affected by overland flow and existing runoff from the project site. The paved parking area to the north of the project site would be currently affected by existing runoff as there appears to be no formal drainage to manage the project site runoff. The dragway strip has a formal drainage system which would manage the existing runoff from parts of the project site which drain towards the Sydney Dragway. The capacity of the drainage system was not available as part of this assessment.

## 16.5 Avoidance and minimisation of impacts

The following features have been included in the project design to minimise the impact of flooding on the project site and surrounding land:

- The stormwater drainage system for the project would be designed to have the capacity to convey stormwater flows from the whole project site during a 100 year average recurrence interval (ARI) rainfall event to the stormwater drainage system (including on-site detention basins) before being treated (as required) and discharged into the existing culverts on Ferrers Road. The on-site detention storage tanks would be sized to provide adequate system capacities and mitigate potential adverse flood impacts and increases in stormwater discharge from the project site
- Although the existing flooding impacts at nearby properties downstream of the project are not known, the design of on-site detention to minimise off-site impacts also means that the project would not impact on SUEZ Eastern Creek Resource Recovery Park or Sydney Dragway.

## 16.6 Assessment of potential construction impacts

Earthworks and land forming activities as part of construction would change the elevations of the project site. The project site would be located above all flood events up to and including the probable maximum flood levels of Eastern Creek and the Hawkesbury-Nepean River for the entire construction phase, and as such the project would not result in any impacts to flooding downstream of the project site, including no loss of flood conveyance or floodplain storage. The project site is therefore also considered to be compatible with the existing flood hazard of the land during construction.

The construction of the project would generate spoil which would need to be temporarily stored in stockpile areas during construction (refer to Chapter 5 (Project description) for more information). Inundation of stockpile areas by floodwater can also lead to substantial quantities of material being washed into the receiving drainage lines and waterways, however this risk is not considered significant given the location of the project site above all flood events.

## 16.7 Assessment of potential operational impacts

### 16.7.1 Mainstream flooding

The project would be located above all flood events up to and including the probable maximum flood levels of Eastern Creek and the Hawkesbury-Nepean River during operation, and as such the project would not result in any impacts to flooding downstream of the project site, including no loss of flood conveyance or floodplain storage. The project site is therefore also considered to be compatible with the existing flood hazard of the land during operation.

### 16.7.2 Overland flooding

The on-site detention tanks to be provided as part of the project would be sized to provide adequate system capacities and mitigate any potential increases in stormwater discharge from the project site. As such downstream flooding impacts from the project are not expected.

Without mitigation, the project would result in the following potential impacts to existing flooding and hydrology regimes:

- An increase in the amount of impervious surfaces, thereby increasing rainfall runoff being directed to Eastern Creek
- Changes to subcatchment boundaries on the project site, increasing rainfall runoff within catchments draining towards Eastern Creek.

As a result of the change in elevations across the project site, there would be a redirection in some rainfall that currently flows to culvert one to flow towards culvert two. This would result in:

- Minor reductions to peak flows at culvert one during all rainfall events
- Minor increases to peak flows at culvert two during all rainfall events.

As identified above, the drainage design for the project including on-site detention tanks would mitigate any potential increases in stormwater discharge from the project site.

### 16.7.3 Consideration of climate change impacts

Interim climate change factors for the year 2090 for an upper range projection scenario of anthropogenic greenhouse gas emissions are available from Australian Rainfall and Runoff Data Hub (https://data.arr-software.org/). This suggests a 19.7 per cent increase in storm rainfall intensities which would result in increases in flood flows and flood levels for flood events at the project site, including the one per cent AEP event during operation of the project.

It is expected that there would be no change to the flood impacts of the project site from increased flooding in Eastern Creek as a result of climate change up to the year 2090. The project site is above the current probable maximum flood extent. While flooding is expected to increase due to climate change for the one per cent AEP event, extreme flood events including the probable maximum flood are not expected to increase due to climate change. Hence, the project site would remain flood free from mainstream flooding in Eastern Creek under a climate change scenario.

Runoff rates from the project site and from external catchments would increase by up to 20 per cent as a result of climate change. Further development of drainage design would consider the impact of these increased flows on drainage infrastructure.

The project site is at sufficiently high elevation that future sea level rise would not impact on flooding conditions at the site.

### 16.7.4 Consistency with Council flood policies

Consideration of consistency of the project with relevant Blacktown City Council flood policies is provided in Table 16-2.

Table 16-2 Consistency with Council flood policies

| Flooding and hydrology aspect | Relevant policy | Comment |
|---|---|---|
| **Flood hazard and behaviour** | *Blacktown Local Environment Plan 2015*<br>*Blacktown Development Control Plan 2015* | The project site is not affected by mainstream flooding from Eastern Creek or the Hawkesbury-Nepean River, including any floodway areas. The project site is also situated above existing overland flow paths.<br>Proposed development of the project site is consistent with the flooding provisions in the Blacktown Development Control Plan 2015. |
| **Flood planning level** | *Blacktown Development Control Plan 2015* | The finished levels of the project site and building levels would be more than 0.5 metres above the 1% AEP mainstream and overland flood levels.<br>Proposed development of the project site is consistent with flood planning level provisions in the Blacktown Development Control Plan 2015. |
| **Stormwater management and drainage design (in relation to flooding)** | *Blacktown City Council Engineering Guideline for Development 2005* | On-site stormwater detention is proposed to mitigate potential impacts to runoff and flood flows. The design is consistent with the permissible site discharge criteria from the *Blacktown City Council Engineering Guideline for Development 2005*. |
| **Floodplain risk management** | Not applicable | There are no current floodplain risk management plans relevant to the project site and surrounding area. |

## 16.8 Management and mitigation measures

### 16.8.1 Approach to mitigation and management

Hydrology and flooding impacts during construction would be managed in accordance with the Construction Environmental Management Framework, which identifies that a Soil and Water Management Plan would be prepared where required. This plan would identify the construction activities that have the potential to impact stormwater flows and appropriate mitigation measures, including management of risks to temporary stockpiles.

More details of the Construction Environmental Management Framework are provided in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) and Appendix C (Construction Environmental Management Framework and Construction Noise and Vibration Standard) of this Environmental Impact Statement.

### 16.8.2 Mitigation measures

The mitigation measures that would be implemented to address potential hydrology and flooding impacts are described in Table 16-3.

Table 16-3 Mitigation measures - Flooding and hydrology

| Reference | Impact/issue | Mitigation measure | Relevant location |
|---|---|---|---|
| **Operation** | | | |
| **FH1** | Flood behaviour | On-site stormwater detention would be provided for the project site to manage rainfall runoff rates and volumes due to increased imperviousness of the project site and changes to sub catchment boundaries. | All |

### 16.8.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to the management of flooding and hydrology impacts include:

- Chapter 13 (Soils and surface water), relating to water management and stormwater during construction and operation of the project.

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# 17 Socio-economic

# 17 Socio-economic

*This chapter assesses the potential socio-economic impacts of construction and operation of the Sydney International Speedway and identifies mitigation measures to minimise these impacts*. This chapter draws on information provided in Technical Paper 9 (Socio-economic assessment).

## 17.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to socio-economic, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 17-1.

Table 17-1 Secretary's Environmental Assessment Requirements – Socio-economic

| Reference | Requirement | Where addressed |
|---|---|---|
| **12. Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and landuse assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for socio-economics are listed in Appendix A and addressed in Sections 17.4, 17.6, 17.7, and 17.8. |

## 17.2 Legislative and policy framework

The socio-economic impact assessment for the project has taken into consideration the following legislation and policies, where relevant:

- *Social impact assessment guideline for state significant mining, petroleum production and extractive industry development* (Department of Planning and Environment, 2017b)
- *Western Sydney Parklands Plan of Management 2030* (Western Sydney Parklands Trust, 2018)
- *Our Blacktown 2036* (Blacktown City Council, 2017)
- *2016-2026 Fairfield City Plan – Our home, our city, our future* (Fairfield Council, 2016).

## 17.3 Assessment methodology

### 17.3.1 Overview

The methodology for the social and economic impact assessment included:

- A desktop review of the project to scope the likely socio-economic impacts relevant to its construction and operation, and to identify the communities and groups potentially affected by the project
- Desktop investigations to describe existing socio-economic characteristics, conditions and values in the study area (see Section 17.3.2 for study area definition), including population, social infrastructure, and local commerce
- Identification of the potential social and economic impacts during construction and operation of the project, relating to employment, business, social infrastructure, amenity, community values and access and connectivity
- Evaluation of the significance of the potential socio-economic impacts of the project using a risk matrix approach
- Development of management and mitigation measures to avoid, mitigate or manage potential adverse impacts and maximise beneficial impacts of the project during construction and operation.

A more detailed description of the methodology for the socio-economic impact assessment for the project is provided in Technical Paper 9 (Socio-economic assessment) of this Environmental Impact Statement.

### 17.3.2 Study area

The study area for the socio-economic impact assessment for the project comprised Western Sydney Parklands and adjacent suburbs as shown in Figure 17-1. The study area is defined by the Australian Bureau of Statistics State suburbs catchment of Huntingwood, Eastern Creek, Minchinbury and Horsley Park.

The study area was defined based on communities and groups that have the potential to experience changes in socio-economic conditions because of proximity to the project and/or local movement patterns and routes that may be used or impacted by the project. Consideration was also given to potential impacts to communities at the regional level: the Blacktown and Fairfield local government areas (LGAs), and the wider Greater Western Sydney. There were no people living in the Huntingwood State suburbs catchment at the 2016 Census. This suburb has not been included in the analysis of population and demographic data for the study area, although consideration is given to this area in the review of social infrastructure, business and industry, and social values and features.

Figure 17-1 Socio-economic impact assessment study area

### 17.3.3 Assessment of potential impacts

Each potential social impact that was identified has been assessed using a qualitative and objective based risk assessment framework which evaluates impacts based on the 'likelihood' and 'consequence' of the potential social and economic impacts. Further details on the risk based approach to the assessment is provided in Technical Paper 9 (Socio-economic assessment).

Potential management and mitigation measures were identified based on the significance of potential impacts. These management and mitigation measures were then considered in a reassessment of significance to determine any residual potential impacts (refer to Technical Paper 9).

## 17.4 Existing environment

### 17.4.1 Regional context

In June 2019, the Blacktown LGA had an estimated resident population of about 374,451 people. Over the ten years to 2019, the Blacktown LGA experienced relatively strong population growth (about 2.3 per cent) compared to average annual growth rates of 1.7 per cent in Greater Sydney over the same period. The population of the Blacktown LGA is projected to grow to 612,148 people by 2041 (based on Department of Planning, Industry and Environment, 2019).

To the south of the project, the Fairfield LGA had an estimated resident population of 211,695 people in June 2019. Population growth in the Fairfield LGA was relatively low over the previous ten years, with annual average population growth at or slightly below one per cent. Population growth in the Fairfield LGA is projected to remain relatively stable.

The Blacktown LGA is a predominantly residential area. Rural land uses are in the northern part of the LGA, while areas of major industrial and commercial uses are located across the LGA, including at Eastern Creek, Huntingwood/ Arndell Park, and Pemulwuy near the project. Land uses in the Fairfield LGA comprise mainly residential uses, with major commercial centres located at Fairfield and Cabramatta and large scale industrial estates at Wetherill Park and Smithfield. Further information on land use is provided in Chapter 18 (Property and land use).

In addition to the Western Sydney Parklands, the Blacktown and Fairfield LGAs accommodate a range of community services and facilities of local, regional and State importance, including major hospitals and health care facilities, education facilities, recreation uses and arts and cultural facilities. Access to communities and businesses in the LGAs is provided by major roads including the Western Motorway (M4) and Westlink (M7) located near the project. The nearest residential areas are low to medium density housing at Minchinbury and rural residential land use at Horsley Park.

### 17.4.2 Economic profile

#### Income and employment

A comparison of key income and employment characteristics for the study area against Greater Sydney is provided in Technical Paper 9 (Socio-economic assessment). Compared to Greater Sydney, the study area is generally characterised by the following income and employment characteristics:

- Median personal and household incomes below Greater Sydney
- Lower proportions of households with incomes less than $650 per week and more than $3000 per week
- Relatively high proportion of workforce participation, with 65.7 per cent of the population aged 15 years or older either employed or actively looking for work. This was mainly driven by relatively high rates of workforce participation in Minchinbury and Eastern Creek. The lower rates of workforce participation in Horsley Park may reflect the older population in this suburb
- Level of unemployment below Greater Sydney, with 5.4 per cent of people aged 15 years or older reporting as unemployed, compared to 6.0 per cent in Greater Sydney
- Key sectors of employment for residents in the study area included construction, retail trade, health care and social assistance, manufacturing, and transport, postal and warehousing. Compared to Greater Sydney, communities in the study area had higher proportions of people employed in construction and retail trade, and lower proportions of people employed in health care and social assistance.

#### Local business and industry

The study area includes a range of commercial and industrial land uses that service customers across the wider Sydney area, NSW and nationally. These include businesses involving transport, logistics and distribution services, manufacturing, waste management and recycling, and motorsports and driver training related businesses. Key areas of local business and industry near the project are shown on Figure 17-2.

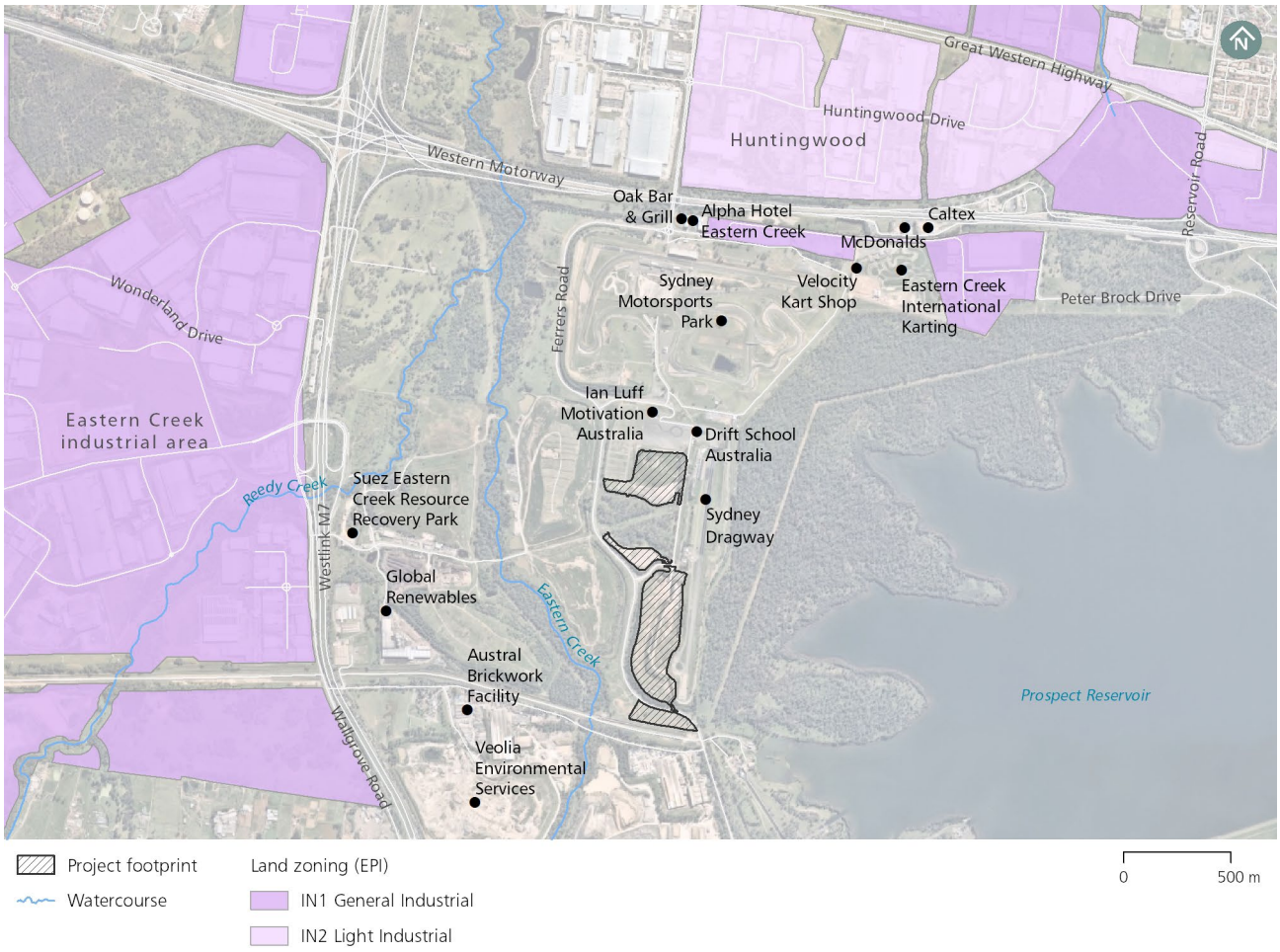


Figure 17-2 Local business and industry in the study area

### 17.4.3 Community profile

A comparison of the community profile for the study area to Greater Sydney is provided in Technical Paper 9 (Socio-economic assessment). Compared to Greater Sydney, the community profile of the study area is generally characterised by:

- A younger population, with a lower median age, higher proportions of children aged 14 years or less and lower proportions of older people aged 65 years or over. The exception to this is Horsley Park, which recorded a median age and proportions of older people well above Greater Sydney, possibly reflecting the more rural nature of this suburb
- Diverse populations, with above average proportions of Indigenous people and people who speak a language other than English at home. Within the study area, Horsley Park had a particularly high proportion of people who speak a language other than English at home (40.4 per cent) and Eastern Creek had a relatively high proportion of people who identified as being of Aboriginal and/or Torres Strait Islander (2.4 per cent)
- Higher than average proportion of families with children, with about 74 per cent of families comprising either one parent families or couple families with children, compared to about 64.8 per cent in Greater Sydney. Within the study area, Minchinbury had the highest proportion of families with children and Horsley Park had the lowest proportion of families with children and highest proportion of couple families with no children, which is likely to reflect the older population of this suburb
- Lower density suburbs, with a considerably higher proportion of people living in separate houses (90.6 per cent) and lower proportion of people living in medium or high density housing such as semi detached houses, town houses and apartments
- Relatively high proportion of homes that were owner occupied (that is, owned outright or owned with a mortgage) and low proportion of homes that are being rented. The exception to this is Eastern Creek, which reported proportions of owner occupied or rental homes similar to the Greater Sydney average

- Lower level of housing affordability in relation to houses with a mortgage with a relatively high proportion of households for which mortgage costs represent at least 30 per cent of their income. The study area also displayed a higher level of rental housing affordability
- Relatively high proportion of people that use a car for all or part of their journey to work and relatively low proportion of people who use the bus. About 75 per cent of people aged 15 years or over reported that they travelled to work by car, as either a driver or passenger, compared to 58.8 per cent in Greater Sydney. Within the study area, Minchinbury displayed the highest reliance of private vehicle for travel, while Horsley Park had the lowest proportion of people that used the car for travel to work.

### 17.4.4 Social infrastructure

The study area accommodates a range of community services and facilities that cater for the needs of both local and regional communities. These include:

- Sport and recreation uses within the Western Sydney Parklands
- Education and child care facilities in surrounding residential suburbs such as Minchinbury and Horsley Park, and commercial areas at Eastern Creek and Huntingwood
- Medical and health care facilities servicing local communities in Minchinbury and Horsley Park
- Emergency services uses in Huntingwood (Huntingwood Fire Station, NSW Police Traffic and Highway Patrol), and rural fire brigades at Horsley Park and Eastern Creek.

Western Sydney Parklands covers an area of about 5,280 hectares and extends from Quakers Hill in the north to Leppington in the south, including the project site. The Parklands unites several formal and informal sport, recreation and leisure uses including playgrounds, picnic facilities, sports facilities, bike tracks, nature trails and entertainment facilities. Apart from the sport and recreation uses within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, most of the social infrastructure within the study area is located at least one to two kilometres from the project.

Within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, social infrastructure includes Sydney Dragway and Sydney Motorsports Park (operated by the Australian Racing Drivers' Club), which is used by local car clubs. Land in the north of the project site is also used for off road driver training. Sydney Dragway and Sydney Motorsports Park are also regularly used by cycling clubs as venues for club racing events, including on weekend mornings and Tuesday evenings.

According to the Destination NSW Western Sydney Visitor Profile, during 2018/2019 Blacktown LGA received around 1,056,000 daytrip visitors and Western Sydney received 2.4 million domestic overnight visitors. *Western Sydney Parklands Annual Report 2017/2018* (Western Sydney Parklands Trust, 2018) identified that visitors to the recreational areas within the Western Sydney Parklands in 2017/2018 were 1,694,000, and there were 2,341,000 visits to Western Sydney Parklands tourism partners venues.

### 17.4.5 Community values

The amenity, character and identity of the study area is influenced by a range of land uses including motorsport activities, industrial and commercial, recreational, utilities infrastructure, and residential. Further details regarding land uses is provided in Chapter 18 (Property and land use).

The Western Sydney Parklands contribute to the amenity, character and identity of the study area and surrounding region and are valued by communities across the wider western Sydney region for their landscape, recreation and heritage values. The Parklands was first identified in Sydney's planning documents in 1968 to provide infrastructure and open space for current and future communities in western Sydney.

Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports support several motorsport clubs and events (for example car clubs, driver clubs and motorcycle clubs) as well as cycling clubs from across the greater Sydney region. The precinct facilities also provide opportunities for members of the public to participate in 'ride days' and 'track days'. These provide opportunities for social interaction and recreation and contribute to a 'sense of community' for NSW's motorsport community and motoring enthusiasts.

### 17.4.6 Access and connectivity

Major roads in the study area provide access for private, public and freight traffic and include the Western Motorway (M4), Westlink M7 Motorway and Great Western Highway. Local roads connect Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports to these major roads and the surrounding suburbs, and include Ferrers Road, The Horsley Drive and Brabham Drive.

The study area is served by local Sydney Buses Network bus routes from Rooty Hill (Route 738) and between the University of Western Sydney Campus and Prairiewood (Route 835). The closest bus stop to the project site is located at Peter Brock Drive, about two kilometres north of the project site. Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports is serviced by local bus service Route 724, which provides a loop service between Blacktown Station and Huntingwood. Bus services on this route are limited at weekends, operating half hourly on Saturday and hourly on Sunday.

The T1 Western Line is about six kilometres north of the project site with the nearest passenger rail stations at Rooty Hill, about 5.5 kilometres to the northwest, and Blacktown, about 6.5 kilometres to the northeast.

## 17.5 Avoidance and minimisation of impacts

Design development of Sydney International Speedway aimed to avoid and minimise potential social and economic impacts. This has included integration of facilities with those of the existing motorsports operators within Western Sydney Parklands' Precinct 5: Eastern Creek Motorsports, such as the provision of alternate car parking areas for Sydney Dragway within the project site so that it can continue operating during the construction period of the project. The design of the project also includes measures to avoid dust deposition impacting the operations of Sydney Dragway, including the provision of a dust screen in the northeast corner of the project site and implementation of a dust monitoring program in accordance with an air quality management plan.

## 17.6 Assessment of potential construction impacts

The following potential socio-economic impacts of the project during construction have been identified.

### 17.6.1 Employment

Construction would generate up to 150 full time equivalent employment opportunities for local residents and construction workers across the wider Sydney region. The creation of these employment opportunities during construction would benefit local and regional workers and have potential to support improved incomes for individuals. The project is also likely to generate indirect jobs in local, regional and national businesses and industries from increased economic activity and spending at businesses providing goods and services to support construction activities.

### 17.6.2 Local business and industry

The project would potentially provide additional benefits for local businesses servicing the construction industry, for example equipment hire, transportation and administration services.

Potential temporary construction impacts relating to access and connectivity, including parking is discussed in Section 17.6.5.

The project would incorporate measures in the design and operating procedures to minimise amenity and operational impacts on local businesses. Project specific consultation with Sydney Dragway throughout the development of the project has identified the generation and movement of construction dust as a key issue for concern, particularly during events where vehicles are using Sydney Dragway (refer to Chapter 4 (Stakeholder and community engagement) for additional information on consultation activities). Chapter 7 (Noise and vibration) and Chapter 9 (Air quality) provide more detail on the management of the potential temporary noise and dust impacts to nearby receivers during construction.

Given the distance between the project and other nearby areas of business and industry, construction of the project is not expected to impact on the amenity of local businesses outside of the Western Sydney Parklands.

### 17.6.3 Social infrastructure

Most of the social infrastructure within the study area (apart from sport and recreation uses within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports) is located about one to two kilometres away from the project. Construction activities are not expected to impact on the amenity, use or functioning of these facilities given their distance to the project.

Motorsport car clubs hold occasional off road driver training events in the southern portion of the project site. This area would be required from the start of construction and would no longer be available for such uses. The Motorsport Precinct Masterplan process being led by Western Sydney Parkland Trust (including consultation) would aim to provide an appropriate venue for all existing motorsport users in the precinct.

Impacts on sport and recreation uses within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports have been discussed in Section 17.6.2.

### 17.6.4 Community values

Facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports provide opportunities for social interaction and recreation and contribute to a 'sense of community' for the motorsport racing community and motoring enthusiasts. Access to existing facilities outside of the project site and for motorsport, motoring and cycling club activities would be maintained during construction, although noise and dust from construction activities may cause some disturbance.

There is the potential that some individuals may decide not to participate in club events at the Sydney Dragway during the construction phase due to concerns about perceived impacts from construction noise and dust. The implementation of environmental measures during construction and communication and engagement with local clubs about construction activities and potential management strategies would mitigate this risk.

Noise from construction activities during standard construction hours is not expected to impact on amenity at residential uses within the study area, due to the large separation distance between the project site and residential receivers. Further information on potential construction noise impacts is provided in Chapter 7 (Noise and vibration) and Technical Paper 2 (Noise and vibration) along with proposed noise management and mitigation measures.

### 17.6.5 Access and connectivity

Access would be maintained to properties adjoining the project, including the Sydney Dragway and the Sydney Motorsports Park (operated by the Australian Racing Drivers' Club).

The construction traffic impact assessment for the project concluded that construction of the project would potentially have minor temporary impacts on road network performance during peak construction (refer to Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) for more information). Although some temporary delays and disruptions may be experienced by motorists on local roads surrounding the project, particularly Ferrers Road, impacts are expected to be minor and manageable with the implementation of the mitigation measures in Chapter 6 (Traffic, transport and parking).

The project's construction footprint would directly impact car parking areas currently used during events within Western Sydney Parklands' Precinct 5: Eastern Creek Motorsports, including at the Sydney Dragway. During construction, temporary off set car parking would be established comprising 800 spaces in the existing Sydney Dragway parking area and 1600 spaces within the project site, providing 2400 parking spaces at all times. These facilities would be established before existing car parking facilities are removed to minimise disruptions for spectators. The location of temporary car parking facilities is provided in Chapter 5 (Project description).

Technical Paper 1 (Traffic, transport and parking) provides more detail on potential impacts on the road network, property access and parking.

## 17.7 Assessment of potential operational impacts

### 17.7.1 Employment

Operation of the Sydney International Speedway would require five permanent full time employment positions to be based at the project site. Additional employment opportunities would also be provided through the operation of associated food and retail outlets during events. Local employment on the project would have positive impacts on economic outcomes for individuals.

### 17.7.2 Local business and industry

Speedway racing alongside other motorsport codes is a key contributor to the NSW economy and the new Sydney International Speedway facility would support tourism in Western Sydney, as described in Chapter 2 (Strategic need, justification and project alternatives) of this Environmental Impact Statement. Operation of the project is expected to result in several long term social and economic benefits, including increased patronage for local businesses (for example accommodation and hospitality industry) during race events. It is expected that major events would attract between 4000 and 6000 attendees per event, with smaller events attracting around 500 to 1000 spectators.

During operation, the project has the potential for temporary impacts on amenity at nearby businesses within the Western Sydney Parklands, due to the generation of dust and noise during racing events. As discussed in Section 17.6.2, consultation for the project identified dust as a key issue for Sydney Dragway, with potential implications for vehicles using the dragway. A dust suppression, screening and monitoring program would be implemented by the operator of the project (once appointed) during events to manage the deposition of dust at the Sydney Dragway to avoid potential impacts on the existing operations. Further details about dust management are provided in Chapter 9 (Air quality) of this Environmental Impact Statement.

Sydney Dragway also supports motorsport related and driving education businesses. Operation of the project is not expected to impact on amenity for these businesses given that most events at the Sydney International Speedway would be held during the evening and on weekends, which is outside of their normal business operating hours.

Operation of the project is not expected to impact on amenity or land use of businesses and local industry outside of the Western Sydney Parklands given the buffer distance between the project and these neighbouring land uses. Further details on potential air quality and noise impacts are provided in Chapter 7 (Noise and vibration) and Chapter 9 (Air quality) respectively.

### 17.7.3 Social infrastructure

The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in New South Wales. Establishment of Sydney International Speedway would contribute to the objectives for Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, providing quality motorsports facilities and creating recreational and community facilities. This would also help to increase community participation and engagement in motorsport racing activities in the Parklands.

Most of the existing social infrastructure within the study area is located about one to two kilometres away from the project site. Operation of the Sydney International Speedway is not expected to impact on the amenity, use or functioning of these facilities given the distance between the project and these facilities. Impacts on businesses within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports have been discussed in Section 17.7.2.

### 17.7.4 Community values

The Sydney International Speedway would further consolidate New South Wales's major motorsport facilities into the one location, supporting the role of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports as a focus of local, regional, national and international motor racing events. The Sydney International Speedway would provide additional opportunities in the precinct for the racing community to participate in racing events, as competitors and spectators, thereby strengthening the sense of community for motorsport and motoring enthusiasts.

Noise from motorsport events is not expected to impact on amenity at most residential uses within the study area, due to the large separation distance between the project site and residential receivers. At-property treatment would be provided to a small number of residential properties to the south to reduce potential operational noise levels during events. Further information on potential operational noise impacts is provided in Chapter 7 (Noise and vibration) and Technical Paper 2 (Noise and vibration) along with proposed noise management and mitigation measures.

### 17.7.5 Access and connectivity

The project is not expected to have a significant impact on access and connectivity during operation. Operation of the project would not change the existing accesses for local businesses within the Western Sydney Parklands, or local business and industry and residents within nearby suburbs. During operation, potential impacts of the project on access and connectivity would mainly be associated with increased traffic on roads within and leading to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports prior to and following events. This may cause temporary delays and disruptions for some road users, although impacts on the surrounding road network are expected to be minor. Operation of the project is not expected to impact on access for pedestrians and cyclists within the study area.

The operational traffic assessment for the project concluded that intersection performance would continue to operate at an acceptable level of service during operation of the project. Additional information is provided in Chapter 6 (Traffic, transport and parking) of this Environmental Impact Statement.

## 17.8 Management and mitigation measures

### 17.8.1 Approach to management and mitigation

Stakeholder and community participation in ongoing design development, construction planning and development of environmental management measures would help to avoid, minimise or manage the identified potential socio-economic impacts of the project. Stakeholder and community engagement would be carried out as described in Chapter 4 (Stakeholder and community engagement) including consultation with potentially affected businesses and community facilities about construction activities.

Potential socio-economic impacts relating to amenity impacts would also be mitigated through the environmental management requirements of the Construction Environmental Management Framework, the Construction Noise and Vibration Standard and the Operational Management Plan for the project. Additional detail on these documents is provided in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement). The mitigation measures in Table 17-2 would also be implemented.

### 17.8.2 Mitigation measures

Measures to mitigate and manage socio-economic impacts of the project are included in Table 17-2.

Table 17-2 Mitigation measures - socio-economic

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Construction** | | | |
| **SE1** | Impacts on businesses and social infrastructure | Consultation would be carried out with managers of potentially impacted businesses and social infrastructure about the timing and duration of construction works and management of potential impacts, with the aim of minimising potential disruption to the use of businesses and social infrastructure from construction activities. This includes, but is not limited to:<br>• Sydney Dragway<br>• Sydney Motorsports Park (operated by the Australian Racing Drivers' Club)<br>• Businesses within and surrounding land leased by Sydney Dragway<br>• Motorsports facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports<br>• Western Sydney Parklands Trust. | All |
| **SE2** | Impacts on clubs that use land impacted by the project | Consultation as part of the Motorsport Precinct Masterplan would aim to provide an appropriate venue for all existing motorsport users in the precinct. | All |

### 17.8.3 Interactions between mitigation measures

In addition, many of the potential social impacts are associated with other environmental aspects addressed in the various chapters of this Environmental Impact Statement. Management and mitigation measures identified in other technical papers and chapters that are relevant to the management of socio-economic impacts include:

- Chapter 6 (Traffic, transport and parking) and Technical Paper 1 (Traffic, transport and parking) specifically measures to manage parking and access to others uses within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports
- Chapter 7 (Noise and vibration) and Technical Paper 2 (Noise and vibration) specifically measures to manage potential noise impacts to receivers during construction and operation
- Chapter 9 (Air quality) and Technical Paper 4 (Air quality) specifically measures to manage potential dust impacts to the operation of the Sydney Dragway and air quality impacts to receivers during construction and operation.

# 18 Property and land use

# 18 Property and land use

This chapter assesses the potential impacts of the Sydney International Speedway on property and land use and identifies mitigation measures to minimise these impacts.

## 18.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to property and land use and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 18-1.

Table 18-1 Secretary's Environmental Assessment Requirements – Property and land use

| Reference | Requirement | Where addressed |
|---|---|---|
| **12. Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and land use assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for property and land use are listed in Appendix A and addressed in Sections 18.2, 18.6, 18.7 and 18.8 |

## 18.2 Legislative and policy Framework

### 18.2.1 State Environmental Planning Policy (Western Sydney Parklands) 2009

The project is located within the Western Sydney Parklands which is managed by the Western Sydney Parklands Trust pursuant to the provisions of the *State Environmental Planning Policy (Western Sydney Parklands)* 2009 (Western Sydney Parklands SEPP). The objective of the Western Sydney Parklands SEPP is to implement planning controls that will enable the Western Sydney Parklands Trust to develop the Parklands into a multi-use urban parkland for Western Sydney.

Certain environmental planning instruments (EPIs) do not apply in the Parklands, including the *Blacktown Local Environmental Plan 2015* and *State Environmental Planning Policy No. 19 (Bushland in urban areas)*.

Under Part 2, Clause 9 of the Western Sydney Parklands SEPP the land to which the project applies is unzoned. However, the Western Sydney Parklands SEPP sets out matters to be considered by consent authorities determining applications for development consent within the Parklands. While the State significant infrastructure application is not an application for development consent, a summary of the clauses of the Western Sydney Parklands SEPP relevant to the Sydney International Speedway, and the consistency of the project with the relevant matters is provided in Chapter 3 (Planning and assessment process) of this Environmental Impact Statement.

The project is considered to be generally consistent with the Western Sydney Parklands SEPP. Where possible the design has been optimised to minimise the amount of vegetation clearance required, and opportunities to further minimise the amount of vegetation clearance within the project site would be investigated during design development. The project design also includes planting with native species around the perimeter of the site which would contribute to the mitigation of vegetation removal. The potential impacts of this vegetation clearance, and mitigation measures proposed to minimise and manage this impact are provided in Chapter 8 (Biodiversity). However, the project would require the removal of 1.83 hectares of vegetation, including 0.63 hectares of native vegetation, classified as a threatened ecological community under the *Biodiversity Conservation Act 2016*. While the clearance of vegetation would be inconsistent with the aim of the Western Sydney Parklands SEPP to protect and enhance the natural systems of the Parklands, including flora and fauna species and communities and riparian corridors, mitigation measures would minimise these potential impacts. Additionally, the project site would result in the least impact to biodiversity of the three options considered for the location of the Sydney International Speedway (refer to Chapter 2 (Strategic need, justification and project alternatives) for more information). Any residual biodiversity impacts would be offset as required by the *Biodiversity Conservation Act 2016*.

### 18.2.2 Western Sydney Parklands Act 2006 and Western Sydney Parklands Plan of Management 2030

The *Western Sydney Parklands Plan of Management 2030* has been prepared and adopted under Part 4 of the *Western Sydney Parklands Act 2006*. A summary of Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports desired future character, objectives and land use opportunities detailed in the *Plan of Management 2030*, and an assessment of consistency with the *Plan of Management 2030* is provided in Chapter 2 (Strategic need, justification and project alternatives).

The project is considered to be consistent with the *Western Sydney Parklands Plan of Management 2030*.

## 18.3 Assessment methodology

The assessment of potential property and land use impacts of the project included:

- Identification of existing local land uses and property that may be impacted by the project
- Review of key strategy and policy documents relevant to the project to identify future land use priorities and developments
- Assessment of potential property and land use impacts of the project in and around the project footprint including:
  - Permanent property acquisition to enable development of the project
  - Temporary acquisition or leasing of property to enable construction of the project
  - Direct impacts as a result of land occupation
  - Indirect impacts on surrounding land uses during construction and operation
  - Consistency with relevant land use and planning controls
- Identification of mitigation measures to avoid or manage potential impacts.

## 18.4 Avoidance and mitigation of impacts

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential property and land use impacts. This has included:

- Locating the project in close proximity to other motor sports facilities in Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, which allows opportunities for synergies and coordinated development planning. The location of the project within this precinct avoids the constraints of other potential locations including potential environmental impacts on sensitive neighbouring development and residential areas
- Consultation with the Western Sydney Parklands Trust and other nearby stakeholders, including Sydney Dragway and Sydney Motorsports Park (operated by Australian Racing Drivers; Club), to identify potential impacts on their operations and agreeing solutions to minimise these impacts
- Providing temporary carparking areas for use by visitors to the Sydney Dragway during construction of the project. The same amount of car parking spaces which are available under the existing parking and access arrangements would be provided for the duration of construction (refer to Chapter 5 (Project description) and Chapter 6 (Traffic, transport and parking) for more information)
- The project includes two areas of new dedicated parking for Sydney Dragway (Carpark C and Carpark D), providing around 2220 car parking spaces (refer to chapter 5 (Project description) for more information). The operational car parking design has been developed in consultation with Sydney Dragway to ensure that adequate parking provisions for visitors to Sydney Dragway have been provided as part of the project (refer to Chapter 4 (Stakeholder and community engagement) for more information about consultation carried out to date).

## 18.5 Existing environment

### 18.5.1 Existing land uses and zoning

The project site is located within the following properties:

- Lot 1, deposited plan (DP) 1077822
- Lots A, B & C DP 408966
- Lot 2 DP 1062965.

The project site currently comprises some cleared areas used for off road track racing and parking during events at the adjacent Sydney Dragway, and some areas of remnant and planted vegetation.

The land use zones near the project site is shown in Figure 18-1. The local context of the project is described in Chapter 1 (Introduction) of this Environmental Impact Statement.

There are currently three State Significant development applications in Western Sydney Parklands' Precinct 6: Wallgrove (refer to Chapter 23 (Cumulative impacts) for more information):

- Light Horse Interchange Business Hub (currently subject to assessment and determination by the Department of Planning, Industry and Environment)
- Horsley Park Brickworks Plant 2 Upgrade (project approved on 18 May 2020)
- Western Sydney Energy and Resource Recovery Centre (Environmental Impact Statement currently being prepared).

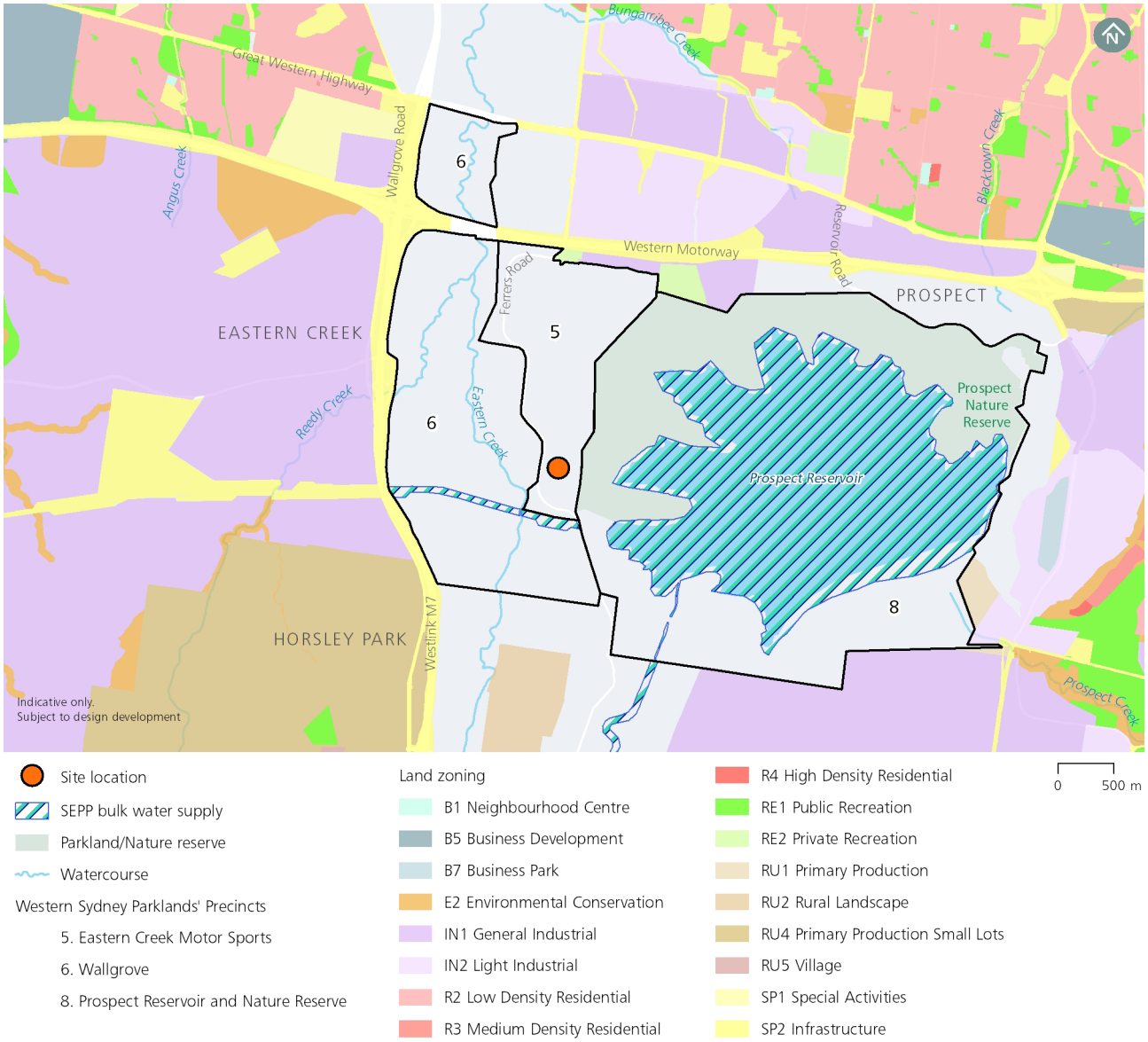


Figure 18-1 Land use zones near the project site

## 18.6 Property impacts

Construction and operation of the project would not require any direct, permanent property acquisition, as the project site is entirely located on land owned and managed by the Western Sydney Parklands Trust.

Parts of the project site are currently leased to Sydney Dragway for use as overflow parking areas during events. Sydney Dragway and Western Sydney Parklands Trust have negotiated a partial surrender of the project site to permit the construction and subsequent operation of the Sydney International Speedway. Regular consultation has been carried out with Sydney Dragway to understand potential impacts to their operation and develop appropriate mitigation measures during construction and operation of the Sydney International Speedway. Further information is provided in Chapter 4 (Stakeholder and community engagement) of this Environmental Impact Statement.

Impacts to the land use of areas of the Western Sydney Parklands currently leased to Sydney Dragway during construction and operation are discussed in Section 18.7 and Section 18.8.

## 18.7 Assessment of potential land use impacts during construction

Construction of the project would change the land use of the project site from an area used for off road track racing and car parking during events at the adjacent Sydney Dragway, to construction of the new Sydney International Speedway. This land use change would be generally minor in the context of the nearby land uses surrounding the project site.

Access to Sydney Dragway from Ferrers Road would be maintained throughout construction. Construction staging for the project would allow for the provision of temporary parking spaces for visitors to Sydney Dragway within the project site throughout the duration of construction, or until permanent parking is available for use, as described in Chapter 5 (Project Description). An assessment of parking impacts during construction is provided in Chapter 6 (Traffic, transport and parking).

The socio-economic impacts associated with the proposed use of this land for the Sydney International Speedway are assessed in Chapter 17 (Socio-economic) and Technical Paper 9 (Socio-economic). The Motorsport Precinct Masterplan process being led by Western Sydney Parklands Trust (including consultation) would aim to provide an appropriate venue for all existing motorsport users in the precinct.

Assessment of potential impacts to adjacent land uses is provided in Chapter 6 (Traffic, transport and parking), Chapter 7 (Noise and vibration), Chapter 9 (Air quality) and Chapter 12 (Landscape character and visual amenity) of this Environmental Impact Statement. These potential impacts would be manageable with the implementation of proposed mitigation measures, as summarised in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement).

Land uses immediately next to the project site may be subject to potential temporary impacts during construction of the project, including:

- Temporary increased traffic volumes on the site access road and Ferrers Road associated with construction vehicles entering and exiting the project site
- Temporary air quality impacts in the form of dust generation associated with construction works and vehicle movements
- Visual and landscape impacts due to removal of existing vegetation and temporary presence of construction plant and equipment
- Temporary noise and vibration generation associated with construction activities.

## 18.8 Assessment of potential land use impacts during operation

The site's location in the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, adjacent to other motor sports operations, makes it a suitable location for the project.

Land immediately surrounding the project site comprises other motorsports venues within the existing Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and general industrial, environmental conservation and infrastructure land. These land uses provide an appropriate buffer to mitigate impacts to more sensitive residential receivers, of which the closest are located about 1.2 kilometres to the south of the project on Chandos Road.

It is expected that the use of the project site for the operation of the Sydney International Speedway would generate some amenity related impacts on surrounding land uses during operation, associated with noise and dust. These impacts are assessed in the relevant chapters of the Environmental Impact Statement and would be manageable with the implementation of the proposed mitigation and management measures, as summarised in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) of this Environmental Impact Statement.

In the case that Western Sydney Parklands' Precinct 6: Wallgrove progresses to include new business related land uses (as intended under the Plan of Management), these uses are likely to reflect the identified future land use opportunities for the Precinct such as recycling and business hubs and would not introduce new sensitive receivers that may be impacted by the project.

## 18.9 Management and mitigation measures

The design development of the Sydney International Speedway has included a focus on avoiding or minimising potential property and land use impacts (refer Section 18.4). No specific mitigation measures are recommended to address residual potential impacts on property and land use.

### 18.9.1 Interactions between mitigation measures

Mitigation measures in other chapter that are relevant to the management of potential impacts on property and land use include:

- Chapter 6 (Traffic, transport and parking), specifically measures relating to parking during construction and operation
- Chapter 7 (Noise and vibration), specifically measures relating to noise impacts during construction and operation
- Chapter 8 (Biodiversity), specifically measures relating to the management of impacts associated with the clearance of threatened ecological communities in the project site
- Chapter 9 (Air quality), specifically measures relating to the management of dust to Sydney Dragway during construction and operation
- Chapter 17 (Socio-economic), specifically measures relating to impacts to existing users of land within the project site.

Together, these measures would minimise the potential land use and property impacts of the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of property and land use impacts.

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# 19 Hazards

# 19 Hazards

This chapter assesses the potential hazards that could arise from the construction and operation of the Sydney International Speedway and identifies mitigation measures to minimise these potential hazards.

## 19.1 Secretary's Environmental Assessment Requirements

Table 19-1 Secretary's Environmental Assessment Requirements - Hazards

| Reference | Requirement | Where addressed |
|---|---|---|
| **8. Safety and Risk** | | |
| **2.8.2** | The Proponent must undertake a risk screening assessment and analysis of the need for a preliminary hazard analysis including:<br>a. identification of potential hazardous materials and, where possible, the volumes to be used or stored that will be used or stored at the site; | Section 19.5 and Section 19.6 |
| | b. credible adverse events that could arise; | Section 19.5 and Section 19.6 |
| | c. an evaluation of potential risks against relevant criteria; and | Section 19.5 and Section 19.6 |
| | d. measures to be employed to avoid, minimise or mitigate identified risks. | Section 19.7 |

## 19.2 Legislative and policy framework

The following guidelines inform or respond to the regulatory framework and have been applied to the project:

- *Hazardous and Offensive Development Application Guidelines: Applying SEPP 33* (Department of Planning, 2011a)
- *International Standard (I SO/IEC 31010: 2009) Risk Management – Risk Assessment Techniques*
- *Work Health and Safety Act 2011* (NSW) and *Work Health and Safety Regulation 2017 (NSW)*
- *Australian Code for the Transport of Dangerous Goods by Road and Rail (edition 7.6)* (National Transport Commission, 2018)
- *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover, 2005) (noting this Code is a guide for processes and controls to manage risks and is not to be relied upon to ascertain requirements under the *Work Health and Safety Regulation 2017*)
- *Multi-Level Risk Assessment* (Department of Planning and Infrastructure, 2011)
- Bushfire prone land mapping developed and published by the relevant local councils.

### 19.2.1 Dangerous goods and hazardous materials

Dangerous goods are objects or substances that pose acute risks to people, property and the environment due to their chemical or physical characteristics. Hazardous substances are materials or chemicals that can pose a substantial risk to health and safety if not managed properly.

Dangerous goods are classified based on their physical or chemical effects, such as fire, explosion, corrosion and poisoning, which affects property, the environment, or people. Dangerous goods are substances that, because of their physical, chemical or acute toxicity properties, present a risk to people, property, or the environment. Types of substances classified as dangerous goods include explosives, flammable liquids and gases, corrosives, and chemically reactive or acutely toxic substances. Dangerous goods are defined by the *Australian Dangerous Goods* (ADG) *Code* (National Transport Commission, 2018). Many dangerous goods are also classed as hazardous substances.

Hazardous materials are those that meet the classification criteria specified by the *Work Health and Safety Regulation 2017* and the Globally Harmonised System of Classification and Labelling of Chemicals (an internationally agreed system of chemical classification). The thresholds in Applying SEPP 33 represent the maximum quantities of hazardous materials that can be stored or transported without causing a substantial off-site risk. Although SEPP 33 is not applicable to State significant infrastructure projects, the guidelines have been applied to inventories of dangerous goods likely to be stored during operation of the project, particularly during events to assess the potential risk of the project to the environment and to public safety.

## 19.3 Assessment methodology

The hazards assessment for the project has included the following key activities:

- Collection of information to identify potential hazards associated with the construction and operation of the project
- A preliminary risk screening of the project in accordance with *Applying SEPP 33: Hazardous and Offensive Development Guidelines* (Department of Planning, 2011).

Other potential hazards such as dust deposition on the adjacent Sydney Dragway are assessed and appropriate mitigation measures identified in Chapter 9 (Air quality) and are not considered in this chapter.

### 19.3.1 Collection of background information

A desktop review was carried out to collect background information relevant to the project.

To effectively apply the risk screening method prescribed in SEPP 33, a range of information was collated. This included:

- Quantities, description and class of all the hazardous materials used (or expected to be used) in the proposed development
- Dangerous goods classification for each material, including subsidiary class(es)
- The mode of storage used (that is, bulk or packages/containers) and the maximum quantity stored or held on the project site
- Distance of the stored material from the project site boundary for any of the materials in dangerous goods classes 1.1, 2.1 and 3
- Average number of annual and weekly road movements of hazardous material to and from the facility, and the typical quantity in each load.

**Preliminary risk screening**

As discussed in Section 19.2, SEPP 33 links the permissibility of a development to its safety and environmental performance. Activities involving the handling, storage or processing of a range of materials which, in the absence of controls may create off-site risks to people, property or the environment are defined by SEPP 33 as 'potentially hazardous industry'.

Under clause 12 of SEPP 33, industries or projects determined to be hazardous or potentially hazardous require the preparation of a Preliminary Hazard Assessment (PHA).

To determine if the project is defined as potentially hazardous industry under the provisions of SEPP 33, and therefore requires the preparation of a PHA, a preliminary risk screening was carried out in accordance with Figure 4 of *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* (Department of Planning, 2011).

Estimates of hazardous material, hazardous chemicals and dangerous goods have been obtained for the project. Where precise data is not available, the value of the data item is treated as having the value of the upper end of the estimate range.  In the absence of data, the maximum value is assumed.

## 19.4 Existing environment

### 19.4.1 Proximity of the project site to sensitive receivers

The project site sits within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports which sits within the Blacktown Local Government Area (LGA) in the Central River City subregion of Greater Sydney. It sits about six kilometres southwest of the Blacktown City Centre, and 32 kilometres west of the Sydney Central Business District.

The project site is located within a designated bush fire prone area, as identified by The NSW Rural Fire Service Mapping tool. To the east of the project site, there are mainly open space and environmental land uses, including the Prospect Reservoir and a nature reserve. The project site is also located within a 'drought affected' area, as identified by a Combined Drought Indicator by The Department of Primary Industries. This is consistent with the Greater Sydney Region.

The Warragamba Pipelines bulk water supply infrastructure are located south of the project site. The Warragamba Pipelines link the Prospect Reservoir, located about 300 metres east of the project site, to Warragamba dam, providing a source of drinking water supply to Sydney through the Prospect Water Filtration Plant (located southeast of the project). Prospect Reservoir is located within a Special Area under the *NSW Water Act 2014*, to protect its role as part of Sydney's water supply.

A transmission line and associated easement traverses carparks C and D in an east-west direction outside of the project site. Neighbouring properties to the project site include the Sydney Dragway which is adjacent to the eastern boundary of the project site. To the north of carpark C and carpark D is a learner driver business and Drift School Australia. Residential properties and other sensitive receivers are located about one kilometre to the south.

## 19.5 Assessment of potential construction impacts

The Construction Environmental Management Framework (Appendix C) provides a framework for the development of a project specific Construction Environmental Management Plan by the contractor which would be implemented to manage and mitigate the following potential construction related hazards and risks:

- The on-site storage, use and transport of dangerous goods and hazardous substances
- Potential bushfire risks
- Potential impacts to utilities.

### 19.5.1 On-site storage, use, handling and transport of dangerous goods and hazardous substances

The construction site would be planned so that hazardous materials are stored appropriately and at a suitable distance from sensitive receivers, in accordance with the thresholds established under Applying SEPP 33 guidelines. Typically, low volumes of potentially hazardous materials would be stored on site with the volume required largely depend on the anticipated rates of consumption, with deliveries of dangerous goods coordinated to match consumption rates.

Hazardous materials that may be used on the project site during construction may include the following, as classified using the *Australian Code for the Transport of Dangerous Goods by Road and Rail (edition 7.6)* (the ADG Code) (National Transport Commission, 2018):

- Diesel fuel
- Oil, grease and lubricants
- Gases (including ADG class 2.1 oxy-Acetylene)
- Bitumen (Class 3 PGIII)
- Paint and epoxies (Class 3 PGII and Class 3 PGIII).

Environmental hazards associated with the on-site storage, use and transport of chemicals, fuels and materials would be managed through standard mitigation measures to be developed as part of the construction environmental management documentation. These measures would include the storage and management of all dangerous goods and hazardous substances in accordance with the *Work Health and Safety Act 2011*, the *Work Health and Safety Regulation 2017*, the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and Applying SEPP 33 (Department of Planning, 2011a).

Dangerous goods would be transported to and from construction sites using the routes identified in Chapter 6 (Traffic, transport and parking). Transport of dangerous goods would be in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008* and *Dangerous Goods (Road and Rail Transport) Regulation 2014*, and extended routes would avoid areas (such as road tunnels) prohibited by *NSW Road Rule 300-2* (carriage of dangerous goods in prohibited areas).

### 19.5.2 Potential bushfire risks

The project site and surrounding land is classified as being bushfire prone land. The site is largely cleared of vegetation and the key bushfire risks to the project site would be associated with managing and containing the spread of a bushfire onto the project site during construction, should it occur.

Where practicable, construction compounds would be positioned a minimum of 10 metres away from vegetation on surrounding land to minimise the potential for the spread of a bushfire onto surrounding land or within the project site and to provide an appropriate setback distance between construction compounds and vegetation to allow for bushfire protection, should it be required.

### 19.5.3 Potential interference with existing utilities and services

Implementation of standard construction procedures such as 'dial before you dig', exclusion zones for at height plant around transmission lines and consultation with the relevant utility providers would result in there being a low risk of disturbing underground and overhead utilities within and near to the project site and any resultant associated impacts.

The Warragamba Pipelines are located outside of the project site and a vibration assessment, provided in Chapter 7 (Noise and vibration) and Technical paper 2 (Noise and vibration), has concluded that there would be no impact to the structural integrity of the Warragamba Pipelines due to construction activities and equipment.

## 19.6 Assessment of potential operational impacts

An Operational Environmental Management Plan would be implemented to management and mitigate the following hazards and risks:

- The on-site storage, use and transport of dangerous goods and hazardous substances
- Potential bushfire risks.

### 19.6.1 On-site storage, use, handling and transport of dangerous goods and hazardous substances

The project site has been planned and the Operational Environmental Management Plan would be prepared so that volumes of dangerous goods stored on the project site are below Applying SEPP 33 quantity thresholds or to provide appropriate separation distances between any hazardous goods stored on the project site that are above threshold quantities and sensitive land uses off-site. All hazardous substances that may be required would be stored and managed in accordance with the *Work Health and Safety Act 2011 and the Storage and Handling of Dangerous Goods Code of Practice (WorkCover NSW, 2005)*.

As described in Applying SEPP 33, the first stage of determining the SEPP 33 procedural requirements for the project, and to determine if a PHA is required, is to undertake screening tests, such as dangerous goods quantity/distance thresholds. Hazardous materials are defined as substances which fall within the classification of the Australian Dangerous Goods code.

The dangerous goods classes for which there are screening thresholds (and trigger the requirement for a PHA) are presented in Table 19-2. The classes and threshold quantities to be excluded from the project site are also included.

The operator would effectively be able to manage the low number and volume of chemicals it controls, however chemicals brought in and stored temporarily by competitors would require procedures to ensure the safe handling of fuel.

Table 19-2 Dangerous goods screening assessment

| ADG Code Class | Description | Screening threshold quantity | Project storage quantities above threshold? | Rationale for exclusion or inclusion |
|---|---|---|---|---|
| **3** | Flammable liquid 3 PGII | 5 tonnes | Yes | Exclusion – distance from the project site boundary (other uses, nonsensitive) is likely to be greater than the threshold distance as competitors' fuel would be located in the competitor pit area. Fuel for competitors would not be stored on the project site – with each team responsible for bringing sufficient quantities in their tender vehicles to meet the needs of that event's racing only. A diesel fuel storage tank to supply the operator's on-site maintenance equipment would be located adjacent to the facilities workshop shed and suitably far from the project site boundary to be in accordance with the required separation distance for its capacity. Other smaller portions elsewhere, if treated separately have little influence. |
| **2.1** | Flammable gases 2.1 PG-n/a | 500 kg | No | Exclusion – distance from the project site boundary (other uses, nonsensitive) is likely to be greater than the threshold distance as the individual items would be dispersed across the project site in smaller unit sizes. |
| **2.3** | Oxidizing gas 2.2 PG-n/a | 100 kg | Yes | Exclusion – distance from the project site boundary (other uses, nonsensitive) is likely to be greater than the threshold distance due to the individual items forming the aggregate being in smaller unit sizes and dispersed across the project site. |
| **4.1** | Explosives/ Flammable solids 1 PG-n/a | 100 kg | No | Exclusion – less than 100 kilograms of fireworks would be stored on the project site at any one time. Fireworks would be brought on the project site only for an event that day and would be stored more than 100 metres from the project boundary, resulting in an acceptable separation distance. |

### 19.6.2 Bushfire

The existing adjacent development provides an effective setback to vegetation located to the east to manage potential bushfire risks.

A concept fire safety strategy was prepared as part of the concept design to outline the fundamental fire safety design concepts for the project. The fire strategy includes consideration of relevant objectives with respect to building design and fire brigade intervention in accordance with the Building Code of Australia (BCA) performance requirements. Fire and Rescue New South Wales will be further consulted during design development.

## 19.7 Management and mitigation measures

### 19.7.1 Approach to management and mitigation

During construction, hazards would be managed in accordance with Sydney Metro's Construction Environmental Management Framework which is described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement) and provided in Appendix C.

The Construction Environmental Management Framework would also include requirements for the development and implementation of emergency and incident response plans and procedures.

Operational hazards would be managed through the Operational Environmental Management Plan to be prepared by the operator of the project (once appointed), which would include a dangerous goods management plan, in accordance with the relevant Australian Standards and NSW WorkCover guidelines.

### 19.7.2 Mitigation measures

Specific mitigation measures that would be implemented, to address potential hazards are listed in Table 19-3.

Table 19-3 Mitigation measures – Hazards

| Reference | Impact/issue | Mitigation measure | Applicable location(s) |
|---|---|---|---|
| **Construction** | | | |
| **H1** | Impacts on underground utilities | Dial before you dig searches and nondestructive digging would be carried out to identify the presence of underground utilities. | All |
| **Operation** | | | |
| **H2** | Proper handling of dangerous goods | Handling of dangerous goods would be carried out in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005). | All |
| **H3** | Storage of flammable liquids | Storage of flammable/combustible liquids within the project site would be carried out in accordance with *Australian Standard AS 1940: The Storage and Handling of Flammable and Combustible Liquids*. Secondary containment measures would be implemented in a location away from waterways and drainage paths/infrastructure. | All |
| **H4** | Management of operational hazards and risks | An Operational Hazard and Risk Management Plan would be developed for the project site and implemented as part of the OEMP for the project. This plan would be reviewed regularly and updated should goods entering the project site change. As a minimum, the plan would adopt the requirements of the *Code of Practice for Storage and Handling of Dangerous Goods* (WorkCover NSW, 2005). | All |

### 19.7.3 Interactions between mitigation measures

There are no mitigation measures in other chapters of the Environmental Impact Statement that are relevant to the management of potential hazards.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of potential hazards.

# 20 Greenhouse gas and energy

# 20 Greenhouse gas and energy

This chapter assesses the generation of greenhouse gas and energy requirements associated with construction and operation of the Sydney International Speedway and provides recommendations to reduce these impacts.

## 20.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to greenhouse gas and energy, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 20-1.

Table 20-1 Secretary's Environmental Assessment Requirements - Greenhouse gas and energy

| Reference | Requirement | Where addressed |
|---|---|---|
| **12. Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and landuse assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for greenhouse gas and energy are listed in Appendix A and addressed in Sections 20.5, 20.6 and 20.7 |

## 20.2 Legislative and policy framework

Legislation and policy relevant to the greenhouse gas assessment of the project includes:

- Paris Climate Conference of Parties 21 (COP21) (2015) through which Australia has committed to reducing emissions with an aim to minimise the impacts of climate change
- *National Greenhouse and Energy Reporting Act 2007* under which certain corporations in Australia are required to measure and report greenhouse gas emissions and energy production
- The NSW Environment, Energy and Science (EES) Group's *NSW Climate Change Policy Framework* (Office of Environment and Heritage, 2016) which sets the objective of achieving net zero emissions by 2050
- Transport for NSW's (2015) *Environment and Sustainability Policy* and Sydney Metro's (2016) *Environment and Sustainability Policy* which commit to improving energy efficiency and working towards net zero carbon emissions.

The methodology for the assessment of greenhouse gas follows the principles set out in the following documents:

- *The Greenhouse Gas Protocol* by the World Business Council for Sustainable Development and the World Resources Institute
- *ISO 14064-2:2019 Greenhouse gases - Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements.*

## 20.3 Assessment methodology

Greenhouse gas emissions are reported as tonnes of carbon dioxide equivalent (tCO2-e) and categorised into three different scopes (either scope one, two or three) in accordance with the *Greenhouse Gas Protocol* (World Resources Institute, 2014).

The three emission categories (known as 'scopes') help differentiate between direct emissions from sources that are owned or controlled by a project, and upstream or downstream indirect emissions that are a consequence of project activities, but which occur at sources owned or controlled by another entity. The three greenhouse gas scopes are:

- Scope one emissions, also referred to as direct emissions
- Scope two emissions, also referred to as indirect emissions
- Scope three emissions, includes all indirect emissions (not included in scope two) due to upstream or downstream activities.

The objectives of the greenhouse gas assessment were to:

- Identify the likely sources of greenhouse gas emissions associated with construction and operation of the project
- Quantify the greenhouse gas emissions associated with each greenhouse gas source
- Identify opportunities (mitigation measures) to reduce greenhouse gas emissions.

Transport for NSW's online Carbon Estimate and Reporting Tool was used for the greenhouse gas emissions assessment. The tool was developed to provide consistency in greenhouse gas emissions assessment and reporting for the construction stage of Transport for NSW projects.

The greenhouse gas assessment is a preliminary estimate based on current design information and construction methods.

Fuel use for the cars racing within the events and transport of the cars to and from the events, as well as for commuting of spectators, employees and race team members to the facility are not included within the project estimate as the project is not expected to have an influence on these Scope three emissions sources beyond those of the existing Sydney Speedway, which the project would replace. A high level estimate of the emissions associated with the fuel use of race vehicles has been calculated for completeness and transparency to enable direct comparison but are not attributed to the project and do not form part of the assessment.

## 20.4 Avoidance and minimisation of impacts

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential greenhouse gas and energy impacts. This has included:

- The electrical supply for the lighting of external areas including carparks would be solar, supported by backup batteries (refer to Chapter 5 (Project description) for more information).

## 20.5 Assessment of potential construction impacts

Emissions of greenhouse gases would generally be associated with the following sources:

- Embodied emissions in construction materials
- Liquid fuels used to operate diesel generators, plant and equipment and contractor vehicles
- Clearing of vegetation resulting in the reduction of carbon sinks
- Construction waste materials
- Haulage of materials and spoil.

Construction of the project would result in the emission of 4795 tCO2-e. The construction greenhouse gas inventory for the project is provided in Table 20-2. Design development for the project would consider further opportunities to minimise greenhouse gas emissions during construction where possible, including consideration of the following opportunities:

- Minimising the amount of vegetation clearance across the project site
- Maximise the use of Supplementary Cementitious Material in concrete mixes and low carbon alternatives, where possible
- Consideration of alternative surfaces for carparks to reduce the use of concrete and bitumen pavements.

In 2016/17, NSW's annual greenhouse gas emissions were about 131.5 million tCO2-e (Department of Planning, Industry and Environment, 2019d). Construction would equate to about 0.003 per cent of the 2016/17 NSW total annual greenhouse gas emissions. While these percentage contributions are small within the NSW context, the management and mitigation measures outlined in Section 20.7 would further minimise and offset greenhouse emissions during construction.

Table 20-2 Construction greenhouse gas inventory and emissions

| Emission source | Estimated Quantity | Unit | Emissions (tCO2-e) | | | |
|---|---|---|---|---|---|---|
| | | | Scope 1 | Scope 2 | Scope 3 | Total |
| **Construction materials** | | | | | | |
| Hot rolled steel structural sections | 79 | tonnes | - | - | 286 | 286 |
| Steel Pipe and tube | 9 | tonnes | - | - | 26 | 26 |
| Steel galvanised coil | 31 | tonnes | - | - | 75 | 75 |
| Concrete (25 MPa) | 142 | tonnes | - | - | 20 | 20 |
| Concrete (32 MPa) | 805 | tonnes | - | - | 130 | 130 |
| Concrete (40 MPa) | 164 | tonnes | - | - | 32 | 32 |
| Steel Reinforcing Bars | 100 | tonnes | - | - | 260 | 260 |
| Steel Reinforcing Mesh | 90 | tonnes | - | - | 162 | 162 |
| Asphalt | 4,094 | tonnes | - | - | 262 | 262 |
| **Liquid fuel** | | | | | | |
| Plant and equipment | 264.2 | kilolitres diesel | 716 | - | 37 | 753 |
| Site offices (generator) | 37.2 | kilolitres diesel | 101 | - | 5 | 106 |
| Contractor vehicles | 40.8 | kilolitres diesel | 111 | - | 6 | 117 |
| **Vegetation** | | | | | | |
| Class D | 3.4 | hectares | 1043 | - | - | 1043 |
| **Waste** | | | | | | |
| Construction and demolition waste (concrete, masonry, glass, metals) | 425 | tonne | - | - | 0 | 0 |
| Timber and vegetation waste | 956 | tonne | - | - | 1338 | 1338 |
| Mixed construction and demolition waste | 270 | tonne | - | - | 54 | 54 |
| **Haulage** | | | | | | |
| Construction Material Delivery (Rigid Truck) | 44 | tonne.km x 103 | - | - | 6 | 6 |
| Construction Material Delivery (Articulated Truck) | 133 | tonne.km x 103 | - | - | 10 | 10 |
| Spoil Haulage | 550 | tonne.km x 103 | - | - | 71 | 71 |
| Spoil Haulage (Return Trip) | 12 | kL diesel | - | - | 35 | 35 |
| Waste Haulage | 26 | tonne.km x 103 | - | - | 3 | 3 |
| Waste Haulage (Return Trip) | 1 | kL diesel | - | - | 2 | 2 |
| Operational Waste Haulage | 29 | tonne.km x 103 | - | - | 4 | 4 |
| **Total estimated construction emissions** | | | **1971** | **-** | **2824** | **4795** |

## 20.6 Assessment of potential operational impacts

Greenhouse gas emissions during operation of the project would primarily be associated with:

- The consumption of electricity and gas to power the support infrastructure required for the raceway and its events
- The disposal of waste generated from events held at the project site
- Vehicle emissions generated as part of motorsport events held at Sydney International Speedway.

Operation of the Sydney International Speedway would result in the emission of 30,398 $tCO_2e$ over the assumed facility lifetime of 50 years. The operational greenhouse gas inventory for the project is provided in Table 20-3.

The inclusion of solar power infrastructure (with battery storage/backup) for the lighting of external areas including carparks as part of the operational design of the project (refer to Chapter 5 (Project description) for more information) has resulted in major emissions savings, avoiding potential emissions of about 60,000 tCO2e over the life of the project. This represents a reduction in the estimated project operational greenhouse gas emissions of about 63 per cent over the total assumed facility lifetime of 50 years.

As identified in Section 20.3, the emissions associated with fuel used by race vehicles has not been included in the greenhouse gas inventory below but is expected to result in the release of 35,894 $tCO_2e$ over the assumed 50 year life of the facility.

Design development for the project would consider further opportunities to minimise electricity demand during operation where possible, including consideration of the following opportunities:

- Use of motion sensor activated and/or solar powered CCTV systems
- All internal and external lighting, including the racetrack would be Light Emitting Diode (LED) technology based
- Optimising the durability of the racetrack to minimise ongoing maintenance and use of plant and equipment
- Best practice waste management systems to minimise waste to landfill.

Table 20-3 Operational greenhouse gas inventory and emissions

| Emission source | Quantity | Unit | Emissions ($tCO_2$-e) | | | |
|---|---|---|---|---|---|---|
| | | | Scope 1 | Scope 2 | Scope 3 | Total |
| **Operational electricity consumption** | | | | | | |
| **Parking Lighting**[1] | 66,368 | Megawatt hours (MWh) | - | - | - | - |
| **Speedway Lighting** | 338 | MWh | - | 274 | 30 | 304 |
| **CCTV** | 8806 | MWh | - | 7133 | 793 | 7926 |
| **Event AV Systems** | 1366 | MWh | - | 1106 | 123 | 1229 |
| **Grandstand** | 683 | MWh | - | 554 | 62 | 616 |
| **Corporate Boxes** | 4662 | MWh | - | 3776 | 420 | 4196 |
| **Competitor Areas** | 4696 | MWh | - | 3803 | 423 | 4226 |
| **Workshops** | 3163 | MWh | - | 2562 | 285 | 2847 |
| **Food, beverage and ticketing** | 3430 | MWh | - | 2778 | 309 | 3087 |
| **Operational fuel consumption** | | | | | | |
| **Food and beverage** | 9 | Kilolitres (kL) LPG | 14 | - | 1 | 15 |
| **Water truck** | 734 | kL Diesel | 1998 | - | 103 | 2101 |
| **Grader** | 612 | kL Diesel | 1665 | - | 86 | 1751 |
| **Operational waste consumption** | | | | | | |
| **Cardboard/paper** | 248 | tonnes | - | - | 718 | 718 |
| **Food organics** | 510 | tonnes | - | - | 970 | 970 |
| **Mixed recycling** | 485 | tonnes | - | - | 0 | 0 |
| **General waste** | 558 | tonnes | - | - | 670 | 670 |
| **Cooking oil** | 27 | tonnes | - | - | 51 | 51 |
| **Total estimated operational emissions** | | | **3677** | **21,986** | **5044** | **30,702** |

*1 Carpark lighting would be solar lighting and would not generate emissions*

## 20.7 Management and mitigation measures

### 20.7.1 Approach to management and mitigation

Greenhouse gas and energy would be managed in accordance with the Construction Environmental Management Framework as described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement).

An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. Policies and procedures within the Operational Environmental Management Plan would set out energy efficiency targets for the project.

### 20.7.2 Mitigation measures

The mitigation measures that would be implemented to reduce greenhouse gas emissions for the project are listed in Table 20-4.

Table 20-4 Greenhous gas and energy mitigation measures

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Design** | | |
| **GHG1** | Energy efficiency | Energy efficiency would be considered further during detailed design development, with energy efficient systems installed where feasible and reasonable. This would include consideration to the use of motion sensor activated and/or independent solar powered CCTV systems and LED lighting technology. |
| **GHG2** | Emissions of greenhouse gases during operation | Opportunities to optimise the project design to minimise greenhouse gas emissions during operation would be considered as part of further design development, including considerations relating to:<br>• Track design to minimise ongoing plant maintenance<br>• Waste management strategy and design to minimise waste to landfill during operation. |

### 20.7.3 Interactions between mitigation measures

Other chapters of the Environmental Impact Statement that are relevant to the management of potential greenhouse gas and energy impacts include:

- Chapter 12 (Landscape character and visual amenity), which includes measures to replace cleared vegetation and provide additional tree planting
- Chapter 21 (Climate change adaptation).

Together, these measures would help to minimise the potential greenhouse gas and energy risks associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of greenhouse gas and energy risk.

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# 21 Climate change adaptation

# 21 Climate change adaptation

This chapter assesses the Sydney International Speedway's adaptation to climate change and provides recommendations to increase resilience against potential climatic impacts.

## 21.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to climate change adaptation, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 21-1.

Table 21-1 Secretary's Environmental Assessment Requirements – Climate change adaptation

| Reference | Requirement | Where addressed |
|---|---|---|
| **12. Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and land use assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for climate change adaptation are listed in Appendix A and addressed in Sections 21.4, 21.6 and 21.7. |

## 21.2 Legislative and policy framework

The climate change risk assessment has been prepared in accordance with the following relevant legislation, policies and standards.

- *National Climate Resilience and Adaptation Strategy* (Commonwealth Department of the Environment and Energy, 2015 (now the Department of Agriculture, Water and the Environment)
- Australian Government's *Climate Change Impacts and Risk Management – A Guide for Business and Government* (Australian Government, 2006)
- *NSW Climate Change Policy Framework* (Office of Environment and Heritage, 2016)
- *Climate Risk Assessment Guidelines* (Transport for NSW, 2019)
- *Environment and Sustainability Policy* (Sydney Metro, 2016)
- *Environment and Sustainability Policy* (Transport for NSW, 2020)
- *State Environmental Planning Policy (Western Sydney Parklands) 2009*
- *Western Sydney Parklands Design Manual Version 2.0* (Western Sydney Parklands Trust, 2018)
- *Climate Change in Australia Technical Report* (Commonwealth Scientific and Industrial Research Organisation, 2015)
- Australian Standard *AS ISO 31000:2018 Risk Management –Guidelines*
- Australian Standard *AS 5334:2013 – Climate Change Adaptation for Settlements and Infrastructure – A risk-based approach*

## 21.3 Assessment methodology

The methodology for the climate change risk assessment and adaptation planning was based on Australian Standard *AS 5334:2013 – Climate Change Adaptation for Settlements and Infrastructure – A risk-based approach*. This standard follows the Australian Standard *AS ISO 31000:2018 Risk Management – Guidelines* which provides a set of endorsed principles and guidance on the integration of decisions about risk and response into the management and decision-making process. The methodology was also guided by the *Transport for NSW Climate Change Risk Assessment Guidelines*.

The main steps in the process are:

- Establishing the climate change context of the project
- Carrying out a climate change risk assessment
- Treating key climate risks.

The climate change risk assessment was carried out using the Transport for NSW risk framework, where it could be adapted to apply to a project that is not transport-based. The severity or consequence of risks was assessed with reference to the following:

- Health and safety impact
- Environmental impact
- Customer experience and operational reliability impact
- Government, stakeholder and community trust
- Regulatory impact
- Managerial and organisational impact
- Impact on the benefit realisation
- Financial impact.

A design life of 50 years was adopted for assessing potential climate change impacts on structures and building elements.

The identification and assessment of climate change risks for the project involved consideration of hazards, potentially affected receptors, likelihood and consequence of any impact. The approach is summarised below:

- **Hazard** – climate or climate-influenced attributes with potential to influence the operation and maintenance of the project
- **Receptor** – the component of operation and/or maintenance of the project that would be impacted by the hazard. This may include users of the project and affected elements of the surrounding environment
- **Risk rating** – using a likelihood and consequence rating system, an assessment of the way hazards could influence the element is made and a risk rating assigned.

## 21.4 Future climate projections

Climate change projections for the project have been based on a change from historical climate data from a 40-year reference period between 1975 and 2015 (and centred on 1995). This period has been chosen to capture some of the hotter periods that have occurred between 2005 and 2015 (such that the projections of future climate build on this warmer baseline).

### 21.4.1 Historic data

A summary of historic climate data for the project between 1975 and 2015 is detailed in Table 21-2. The average annual rainfall recorded at Prospect Reservoir weather station was 881 millimetres, with average totals ranging between 521 and 1444 millimetres. Late winter and spring typically receive less rain than the other seasons. Summer is the warmest season and extremely high summer temperatures (of 45 °C or above) have been recorded at the Prospect Reservoir station (47 °C in January 2020). The average maximum temperatures range between 17 °C in July and 29°C in January, with average minimum temperatures ranging between 6°C in July and 18°C in January.

### 21.4.2 Future climate projections

The Climate Futures Tool is one of a suite of tools offered by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) and Bureau of Meteorology (BoM) on its Climate Change in Australia (CCiA) website. It offers a portal to a range of climate projections from Global Climate Models and downscaled results from Regional Climate Models for the whole of Australia, and for regions and sub-regions.

The climate change projections used for the assessment represent the whole of the East Coast South sub-cluster within the Climate Futures Tool and are presented in Table 21-2.

Table 21-2 Summary of historic data and climate change projections for the project site

| | 1995 (Historical) | 2030 (Predicted) | 2070 (Predicted) | 2090 (Predicted) |
|---|---|---|---|---|
| **Rainfall** | | | | |
| **Mean in annual rainfall (millimeters)** | 881 | 934 | 804 – 789 | 604 - 628 |
| **2.5% Annual Exceedance Probability daily rainfall event (millimeters)** | 321 | 339 | 372 – 384 | 389 - 404 |
| **Climate change factor for extreme rainfall events (%)** | | +5.6 | +15.8 | +21.3 |
| **Temperature** | | | | |
| **Maximum temperature (°C)** | 45.1 | 45.7 | 47.8 – 49.6 | 48.8 – 49.6 |
| **Mean average maximum temperature (°C)** | 23.4 | 24.3 | 26.0 – 26.9 | 27.2 – 28.2 |
| **Annual average temperature (°C)** | 17.8 | 18.8 | 20.6 – 21.3 | 21.4 – 22.6 |
| **Average minimum temperature (°C)** | 12.2 | 13.3 | 15.1 – 15.7 | 15.7 – 17.0 |
| **Days over 35°C** | 11.8 | 15.9 | 25.5 – 33.3 | 33.0 – 44.1 |
| **Other climate/weather attributes** | | | | |
| **Average relative humidity (%)** | - | -0.6 | | -1.5 |
| **Average wind speed (%)** | - | -0.5 | | -1.1 |
| **Atmospheric concentration of CO2 (ppm)** | 369 (in 2000) | 449 | 541 | 935 |
| **Annual number of days with FFDI > 50 (Severe fire danger)** | 0.9 | 1.3 | - | 2.1 |

These projections have been overlaid on historical climate records for the project site to identify the future climate under which the project would be required to operate. The findings include:

- **Increase in maximum and minimum temperatures,** for example:
  - Increase in average temperatures by 2.6 to 3.5 °C by 2070
  - Increase in maximum temperatures by 2.7 to 4.5 °C by 2070.
- **Increase in the number of hot days and a decrease in the number of cold nights**, for example:
  - A three-and-a-half-fold increase in frequency of days with maximum temperatures above 35°C by 2090
  - Frost days are currently very uncommon across the region (incidence of about once every five years) and are projected to no longer occur by 2030.
- **Decrease in rainfall in spring and winter, and an increase in rainfall in summer and autumn**, for example:
  - Rainfall is projected to increase by about six per cent by 2030, followed by a decrease in rainfall of 15 per cent by 2070 (a decrease of 11 per cent from historical records) and a further decrease of 26 per cent by 2090 (a decrease of 43 per cent from historical records)
  - The incidence of 1 in 40-year flood events is expected to increase by six per cent by 2030, 16 per cent by 2070 and 21 per cent by 2090.
- **Changes to river and storm water flows, groundwater recharge:**
  - Soil water storage is projected to change in line with rainfall and potential evaporation. It is projected to decline in Eastern Australia in all seasons, but by a greater extent during winter and spring, due to rising temperatures and declining rainfall. Drier soils will lead to reductions in annual average run-off, river flows (by up to 60 per cent in eastern Australia) and groundwater recharge. However, due to increased intensity of extreme rainfall events, riverine floods may be increased by climate change.
- **More frequent and severe fire weather in summer and spring**, for example the mean fire danger index is expected to increase across all seasons except autumn, with a maximum increase of 0.90 in spring by 2070.

## 21.5 Avoidance and minimisation of impacts

The design development of Sydney International Speedway has included a focus on avoiding or minimising potential climate change impacts. This has included:

- Car park lighting would be solar powered
- Rainwater storage tanks which would provide a source of water for maintenance of the racetrack
- On-site detention tanks to control the flow of water through the project site and water treatment devices incorporated into the downstream discharge point to meet agreed water quality targets prior to discharge from site.

Further details of these design features can be found in Chapter 5 (Project description) of this Environmental Impact Statement.

## 21.6 Assessment of potential construction impacts

Due to the relatively short timeframe of the construction phase of the project, as described in Chapter 5 (Project description), standard risk controls for current average climatic conditions are assumed to be appropriate and a risk assessment for the project construction phase has not been carried out. Potential impacts of climate change are expected to be minimal.

## 21.7 Assessment of potential operational impacts

Climate change is anticipated to have potential direct and indirect impacts on Sydney International Speedway once operational. The combined direct and indirect impacts of climate change may contribute to one or more of the following:

- Accelerated asset deterioration and increased maintenance requirements
- Safety or environmental incidents
- Increased frequency and/or duration of event closure/cancellations
- Ancillary infrastructure loss (total or partial loss as a result of a severe weather event).

The climate change risk assessment process identified the following potential residual risks after the implementation of climate change adaption measures:

- Fifteen low (acceptable) risks
- Two medium (tolerable) risks.

No high (undesirable) or very high (unacceptable) risks were identified after the implementation of proposed risk treatments.

Table 21-3 describes the 'medium' risks for Sydney International Speedway with their proposed risk treatments.

Table 21-3 Climate change risks identified as medium

| Potential risk | Initial Risk rating | Risk treatment | Post -treatment risk rating |
|---|---|---|---|
| **Increased ambient temperatures and heatwaves could result in peaks in electrical network demand and increased power transmission outages** | High | Solar lighting backed up by batteries and diesel generators would be provided for car parks. The Speedway site would be connected to the electrical grid with further opportunities investigated for additional solar power. | Medium |
| **Lower annual average rainfall, increased rainfall intensity and surface water flooding could result in breaches in water quality controls and potential impacts to adjacent waterways** | High | The design includes rainwater storage tanks which would provide a source of water for maintenance of the clay track, and onsite detention tanks to control the flow of water through the project site. Water treatment devices would be incorporated into the downstream discharge point to meet agreed water quality targets prior to discharge from site. | Medium |

## 21.8 Management and mitigation measures

### 21.8.1 Approach to mitigation and management

An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway to provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project. Policies and procedures within the Operational Environmental Management Plan would include any ongoing mitigation measures related to climate change adaptation.

### 21.8.2 Mitigation measures

The mitigation measures that would be implemented to address climate change risks for the project are listed in Table 21-4.

Table 21-4 Mitigation measures - Climate change adaptation measures

| Reference | Impact/issue | Mitigation measure | Applicable location(s) |
|---|---|---|---|
| **CC1** | Climate change risks | Climate change risk treatments would be confirmed and incorporated into the detailed design. | All |

### 21.8.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to the management of potential climate change risk impacts include:

- Chapter 13 (Soils and surface water quality), specifically measures to ensure any runoff to adjacent waterways would be of acceptable quality
- Chapter 16 (Flooding and hydrology), specifically measures which address detailed construction planning to consider flood risk at construction sites
- Chapter 20 (Greenhouse gases and energy), specifically measures which are aimed at reducing energy use and greenhouse gas emissions.

Together, these measures would help to minimise the potential climate change risks associated with the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of climate change risk.

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# 22 Waste management and resource use

# 22 Waste management and resource use

This chapter provides an assessment of waste generation and resource use during construction and operation of Sydney International Speedway and includes a description of how waste and resources would be managed.

## 22.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to waste management and resource use and where these requirements are addressed in this Environmental Impact Statement, are provided in Table 22-1.

Table 22-1 Secretary's Environmental Assessment Requirements – Waste management and resource use

| Reference | Requirement | Where addressed |
|---|---|---|
| **7. Design, sustainability and visual amenity** | | |
| **2.7.4** | The Proponent must assess the project against the relevant sustainability guidelines including targets and strategies to improve Government efficiency in use of water, energy and transport. | Chapter 5 (Project description) |
| **11. Water - hydrology** | | |
| **2.11.1** | The Proponent must:<br>b. prepare a water balance for ground and surface water for construction. | Section 22.5.2 |
| | e. outline opportunities for the use of integrated water cycle management practices and principles to optimise opportunities for sustainable water supply, wastewater and stormwater management across the project. | Section 22.5.2 and 22.6.1 |
| **12. Other issues** | | |
| **2.12.1** | Social and economic, flooding, greenhouse gas and energy, climate change adaptation, waste management, property and landuse assessments should be undertaken in accordance with the commitments in Section 6 of the Scoping Report. | Scoping Report commitments for waste management are listed in Appendix A and addressed in Sections 22.5 and 22.6. |

## 22.2 Legislative and policy framework

Waste management and recycling is regulated in NSW through the *Protection of the Environment Operations Act 1997*, the *Protection of the Environment Operations (Waste) Regulation 2014* and the *Waste Avoidance and Resource Recovery Act 2001*.

The *Protection of the Environment Operations Act 1997* enables the NSW Environment Protection Authority to regulate waste management as it:

- Defines 'waste' for regulatory purposes
- Establishes management and licensing requirements for waste
- Defines offences relating to waste (i.e. pollution resulting from inappropriate waste management) and sets penalties
- Establishes the ability to set various waste management requirements via the *Protection of the Environment Operations (Waste) Regulation 2014*. This regulation includes thresholds for environment protection licences for waste management activities.

Construction waste would be managed through the hierarchy established under the *Waste Avoidance and Resource Recovery Act 2001,* which includes the *NSW Waste Avoidance and Resource Recovery Strategy 2014-21* and the *Waste Reduction and Purchasing Policy*. These strategies and policies specify a focus on waste avoidance, reuse, recycling and resource recovery rather than disposal.

All waste would be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA, 2014).

## 22.3 Assessment methodology

A desktop assessment of waste management and resource use was carried out, which included:

- A review of the likely expected resources required for construction and operation of the project, including construction materials, water and power
- A review of the waste streams likely to be generated during construction and operation of the project, as well as the likely volumes and classifications
- Identification of opportunities and strategies for minimising waste quantities and the export of excavated materials off-site, and maximising reuse opportunities
- Identification of the environmental impacts associated with resource use and the generation (and subsequent disposal) of residual waste materials
- Development of management strategies for waste during construction and operation, including:
  - Managing construction waste through the resource management hierarchy established under the *Waste Avoidance and Recovery Act 2001*
  - Developing procedures for the assessment, handling, stockpiling and disposal of potentially contaminated materials and wastewater, in accordance with the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA, 2014)
- Preparation of a water balance for the project site that identifies the net use of potable water, rain water and stormwater during construction and operation of the project.

## 22.4 Avoidance and minimisation of impacts

The design development process for the project has aimed to avoid or minimise potential spoil generation and resource use impacts. This has included refining the design of the project, particularly within Carpark D, to minimise the amount of spoil generated during construction. In addition, to minimise the need to transport any spoil generated during construction, excess spoil material would be retained on-site as part of the final design of the project.

## 22.5 Assessment of potential construction impacts

### 22.5.1 Spoil generation and management

Spoil generated as part of the construction of the project would be managed through the implementation of standard mitigation measures. These measures would be developed in accordance with the Construction Environmental Management Framework for the project, which establish objectives for waste management (refer to Appendix C). Assessment of the potential environmental impacts of spoil handling is provided in Chapter 13 (Soils and surface water quality).

#### Spoil generation

With the exception of contaminated soil (if it is encountered), no off-site spoil disposal is anticipated as part of the project. As discussed in Chapter 5 (Project description), earthworks in construction areas one to six would result in the generation of about 100,000 cubic metres of excess cut material. This material is proposed to be transported to construction area seven and formed into a landscaped mound, forming an operational component of the project. Opportunities to optimise the project design to minimise the amount of cut material are being investigated as part of design development. Sydney Metro is also exploring the potential for spoil to be reused for nearby construction projects if feasible. This would reduce the stockpiling and final landscaped mound within construction area seven accordingly.

A summary of the estimated cut and fill volumes from earthworks across the seven construction areas is provided in Table 22-2.

Table 22-2 Estimated cut and fill volumes for earthworks activities during construction

| Construction area(s) | Cut ($m^3$) | Fill ($m^3$) |
|---|---|---|
| **1** | 95,400 | 21,600 |
| **2 and 4** | 2000 | 20,400 |
| **3** | 100 | 16,300 |
| **5 and 6** | 211,100 | 150,000 |
| **7** | - | 100,300 |
| **Total** | **308,600** | **308,600** |

#### Spoil stockpiles

Construction of the project would require the creation of temporary stockpiles across the project site, with indicative locations shown in Chapter 5 (Project description). These stockpiles would be bunded and managed to avoid potential impacts associated with runoff, sedimentation and leachate as described in Chapter 13 (Soils and surface water quality).

Potential dust impacts would be minimised through the implementation of the environmental mitigation measures described in Chapter 9 (Air quality).

#### Contaminated soil

Chapter 14 (Contamination) identifies potential soil contamination at the project site due to widespread fill material of unknown origins and discarded construction, demolition and automotive waste.

The suitability of soils for on-site reuse would be determined in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure* (National Environment Protection Council, 1999) and the NSW Environment Protection Authority resource recovery framework. Any spoil unsuitable for reuse and proposed to be taken off-site would be classified in accordance with *Waste Classification Guidelines Part 1: Classifying Waste* (NSW Environment Protection Authority, 2014).

### 22.5.2 Resource use

A variety of resources would be needed to construct the project. The resources required to construct the project would be able to be supplied by the market and would be unlikely to result in any resource becoming scarce or in short supply.

Indicative quantities of the major resources to complete the construction of the project are provided in Table 22-3.

No major electricity use is assumed for the construction phase of the project. As the existing project site is an unpowered brownfield/greenfield site any electrical powered plant and equipment are assumed to be powered via diesel generators and hence captured within the fuel consumption quantities.

Consistent with the resource management hierarchy of the *Waste Avoidance and Resource Recovery Act 2001*, resource consumption would be further minimised during construction through reuse of materials, where possible.

Table 22-3 Indicative quantities of resources required for construction

| Material | Indicative quantity required |
|---|---|
| **Fuel (diesel)** | 265 kilolitres |
| **Concrete** | 1100 tonnes |
| **Steel** | 220 tonnes |
| **Water** | 56,325,000 litres |
| **Asphalt** | 4100 tonnes |
| **Sydney clay (for use as the base of the racetrack)** | 8000 $m^3$ |

#### Water balance

A water balance for construction of the project is provided in Table 22-4. The water balance is based on the following assumptions:

- Based on climate data and proposed stormwater detention basin sizing, stormwater captured in detention basins would be sufficient to satisfy total construction water demand. However, to be conservative, 20 per cent of the demand is assumed to be sourced from the Sydney Water potable supply as contingency
- Water for dust management would be required until all construction areas are sealed, which is for an estimated period of about 180 days
- Water demand for landscaping purposes would be required for about five months (two months during the works and three months of maintenance)
- Surplus stormwater would be discharged from the project site via the construction stormwater system (refer Chapter 5 (Project description) and Chapter 13 (Soils and surface water quality)).

Table 22-4 Construction water balance

| Activity | Construction water (kilolitres) |
|---|---|
| **Demand** | |
| **Dust suppression** | 30,510 |
| **Earthworks compaction** | 12,204 |
| **Other construction activities (for example wheel washing, concreting)** | 1130 |
| **Landscaping** | 11,350 |
| **Site compound amenities** | 1130 |
| **Total** | **56,324** |
| **Supply** | |
| **Sydney Water hydrants** | 11,265 |
| **Detention basins** | 45,059 |
| **Total** | **56,324** |

### 22.5.3 Waste generation and management

#### Waste generation

The likely waste streams which would be generated during construction of the project, along with the likely waste classification under the *Waste Classification Guidelines Part 1: Classifying Waste* (NSW EPA, 2014) are outlined in Table 22-5. The quantities and classification of waste streams would be confirmed as part of the design development process.

Table 22-5 Indicative types of waste generated during construction

| Activity | Waste stream | Examples of waste | Likely waste classification |
|---|---|---|---|
| **Clearing and grubbing** | Vegetation wastes | • Trees<br>• Shrubs<br>• Ground cover<br>• Soil | • General solid waste (non putrescible) |
| **General earthworks and excavation activities** | Spoil | • Soils and materials including materials containing asbestos, heavy metals, hydrocarbons, pesticides and/or other residues | • General solid waste (non putrescible)<br>• Restricted solid waste<br>• Hazardous waste<br>• Special waste |
| **Dewatering, dust suppression, washdown of plant and equipment and staff amenities** | Wastewater | • Sediment laden and/or potentially contaminated wastewater<br>• Sewage<br>• Greywater | • Liquid waste<br>• Special waste<br>• Restricted solid waste<br>• Hazardous waste |
| **General construction activities** | General construction wastes | • Timber formwork<br>• Scrap metal<br>• Steel<br>• Concrete<br>• Plasterboards<br>• Soil<br>• Packaging materials | • General solid waste (non putrescible) |
| **Maintenance of construction plant, vehicles and equipment** | Mechanical wastes | • Adhesives<br>• Lubricants<br>• Waste fuels<br>• Oils<br>• Engine coolant<br>• Batteries<br>• Hoses<br>• Tyres | • Hazardous waste and/or special waste<br>• Liquid waste |
| **Activities at construction compounds and site office(s)** | General wastes | • Putrescibles<br>• Paper<br>• Cardboard<br>• Plastics<br>• Glass<br>• Printer cartridges | • General solid waste (non putrescible)<br>• General solid waste (putrescible) |

Indicative waste quantities that would be generated during construction of the project are provided in Table 22-6.

Table 22-6 Estimated waste generation during construction

| Waste type | Estimated waste quantities (tonnes) |
|---|---|
| **Construction and demolition waste (concrete, masonry, glass, metals)** | 425 |
| **Timber and vegetation waste** | 950 |
| **Mixed construction demolition waste** | 270 |

#### Waste management

Construction of the project would adopt a construction waste recycling target of 90 per cent (inert and non hazardous construction waste, excluding spoil).

Potential waste management issues during construction are expected to be manageable with the implementation of standard mitigation measures. These measures would be developed in accordance with the Construction Environmental Management Framework for the project, which establishes waste management objectives to be achieved by the Principal Contractor (refer to Appendix C), and would address the following:

- Classification of waste in accordance with the current guidelines
- Handling of waste including measures to facilitate segregation of waste into stockpiles of concrete, steel, timber, paper and cardboard and vegetation to make it easier to recycle components and prevent cross contamination
- Waste minimisation and reuse
- Lawful disposal or recycling locations for each type of waste using a hierarchy which prioritises higher value end use
- Contingencies for the above, including managing unexpected waste volumes.

Existing Sydney metropolitan waste management facilities would have capacity to receive the anticipated waste streams generated by the project. The landfill, waste facility or recycling facility would be elected by the construction contractor.

Potential waste management issues during construction would be temporary and include:

- Unnecessary waste potentially directed to landfill due to the inadequate collection and/or incorrect classification
- Inadequate waste storage, transport, handling and/or disposal causing unnecessary visual impacts, causing contamination of soil, surface and/or groundwater, and/or attracting vermin
- Incorrect classification and/or disposal of waste, including lack of reuse and recycling options and the incorrect storage, handling and disposal of hazardous materials
- Potentially excessive amounts of materials being ordered, resulting in leftover unused resources
- Lack of identification of feasible options for recycling or reuse of resources.

Waste management and mitigation measures that would be followed during construction include:

- General construction and demolition wastes and wastes from site offices would be collected for off-site recycling wherever practicable
- Wastes that contain hazardous, special or otherwise contaminated materials would be stored, handled and disposed of at a licensed waste facility in accordance with relevant guidelines
- Sewage and grey water would be transported to an appropriately licenced liquid waste treatment facility due to lack of wastewater assets currently available for connection near the project site.

## 22.6 Assessment of potential operational impacts

Potential impacts during operation of the project relate to:

- Operational resource use, including operational materials, water and electricity
- Generation and management of wastes.

### 22.6.1 Resource use

Materials and resources used during operation would be limited to those required for use during events, and for the ongoing maintenance of the Sydney International Speedway. This includes electricity, potable water, petrol and diesel during race events and minor quantities of building materials for ongoing building and property maintenance. Water would also be required for dust suppression of the racetrack during events, to minimise impacts including to the adjacent Sydney Dragway (refer to Chapter 9 (Air quality) for more information).

Resource use would be similar to that of the existing Sydney Speedway or a comparable venue. The resources required during operation of the project would be able to be supplied by the market and unlikely to result in any resource becoming scarce or in short supply. As described in Chapter 5 (Project description), some of the on-site detention tanks would also function as rainwater harvesting tanks. The rainwater tanks would collect roof and surface runoff for non potable uses within the project site, including irrigating the track during a race event, flushing toilets within the grandstand facility, and use within the garbage room of the grandstand facility, hose taps and at washdown areas across the project site. In addition, the electrical supply for the lighting of all external areas including carparks would be solar, supported by backup batteries.

Indicative quantities of the major resources are provided in Table 22-7.

Table 22-7 Indicative quantities of resources required for operation

| Material | Indicative quantity required (per year) |
|---|---|
| **Fuel (diesel)** | 1360 kilolitres |
| **Fuel (methanol)**[1] | 430 kilolitres |
| **Fuel (petrol)**[1] | 90 kilolitres |
| **LPG** | 180 litres |
| **Electricity** | 1900 megawatt hours |

*1 Fuel use is associated with race vehicles*

### 22.6.2 Waste generation and management

#### Waste generation

It is expected that waste generation during operation of the project would be primarily during race events. Outside of these periods waste generation would be minimal, associated with maintenance of the facility.

Waste streams during operation are expected to include:

- General solid waste (including food waste (putrescible waste)) (refer Table 22-8)
- Recyclable waste (refer Table 22-8)
- Used spill kit consumables and fire retardant (non PFAS)
- Project site stormwater
- Wastewater (sewage and trade waste).
- Quantities are expected to be minor and would not result in any substantial environmental impacts.

Table 22-8 Estimated waste generation during operation

| Waste type | Estimated waste quantities | |
|---|---|---|
| | Per event (kilograms)[1] | Per year (tonnes) |
| **Cardboard / paper** | 110 | 5 |
| **Food organics** | 225 | 10 |
| **Mixed recycling** | 215 | 10 |
| **General waste** | 250 | 11 |
| **Cooking oil** | 10 | 0.5 |

*1 Based on an event waste management plan for Sydney Football Stadium and assuming 3000 people attending a Sydney International Speedway event.*

**Waste management**

Potential waste management issues during operation are expected to be manageable with the implementation of standard mitigation measures.

In the absence of effective mitigation measures, potential waste management issues during operation include:

- Inadequate waste collection and storage causing unnecessary visual impacts, causing site contamination and attracting vermin
- Incorrect classification and/or disposal of waste, including lack of reuse and recycling options and the incorrect storage, handling and disposal of hazardous materials.

Used tyres, batteries and other automotive racing waste items would be taken off-site and managed by participating racing teams. They would not be the responsibility of the operator of the Sydney International Speedway.

## 22.7 Management and mitigation measures

### 22.7.1 Approach to management and mitigation

Construction spoil and waste would be managed in accordance with Sydney Metro's Construction Environmental Management Framework (CEMF) which is described in Chapter 25 (Synthesis and conclusion of the Environmental Impact Statement). The CEMF includes waste management objectives and requirements in relation to:

- Management of spoil including contaminated material
- Water resource management including minimising use of potable water and maximising reuse of stormwater and wastewater
- Waste classification in accordance with the *Waste Classification Guidelines and Protection of the Environment Operations (Waste) Regulation 2014*
- Waste monitoring, reporting and compliance tracking.

The CEMF also provides the basis for the development and implementation of a design and/or construction Sustainability Management Plan including minimum requirements for carbon and energy management, waste management and recycling.

An Operational Environmental Management Plan would be prepared by the operator, once appointed. This would include requirements for management of operational waste including the proposed approach to waste separation and sorting, storage, waste collection, handling, treatment and disposal processes to be adopted and monitoring and reporting requirements.

### 22.7.2 Mitigation measures

Mitigation measures that would be implemented to address potential waste management and resource use issues are listed in Table 22-9.

Table 22-9 Waste management and resource use mitigation measures

| Reference | Impact/issue | Mitigation measure |
|---|---|---|
| **Construction** | | |
| **WM1** | Compliance with legislative and policy requirements | All waste would be assessed, classified, managed, transported and disposed of in accordance with the *Waste Classification Guidelines* (EPA, 2014). |
| **WM2** | Waste minimisation | Construction waste would be minimised by accurately calculating required materials and limiting materials packaging. |
| **WM3** | Reuse and recycling | Waste streams would be segregated to avoid cross contamination of materials and maximise reuse and recycling opportunities. |
| **WM4** | Waste tracking | A materials tracking system would be implemented for material transferred to off-site locations such as licensed waste management facilities. |

### 22.7.3 Interactions between mitigation measures

Mitigation measures in other chapters that are relevant to waste management and resource use include:

- Chapter 13 (Soils and surface water quality), specifically measures which address potential acid sulfate soils and potential interaction with contaminated soils
- Chapter 14 (Contamination), specifically measures which address the disturbance of contaminated land during construction.

These measures would work collectively to minimise potential spoil, waste management and resource use impacts of the project.

There are no mitigation measures identified in the assessment of other environmental aspects that are likely to affect the assessment of spoil, waste management and resource use.

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# 23 Cumulative impacts

# 23 Cumulative impacts

This chapter assesses the potential cumulative impacts during construction and operation of the project with the impacts of other nearby projects.

## 23.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to cumulative impacts and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 23-1.

Table 23-1 Secretary's Environmental Assessment Requirements - Cumulative Impacts

| Reference | Requirement | Where addressed |
|---|---|---|
| **General SEARs – Environmental Impact Statement** | | |
| **1.2.1** | n. an assessment of the relevant cumulative impacts of the project taking into account other projects that have been approved but where construction has not commenced, projects that have commenced construction, and projects that have recently been completed | Section 23.4<br>Section 23.5<br>Section 23.6 |
| **General SEARs – Assessment of Key Issues** | | |
| **1.3.1** | c. identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), the impacts of concurrent activities within the proposal and cumulative impacts (parallel and sequential) with other projects | Chapter 6 to 15 and Chapter 19<br>Section 23.4<br>Section 23.5<br>Section 23.6 |
| **2. Noise and Vibration – Amenity** | | |
| **2.2.1** | The Proponent must assess construction and operational noise and vibration impacts (including cumulative impacts of concurrent events) in accordance with relevant NSW noise and vibration guidelines. | Chapter 7 (Noise and vibration)<br>Section 23.6.2 |
| **5. Heritage** | | |
| **2.5.1** | The Proponent must identify and assess any direct and/or indirect impacts (including cumulative impacts) to the heritage significance of:<br>a. Aboriginal places, objects and cultural heritage values, as defined under the National Parks and Wildlife Act 1974 and in accordance with the principles and methods of assessment identified in the current guidelines;<br>b. Aboriginal places of heritage significance, as defined in the Standard Instrument – Principal Local Environmental Plan;<br>c. environmental heritage, as defined under the Heritage Act 1977;<br>d. items listed on the State, National and World Heritage lists; and<br>e. heritage items and conservation areas identified in environmental planning instruments applicable to the project area | Chapter 10 (Aboriginal heritage)<br>Chapter 11 (Non-Aboriginal |

### Overview

Cumulative impacts can occur when impacts from a project interact or overlap with impacts from other projects and can potentially result in a larger overall effect on the environment, businesses and/or local communities. Cumulative impacts may occur when projects are constructed concurrently or consecutively.

Projects constructed consecutively can result in construction activities occurring over extended periods of time with little or no break in construction activities. This has the potential for increased impacts and construction fatigue for local communities.

During operation, cumulative impacts may arise when operation of the project interacts with the operation of nearby businesses and/or infrastructure, potentially resulting in increased impacts to the environment, business or local communities. Operational cumulative impacts are typically related to traffic and transport, noise and vibration and air quality.

## 23.2 Legislative and policy framework

There is no established framework for the assessment of cumulative impacts from multiple projects. The cumulative impact assessment has been prepared to address the Secretary's Environmental Assessment Requirements.

## 23.3 Assessment methodology

The assessment methodology for the cumulative impact assessment for the project involved:

- Development and application of screening criteria to determine whether a project should be assessed for cumulative impacts
- Identification of projects that could potentially result in cumulative impacts during construction and operation of the project
- Qualitative assessment of potential cumulative impacts during construction and operation of the project based on publicly available impact assessment information for identified projects.

The assessment methodology is shown in Figure 23-1. With regards to the assessment of potential impacts as part of this Environmental Impact Statement:

- Existing development near the project site (i.e. the operation of existing facilities) is considered part of the existing environment, and is described throughout Chapters 6 to 22 of the Environmental Impact Statement
- The assessment of concurrent operation of the project with existing venues within the Western Sydney Parklands Precinct 5: Eastern Creek Motor Sports is included, where relevant, within Chapter 6 to 22 of this Environmental Impact Statement.

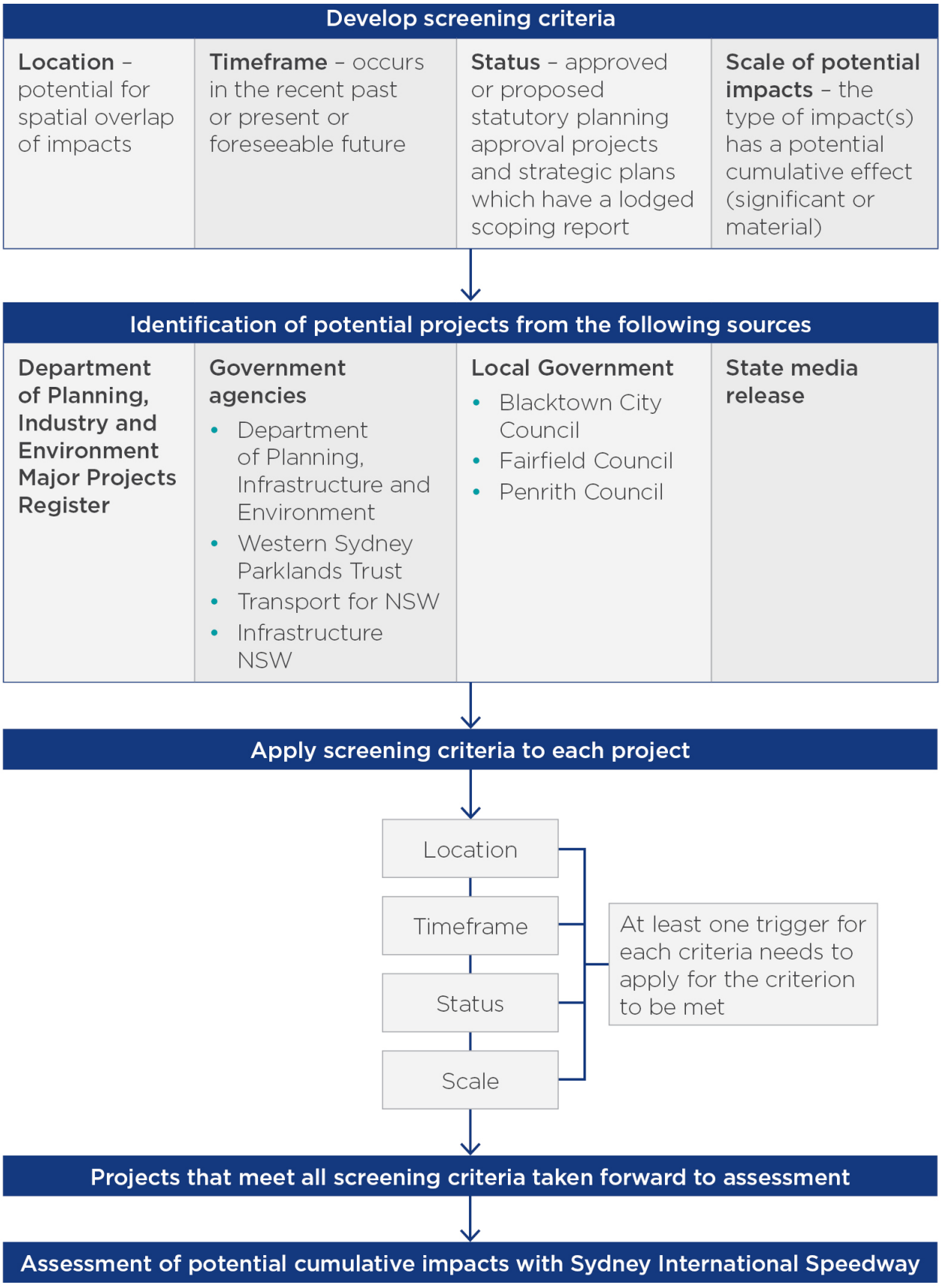


Figure 23-1 Overview of the cumulative impact assessment methodology

Screening criteria were developed as shown in Table 23-2 and applied to determine whether a project or local strategic plan should be included in the cumulative impact assessment.

Table 23-2 Screening criteria for cumulative impact assessment

| Criteria | Description | Triggers |
|---|---|---|
| **1. Location** | A project was considered relevant for consideration where the project met at least one of the triggers | • Direct spatial overlap: construction footprints intersect with Sydney International Speedway<br>• Overlap of potential impacts due to proximity: projects within one kilometre of the Sydney International Speedway. |
| **2. Timeframe** | A project was considered relevant for consideration where the project met at least one of the triggers | • Concurrent construction programs<br>• Consecutive construction programs (less than 18 months between the Sydney International Speedway and the considered projects' construction programs)<br>• New activities scheduled to commence during operation of the Sydney International Speedway (post 2022). |
| **3. Status** | A project was considered relevant where the project was at one of the following stages of the statutory assessment and approval process at the time of preparing this EIS | • Approved projects (statutory approvals received) that have not started construction<br>• Proposed projects with a lodged Scoping Report (currently under statutory environmental impact assessment which includes where an application has been lodged)<br>• Local strategic plans (made public by the relevant government agency). |
| **4. Scale of potential impacts** | A project was considered relevant where the project involved significant or material impacts to one or more of the following aspects | • Traffic and transport<br>• Noise and vibration<br>• Biodiversity<br>• Air quality<br>• Aboriginal heritage<br>• Non-Aboriginal heritage<br>• Property and land use<br>• Landscape character and visual amenity<br>• Socio-economic impacts<br>• Groundwater and geology<br>• Soils and surface water quality<br>• Contamination<br>• Hydrology and flooding<br>• Waste management and resource use<br>• Hazards<br>• Greenhouse gases and energy<br>• Climate change adaptation. |

### 23.3.1 Identification of potential projects

An initial list of major projects for potential inclusion in the cumulative impact assessment was identified from the sources outlined in Figure 23-1. Projects on this initial list that satisfied at least one of the triggers in each of the screening criteria in Table 23-2 were taken forward in the cumulative impact assessment. The projects assessed as part of the consideration of cumulative impacts of the project are provided in section 23.5.2.

Local strategic plans were considered in the assessment where relevant, as they could influence future development that has the potential to result in cumulative impacts with Sydney International Speedway. However, the potential impacts from local strategic plans have not been considered in detail given the uncertainty of the status, timing, design and construction methods of associated projects.

## 23.4 Projects identification

### 23.4.1 Screening assessment

The projects and strategic plans considered as potentially resulting in cumulative impacts during construction and/or operation of the project are listed in Table 23-3. Table 23-3 also details which projects that have been included and excluded, and a justification for their inclusion/exclusion.

Table 23-3 Projects and local strategic plans considered

| Project/Strategic Plan | Included/ excluded from assessment | Justification |
|---|---|---|
| **Sydney Dragway Track Upgrade** | Included | • The project is located within one kilometre of the project site<br>• Project is currently under construction<br>• Potential for consecutive or concurrent construction program with construction of the project. |
| **Western Sydney Green Gas Project** | Included | • The project is located within one kilometre of the project site<br>• A proposed project being assessed by the NSW Department of Planning Industry and Environment (DPIE)<br>• Potential for consecutive or concurrent construction program with construction of the project<br>• Potential for environmental impacts to occur. |
| **Horsley Park Brickworks Plant 2 Upgrade** | Included | • The project is located within one kilometre of the project site<br>• Project approved by NSW Department of Planning Industry and Environment in May 2020<br>• Potential for consecutive and/or concurrent construction program with construction of the project<br>• Potential for environmental impacts to occur. |
| **Western Sydney Energy and Resource Recovery Centre** | Included | • Within one kilometre of the project site<br>• Environmental Impact Statement currently being prepared. |
| **Light Horse Interchange Business Hub** | Included | • The project is located within one kilometre of the project site<br>• Currently being assessed by NSW Department of Planning Industry and Environment<br>• Potential for consecutive and/or concurrent construction program with construction of the project<br>• Potential for environmental impacts to occur. |
| **Horsley Park Gas Metre Station Upgrade** | Excluded | • The project does not meet the location trigger, as it is located more than 1.5 kilometres away from the project. |
| **Prospect Water Filtration Plan Upgrade** | Excluded | • The project does not meet the location trigger, as it is located more than 1.5 kilometres away from the project. |
| **Eastern Creek UR3R Waste Management Centre – Modification 6** | Excluded | • The project would not meet the triggers for timeframe, status or potential scale of impacts. |
| **90 Peter Brock Drive - Partial demolition of an existing data centre and the construction of an eight storey extension and associated works** | Excluded | • The project would not meet the triggers for any of the screening criteria. |

| Project/Strategic Plan | Included/ excluded from assessment | Justification |
|---|---|---|
| **M4 Smart Motorways Project** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Horsley Park Urban Farming Master Plan** | Excluded | • The project is within one kilometre of the project site; however, it does not meet the triggers for the status, timescale or potential scale of impacts criteria. |
| **Blacktown International Sportspark Masterplan** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **International Centre of Training Excellence** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Blacktown City Centre** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Riverstone Town Centre Masterplan** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Animal Rehoming Centre** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **University of Blacktown** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Blacktown Health Precinct** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **St Bartholomew's Cemetery Redevelopment** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Fairfield Library and Business Hub** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Smithfield Road Upgrade** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Fairfield Showground Redevelopment** | Excluded | • The project would not meet the triggers for any of the screening criteria. |
| **Aquatopia Water Park** | Excluded | • The project would not meet the triggers for any of the screening criteria. |

### 23.4.2 Overview of projects assessed

The projects that met the screening criteria for consideration in the cumulative impact assessment are described in Table 23-4 and shown in Figure 23-2.

Table 23-4 Projects assessed in the cumulative impact assessment

| Project | Construction or operational impact | Brief project description |
|---|---|---|
| **Sydney Dragway Track Upgrade** | Under construction | Upgrade works to the Sydney Dragway track. The scope of the track upgrade works are relatively minor. Potential impacts would be contained within the existing Sydney Dragway site and construction vehicle numbers would be low. As such, potential for cumulative impacts would be negligible and this project has not been considered further. |
| **Horsley Park Brickworks Plant 2 Upgrade**<br>780 Wallgrove Road<br>Approved May 2020 | Construction and operation<br>No construction program (estimated 33 months duration starting 2020) | Proposed upgrade works to existing Plant 2 brick making facility including replacement of existing two kilns with one new kiln and alterations and additions to the existing production building. The new kilns would lead to improvements in air quality emissions from the site.<br>No changes to operations. |
| **Western Sydney Energy and Resource Recovery Centre**<br>339 Wallgrove Road<br>Environmental Impact Statement currently being prepared | Construction and operation<br>No construction program (estimated 36 months starting 2021) | Proposed energy from waste facility that can generate up to 45 megawatts of power by thermally treating up to 500,000 tonnes per year of residual municipal solid waste and residual commercial and industrial waste. |
| **Light Horse Interchange Business Hub Eastern Creek**<br>165 Wallgrove Road & 475 Ferrers Road<br>Currently under assessment by NSW Department of Planning Industry and Environment | Construction and operation<br>No construction program (estimated 12 – 18 months duration) | Concept proposal for staged redevelopment of site as an industrial business hub with about 157,600sqm industrial and light industrial floorspace and 7,900sqm ancillary offices.<br>Detailed proposal for first stage of development which will include demolition works, remediation, site preparation and bulk earthworks, roadworks, site infrastructure and subdivision of the site. |
| **Western Sydney Green Gas Project**<br>194 - 202 Chandos Road<br>Proposed (Request for Additional Information May 2020) | Construction and operation<br>No construction program (estimated 4 months duration) | A 5-year trial to construct a Power to Gas facility at an existing Facility at Horsley Park, inject hydrogen gas into the Sydney secondary gas distribution network, supply it for bus refuelling, and/or for power generation back into the grid. |

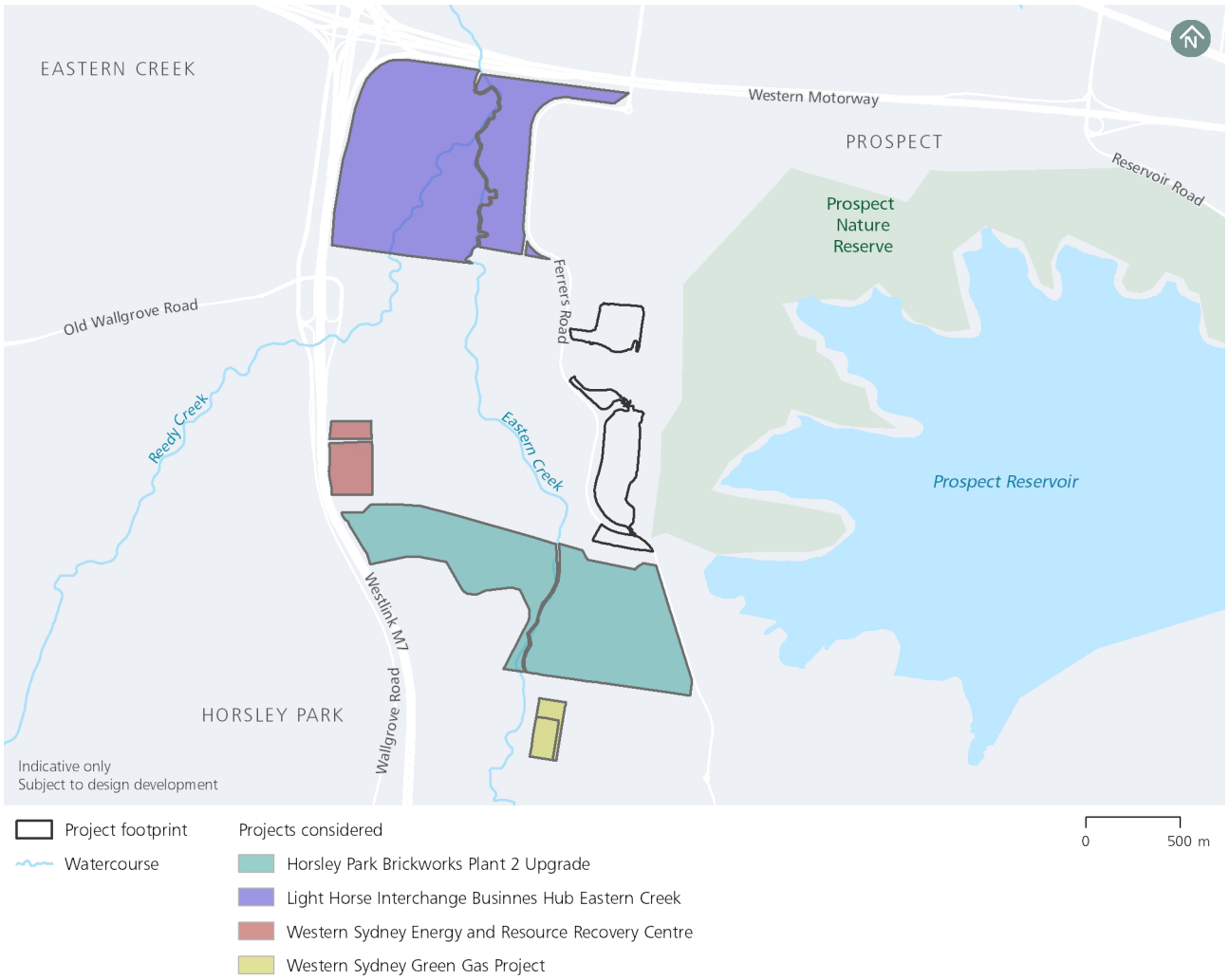


Figure 23-2 Projects considered as part of the cumulative impact assessment

## 23.5 Assessment of potential construction impacts

The assessment of potential cumulative construction impacts has considered the key issues identified in Chapters 6 to 22 of this Environmental Impact Statement. There is the potential for temporary cumulative construction environmental impacts between the project and other projects listed in Table 23-4 in relation to traffic, transport and parking and biodiversity impacts.

Potential cumulative construction impacts relating to other environmental aspects during construction are expected to be negligible for the following issues, on the basis that these construction impacts are largely contained within the respective construction sites or the immediately surrounding area, or the potential impacts from the Sydney International Speedway are anticipated to be negligible to minor:

- Air quality
- Noise and vibration
- Aboriginal heritage
- Non-Aboriginal heritage
- Landscape character and visual amenity
- Soils and surface water quality
- Contamination
- Groundwater and geology
- Flooding and hydrology
- Socio-economic
- Property and land use
- Hazards

- Greenhouse gas and energy
- Waste management and resource use.

Potential temporary cumulative construction impacts relating to traffic, transport and parking and biodiversity are discussed in Section 23.6.1 and 23.6.2.

### 23.5.1 Traffic, transport and parking

Chapter 6 (Traffic, transport and parking) of this Environmental Impact Statement identifies that construction of the project would result in a decrease in the level of service at the intersection of the Great Western Highway/ Doonside Road/Brabham Drive from Level of Service A to Level of Service B. However, the resulting average delay is one second and it is considered this would not substantially change the operational performance of the intersection, and therefore the impact would be minor.

Potential and temporary traffic impacts during concurrent construction of the project and other projects are outlined in Table 23-5, and include:

- Minor temporary cumulative impacts at the Great Western Highway / Doonside Road / Brabham Drive intersection should concurrent construction occur

Based on the construction traffic volumes outlined in Table 23-5, cumulative construction traffic is not expected to significantly impact the wider road network as major roads have capacity to absorb the incremental increase.

Parking, access, public transport and active transport would not be affected by potential cumulative construction impacts.

Table 23-5 Potential cumulative construction traffic impacts

| Project | Potential construction traffic impacts |
|---|---|
| **Horsley Park Brickworks Plant 2 Upgrade** | • Construction vehicles may use Ferrers Road at the same time as Sydney International Speedway construction traffic<br>• An Assessment Report for the Horsley Park Brickworks Plant 2 Upgrade estimates construction would result in four heavy vehicle trips per hour during construction and 10 light vehicle movements to and from the project site each day<br>• These traffic volumes are generally not considered to be significant in terms of potential cumulative traffic impacts<br>• There are likely to be some minor temporary cumulative impacts to Great Western Highway/Doonside Road/Brabham Drive intersection in the event of concurrent construction of the projects. |
| **Western Sydney Energy and Resource Recovery Centre** | • Construction vehicles are not expected to use Ferrers Road, therefore the potential for cumulative construction traffic impacts with this project is low<br>• A Scoping Report for the Western Sydney Energy and Resource Recovery Centre identifies the impact of construction traffic on the local road network as not material as the additional vehicle movements would be negligible compared to existing volumes. |
| **Light Horse Interchange Business Hub Eastern Creek** | • An assessment of construction traffic impacts was not included as part of the environmental assessment of the project as the details of the construction were not available at the time. A Preliminary Construction Traffic Management Plan (CTMP) was provided as part of the Response to Submissions.<br>• The Preliminary CTMP notes that project construction traffic would likely use Wallgrove Road to access the M7 and M4 and would be unlikely to use Ferrers Road<br>• The Preliminary CTMP also notes the construction traffic would be scheduled to avoid peak times, and construction traffic volumes would be lower than operational traffic, which has been assessed as having an acceptable impact on the performance of the surrounding road network<br>• Mitigation of these potential cumulative construction traffic impacts would be most effectively managed by a Construction Traffic Management Plan for the project. |

| Project | Potential construction traffic impacts |
|---|---|
| **Western Sydney Green Gas Project** | • Construction vehicles are unlikely to use Ferrers Road therefore the potential for cumulative construction traffic impacts with this project is low<br>• Maximum construction vehicle movements would potentially be up to 10 light vehicles and eight heavy vehicles per day, resulting in up to 36 trips per day. |

### 23.5.2 Biodiversity

Chapter 8 (Biodiversity) of this Environmental Impact Statement identifies that one Threatened Ecological Community (TEC) listed under the BC Act would be impacted by the development. This involves the clearing of 0.63 hectares of Cumberland Plain Woodland in the Sydney Basin Bioregion.

A cumulative assessment of biodiversity impacts of the project with other projects which would impact on Cumberland Plain vegetation is included in Technical Paper 3 (Biodiversity Development Assessment Report) of this Environmental Impact Statement.

#### Cumulative impacts with projects assessed

A summary of the potential biodiversity impacts of the projects considered in this cumulative assessment is included in Table 23-6.

When the impacts of the project are considered together with the impacts of the projects assessed as part of this cumulative assessment, the contribution of this project to cumulative biodiversity impacts is relatively low. While there would be some limited biodiversity impacts from this project, no substantial increase to cumulative impacts would occur.

Table 23-6 Potential cumulative biodiversity impacts

| Project | Potential biodiversity impacts |
|---|---|
| **Horsley Park Brickworks Plant 2 Upgrade** | The Horsley Park Brickworks would require the clearance of 0.12 hectares of degraded Cumberland Plain Shale Woodland, which does not meet the condition threshold to be listed as critically endangered under the BC Act or EPBC Act. |
| **Western Sydney Energy and Resource Recovery Centre** | An Environmental Impacts Statement for the Western Sydney Energy and Resource Recovery Centre is currently being prepared, and the potential biodiversity impacts are currently not known. |
| **Light Horse Interchange Business Hub Eastern Creek** | The project would include the clearance of 9.99 hectares of threatened ecological communities, including:<br>2.45 hectares of Cumberland Plain Shale Woodland in the Sydney Basin Bioregion, listed as critically endangered under the BC Act and the EPBC Act<br>7.39 hectares of River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner, listed as endangered under the BC Act. |
| **Western Sydney Green Gas Project** | Due to the lack of native vegetation connectivity, lack of identifiable Plant Community Types or vegetation communities within the study area and lack of threatened species habitat or foraging habitat, the Western Sydney Green Gas Project would have no direct impacts on biodiversity values within the area. |

#### Cumulative impacts to the Cumberland Plain

The cumulative impacts of historic vegetation clearing for agriculture, urban development, and development and maintenance of infrastructure would likely include continued loss of biodiversity on the Cumberland Plain. The Cumberland Plain is an over cleared landscape and due to the expansion of western Sydney and creation of housing and associated infrastructure, further impacts to biodiversity are likely to result in this region.

Available information on recent projects with biodiversity impacts relevant to the Cumberland Plain is as follows:

- Sydney Metro West (Stage 1): Estimated clearing is about 0.18 hectares; consisting of two PCTs, 0.03 hectares of Cumberland Plain Woodland in the Sydney Basin Bioregion (listed under the BC Act) and 0.15 hectares of habitat for the Southern Myotis

- Archbold Road Upgrade, Old Wallgrove Road to the Great Western Highway: Removal of about 9.81 ha of vegetation, of which 7.60 ha is native vegetation and is consistent with a threatened ecological community and habitat for threatened species
- Parramatta Light Rail (Stage 1): Direct impact to 0.62 hectares of native vegetation. Removal of about 300 individual trees that are mostly horticultural plantings
- Clyde Terminal Conversion Project: No impacts to native vegetation. Impact to tank farm habitat for the Green and Golden Bell Frog
- Viva Energy Clyde Western Area Remediation Project: No direct impacts to native vegetation. Removal of foraging habitat for the Green and Golden Bell Frog, however this was not considered to have a significant impact on the species. Potential direct and indirect impacts were identified (for example fragmentation of movement corridors and water quality impacts) but were considered manageable with mitigation and management measures (Biosis, 2018)
- WestConnex program of works: This includes M4 Widening (direct impact on up to 8.86 hectares of planted and remnant vegetation), M4 East (around 15.7 hectares of vegetation, of which 12.9 hectares comprises of planted trees and landscaped areas) and M4-M5 Link (with no direct impacts to native vegetation). Other impacts (direct and indirect) were concluded to not have a significant impact or unlikely (including GDEs), and/or considered to be minimal and manageable.

When the impacts of the project are considered together with the impacts of the above projects, the contribution of this project to cumulative biodiversity impacts in the Cumberland Plain region is relatively low. While there would be some limited biodiversity impacts from this project, no substantial increase to cumulative impacts would occur.

## 23.6 Assessment of potential operational impacts

The assessment of potential cumulative impacts during operation has considered the key issues identified in Chapters 6 to 22 of this Environmental Impact Assessment. There is potential for minor cumulative environmental impacts between the project and other projects listed in Table 23-4 in relation to noise impacts (increased frequency and duration of potential noise impacts), however, the project would implement noise mitigation measures at affected receptors where operational noise is predicted to exceed mitigation triggers. Potential cumulative impacts relating to other environmental aspects during operation are expected to be negligible.

### 23.6.1 Traffic, transport and parking

Chapter 6 (Traffic, transport and parking) identifies the following key impacts of the project in isolation (without considering cumulative impacts) and during concurrent events with the Sydney Dragway:

- Sydney International Speedway events are assumed to be held on a Friday evening (minor event) and Saturday evening (major event)
- Up to 1125 vehicles are estimated to attend the project site during a major race event
- The arrival and departure peak hours for a Sydney International Speedway 'major' event are 5pm to 6pm and 9pm to 10pm, respectively.

Potential traffic impacts during operation of the project and other concurrent projects are outlined in Table 23-7, which identifies that the project is not expected to have cumulative operational traffic impacts with the projects assessed for potential cumulative impacts, with the exception of the Light Horse Interchange Business Hub project.

The project application for the Light Horse Interchange Business Hub is a concept development application, which seeks approval for the staged redevelopment of the project site as an industrial business hub and a detailed proposal for the first stage of works, being the demolition of existing structures, site remediation, bulk earthworks to establish future development sites, provision of an internal access road, installation of relevant infrastructure and essential utility services and the Torrens title subdivision to create separate development lots. The future industrial buildings, ancillary offices and associated facilities and site works will be subject to separate future development applications and do not form part of the concept application.

The assessment of operational traffic impacts in the Light Horse Interchange Business Hub development application assumes construction would be completed by 2026, and an assessment of future traffic conditions has been considered in the application for the year 2036 (10 years after the completion of construction).

As detailed in Table 23-7, The Light Horse Interchange Business Hub, has the potential to generate 7,078 vehicle trips per day when fully operational and is estimated to generate up to 340 vehicle movements in the PM peak, which coincides with the peak arrival times for vehicles to the project site.

The Light Horse Interchange Business Hub development is proposing to provide a new roundabout access at Ferrer's Road to the development.

The Traffic Impact Assessment carried out for the Light Horse Interchange Business Hub (Ason Group, 2020) identified the following:

- Light Horse Interchange Business Hub Access: The proposed one lane roundabout at Ferrers Road is expected to operate at acceptable level of service during both peak periods
- All key local intersections would operate at level of service D or better during both peak hours through 2036 even with the introduction of the Light Horse Interchange Business Hub traffic flows and considering planned upgrades at the intersection of The Horsley Drive/Ferrers Road
- As such, no additional modification of these intersections, beyond the anticipated upgrades are required
- Planned upgrades to The Horsley Drive/Ferrers Road are required as a result of forecast background traffic growth and not directly as a result of the Business Hub development. In the short term, prior to realisation of the forecast background growth, there is sufficient spare capacity to accommodate development traffic without upgrades.

Although there is the potential for cumulative operational traffic impacts to occur during the PM peak once the Light Horse Interchange Business Hub is fully operational, the current project application is for a staged concept development and does not include a detailed assessment for full operation, and the staged timing of project operations is unclear and is not yet approved. As a result, the cumulative operational impacts of the full development of the project have not been taken into account as part of this cumulative assessment. It is assumed that future development applications for future industrial buildings would include more detailed traffic assessments which consider background traffic, including operational traffic movements from the Speedway project site. It is also assumed that future development applications would include project specific traffic management and mitigation measures to manage potential operational traffic impacts from the Light Horse Interchange Business Hub.

Parking, access, public transport, active transport and parking would not be affected by potential cumulative impacts.

Table 23-7 Potential cumulative operational traffic impacts

| Project | Potential operational traffic impacts |
|---|---|
| **Horsley Park Brickworks Plant 2 Upgrade** | • The Environmental Impact Statement notes no additional traffic is proposed to be generated from the operation of the upgraded Plant 2 facility as there are no proposed changes to the throughput capacity of brick manufacturing. As such, there are no potential operational cumulative impacts. |
| **Western Sydney Energy and Resource Recovery Centre** | • Traffic is unlikely to use Ferrers Road and combine with Sydney International Speedway traffic<br>• A Scoping Report for the project cites additional traffic generated by the proposal as likely to be minor in the context of overall network traffic volumes and the wider road network servicing the site likely has sufficient capacity to accommodate the additional traffic generated by the Western Sydney Energy and Resource Recovery Centre. |
| **Light Horse Interchange Business Hub Eastern Creek** | • Traffic generated by the development would likely use the same roads as that used by Sydney International Speedway traffic including the Great Western Highway/ Brabham Drive/Doonside Road intersection<br>• The Environmental Impact Statement notes the proposed development has the potential to generate 7078 vehicle trips per day<br>• Mitigation of these potential cumulative traffic impacts would therefore be most effectively managed by Traffic Management Plans of the Light Horse Interchange Business Hub Eastern Creek project and associated planned road network upgrades to The Horsley Drive and Ferrers Road |

| Project | Potential operational traffic impacts |
|---|---|
| **Western Sydney Green Gas Project** | • Traffic is unlikely to use Ferrers Road and combine with Sydney International Speedway construction traffic<br>• The project hydrogen storage volume supports three buses, for a maximum of two visits each per day resulting in a minor increase in traffic in the area. |

### 23.6.2 Noise and vibration

Operational noise and vibration impacts from the concurrent operation of the project with other racing venues in the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, is included in Chapter 7 (Noise and Vibration) of this Environmental Impact Statement.

Due to distance between the project site and other projects, and the location of sensitive receivers being closer to other projects, no cumulative operational noise impacts are expected from the operation of the project with the projects assessed for cumulative impacts. Potentially affected noise sensitive receivers would be most affected by the dominant noise source, being Sydney International Speedway or other projects, but unlikely by a combination of both noise levels. However, Sydney International Speedway may potentially increase the frequency and duration of noise impacts at affected receivers. The project would implement at property noise mitigation measures at affected receivers where operational noise is predicted to exceed mitigation triggers. This would also effectively manage potential cumulative operational noise impacts.

## 23.7 Management and mitigation measures

Mitigation measures that would be implemented to address potential cumulative impacts are listed in Table 23-8.

Table 23-8 Mitigation measures – cumulative impacts

| Reference | Impact/ issue | Mitigation measure | Applicable locations |
|---|---|---|---|
| **Construction** | | | |
| **C1** | Potential cumulative construction traffic impacts | Co-ordination and consultation with the proponents of other relevant projects and other parts of Transport for NSW, including Transport Coordination, would occur where required to manage the interface of projects under construction at the same time.<br>Coordination and consultation with these stakeholders would include:<br>• Provision of regular updates to the detailed construction program, construction sites and haul routes<br>• Identification of key potential conflict points with other construction projects<br>• Developing mitigation strategies in order to manage conflicts including coordination of traffic management arrangements between projects. | All |

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# 24 Environmental risk analysis

# 24 Environmental risk analysis

This chapter provides an environmental risk analysis for the potential impacts of the Sydney International Speedway.

## 24.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relating to environmental risk analysis, and where these requirements are addressed in this Environmental Impact Statement, are outlined in Table 24-1.

Table 24-1 Secretary's Environmental Assessment Requirements – Environmental risk analysis

| Reference | Requirement | Where addressed |
|---|---|---|
| **3. Assessment of key issues** | | |
| 2 | For each key issue the Proponent must:<br>c. Identify, describe and quantify (if possible) the impacts associated with the issue, including the likelihood and consequence (including worst case scenario) of the impact (comprehensive risk assessment), the impacts of concurrent activities within the proposal and cumulative impacts (parallel and sequential) with other projects; | This chapter. |

## 24.2 Environmental risk analysis methodology

The environmental risk analysis was carried out in accordance with the principles of the Australian and New Zealand standard *AS/NZS ISO 31000:2018 Risk Management – Principles and Guidelines.* This involved ranking the risks by identifying the likelihood of each impact occurring and the consequence of the impact. The following rules guided the risk analysis process:

- Risk ratings were considered at a detailed issue level (for example day time and night time construction airborne noise considered separately)
- Industry standard practice was considered in determining initial risk ratings, and project specific mitigation and performance outcomes were applied for residual risk ratings.

The first step in the risk analysis involved the identification of the consequence of an identified potential impact followed by identification of the likelihood of the impact occurring. The definitions of the consequences used are provided in Table 24-2 and the definitions of likelihood are provided in Table 24-3. The consequence and likelihood are combined to identify the level of risk of the potential impacts, as shown in the risk matrix in Table 24-4. Once an initial rating was identified, the project specific mitigation and performance outcomes were considered to determine the consequence and likelihood of any residual potential impact.

Table 24-2 Consequence definitions

| Consequence level | Definition |
|---|---|
| **Catastrophic** | • Long term (greater than 12 months) and irreversible large-scale environmental impact with loss of valued ecosystems.<br>• Extended substantial disruptions and impacts to stakeholder(s). |
| **Severe** | • Long term (6 to 12 months) environmental impairment in neighbouring or valued ecosystems. Extensive remediation required.<br>• Severe disruptions or long-term impacts to stakeholder(s). |
| **Major** | • Medium term (between 3 and 6 months) impacts to external ecosystems and considerable remediation required.<br>• Major impacts or disruptions to stakeholder(s). |
| **Moderate** | • Medium term (between 1 and 3 months), short term and/or well contained environmental effects. Minor remedial actions probably required.<br>• Moderate impacts or disruptions to stakeholder(s). |

| Consequence level | Definition |
|---|---|
| **Minor** | • Short term (less than 1 month) change from normal conditions within environmental regulatory limits and environmental effects are within the project site boundaries.<br>• Minor or short term impacts to stakeholder(s). |
| **Insignificant** | • No noticeable or visible changes to the environment and/or highly localised event.<br>• Negligible impact to environment or stakeholder(s). |

Table 24-3 Likelihood definitions

| Likelihood | Definition | Probability (per cent) |
|---|---|---|
| **Almost certain** | Expected to occur frequently during time of activity or project (10 or more times per year) | Greater than 90 |
| **Very likely** | Expected to occur occasionally during time of activity or project (1 to 10 times per year) | 75 to 90 |
| **Likely** | More likely to occur than not occur during time of activity or project (once per year) | 50 to 75 |
| **Unlikely** | More likely to not occur than occur during time of activity or project (once every 1 to 10 years) | 25 to 50 |
| **Rare** | Not expected to occur during the time of the activity or project (once every 10 to 100 years) | 10 to 25 |
| **Almost unprecedented** | Not expected to ever occur during time of activity or project (less than once every 100 years) | Less than 10 |

Table 24-4 Risk matrix

| Likelihood | Consequence | | | | | |
|---|---|---|---|---|---|---|
| | **Insignificant** | **Minor** | **Moderate** | **Major** | **Severe** | **Catastrophic** |
| **Almost certain** | Medium | High | High | Very high | Very high | Very high |
| **Very likely** | Medium | Medium | High | High | Very high | Very high |
| **Likely** | Low | Medium | Medium | High | High | Very high |
| **Unlikely** | Low | Low | Medium | Medium | High | High |
| **Rare** | Low | Low | Low | Medium | Medium | High |
| **Almost unprecedented** | Low | Low | Low | Low | Medium | Medium |

## 24.3 Environmental risk analysis

The *Sydney International Speedway Scoping Report* (Sydney Metro, 2020), along with the assessments provided in this Environmental Impact Statement, identifies the key environmental issues associated with the construction and operation of the project.

Using the framework described in Section 24.2, an environmental risk analysis was carried out and is presented in Table 24-5. The risk analysis identifies an initial risk rating for the potential environmental impacts identified as part of the assessments carried out, and the residual risk rating derived after the application of environmental management measures developed and recommended by this Environmental Impact Statement.

Further details regarding the existing environment and potential impacts associated with each environmental issue are provided for in Chapters 6 to 23 of this Environmental Impact Statement.

The purpose of the risk analysis is to provide early identification of high residual impacts to allow a focus on these areas during refinement of the design and the development of construction planning and methodologies.

Table 24-5 Environmental risk analysis

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Traffic, transport and parking** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary deterioration of intersection and traffic performance on the surrounding road network from construction vehicles and/or temporary road or lane closures. | Moderate | Unlikely | Medium | Construction traffic would be managed to minimise movements during peak periods, where possible.<br>During major events at Sydney Dragway, impacts to the transport and traffic network would be reduced (as necessary) by:<br>• Minimising the level and nature of construction activity pre, during and post events<br>• Maintaining appropriate access to all areas within the Western Sydney Parklands; Precinct 5 – Eastern Creek Motor Sports<br>• Scheduling deliveries to the construction site outside of event periods, when possible.<br>These measures would reduce the likelihood and consequence of potential traffic impacts. | Minor | Rare | Low |
| Potential temporary disruption caused by construction workers parking on local roads. | Moderate | Unlikely | Medium | Parking for construction personnel would be provided onsite and not on surrounding local streets. This would reduce the likelihood of potential parking impacts. | Moderate | Almost unprecedented | Low |
| Potential temporary loss of parking for visitors to the Sydney Dragway. | Major | Almost certain | Very high | Temporary offset parking for Sydney Dragway would be established prior to the commencement of construction. This would include a total of 2400 dedicated parking spaces for Sydney Dragway.<br>For larger events at Sydney Dragway, additional parking spaces within the Sydney Motorsport Park (operated by the Australian Racing Drivers Club) would also be made available. During these events a shuttle bus service would be provided between this parking and the Sydney Dragway.<br>Construction worker parking would be provided within the project construction site. This would reduce the likelihood of this potential impact. | Major | Almost unprecedented | Low |
| Potential temporary minor increases in travel time along nearby roads for local public transport (bus) due to the additional construction vehicles on the road network. | Insignificant | Unlikely | Low | Construction site traffic would be managed to minimise movements during peak periods and when major events are scheduled at the Sydney Dragway where possible.<br>This would reduce the likelihood of potential impacts to public transport users. | Insignificant | Rare | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential temporary changes to access for neighbouring properties, including the southern access for the Sydney Dragway. | Moderate | Likely | Medium | Access to properties would be provided at all times, including for emergency vehicles. During events at the Sydney Dragway, appropriate access to all areas within the Western Sydney Parklands' Precinct 5 – Eastern Creek Motor Sports would be provided.<br>This would reduce the likelihood of potential access impacts. | Moderate | Almost unprecedented | Low |
| **Operation** | | | | | | | |
| Potential temporary deterioration of intersection and traffic performance on surrounding road network due to additional traffic travelling to and from the Sydney International Speedway for race events. | Minor | Almost certain | High | Motorsports events, including Speedway events, would be coordinated through the Western Sydney Parklands' Sydney Motorsports Precinct Major Event Operations Plan and associated Event Coordination Agreement. This would provide motorsports operators with exclusive access to car parking at certain times during the year, limiting concurrent major events and associated traffic on the surrounding road network.<br>An operational traffic management plan would be developed by the future operator of Sydney International Speedway which would consider measures to be implemented to manage the arrival and exit of vehicles to the project site at peak times.<br>These measures would reduce the likelihood of potential impacts.<br>Opportunities to enhance public transport accessibility to the project would be investigated, including the provision of bus services and bus stop infrastructure to service major events that if implemented, may reduce the consequence of impact. | Minor | Very likely | Medium |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential loss of car parking for the Sydney Dragway. | Major | Almost certain | Very high | Carpark C and Carpark D would provide 2220 dedicated parking spaces for Sydney Dragway to replace the existing spectator parking areas that would form part of the Sydney International Speedway project site. The location and amount of parking spaces to be provided is similar to the existing car parking spaces for Sydney Dragway. The amount of car parking provided as part of the project has been developed in consultation with Sydney Dragway to ensure that adequate parking provisions have been provided.<br>During concurrent operation of minor events at both the Sydney International Speedway and Sydney Dragway, sufficient parking capacity would be available on the project site. Speedway car parking areas would also be available for use by Sydney Dragway during exclusive major events. The likelihood of impacts to car parking for Sydney Dragway would be reduced with the introduction of the new Dragway parking areas. | Major | Almost unprecedented | Low |
| Potential temporary changes to access for neighbouring properties. | Minor | Unlikely | Low | Access to properties for emergency vehicles would be provided at all times, reducing the likelihood of potential impacts. | Minor | Almost unprecedented | Low |
| **Noise and vibration** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary exceedances of noise management levels from construction activities, plant and equipment during standard construction hours at noise-sensitive receivers. | Insignificant | Unlikely | Low | Although there are no exceedances of noise management levels expected for any construction scenario assessed, monitoring would be carried out at the start of construction to check the levels are as expected and to confirm that the standard mitigation measures are adequate.<br>Receivers that would potentially be affected by noise and/or vibration from construction of the project would be appropriately notified before the relevant works start. | Insignificant | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential temporary exceedances of noise management levels from construction activities, plant and equipment outside of standard construction hours at noise sensitive receivers. | Moderate | Very likely | Medium | Measures to manage or restrict the use of a wood chipper to standard daytime construction hours only in Carparks A, C and D during 'clear and grub' activities as part of the Stage 1 and Stage 2 Carpark works would reduce the consequence and likelihood of noise impacts at sensitive receivers to the south of the site during construction.<br>Night time construction noise impacts could be further reduced at receivers to the south of the project site through the early implementation of at-property treatments required to manage potential operational noise impacts.<br>Receivers that would potentially be affected by noise and/or vibration from construction would be appropriately notified before the relevant works start, reducing the consequence of potential impacts. | Minor | Unlikely | Low |
| **Operation** | | | | | | | |
| Potential temporary exceedances of background noise levels from airborne noise generated by motorsports vehicles and other operational activities at noise sensitive receivers during Sydney International Speedway racing events. | Moderate | Almost certain | High | At-property treatments would be provided to noise sensitive receivers where the predicted average event noise level $L_{Aeq(15minute)}$ is more than 5 dB above the background noise level to mitigate impact. This would reduce both the likelihood and consequence of potential impacts.<br>The implementation of a noise management plan including measures such as spot checks of racing vehicle noise levels, and establishment of response procedures would also reduce the consequence of potential impacts. | Minor | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential temporary exceedances of background noise levels from airborne noise generated by the motorsports vehicles and other motorsports events, i.e. during racing events at the Sydney International Speedway and the other motorsport operators within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. | Moderate | Very likely | High | In addition to the at-property treatments described above, the Speedway operator, when appointed, would prepare an Operational Environmental Management Plan to include the following measures to manage and mitigate noise:<br>• Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits<br>• Managing the use of the public address system to minimise noise<br>• Coordination with other motorsports operators to minimise noise from concurrent events in accordance with the Western Sydney Parklands' Sydney Motorsports Precinct Major Events Operations Plan and associated Event Coordination Agreement<br>• Establishment of a complaints handling and response procedure. | Minor | Unlikely | Low |
| **Biodiversity** | | | | | | | |
| **Construction** | | | | | | | |
| Removal of existing native vegetation protected under the *Biodiversity Conservation Act 2016*, and associated impacts on threatened species that inhabit it. | Moderate | Very likely | High | Opportunities to minimise the amount of vegetation clearance within the project site would be considered as part of further design development where feasible and reasonable. This would reduce the consequence of impacts.<br>Planting of native vegetation in the landscaped areas surrounding carparks, such that there would be no net loss to tree numbers and/or canopy in proximity to the project site would reduce the consequence of the biodiversity impacts.<br>Additionally, biodiversity offsets (ecosystem credits) would be acquired in accordance with the Biodiversity Assessment Method and the Biodiversity Offsets Scheme to offset the vegetation clearance required for the project. | Minor | Very likely | Medium |
| **Air quality** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary impacts on local air quality due to construction plant and equipment and increase in vehicle movements due to construction traffic. | Minor | Very likely | Medium | Vehicles, plant and equipment would be maintained in a proper and efficient manner, reducing the likelihood of air quality impacts from plant. | Minor | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential temporary impacts on local air quality during construction due to dust generation from exposed surfaces, stockpiles and/or haulage. | Minor | Unlikely | Low | Standard construction dust management measures would be applied. These would be scaled to the intensity of construction works and meteorological conditions. The measures would reduce the likelihood of potential impacts. | Minor | Rare | Low |
| Potential temporary impacts on safe operation of Sydney Dragway during construction due to dust generation from exposed surfaces, stockpiles and/or haulage. | Major | Likely | High | In addition to standard dust control measures, construction activities would be minimised during operation of the Sydney Dragway. Project specific dust mitigation measures have been developed and criteria would be developed based on dust monitoring and dispersion modelling, which the construction contractor would be required to comply with, to limit dust deposition on Sydney Dragway within agreed levels, reducing the consequence and likelihood of potential impacts. | Major | Unlikely | Medium |
| **Operation** | | | | | | | |
| Potential temporary impacts on local air quality at nearby sensitive receivers during operation of the project due to windblown particulates from the exposed clay surface of the speedway racetrack. | Insignificant | Likely | Low | Implementation of air quality mitigation measures including dust suppression and screening would reduce the likelihood of impacts. | Insignificant | Unlikely | Low |
| Potential temporary impacts on safe operations of the Sydney Dragway during operation of the project due to an increase in windblown particulates off-site from the exposed clay surface of the speedway racetrack. | Major | Almost certain | Very high | Project specific dust mitigation measures have been developed and criteria would be developed based on dust monitoring and dispersion modelling, which the Speedway operator would be required to comply with, to limit dust deposition on Sydney Dragway to within agreed levels, reducing the likelihood of potential impacts. | Major | Rare | Medium |
| **Aboriginal heritage** | | | | | | | |
| **Construction** | | | | | | | |
| Potential impacts on known Aboriginal Potential Archaeological Deposits near the project site. | Moderate | Rare | Low | Prior to the commencement of project construction, exclusion areas would be established around identified Potential Archaeological Deposits, to reduce the likelihood of inadvertent impacts to these areas. | Moderate | Almost unprecedented | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Disturbance or damage to previously unrecorded sites of Aboriginal heritage significance. | Moderate | Rare | Low | Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented, reducing the consequence of potential impacts.<br>In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented, reducing consequence of potential impacts. | Minor | Rare | Low |
| **Non-Aboriginal heritage** | | | | | | | |
| **Operation** | | | | | | | |
| Potential impacts to the setting of nearby the non-Aboriginal heritage item 'Prospect Reservoir and surrounding area'. | Insignificant | Unlikely | Low | The landscape design would include screening vegetation along the eastern embankment of the project site, to conceal the grandstand from the point of view of the 'Prospect Reservoir and surrounding area' heritage item to the greatest extent possible, reducing the likelihood of impacts on setting. | Insignificant | Rare | Low |
| **Landscape character and visual amenity** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary visual and landscape impacts during construction due to the introduction of construction compounds, vehicles, plant and equipment, and removal of vegetation. | Minor | Likely | Medium | Where feasible and reasonable, locating the elements within construction sites to minimise visual impacts, for example the storage of materials and machinery behind fencing, would reduce the likelihood of impacts.<br>Protection of existing trees to be retained prior to the commencement of construction in accordance with *Australian Standard AS4970* the *Australian Standard for Protection of Trees on Development Sites and Adjoining Properties*, would also reduce the likelihood of impacts. | Minor | Unlikely | Low |
| **Operation** | | | | | | | |
| Potential impacts on landscape character and visual amenity during operation from the introduction of project infrastructure. | Insignificant | Likely | Low | The design has been developed in accordance with the principles of the *Western Sydney Parklands Design Manual (Version 2)* (Western Sydney Parklands Trust, 2018), and has included planting of endemic vegetation species in landscaped areas around the project site, reducing the likelihood of potential impacts. | Insignificant | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Soils and surface water quality** | | | | | | | |
| **Construction** | | | | | | | |
| Potential for temporary soil erosion resulting in off-site sedimentation of waterways during construction, and impacting water quality. | Moderate | Unlikely | Medium | Erosion and sedimentation measures would be implemented in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1 (Landcom 2004)* and *Volume 2D (NSW Department of Environment, Climate Change and Water 2008)*, commonly referred to as the 'Blue Book'.<br>Any water collected on the project site in temporary sedimentation basins during construction would be appropriately treated prior to discharge off-site, reducing the consequences of this potential impact. | Minor | Unlikely | Low |
| Potential for exposure of acid sulfate soils during ground disturbance activities as part of construction in previously filled areas of the project site. This may potentially result in off-site discharge of acidic water. | Moderate | Almost unprecedented | Low | Although not expected, acid sulfate soil testing would be carried out to determine the presence of actual and/or potential acid sulfate soils within unknown fill areas on the project site, enabling management measures to be implemented in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998). Water would be tested and treated if required before being discharged from site, also reducing the consequence of potential impacts. | Minor | Almost unprecedented | Low |
| Potential exposure of soil salinity/saline soils during construction resulting in off-site discharge of saline water, which may result in temporary exceedances of water quality trigger levels. | Moderate | Unlikely | Medium | Soil salinity testing would be carried out to determine the presence of saline soils, enabling management measures to be implemented in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008) that would reduce the consequence of impacts.<br>Erosion controls would be implemented in accordance with the *Blue Book* (Landcom, 2004). Water in sediment basins would be tested and treated if required before being discharged from the project site, also reducing the consequence of potential impacts. | Minor | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential for temporary water quality impacts on nearby watercourses due to discharge of contaminated construction water. | Moderate | Unlikely | Medium | Any water collected on the project site during construction would be appropriately treated prior to off-site discharge, to comply with ANZECC/ARMCANZ (2000) and ANZG (2018) default guidelines for 95 per cent species protection, reducing the consequence and likelihood of potential impacts.<br>A surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to the project and inform appropriate management responses. | Minor | Rare | Low |
| **Operation** | | | | | | | |
| Potential for water quality impacts on nearby watercourses due to runoff of pollutants from new impervious surfaces and pollution associated with the use of vehicles, including increased vehicular traffic, refuelling, accidental spills or major vehicle incidents on the racetrack. | Moderate | Unlikely | Medium | Water treatment infrastructure would be designed so that surface water runoff/waste water is treated to a level that is compliant with the ANZECC/ARMCANZ (2000) and ANZG (2018) default guidelines for 95 per cent species protection, reducing the consequence of potential water quality impacts. | Minor | Unlikely | Low |
| Potential change in surface water flows across the project site, potentially resulting in an increased volume of stormwater being discharged from the project with potential impacts on scour and waterways downstream. | Moderate | Likely | Medium | Provision of a stormwater drainage system that would have the capacity to convey stormwater flows from the entire project site to the on-site detention storage tanks during a 100 year average recurrence interval (ARI) rainfall event, would reduce the likelihood and consequence of potential impacts. | Minor | Unlikely | Low |
| **Contamination** | | | | | | | |
| **Construction** | | | | | | | |
| Potential disturbance of contaminated land during construction potentially causing temporary impacts to human health or receiving environments. | Major | Likely | High | Based on the outcome of further desktop assessment, areas with a higher potential for contamination would be subject, if necessary, to a Detailed Site Investigation and a Remedial Action Plan to reduce contamination risks during and following completion of construction, reducing the consequence and likelihood of potential impacts. | Moderate | Unlikely | Medium |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential disturbance of contamination (soil or groundwater) potentially exacerbating existing contamination risks by mobilising otherwise stable contamination and causing onsite and off-site migration. | Moderate | Likely | Medium | Based on the outcomes of further desktop assessment, areas with a higher potential for contamination would be subject, if necessary, to a Detailed Site Investigation and a Remedial Action Plan to reduce contamination risks from throughout and following completion of construction, reducing the consequence and likelihood of potential impacts. | Minor | Unlikely | Low |
| Potential contamination of land due to spills and leaks during construction. | Minor | Rare | Low | Spills or leaks are anticipated to be manageable through the implementation of standard environmental management measures during construction. For example, locating all fuels in a sealed bunded area, together with the use of spill kits, would reduce the likelihood of soil or groundwater contamination. No additional mitigation is proposed. | Insignificant | Rare | Low |
| Potential temporary impacts from the management or incorrect disposal of contaminated soils. | Moderate | Unlikely | Medium | Contaminated soils would be kept separate from other spoil, and classified for disposal, reducing the likelihood of cross contamination or inappropriate disposal. | Moderate | Rare | Low |
| **Operation** | | | | | | | |
| Potential for accidental spills and leaks of the oils, fuels and chemicals used during operation of the project (for example maintenance and refuelling of race cars) have the potential to result in contaminants being transported into the surrounding environment and groundwater. | Moderate | Likely | Medium | The Operational Environmental Management Plan would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill, reducing the likelihood and consequence of potential contamination impacts. | Minor | Unlikely | Low |
| **Groundwater and geology** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary impact on groundwater quality associated with the generation of turbid, saline or contaminated water. | Moderate | Almost unprecedented | Low | Any stormwater, seepage or intercepted groundwater from earthworks, stockpiling and other construction areas would be collected, tested and treated if required, prior to re use, off-site discharge or disposal as appropriate, reducing the consequences of potential groundwater impacts. | Minor | Almost unprecedented | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| Potential impact on groundwater levels due to dewatering during earthworks. | Minor | Almost unprecedented | Low | The earthworks are not expected to intercept substantial groundwater, so no additional measures have been proposed. | Minor | Almost unprecedented | Low |
| **Operation** | | | | | | | |
| Potential contamination of groundwater due to the long term leaching of excavated materials such as acid rock drainage from Bringelly Shale and saline soil and rock. | Moderate | Unlikely | Medium | A geotechnical assessment, contamination assessment and earthworks design would reduce the likelihood of long term leaching of excavated materials posing a risk to groundwater.<br>Prior to ground disturbance in high probability salinity areas, testing would be carried out to determine the presence of saline soils. If salinity is encountered, excavated soils would be managed in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008) and would not be reused in other areas of the project site. Erosion controls would be implemented in accordance with the *Blue Book* (Landcom, 2004). | Minor | Rare | Low |
| Potential impacts on groundwater recharge rates due to increased areas of hard standing. | Insignificant | Unlikely | Low | Carparking areas would include permeable materials where feasible given their operational use (i.e. not used for drifting), reducing the likelihood of potential impacts. | Insignificant | Rare | Low |
| **Flooding and hydrology** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary alteration to existing stormwater flows resulting in potential impacts to flooding downstream. | Moderate | Likely | Low | Temporary sedimentation basins would temporarily store stormwater, and would be treated and discharged to align with pre construction flows across the project site, reducing the consequence and likelihood of potential impacts. | Minor | Rare | Low |
| **Operation** | | | | | | | |
| Potential increase of rainfall runoff being directed to Eastern Creek due to an increase in impervious surfaces and changes to subcatchment boundaries within the project site, increasing existing flood risk. | Moderate | Likely | Medium | Stormwater infrastructure including onsite detention tanks would be sized to provide adequate system capacities and mitigate increases in stormwater discharge from the project site, reducing the likelihood and consequence of potential flooding impacts. | Minor | Unlikely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Socio-economic** | | | | | | | |
| **Construction** | | | | | | | |
| Potential temporary impacts on amenity of local businesses from construction noise and dust. | Moderate | Unlikely | Medium | Noise, traffic, access and local amenity mitigation measures would reduce the consequence and likelihood of impacts affecting local businesses including Sydney Dragway. | Minor | Rare | Low |
| Potential impacts on social infrastructure and the loss of site for motorsport clubs which occasionally use the project site | Minor | Almost certain | High | The Motorsport Precinct Masterplan would aim to find an appropriate location in the precinct for all existing users. Consultation with Sydney Dragway and other existing users would be carried out during the development of the Motorsport Precinct Masterplan. This would reduce the likelihood of potential impacts, | Minor | Unlikely | Low |
| Potential temporary impacts on community values including temporary changes to local amenity for residents and recreational facilities outside of the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and potential for impacts of construction activities to temporarily deter some club members from participating in events. | Minor | Unlikely | Low | Noise, traffic, access and local amenity mitigation measures would reduce the likelihood of impacts. | Minor | Rare | Low |
| Potential temporary impacts on access and parking, including the presence of construction traffic on local roads, and disruption to property access and spectator carparking at the Sydney Dragway. | Major | Almost certain | Very high | Alternate temporary car parking for Sydney Dragway would be provided within the project site throughout construction, which would reduce the consequence and likelihood of potential impacts. Access would be maintained throughout the construction period and construction traffic mitigation measures to minimise the movements of construction vehicles during peak periods which would also reduce the likelihood of these potential impacts. | Moderate | Rare | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Operation** | | | | | | | |
| Potential for dust from speedway racing events to impact on the safe operation of Sydney Dragway. | Major | Almost certain | Very high | Implementation of air quality mitigation measures including dust suppression, screening and monitoring programme would reduce the likelihood of impacts. Project specific dust management criteria would be developed for Sydney Dragway based on dust monitoring and dispersion modelling, with the construction contractor required to limit dust deposition on Sydney Dragway within agreed levels, reducing the consequence and likelihood of potential impacts. | Major | Rare | Medium |
| Potential impacts on community values including intermittent changes to local amenity for residents and recreational facilities. | Moderate | Very likely | High | Implementation of noise and air quality mitigation and management measures would reduce the likelihood and consequence of impacts. | Minor | Rare | Low |
| Potential temporary impacts on access and parking including disruption and delay for road users and increased demand for parking. | Minor | Almost certain | High | Implementation of traffic management measures during events would reduce the consequence of impacts. Access to the Sydney Dragway would be maintained, and new dedicated carparking areas provided. | Minor | Rare | Low |
| **Hazards** | | | | | | | |
| **Construction** | | | | | | | |
| Potential damage, rupture and/or failure to shut down, isolate or otherwise appropriately manage unidentified underground utilities, resulting in the release of sewage, water, gas or electrical currents. | Moderate | Unlikely | Medium | Dial before you dig searches and non-destructive digging would be carried out to identify the presence of underground utilities, reducing the likelihood of potential impacts. | Moderate | Rare | Low |
| Potential incidents associated with transportation and storage of hazardous substances and dangerous goods during construction. | Major | Rare | Medium | Storage and handling of dangerous goods and hazardous substances would be in accordance with the *Dangerous Goods (Road and Rail Transport) Act 2008 and Dangerous Goods (Road and Rail Transport) Regulation 2014*, and would comply with the *Australian Dangerous Goods Code*, reducing the likelihood of potential impacts. | Major | Almost unprecedented | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Operation** | | | | | | | |
| Potential incidents associated with transportation and storage of hazardous substances and dangerous goods during operation. | Major | Rare | Medium | An Operational Hazard and Risk Management Plan would be developed for the project site and be implemented as part of the OEMP for the project. This plan would be reviewed regularly and updated should goods entering the project site change. As a minimum, the plan would adopt the requirements of the *Code of Practice for Storage and Handling of Dangerous Goods (WorkCover NSW, 2005)* and include separation distances for the storage of hazardous substances to minimise offsite risk, reducing the likelihood and consequences of potential impacts. | Moderate | Almost unprecedented | Low |
| **Greenhouse gas and energy** | | | | | | | |
| **Construction** | | | | | | | |
| Temporary emissions of greenhouse gases associated with embodied energy in materials, use of liquid fuels for plant and equipment, and disposal of construction wastes. | Minor | Likely | Medium | Implementation of sustainability initiatives during construction, such as ensuring plant and equipment is maintained in a proper and efficient manner would reduce the consequence of impacts.<br>Opportunities for best practice management of timber and vegetation waste during construction to minimise landfill emissions, where feasible and reasonable would also reduce the consequence of impacts. | Insignificant | Likely | Low |
| Emissions of greenhouse gases associated with vegetation clearance resulting in the reduction of carbon sinks. | Minor | Likely | Medium | Minimisation of the amount of vegetation clearance required, where feasible and reasonable, would reduce the consequence of impacts. Tree planting as part of landscape design would further reduce the consequence of impacts. | Insignificant | Likely | Low |
| **Operation** | | | | | | | |
| Emissions of greenhouse gases associated with operation of the speedway (i.e. electricity, gas, waste disposal etc). | Minor | Likely | Medium | The project would meet part of its energy needs through solar panels installed on site. Implementation of energy efficiency systems where feasible and reasonable and opportunities to optimise the project design to minimise greenhouse gas emissions as part of the projects operation would reduce the consequence of potential impacts. | Insignificant | Likely | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Climate change adaptation** | | | | | | | |
| **Operation** | | | | | | | |
| Increased ambient temperatures and heatwaves could result in peaks in electrical network demand and increased power transmission outages. | Major | Unlikely | High | Solar lighting backed up by batteries and diesel generators would be provided for car parks. The project site would be connected to the electrical grid with further opportunities investigated for additional solar power.<br>These measures would reduce the consequence of potential impacts. | Minor | Unlikely | Low |
| Lower annual average rainfall, increased rainfall intensity and surface water flooding could result in breaches in water quality controls and potential impacts to adjacent waterways. | Major | Unlikely | High | The design includes rainwater storage tanks which would provide a source of water for maintenance of the clay track, and onsite detention tanks to control the flow of water through the project site and have been sized to account for future climate scenarios. Water treatment devices would be incorporated into the downstream discharge point to meet agreed water quality targets prior to discharge from the project site, reducing the consequence of impacts. | Minor | Unlikely | Low |
| **Waste management and resource use** | | | | | | | |
| **Construction** | | | | | | | |
| Potential impacts associated with inappropriate handling and disposal of waste. | Moderate | Unlikely | Medium | Waste would be assessed, classified, managed and disposed in accordance with the *Waste Classification Guidelines*, reducing the likelihood of impacts. | Moderate | Rare | Low |
| Potential temporary increased demand on water supply during construction. | Minor | Likely | Medium | Water from construction sediment basins would be used across the project site for dust suppression, reducing the need to use mains water, thereby reducing likelihood of potential impacts. | Minor | Rare | Low |
| Potential temporary increased demand on local and regional resources including sand, aggregate and fuel during construction resulting in resource becoming in short supply. | Minor | Unlikely | Low | Standard construction material management measures and targets to reuse 100 per cent of suitable excavated material would minimise demand for resources, reducing the likelihood of the potential impacts. | Minor | Rare | Low |

| Potential impact | Initial risk rating (unmitigated) | | | Effect of proposed mitigation measures | Residual risk rating (with mitigation) | | |
|---|---|---|---|---|---|---|---|
| | Consequence | Likelihood | Risk rating | | Consequence | Likelihood | Risk rating |
| **Operation** | | | | | | | |
| Potential impacts associated with inappropriate handling and disposal of waste. | Moderate | Unlikely | Medium | The operator of the Sydney International Speedway would develop and implement a waste management strategy as part of the operational environmental management plan for the project. The strategy would include details of proposed approach to waste separation and sorting, storage, waste collection, handling, treatment and disposal processes to be adopted and monitoring and reporting requirements, reducing the consequence and likelihood of potential impacts. | Minor | Rare | Low |
| **Cumulative impacts** | | | | | | | |
| **Construction** | | | | | | | |
| Potential traffic, noise, dust and biodiversity impacts as result of the project with other projects. | Moderate | Unlikely | Medium | Mitigation measures implemented for the project impacts would contribute to managing overall cumulative impacts with other projects. Additionally, coordination and consultation with the proponents of other relevant projects and other parts of Transport for NSW, including Transport Management Centre, would occur where required to manage the interface of projects under construction at the same time. | Minor | Rate | Low |
| **Operation** | | | | | | | |
| Potential traffic and noise impacts as result of the project with other projects. | Moderate | Unlikely | Medium | Mitigation measures implemented for the project impacts would contribute to managing overall cumulative impacts with other projects. | Minor | Rare | Low |

## 24.4 Conclusion

The environmental risk analysis has identified that there are no issues that would have a very high or high residual risk after the implementation of the mitigation measures proposed in this Environmental Impact Statement (consolidated in Chapter 25 (Synthesis of this Environmental Impact Statement)).

Environmental issues which would have some impacts that would have a **medium** residual risk with the implementation of mitigation measures include:

- Traffic, transport and parking
- Biodiversity
- Air quality
- Contamination
- Socio-economic.

Opportunities would be investigated as part of further design development to resolve residual impacts and risks through design refinements and/or the development of construction methodologies and planning to ensure that management measures in the Construction Environmental Management Framework (refer to Appendix C of this Environmental Impact Statement) can be effectively implemented.

A process of continuous improvement would allow for management measures to be updated and improved during construction and operation where feasible and reasonable. Where medium level residual risks are still likely, additional and where appropriate refined management measures would be developed so that those risks are suitably mitigated.

Issues with a **low** residual risk level include:

- Construction noise
- Operation noise
- Aboriginal heritage
- Non-Aboriginal heritage
- Landscape character and visual amenity
- Soils and water quality
- Groundwater and geology
- Flooding and hydrology
- Property and land use
- Hazard and risks
- Greenhouse gases and energy
- Climate change adaptation
- Waste management and resource use
- Cumulative impacts.

Issues that have a low residual risk can be adequately managed through detailed design and construction, and by the implementation of standard and project-specific management measures so that all necessary environmental criteria and guidelines would be achieved. Additionally, an appropriate process of review and continual improvement would be applied to address these potential impacts during construction and operation as far as is feasible and reasonable.

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# 25 Synthesis and conclusion of the Environmental Impact Statement

# 25 Synthesis and conclusion of the Environmental Impact Statement

This chapter presents a synthesis and conclusion of the findings of the Environmental Impact Statement.

## 25.1 Secretary's Environmental Assessment Requirements

The Secretary's Environmental Assessment Requirements relevant to the synthesis of the Environmental Impact Statement, and reference to where they are addressed in this chapter and in the Environmental Impact Statement, are provided in Table 25-1.

Table 25-1 Secretary's Environmental Requirements - Synthesis

| Reference | Secretary's Environmental Assessment Requirement | Where addressed |
|---|---|---|
| **2. Environamental Impact Statement** | | |
| **2.1** | The EIS must include, but not necessarily be limited to, the following:<br>p. a chapter that synthesises the environmental impact assessment and provides:<br>• a succinct but full description of the project for which approval is sought; | Section 25.3 |
| | • a description of uncertainties that remain around design, construction methodologies and/or operational methodologies and how these will be resolved in the next stages of the project; | Section 25.4 |
| | • a compilation of the impacts of the project that have not been avoided; | Section 25.5 |
| | • a compilation of the proposed measures associated with each impact to avoid or minimise (through design refinements or ongoing management during construction and operation) or offset these impacts; | Section 25.6 |
| | • a compilation of the outcomes and criteria the proponent will achieve and how these will be monitored; and | Section 25.7 |
| | • the reasons justifying carrying out the project as proposed, having regard to the biophysical, economic and social considerations, including ecologically sustainable development and cumulative impacts. | Section 25.8 |

## 25.2 Overview

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events while continuing to support the growth of speedway racing in NSW.

This Environmental Impact Statement assesses the potential impacts of the construction and operation of the Sydney International Speedway. It does not include surveys, test drilling, test excavations, geotechnical or contamination investigations or other tests, surveys, sampling or investigation for the purposes of the design or assessment of the Sydney International Speedway. In addition, any establishment of access roads, temporary car parks, fences, signage, and construction compounds including the erection of temporary buildings and associated facilities carried out prior to the commencement of construction of the new Sydney International Speedway are not within the scope of the application for project approval.

## 25.3 Project description

The approach to the design and construction of the project presented in this Environmental Impact Statement is based on a concept design and is indicative only. Changes may be made to the design and the construction methodology as part of ongoing design development and following community and stakeholder feedback provided in response to the exhibition of the Environmental Impact Statement.

### 25.3.1 Key features of the project

The operational site layout is shown on Figure 25-1. Once complete, the project would include world class racing infrastructure in the form of clay based racetracks benchmarked to national and international best practice for both speedway vehicles and motorcycles, supported by the following ancillary racing infrastructure:

- New vehicle access to the raceway area via an existing intersection off Ferrers Road
- A racing competitor's pit area, comprising around 150 parking bays for race vehicles and their tenders, including 20 bays for heavy vehicles transporting racing vehicles to and from the speedway and viewing platforms for pit crews
- Workshops/garages and track-side operational support areas to be used by pit crews.

High quality event support infrastructure provided to maximise the spectator experience at speedway events would comprise:

- A grandstand with the capacity to seat around 3750 spectators
- Ticketing and entryway structures
- Spectator facilities, including terraced seating for up to a total of around 7000 spectators, public amenities, corporate boxes, provision for food and beverage operators together with merchandise outlets
- Dedicated parking provided for spectators, visitors and users of the Sydney International Speedway, available for use by other motorsport operators by agreement
- Dedicated parking for Sydney Dragway to replace the existing spectator parking areas which would form part of the Sydney International Speedway project site. The new dragway parking would be available for use by other motorsport operators by agreement

Operational support infrastructure would be provided to enable the operation of the Sydney International Speedway. Such infrastructure would include:

- Public safety including fencing and fire safety systems
- Communications including a fibre optic network (to suit internet broadcasting bandwidth and PA/AV provisions), signage and large broadcasting screens
- Services including the provision of stormwater, drainage and flooding, utilities and lighting.

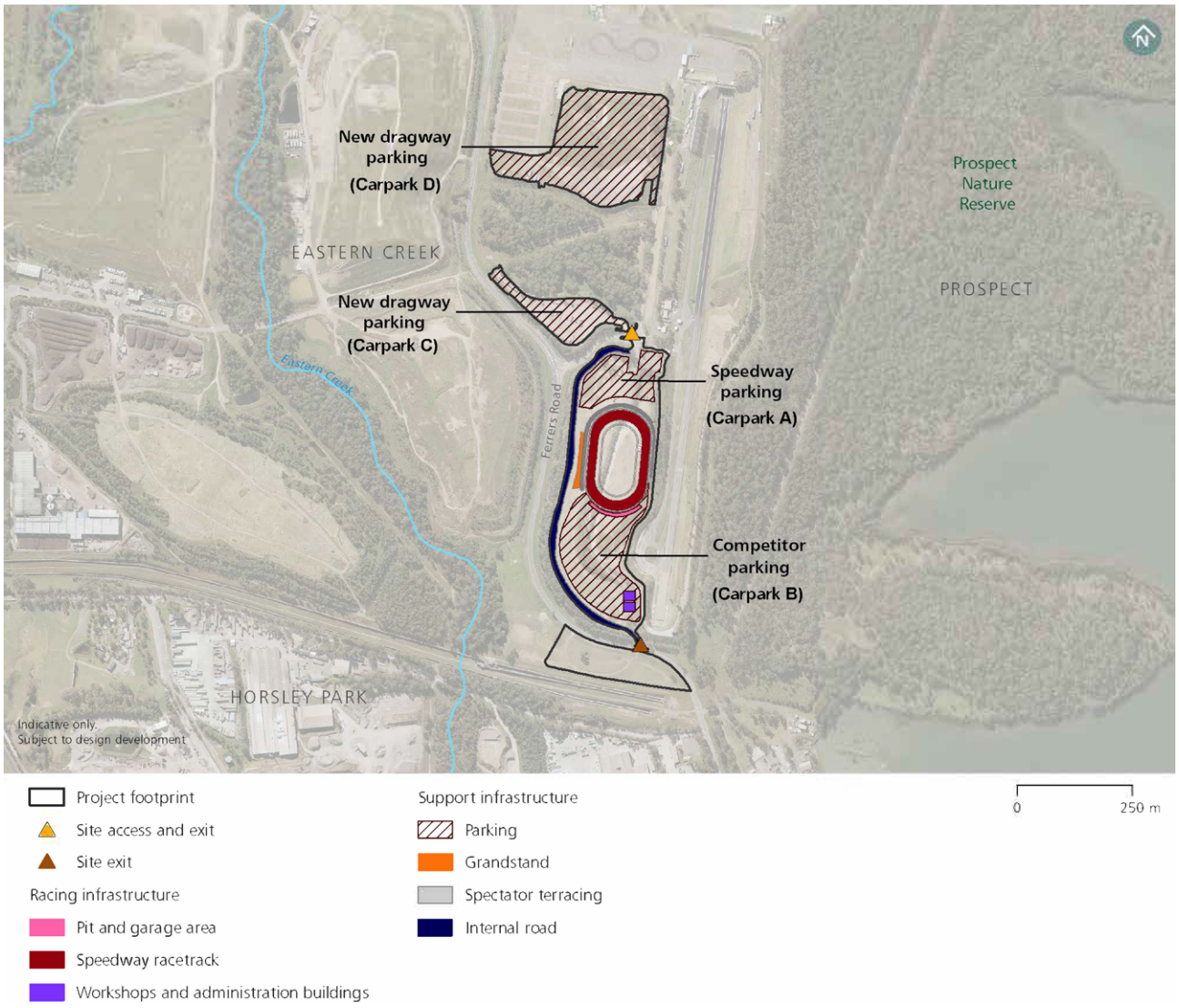


Figure 25-1 Project operational site layout

### 25.3.2 Operational activities

The Sydney International Speedway would have the ability to be operational year round, though most events would be held during the typical speedway racing season (September to May). The Sydney International Speedway would be used for a variety of dirt track racing events, including those currently able to be held at the Sydney Speedway. The new facility would also be designed to accommodate speedway bike racing.

It is expected there would be an average of one event at the Sydney International Speedway per week across the racing season, with a number of mid week events (typically Wednesday and Friday nights) across the peak season, around Christmas and early January. On average, it is expected that there would be about four major events held at the speedway each year, attracting about 4000 to 6000 people per event, and smaller events spread frequently across the racing season, expected to attract around 500 to 1500 spectators per event.

Outside of racing events, ongoing operational activities would include general administration and maintenance of the racetrack and supporting facilities to a good condition. This includes preparation for and cleaning up after each event.

### 25.3.3 Construction activities

Construction of the project is expected to take around 13 months to complete. Operation of the new Sydney International Speedway is anticipated to commence in September 2021 with some finishing woks occurring concurrently with the commencement of operations. Construction would involve the following activities:

- Clearing, earthworks and levelling
- Landforming works
- Establishment of carparks
- Construction of racing and event support infrastructure
- Utilities connections, landscaping and finishing works.

Based on the location of the project away from residential receivers and the anticipated minor nature of construction noise impacts, construction activities are proposed to be carried out up to 24 hours a day, seven days a week.

The estimated total workforce to be employed over the course of the construction of the project would peak at about 150 at any one time. This workforce estimate excludes delivery truck drivers.

A Workforce Development and Industry Participation plan would be developed and include objectives to support local employment and business opportunities, provide skills development and increase workplace diversity.

A Construction Environmental Management Framework (Appendix C) has been developed that details environmental management systems and processes for construction of the Sydney International Speedway. It details the requirements in relation to the content of the construction environmental management plan, sub plans and other supporting documentation for each specific environmental aspect. The specified documentation would be required to be prepared by the appointed contractor prior to the commencement of works and adhered to for the duration of construction.

## 25.4 Uncertainties and resolution

The design presented in this Environmental Impact Statement is conceptual and subject to further design development. The design as presented serves to:

- Confirm that the proposed performance and technical requirements can be achieved
- Validate the feasibility and methodology of the required construction
- Confirm that the project can be constructed and operated in a way that minimises environmental impacts when management and mitigation measures are taken into account.

If approved, the project would be carried out generally in accordance with the description in this Environmental Impact Statement and any conditions of approval, and taking into account the submissions report and preferred infrastructure report (as required).

Some flexibility has been provided in the concept design to:

- Allow for refinement during further design development to consider alternative construction techniques
- Allow for refinements to the construction methodology which lead to improved design outcomes and further minimise environmental impacts
- Allow for refinement to the project design in response to submissions received in response to the exhibition of this Environmental Impact Statement
- Avoid or minimise environmental impacts
- Respond to improved technologies or materials
- Improve value for money.

### 25.4.1 Construction methodology

The construction footprint has been developed taking into account expected requirements for the operational design of the Sydney International Speedway, as well as considering the key construction requirements.

The construction methodology has been developed to a level where environmental impacts can be appropriately identified. Aspects of the construction methodology that may be subject to further refinement include:

- Specific location of facilities within construction sites to align with the contractor's construction method and program
- Potential reduction in the amount of vegetation clearance to reduce biodiversity impacts
- Potential reduction in the quantity of earthworks required leading to a reduction in impacts associated with the excavation, handling, transport and storage of spoil.

All aspects of the construction methodology would be confirmed during further design development and construction planning processes.

### 25.4.2 Operational design

The operational site layout has been developed to a level where environmental impacts can be appropriately identified. Aspects of the Sydney International Speedway design that may be subject to further refinement (but which would be unlikely to substantially alter the predicted environmental impacts) include:

- Selection of material finishes for external areas
- Detailed configuration of on-site water detention systems and arrangements for discharge to Ferrers Road.

## 25.5 Summary of impacts that have not been avoided

Chapters 6 to 23 provide an assessment of the potential impacts of Sydney International Speedway, including the identification of how several potential impacts have been avoided through the project development process which included input from key stakeholders. For example, the provision of dedicated parking areas for users and visitors of the Sydney Dragway, equivalent to existing parking provisions, would avoid potential parking, socio-economic and property impacts associated with the operation of the project. Dust management procedures would be incorporated into the operating arrangements for the Sydney International Speedway to avoid dust deposition impacting on the safe operations of Sydney Dragway. This includes monitoring of dust levels, agreeing trigger levels to maintain safe dragway operations and implementing dust management measures through an air quality management plan.

In addition, motorsports events will be coordinated through a Western Sydney Parklands Sydney Motorsports Precinct Major Event Operations Plan with the aim of minimising conflicts due to dust pollution, noise pollution, car parking, traffic management and other operational issues, and to enhance the management and operation of the Precinct for the benefit of all operators, competitors, spectators and the public.

Residual impacts have been minimised through the specific design and construction methods chosen, as well as the application of comprehensive mitigation and management measures for construction and operation that have proven to be effective on previous infrastructure projects. Refinements as part of design development would continue to further minimise any residual impacts and/or develop potential opportunities associated with the project.

The project would include benefits associated with construction and operation which are summarised in Section 25.8. Despite this, the project is still expected to have some potential residual impacts that are unavoidable. Table 25-2 provides a summary of the key unavoidable potential impacts of the Sydney International Speedway that require further mitigation and management throughout construction and/or operation.

Potential unavoidable impacts would be mitigated, where possible, by refinement of the design and/or construction planning, or through the implementation of project specific environmental management measures as described in Table 25-3.

Table 25-2 Summary of potential impacts that have not been avoided

| Issue | Potential impact |
|---|---|
| **Traffic, transport and parking** | During construction:<br>• Temporary increase in construction traffic on the local road network, resulting in minor increases in congestion and delays, specifically at the Great Western Highway/Doonside Road/Brabham Drive intersection. Construction site traffic would be managed to minimise movements during peak periods<br>• Potential temporary changes to access for neighbouring properties, such as Sydney Dragway, although access would be maintained<br>• Potential temporary minor increases in travel time for public transport users on the 724 Busways route.<br>During operation:<br>• Increase in vehicle movements on the local road network due to visitors attending race events at the Sydney International Speedway, resulting in a minor decrease in road network performance and slight delays at the Ferrers Road/The Horsley Drive intersection. Event specific Traffic Management Plans would be prepared for any major events in consultation with the Transport Management Centre, the Police and other relevant stakeholders<br>• Potential minor increases in travel time for public transport users on the 724 Busways route pre and post-race events. |
| **Noise and vibration** | During construction:<br>• Potential temporary minor exceedances of noise management levels and of the sleep disturbance criterion at the nearest sensitive receivers, associated with the use of a woodchipper during night time works. This would be managed through measures such as equipment positioning or shielding, scheduling of noisier works during daytime periods or potentially the early implementation of operational at-property treatments<br>• Potential temporary minor increases to road traffic noise levels of the project. However, these would not trigger the requirement for additional noise mitigation.<br>During operation:<br>• Potential temporary minor exceedance of operational noise criteria at a small number of properties to the south which would be managed through the provision of at-property treatments<br>• Potential temporary minor exceedances of the noise goal for open areas at pathways surrounding the Prospect Reservoir<br>• Potential increase in the duration, and annoyance, of noise impacts at the affected receivers when events are held at the same time as events at the Sydney Motorsport Park (operated by the Australian Racing Drivers Club) or Sydney Dragway<br>• Potential temporary minor increases to road traffic noise levels of the project. However, these would not trigger the requirement for additional noise mitigation. |
| **Biodiversity** | • Removal of 0.63 hectares of native vegetation consisting of plant community types and corresponding threatened ecological communities protected under the *Biodiversity Conservation Act 2016* which would be offset in accordance with the Biodiversity Assessment Method<br>• Potential minor impact on the Southern Myotis, a threatened species of bat listed under the *Biodiversity Conservation Act 2016* due to the required vegetation removal including a small area of its potential habitat. No species credits are required for the Southern Myotis as the predicted impacts do not meet the threshold for offset credits. |

| Issue | Potential impact |
|---|---|
| **Landscape character and visual impact** | During construction:<br>• Temporary impacts to the existing landscape character associated with the removal of 148 canopy trees, until the vegetation planted (including 1000 trees) within landscaped areas of the project site reaches maturity<br>• Temporary minor visual impacts from local viewpoints due to the presence of construction works, including plant and equipment, vehicles, and large scale earth moving activities.<br>During operation:<br>• An increase in lighting levels from track lighting during night-time racing events. However, this would be intermittent and consistent with the existing setting of the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports. |
| **Socio-economics** | • Loss of the site used by motorsports clubs and driver training organisations that hold occasional events in the southern portion of the project site. This site would be required from the start of construction and would no longer be available for these uses. The Motorsport Precinct Masterplan process (including consultation) would aim to provide an appropriate venue for all existing motorsport users in the precinct<br>• Potential temporary impacts on amenity for local residents which would be managed through the implementation of relevant amenity related mitigation such as noise and vibration and air quality measures. |
| **Greenhouse gases and energy** | • Relatively minor emission of greenhouse gases during construction associated with construction materials, fuels, vegetation removal, waste disposal and construction haulage<br>• Relatively minor emission of greenhouse gases during operation associated with energy requirements to power the Sydney International Speedway, vehicle emissions during events and disposal of operational waste. |
| **Climate change adaptation** | • Increased ambient temperatures and heatwaves could result in peaks in electrical network demand and increased power transmission outages, although climate change adaptation measures have been considered through design. |
| **Waste management and resource use** | • Minor potential residual impacts would include generation of unusable spoil during earthworks due to contamination. This would be disposed to a suitably licenced landfill. |

## 25.6 Proposed measures to avoid or minimise impacts

### 25.6.1 Overall approach to environmental management

The overall approach to environmental management during construction is shown in Figure 24-3. This involves:

- **Project design** – measures incorporated in the design and construction planning to avoid and minimise impacts. Further information is provided in Chapter 5 (Project description)
- **Mitigation measures** – identified as an outcome of the environmental impact assessment detailed in Chapters 6 to 23 and consolidated in Table 24-3
- **Construction Environmental Management Framework** – details the approach to environmental management and monitoring during construction. Further details are provided below
- **Construction Noise and Vibration Standard** – defines how construction noise and vibration would be managed for the project. Further details are provided below
- **Operational Environmental Management Plan** – would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project
- **Environmental performance outcomes** – the project design and construction planning would be considered against the environmental performance outcomes provided in Section 25.7.

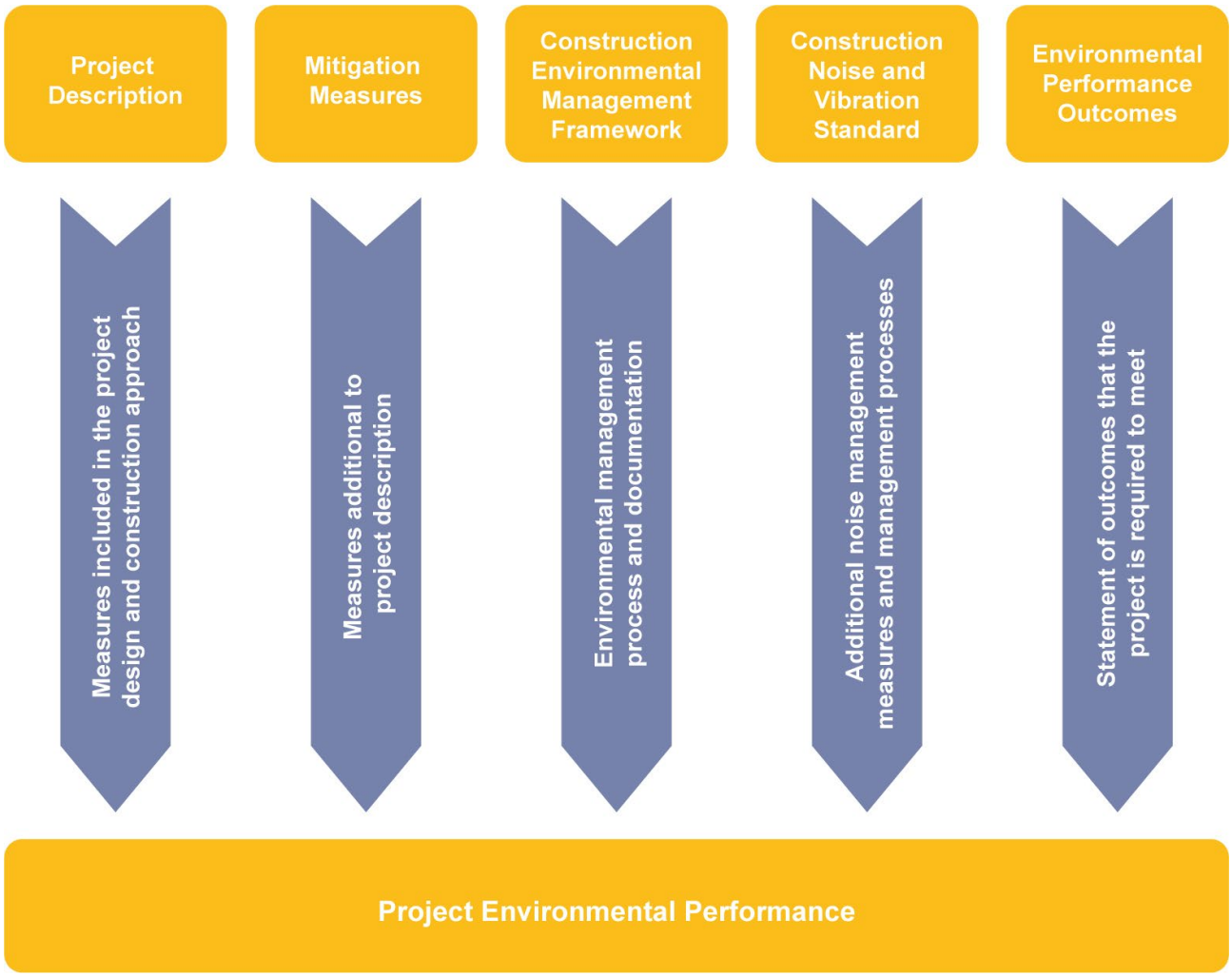


Figure 25-2 Approach to environmental management

### Construction Environmental Management Framework

The Construction Environmental Management Framework (Appendix C) details the approach to environmental management and monitoring during construction. The framework is a linking document between planning approval documentation and construction environmental management documentation, which would be developed by the construction contractors.

The Construction Environmental Management Framework details the environmental, stakeholder and community management systems and processes for the construction of the project. Specifically, it details the requirements in relation to the Construction Environmental Management Plan, sub plans and other supporting documentation for each specific environmental aspect.

### Construction Noise and Vibration Standard

The Construction Noise and Vibration Standard (Appendix C) defines how construction noise and vibration would be managed for Sydney Metro West as a whole. The Construction Noise and Vibration Standard provides guidance for managing construction noise and vibration impacts to provide a consistent approach to management and mitigation across all Sydney Metro projects.

The Construction Noise and Vibration Standard identifies the requirements and methodology to develop construction noise and vibration impact statements. These would be prepared prior to specific construction activities, based on a more detailed understanding of construction methods, including the size and type of construction equipment.

### Operational Environmental Management Plan

An Operational Environmental Management Plan would be prepared and implemented by the operator of the Sydney International Speedway. The plan would provide the overarching framework for the management of all potential environmental impacts resulting from the operation of the project.

The scope of the OEMP would be confirmed by the operator but is likely to include the following components:

- Traffic management
- Air quality management
- Noise management
- Stormwater management
- Waste management
- Landscape management
- Hazard and risk management.

Ongoing maintenance would be carried out periodically throughout operations. Relevant activities and management measures as part of this ongoing maintenance would be detailed in the Operational Environmental Management Plan.

## 25.6.2 Environmental management measures

Table 25-3 provides a compilation of the measures to avoid, mitigate and/or manage the potential impacts of the Sydney International Speedway as identified in Chapters 6 to 23. The measures described in the chapters and compiled in this table were developed to take into account the findings of the assessments carried out for the Environmental Impact Statement.

The mitigation measures compiled in Table 25-3, together with the approach to environmental management described in Section 25.6, provide Sydney Metro's commitments for the Sydney International Speedway. The mitigation measures may be revised in response to submissions raised during public exhibition with a. revised list of mitigation measures provided in the submissions/preferred infrastructure report, if required. The project would be carried out in accordance with the conditions of approval and the revised list of mitigation measures.

Table 25-3 Environmental mitigation measures

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Traffic and transport** | | | |
| **Construction** | | | |
| **TTP1** | Traffic related incidents | In the event of a traffic related incident, coordination would be carried out with Transport Coordination and/or the Transport Management Centre's Operations Manager. | All |
| **TTP2** | Property access for emergency vehicles | Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be provided at all times, including for emergency vehicles. | All |
| **TTP3** | Construction site access and egress | All trucks would enter and exit construction sites in a forward direction, where feasible and reasonable. | All |
| **TTP4** | Road network performance | Construction site traffic would be managed to minimise movements along Ferrers Road and the surrounding road network during peak periods. | All |
| **TTP5** | Parking availability for construction personnel | Parking for construction personnel would be provided on-site and not on surrounding local streets. | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **TTP6** | Construction traffic during major events | During major events at Sydney Dragway, impacts to the transport and traffic network would be reduced by (as necessary):<br>• Avoiding the use of the spectator access road by construction traffic during Sydney Dragway major events<br>• Minimising the level and nature of construction activity pre, during and post events<br>• Maintaining appropriate access to all areas within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports<br>• Scheduling deliveries to the project site outside of event periods, when possible. | All |
| **TT7** | Parking for events at Sydney Dragway during construction | Temporary offset parking for Sydney Dragway would be established prior to commencement of construction. This would include a total of around 2400 dedicated parking spaces for Sydney Dragway comprising of:<br>• Retention of about 800 existing spaces in the existing P2 Dragway car park outside of the project footprint<br>• A minimum of 1600 spaces within the project site for use by visitors to Sydney Dragway during events.<br>For larger events at Sydney Dragway, additional parking spaces within the Sydney Motorsport Park (operated by the Australian Racing Drivers Club) would also be made available. During these events, a shuttle bus service would be provided between this parking and the Sydney Dragway. | All |
| **Operation** | | | |
| **TTP8** | Public transport accessibility during major events | Opportunities to enhance public transport accessibility to the project would be investigated, including the provision of bus services and bus stop infrastructure to service major events. | All |
| **TTP9** | Property access for emergency vehicles | Access to other properties within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports would be maintained at all times, including for emergency vehicles. | All |
| **TTP10** | Impacts to road network performance during events at the project site (including concurrent operations) | A traffic management plan would be developed by the operator of the Sydney International Speedway and would include traffic measures to minimise impacts to road network performance during peak event times. The traffic management plan would consider measures to be implemented to manage the arrival and exit of vehicles to the project site, including traffic marshalling and the use of temporary traffic signals when major events are scheduled at the same time as Sydney Dragway. | All |
| **Noise and vibration** | | | |
| **Construction** | | | |
| **NV1** | Night time impacts | Feasible and reasonable options to reduce night time noise impacts associated with the wood chipper would be investigated including positioning or shielding of equipment, restricting the use of the wood chipper to daytime construction hours, or through the early implementation of at-property treatments required to reduce operational noise. | Carparks A, C and D |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Operation** | | | |
| **NV2** | Operational motorsport noise | At-property treatment would be provided to noise sensitive receivers where the predicted average event noise level $L_{Aeq}$(15minute) is more than 5 dB above the background noise level. | All relevant receivers |
| **NV3** | Fireworks displays | An evaluation of the potential noise impacts from occasional firework displays during some events would be carried out when more information is available regarding the proposed displays associated with the project. | Main operational site |
| **NV4** | Operational Environmental Management Plan | An Operational Environmental Management Plan (OEMP) (to be prepared by the operator, once appointed) would include the following measures to manage and mitigate noise:<br>• Establishing vehicle noise control limits for events and monitoring to verify compliance with these limits<br>• Managing the use of the public address system to minimise noise<br>• Coordination with other motorsports operators to minimise noise from concurrent events<br>• Establishment of a complaints handling and response procedure. | Main operational site |
| **Biodiversity** | | | |
| **Design** | | | |
| **B1** | Vegetation clearance | Opportunities to minimise the amount of vegetation clearance within the project site would be considered as part of further design development where feasible and reasonable. | All |
| **Construction** | | | |
| **B2** | Impacts to threatened ecological communities and threatened species | Biodiversity offsets (ecosystem credits) would be acquired in accordance with the Biodiversity Assessment Method due to impacts on native vegetation. | All |
| **Air quality** | | | |
| **Construction** | | | |
| **AQ1** | Dust generation during construction | The following best practice dust management measures would be implemented during all construction works:<br>• Apply water sprays during loading and unloading of materials<br>• Regularly wet down exposed and disturbed areas including stockpiles and haulage routes, especially during dry weather<br>• Adjust the intensity of activities based on measured and observed dust levels and weather forecasts<br>• Minimise the amount of materials stockpiled and position stockpiles away from surrounding receivers<br>• Regularly inspect dust emissions and apply additional controls as required. | All |
| **AQ2** | Exhaust emissions from the combustion of fossil fuels during construction | Plant and equipment would be maintained in a proper and efficient manner. | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **AQ3** | Dust generation during construction and operation | Four permanent dust monitoring stations would be installed across the project site and at Sydney Dragway. These stations would acquire and measure baseline dust levels in real time to inform thresholds for safe operational dust levels at the Sydney Dragway and to monitor dust levels during construction and operation of the project. | Main operational site and Sydney Dragway |
| **AQ4** | Dust generation during construction and operation | An on-site meteorological station would be installed, sited in accordance with the relevant standards and guidelines, to inform the dust monitoring programme. | Main operational site |
| **Aboriginal heritage** | | | |
| **Construction** | | | |
| **AH1** | Aboriginal site protection | Prior to the commencement of construction works, exclusion areas would be established around the following identified Aboriginal sites, to prevent inadvertent impacts during works:<br>• SIS PAD 01 (AHIMS ID pending)<br>• SIS PAD 02 (AHIMS ID pending). | SIS PAD 01 (adjacent to the southern area)<br>SIS PAD 02 (between Carparks C and D) |
| **AH2** | Unexpected finds | Should unexpected Aboriginal artefacts be identified during excavation and construction works, the Sydney Metro Unexpected Finds Protocol would be implemented. | All |
| **AH3** | Unexpected finds | In the event that a potential burial site or potential human skeletal material is exposed during construction, the Sydney Metro Exhumation Management Plan would be implemented. | All |
| **Non-Aboriginal heritage** | | | |
| There are no additional mitigation measures required that are specific to non-Aboriginal heritage. Potential impacts have been avoided through design and would be managed through the Construction Environmental Management Framework and an unexpected finds procedure. | | | |
| **Landscape character and visual amenity** | | | |
| **Design** | | | |
| **LV1** | Removal of trees | Opportunities to minimise the area of vegetation clearance and for the retention and protection of existing street trees and trees within the project site would be identified during detailed construction planning. | All |
| **LV2** | Urban heat island effects | Opportunities for the incorporation of trees and low heat absorbing ground surface finishes in carparking areas would be identified and implemented where feasible and reasonable. | All |
| **Construction** | | | |
| **LV3** | Visual impacts | Where feasible and reasonable, the elements within the construction site would be located to minimise visual impacts (for example storing materials and machinery behind fencing). | All |
| **LV4** | Lighting impacts | Lighting of the construction site would be orientated to minimise glare and light spill impacts on adjacent receivers. | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **LV5** | Trees | Existing trees to be retained would be protected prior to the commencement of construction in accordance with Australian Standard AS4970 the Australian Standard for Protection of Trees on Development Sites and Adjoining Properties. | All |
| **Soils and surface water quality** | | | |
| **Construction** | | | |
| **SSW1** | Acid sulfate soils | Prior to ground disturbance in areas of potential acid sulfate soil occurrence, testing would be carried out to determine the presence of actual and/or potential acid sulfate soils. If acid sulfate soils are encountered, they would be managed in accordance with the *Acid Sulfate Soil Manual* (ASSMAC, 1998). | All |
| **SSW2** | Soil salinity | Prior to ground disturbance in high probability salinity areas, testing would be carried out to determine the presence of saline soils. If salinity is encountered, excavated soils would be managed in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008) and would not be reused in other areas of the project site. Erosion controls would be implemented in accordance with *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom, 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008), commonly referred to as the 'Blue Book'. | All |
| **SSW3** | Erosion and sedimentation | Erosion and sedimentation measures would be implemented in accordance with the principles and requirements in the *'Blue Book'* (Landcom, 2004 and Department of Environment, Climate Change and Water, 2008). | All |
| **SSW4** | Management of surface water runoff | Any water collected on the project site during construction would be appropriately treated and discharged to avoid any potential contamination or local stormwater impacts. Temporary sediment basins would be designed in accordance with *Managing Urban Stormwater: Soils and Construction and Managing Urban Stormwater, Volume 2D: Main Road Construction* (DECC, 2008). | All |
| **SSW5** | Water quality monitoring | A surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to the project and inform appropriate management responses.<br>The program would be developed in consultation with the Environment Protection Authority and relevant Councils. Monitoring would occur prior to and during construction at all waterways with the potential to be impacted, including the unnamed drainage line between Carpark C and Carpark D, Eastern Creek and Prospect Reservoir.<br>Monitoring sites could be located upstream and downstream of the potential discharges and would include sampling for key indicators of concern. | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Operation** | | | |
| **SSW6** | Waste water discharge | Water treatment infrastructure would be designed so that surface water runoff/wastewater is treated to a level that is compliant with the ANZECC/ARMCANZ (2000) and ANZG (2018) default guidelines for 95 per cent species protection. | All |
| **SSW7** | Water quality monitoring | An operational surface water monitoring program would be implemented to observe any changes in surface water quality that may be attributable to the project and inform appropriate management responses. The monitoring program would be developed and implemented to align with the pre-construction and construction monitoring described in SSW5. | All |
| **Contamination** | | | |
| **Construction** | | | |
| **C1** | Management of low risk contamination | For areas that have been identified as having moderate, or high contamination impact potential, a further review of data would be performed, including review of any additional/ preliminary contamination site investigations conducted following desktop assessment to refine impact assessment.<br>Where the additional data review confirm that contamination is likely to have a very low or low impact potential, the areas would then be managed in accordance with the Soil and Water Management Plan. This would typically occur where there is minor, isolated contamination that can be readily remediated through standard construction practices such as excavation and off-site disposal. | All |
| **C2** | Detailed Site Investigation | Where data from the additional data review (mitigation measure C1) is insufficient to understand the impact of contamination, a Detailed Site Investigation would be carried out in accordance with the *National Environmental Protection (Assessment of Site Contamination) Measure* (2013) and other guidelines made or endorsed by the NSW Environment Protection Authority.<br>Construction areas requiring Detailed Site Investigation would be confirmed following the additional data review (mitigation measure C1), however based on the preliminary findings of this Preliminary Site Investigation, it is anticipated that Detailed Site Investigations would likely be required throughout the project site (within all areas 1-7). | Dependant on the outcomes of mitigation measure C1, locations may include some or all of areas one to seven |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **C3** | Remediation | Where data from additional data review (mitigation measure C1) or the Detailed Site Investigation (mitigation measure C2) confirms that contamination would have a moderate to high risk, a Remedial Action Plan (RAP) would be developed for the relevant construction area.<br>The RAP would detail the remediation works required to mitigate impacts from contamination throughout and following completion of construction. The RAP would be prepared in accordance with relevant NSW Environment Protection Authority guidelines and where applicable, detail remediation methodologies in accordance with Australian Standards and other relevant government guidelines and codes of practice.<br>Remediation would be performed as an integrated component of construction and to a standard commensurate with the proposed end use of the land.<br>Construction areas requiring a RAP would be confirmed following the additional data review (mitigation measure C1) and Detailed Site Investigation (mitigation measure C2), however on the basis of this Preliminary Site Investigation, it is anticipated that a Remedial Action Plan and remediation could be required to manage contaminated fill materials at the project site. | Dependant on the outcomes of mitigation measures C1 and C2, locations may include areas one to seven |
| **C4** | Site Audit Statement | Where contamination is highly complex, such as where there is significant groundwater contamination; contamination associated with vapour; contamination that requires specialised remediation techniques; or contamination that requires ongoing active management during and beyond construction, an accredited Site Auditor would review and approve the RAP and remediation activities and would develop a Site Audit Statement (SAS) and Site Audit Report (SAR) upon completion of remediation.<br>The requirement for auditor involvement would be confirmed following the completion of the Detailed Site Investigation (mitigation measure C2) and prior to the preparation of the RAP (mitigation measure C3). | Dependent on outcomes of the C1, C2and C3,locations may include areas one to seven |
| **C5** | Residual contamination following construction | Ongoing management and monitoring measures would be documented in an appropriate form and implemented for any areas where minor, residual contamination remains following construction. | As applicable |
| **Operation** | | | |
| **C6** | Accidental leaks or spills during operation | The Operational Environmental Management Plan would include an Emergency Response Plan which would specify the procedure to be followed in the event of a spill, including the notification requirements and use of absorbent material to contain the spill. | All areas |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Groundwater and geology** | | | |
| **Construction** | | | |
| **GW1** | Contamination of groundwater during construction | Any stormwater, seepage or intercepted groundwater from earthworks, stockpiling and other construction areas would be collected and tested prior to re use, off-site discharge or disposal as appropriate. Water quality testing would include pH (acidity), salinity and potential contamination parameters. | All |
| **Operation** | | | |
| **GW2** | Contamination of groundwater during operation | A geotechnical assessment, contamination assessment and earthworks design would ensure that long term leaching of excavated materials (such as acid rock drainage from Bringelly Shale and saline soil and rock) does not pose a risk to groundwater. | All |
| **GW3** | Contamination of groundwater during operation | The Operational Environmental Management Plan would be implemented including appropriate procedures for storage of hazardous materials, refuelling, spill prevention and spill response. | All |
| **Flooding and hydrogeology** | | | |
| **Operation** | | | |
| **FH1** | Flood behaviour | On-site stormwater detention would be provided for the project site to manage rainfall runoff rates and volumes due to increased imperviousness of the project site and changes to sub catchment boundaries. | All |
| **Socio-economic** | | | |
| **Construction** | | | |
| **SE1** | Impacts on business and social infrastructure | Consultation would be carried out with managers of potentially impacted businesses and social infrastructure about the timing and duration of construction works and management of potential impacts, with the aim of minimising potential disruption to the use of businesses and social infrastructure from construction activities. This includes, but is not limited to:<br>• Sydney Dragway<br>• Sydney Motorsports Park (operated by the Australian Racing Drivers Club)<br>• Businesses within and surrounding land leased by Sydney Dragway<br>• Motorsports facilities within the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports<br>• Western Sydney Parklands Trust. | All |
| **SE2** | Impacts on clubs that use land impacted by the project | Consultation as part of the Motorsport Precinct Masterplan would aim to provide an appropriate venue for all existing motorsport users in the precinct. | All |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Property and land use** | | | |
| There are no mitigation measures specific to property and land use. Potential impacts would be appropriately mitigated through the implementation of measures specific to air quality, noise and visual amenity. | | | |
| **Hazards** | | | |
| **Construction** | | | |
| **H1** | Impacts on underground utilities | Dial before you dig searches and non-destructive digging would be carried out to identify the presence of underground utilities. | All |
| **Operation** | | | |
| **H2** | Proper handling of dangerous goods | Handling of dangerous goods would be carried out in accordance with the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005). | All |
| **H3** | Storage of flammable liquids | Storage of flammable/combustible liquids within the project site would be carried out in accordance with *Australian Standard AS 1940: The Storage and Handling of Flammable and Combustible Liquids*. Secondary containment measures would be implemented in a location away from waterways and drainage paths/infrastructure. | All |
| **H4** | Management of operational hazards and risks | An Operational Hazard and Risk Management Plan would be developed for the project site and implemented as part of the OEMP for the project. This plan would be reviewed regularly and updated should goods entering the project site change. As a minimum, the plan would adopt the requirements of the *Code of Practice for Storage and Handling of Dangerous Goods* (WorkCover NSW, 2005). | All |
| **Greenhouse gases and energy** | | | |
| **Design** | | | |
| **GHG1** | Energy efficiency | Energy efficiency would be considered further during detailed design development, with energy efficient systems installed where feasible and reasonable. This would include consideration to the use of motion sensor activated and/or independent solar powered CCTV systems and LED lighting technology. | All |
| **GHG2** | Emissions of greenhouse gases during operation | Opportunities to optimise the project design to minimise greenhouse gas emissions during operation would be considered as part of further design development, including considerations relating to:<br>• Track design to minimise ongoing plant maintenance<br>• Waste management strategy and design to minimise waste to landfill during operation. | All |
| **Climate change adaptation** | | | |
| **Design** | | | |
| **CC1** | Climate change risks | Climate change risk treatments would be confirmed and incorporated into the detailed design. | |

| Reference | Impact/issue | Mitigation measure | Applicable location |
|---|---|---|---|
| **Waste management and resource use** | | | |
| **Construction** | | | |
| **WM1** | Compliance with legislative and policy requirements | All waste would be assessed, classified, managed, transported *and disposed of in accordance with the Waste Classification Guidelines (Environment Protection Authority, 2014).* | All |
| **WM2** | Waste minimisation | Construction waste would be minimised by accurately calculating materials brought to the project site and limiting materials packaging. | All |
| **WM3** | Reuse and recycling | Waste streams would be segregated to avoid cross contamination of materials and maximise reuse and recycling opportunities. | All |
| **WM4** | Waste tracking | A materials tracking system would be implemented for material transferred to offsite locations such as licensed waste management facilities. | All |
| **Cumulative impacts** | | | |
| **C1** | Potential cumulative construction traffic impacts | Coordination and consultation with the proponents of other relevant projects and other parts of Transport for NSW, including Transport Coordination, would occur where required to manage the interface of projects under construction at the same time.<br>Coordination and consultation with these stakeholders would include:<br>• Provision of regular updates to the detailed construction program, construction sites and haul routes<br>• Identification of key potential conflict points with other construction projects<br>• Developing mitigation strategies in order to manage conflicts including coordination of traffic management arrangements between projects. | All |

## 25.7 Performance outcomes

The Secretary's Environmental Assessment Requirements identified a number of desired performance outcomes. These desired performance outcomes outline the broader objectives to be achieved during design, construction, and operation of the Sydney International Speedway. The performance outcomes for the Sydney International Speedway are outlined in Table 25-4.

Table 25-4 Desired performance outcome and project outcome

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Traffic, transport and parking** | | |
| **Network connectivity, safety and efficiency of the transport system in the vicinity of the project are managed to minimise impacts.**<br>**Impacts on network capacity and the level of service are effectively managed.** | Construction<br>• Safe access and egress is provided to and from construction sites<br>• Sufficient parking is provided on the project site for construction workers<br>• Potential impacts to road network efficiency during construction are minimised<br>• Parking is provided for Sydney Dragway to offset loss of parking during construction of the project<br>• Access to Sydney Dragway is maintained.<br>Operation<br>• Events would be coordinated through the Major Events Operations Plan to minimise the impact of concurrent events on traffic, noise, dust and parking<br>• Around 2800 parking spaces would be provided, sufficient to accommodate vehicles at the project site for a major event at the Sydney International Speedway on a Saturday evening, and for concurrent minor race events at the Sydney International Speedway and Sydney Dragway on a Friday evening.<br>• Potential operational impacts to local roads are minimised through event scheduling | A parking assessment, presented in Chapter 6 (Traffic, transport and parking) has concluded that sufficient parking capacity is provided for both construction and operation of the project.<br>Potential impacts on existing Sydney Dragway parking would be minimised through the provision of temporary parking areas for visitors and users of the Sydney Dragway throughout construction of the project, and new dedicated Sydney Dragway parking during operation.<br>Each motorsports operator would have exclusive access to the project site on agreed dates during the year in accordance with an events calendar, with other operators not permitted to hold a concurrent event unless with the agreement of the operator who has exclusive access.<br>Impacts to the road network during construction and operation of the project are expected to be minor and manageable with the implementation of the management measures proposed in Chapter 6 (Traffic, transport and parking) of this Environmental Impact Statement. |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Noise and vibration - amenity** | | |
| **Both construction and operation noise and vibration (including airborne noise, ground borne noise) are effectively managed to minimise adverse impacts on acoustic amenity.**<br>**Increases in noise emissions and vibration affecting nearby properties and other sensitive receivers during operation of the project are effectively managed to protect the amenity and well-being of the community.** | Construction<br>• Construction noise and vibration impacts on local communities are minimised by controlling noise and vibration at the source, on the source to receiver path and at the receiver as required with the aim of complying with the Noise Management Levels (NMLs) at residential receivers identified in Chapter 7 (Noise and vibration).<br>Operation<br>• Potential operational noise and vibration levels are minimised during race events. | Construction noise levels are predicted to comply with the relevant noise management levels expect for a minor exceedance at night which would be managed through the mitigation measures in Chapter 7 (Noise and vibration) and the Construction Noise and Vibration Standard.<br>At-property treatment would be provided to relevant receivers to minimise potential operational noise levels.<br>Further details on potential noise and vibration impacts and mitigation is provided in Chapter 7 (Noise and vibration). |
| **Noise and vibration – Structural** | | |
| **Construction noise and vibration (including airborne noise and ground borne noise) are effectively managed to minimise adverse impacts on the structural integrity of structures and items including Aboriginal places and environmental heritage.**<br>**Increases in noise emissions and vibration affecting environmental heritage as defined in the *Heritage Act 1977* during operation of the project are effectively managed.** | • Structural damage to buildings and heritage items from construction and operation vibration is avoided. | There are not expected to be any potential impacts on structures from either construction or operational vibration. |
| **Biodiversity** | | |
| **The project design considers all feasible measures to avoid and minimise impacts on terrestrial and aquatic biodiversity.**<br>**Offsets and/or supplementary measures are assured which are equivalent to any residual impacts of project construction and operation.** | • Impacts to threatened species or ecological communities as listed under the Commonwealth *Environmental Protection and Biodiversity Act 1999* are avoided<br>• Impacts on biodiversity are avoided (where possible) and minimised, including the clearing of native vegetation<br>• Biodiversity impacts are offset in accordance with the *Biodiversity Conservation Act 2016*. | Development of the carparking layout has avoided impacts to threatened ecological communities where possible. Opportunities to further minimise vegetation clearance would be considered as part of further design development.<br>There would be no impacts to biodiversity protected under the Commonwealth *Environmental Protection and Biodiversity Act 1999.* |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Heritage** | | |
| **The design, construction and operation of the project facilitates, to the greatest extent possible, the long term protection, conservation and management of the heritage significance of items of environmental heritage and Aboriginal objects and places.**<br>**The design, construction and operation of the project avoids or minimises impacts, to the greatest extent possible, on the heritage significance of environmental heritage and Aboriginal objects and places.** | • Impacts to known Aboriginal sites are avoided<br>• Direct impacts to non-Aboriginal heritage items are avoided<br>• Indirect visual impacts to nearby non-Aboriginal heritage items are minimised<br>• Accidental impacts to heritage items are avoided. | The project footprint has been designed to avoid nearby areas identified as Potential Archaeological Deposits.<br>The project would not have any direct or indirect impact on non-Aboriginal heritage, including visual impacts to 'Prospect Reservoir and surrounding area' heritage item, which have been assessed as negligible.<br>The contractor would develop and implement a CEMP in accordance with the CEMF (Appendix C) which includes an unexpected heritage finds procedure. |
| **Air quality and dust generation** | | |
| **The project is designed, constructed and operated in a manner that minimises air quality impacts (including nuisance dust) to minimise risks to human health and the environment to the greatest extent practicable.** | • Dust would be managed during construction and operation within agreed levels, established through a dust monitoring program, that allow the safe operation of the Sydney Dragway<br>• Impacts from dust would be minimised. | The project would not result in exceedances of air quality criteria during construction and operation of the project for receivers for which there are criteria under the Environment Protection Authority's *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales (2016)*.<br>Project specific dust management criteria would be developed for Dragway based on dust monitoring and dispersion modelling, with the construction contractor and Speedway operator required to limit dust deposition on Dragway within agreed levels and in accordance with an air quality management plan. |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Design, sustainability and visual amenity** | | |
| **The project contributes to a high quality public space.**<br>**The project design complements the visual amenity, character and quality of the surrounding environment.**<br>**The project contributes to an increase in tree plantings and tree canopy.**<br>**The project minimises adverse impacts on the visual amenity of the built and natural environment (including public open space) and capitalises on opportunities to improve visual amenity.** | • The design reflects the principles of the Western Sydney Trust Design Manual (Version 2) (Western Sydney Parklands Trust, 2018)<br>• Increase in tree numbers and canopy. | The design has been developed to be consistent with the principles of the *Western Sydney Trust Design Manual* (Version 2) (Western Sydney Parklands Trust, 2018), where reasonable and feasible. The primary architecture of the venue has adopted the Western Sydney Parklands Trust recommendations for pavilion buildings.<br>The design includes landscaping surrounding all carparking areas with new vegetation to better integrate into the precinct, including the planting of about 1000 trees. |
| **Safety and risk** | | |
| **The project avoids or minimises any adverse health impacts arising from the project.**<br>**The project avoids, to the greatest extent possible, risk to public safety.** | • Dangerous goods are transported, stored and used so as to not cause a hazardous event. | Potential hazards associated with the on-site storage, use and transport of chemicals, fuels and materials used would be managed in accordance with the *Work Health and Safety Act 2011*, the *Work Health and Safety Regulation 2017*, the *Storage and Handling of Dangerous Goods Code of Practice* (WorkCover NSW, 2005) and *Applying SEPP 33* (Department of Planning, 2011). |
| **Water - quality** | | |
| **The project is designed, constructed and operated to protect the NSW Water Quality Objectives where they are currently being achieved, and contribute towards achievement of the Water Quality Objectives over time where they are currently not being achieved, including downstream of the project to the extent of the project impact including estuarine and marine waters (if applicable).** | Construction<br>• Existing water quality of receiving surface watercourses is maintained<br>• Pollution of surface water is avoided through the implementation of appropriate erosion and sediment controls.<br>Operation<br>• Water quality discharge criteria are established with consideration of NSW Water Quality Objectives<br>• Stormwater runoff from the project is effectively treated to meet water quality discharge criteria. | Appropriate water quality controls have been included in the design of the project for both operation and construction phases to minimise the potential for the project to impact on water quality. Erosion and sediment measures would be implemented at all construction sites in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004) and *Volume 2D* (NSW Department of Environment, Climate Change and Water 2008).<br>Further details on water quality impacts and mitigation is provided in Chapter 13 (Soils and surface water quality). |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Soils and contamination** | | |
| **The environmental values of land, including soils, subsoils and landforms, are protected.**<br>**Risks arising from the disturbance and excavation of land and disposal of soil are minimised, including site contamination.** | Construction<br>• Impacts on aquatic environments from the disturbance of acid sulfate or saline soils are avoided<br>• Contamination risks to human health and ecological receivers are minimised through effective management of existing contaminated land<br>• Contaminated land is remediated to be suitable for the intended future land use.<br>Operation<br>• Residual contamination does not pose a risk to Sydney International Speedway users or staff. | The project would effectively manage acid sulfate soils in accordance with *the Acid Sulfate Soil Manual* (Acid Sulfate Soil Management Advisory Committee, 1998) and saline soils in accordance with *Book 4 Dryland Salinity: Productive Use of Saline Land and Water* (NSW DECC 2008).<br>Construction of the project would include measures to better understand contaminated related risks and management/remediation requirements. Further details on contamination impacts and mitigation is provided in Chapter 14 (Contamination). |
| **Water - hydrology** | | |
| **Long term impacts on surface water and groundwater hydrology are minimised.**<br>**The environmental values of nearby, connected and affected water sources, groundwater and dependent ecological systems are maintained (where values are achieved) or improved and maintained (where values are not achieved).**<br>**Sustainable use of water resources.** | • Water quality impacts of the project are neutral or beneficial<br>• Surface water flows are managed in accordance with Council requirements. | Erosion and sediment measures would be implemented at all construction sites in accordance with the principles and requirements in *Managing Urban Stormwater – Soils and Construction, Volume 1* (Landcom 2004) and Volume 2D (NSW Department of Environment, Climate Change and Water 2008).<br>On-site water detention is provided in accordance with Council requirements.<br>Further details on water quality impacts and mitigation is provided in Chapter 13 (Soils and surface water quality).<br>Rainwater harvesting and non-potable water storage would be provided on site to provide an alternative to the use of potable water where appropriate. |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **Other issues** | | |
| **No desired performance outcome from Secretary's Environmental Assessment Requirements** | **Social and economic** | |
| | • Negative impacts on stakeholders and the community (including transport services, amenity, noise and vibration, water management and air quality) are minimised<br>• Affected stakeholders are communicated with in a clear and timely manner to enhance community benefits, reduce disruption and address concerns. | The implementation of noise, air quality and traffic mitigation measures would minimise the potential amenity associated with the project. Further details on these impacts and mitigation measures is provided in Chapter 6 (Traffic, transport and parking), Chapter 7 (Noise and vibration), Chapter 9 (Air quality) and Chapter 12 (Landscape character and visual amenity).<br>Stakeholder engagement has been ongoing throughout the design development, as described in Chapter 4 (Stakeholder and community engagement).<br>Engagement would continue during the exhibition of the Environmental Impact Statement and, should the project be approved, further consultation would be carried out during the construction of the project, as described in Chapter 4 (Stakeholder and community engagement). |
| | **Flooding** | |
| | • Existing upstream and downstream flooding conditions are not increased during construction or operation. | Whilst drainage catchments would be slightly altered by the project, the design includes on-site detention tanks to manage the flow of stormwater across the project site to appropriate flow rates in keeping with pre-development flows. |
| | **Greenhouse gas and energy** | |
| | • The construction of Sydney International Speedway is consistent with the Sydney Metro Environment and Sustainability Policy<br>• Greenhouse gas emissions associated with consumption of electricity during construction are minimised. | The construction of the project would be consistent with the directions identified in the Sydney Metro Environment and Sustainability Policy and has adopted sustainability principles, initiatives and targets. |
| | **Climate change adaptation** | |
| | • Comprehensively address climate change risks during the design life of the Sydney International Speedway for all risks rated 'medium' or higher. | Climate change risk treatments would be confirmed and incorporated into the detailed design for the project. |

| Desired performance outcome from Secretary's Environmental Assessment Requirements | Sydney International Speedway performance outcome | How the project addresses performance outcomes |
|---|---|---|
| **No desired performance outcome from Secretary's Environmental Assessment Requirements cont.** | **Waste management** | |
| | Construction<br>• A minimum 90 per cent recycling target is achieved for construction waste<br>• 100 per cent of useable spoil is reused in accordance with the spoil reuse hierarchy<br>• The use of potable water for non-potable purposes is avoided if non-potable water is available<br>• The reuse of water is maximised, either on site or off site.<br>Operation<br>• Waste is managed appropriately in accordance with the waste hierarchy<br>• The use of potable water for non-potable purposes is avoided if non-potable water is available<br>• The reuse of water is maximised, either on site or off site. | Spoil would be classified in accordance with *Waste Classification Guidelines* (NSW Environment Protection Authority, 2014). Spoil that is classified as virgin excavated natural material, excavated natural material, subject to a resource recovery order/ resource recovery exemption under the Protection of the *Environment Operations (Waste) Regulation 2014* or is otherwise reusable would be reused (consistent with the 100 per cent beneficial reuse performance outcome).<br>The project would adopt a construction waste recycling target of 95 per cent. Waste streams would be segregated to avoid cross-contamination of materials and maximise recycling opportunities. |
| | **Property and land use** | |
| | • The Sydney International Speedway is effectively integrated with land use planning. | The project is consistent with the Western Sydney Parklands Plan of Management 2030. |

## 25.8 Project justification

### 25.8.1 Addressing the need

The NSW Government has committed to relocating speedway racing to Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, creating a true motorplex for the NSW motorsport racing community. The new Sydney International Speedway would provide the community and racing supporters a unique sporting facility that would cater for local, regional, national, and international racing events and would continue to support the growth of speedway racing in NSW.

As part of delivering Sydney Metro West, Sydney's next underground railway, Sydney Metro requires the existing NSW government land currently used for speedway racing to construct a stabling and maintenance facility. To minimise the potential impact to speedway racing operations in Sydney, the project is planned to be constructed and operating prior to the start of new speedway racing season in 2021.

The project supports the objectives of the *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) to provide access to sporting facilities in response to population growth and in recognition of the role of sporting facilities to enhance and promote social connections and networks within the community.

More locally, the project would support local jobs through the construction phase, creating employment opportunities for residents of the Blacktown Local Government Area and the wider Western Sydney region, and would therefore support the strategic directions of Our Blacktown 2036 (Blacktown Council, 2017), which is the Community Strategic Plan for Blacktown City. The strategic plan outlines six strategic directions based on the community's vision and aspirations for the future of Blacktown City. Strategic directions supported by the project include:

- **Strategic Direction 3** – A smart and prosperous economy, which relates to economic opportunities and partnerships to facilitate local and regional economic growth in the Council area and includes as key areas of focus strategies that assist in creating local jobs, and attracting major government and private investment
- **Strategic Direction 5** – A sporting and active city, which seeks to recognise Blacktown City as the sporting capital of Western Sydney with world standard sporting venues and events and community participation in local sports and includes as key focus areas the provision of elite sporting facilities, and increased community participation in sporting and recreational activities.

The project would be consistent with the Western Sydney Parklands Plan of Management 2030 for the Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, as discussed in Chapter 2 (Strategic need, justification and project alternatives).

### 25.8.2 Achieving the project objectives

Table 25-5 provides an assessment of the project against the objectives as detailed in Chapter 2 (Strategic need and justification).

Table 25-5 Assessment against the project objectives

| Project objectives | Assessment |
|---|---|
| **Deliver a world class speedway within Greater Metropolitan Sydney that can accommodate local, regional, national and international racing events and maintaining speedway racing in NSW** | • The racetrack would be benchmarked to national and international best practice and compliant with Speedway Australia 5 Star Safety Standards (highest rating)<br>• Racetrack design specifications have been applied to the design of the project through consultation with Speedway Australia<br>• Provision for up to 20 enclosed pit garages, with entry and exit lanes to the Speedway racetrack<br>• The project includes a hardstand competitors' area, able to accommodate up to 150 competitors, including vehicles (transport and racing vehicles)<br>• Trackside operational support would include a maintenance workshop shed and an office building for the Sydney International Speedway administrative staff<br>• High quality event support infrastructure would be provided to maximise spectator experience at speedway events<br>• The two storey grandstand would be able to accommodate up to about 3750 spectators and terraced seating for up to a total of around 7000 spectators. |

| Project objectives | Assessment |
|---|---|
| **Deliver a project that complements and supports the operation of existing commercial facilities within Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports** | • Regular consultation has been carried out with the Western Sydney Parklands Trust and other nearby stakeholders, including Sydney Dragway and Sydney Motorsport Park (operated by the Australian Racing Drivers Club), to identify potential impacts on their operations and solutions to minimise these impacts<br>• The project is consistent with the land use objectives of the Western Sydney Parklands SEPP as it would provide a new sporting facility with a recreational and entertainment based use that would cater for local, regional, national and international racing events, supporting tourism and its associated benefits to Western Sydney<br>• The design has been developed to integrate with existing facilities across the precinct such that Sydney Dragway and the adjacent Sydney Motorsport Park (operated by the Australian Racing Drivers Club) would be able to continue their current operations during the construction phase<br>• A dust screening and monitoring program would be implemented by the operator of the project (once appointed) during events to manage the deposition of dust at the Sydney Dragway site to minimise potential impacts on the existing operations. Project specific dust management criteria would be developed for Sydney Dragway based on dust monitoring and dispersion modelling, with the construction contractor and future Speedway operator required to limit dust deposition on the dragway within agreed levels<br>• Noise levels at the surrounding receivers during the proposed events at the Sydney International Speedway events are generally expected to be comparable to, or lower than, noise levels from existing motorsport events at Sydney Motorsport Park (operated by the Australian Racing Drivers Club) and Sydney Dragway<br>• Engagement with Motorsport Australia, and motorsports clubs would occur through the development of the Motorsport Precinct Masterplan which would look at operations and scope for growth across the entire precinct<br>• Operation of the project is not expected to impact on the amenity at other nearby businesses within the Western Sydney Parklands given that most events at the Sydney International Speedway would be held during the evening and on weekends, which is outside of their normal business operating hours. |
| **Deliver a project consistent with the objectives of the Western Sydney Parklands Plan of Management 2030** | • The project would provide quality motorsports facilities, create recreational and community facilities and would help to increase community participation and engagement in motorsport racing activities in the Parklands<br>• The project would provide a venue for amateur and professional motorsports and associated activities, events, exhibitions and facilities<br>• The project is being developed in consultation with key motorsport industry stakeholders<br>• The project would include the provision of landscaping and design features to integrate with the surrounding land uses, and would be consistent with the principles of the Western Sydney Parklands Design Manual<br>• The project would include necessary environmental protection works. |
| **Minimise adverse impacts on the environment and the community during construction and operation** | • Land immediately surrounding the project site comprises other motorsports venues within the existing Western Sydney Parklands' Precinct 5: Eastern Creek Motor Sports, and general industrial, environmental conservation and infrastructure land. These land uses provide an appropriate buffer to mitigate impacts to more sensitive residential receivers, of which the closest are located about 1.2 kilometres to the south of the project<br>• It is expected that the use of the project site for the operation of a speedway would generate some amenity related impacts on surrounding land uses during operation, associated with noise and dust. These and other potential environmental impacts have been assessed in the relevant chapters of this Environmental Impact Statement and would be manageable with the implementation of the proposed mitigation and management measures. |

| Project objectives | Assessment |
|---|---|
| **To build and commence operation of the Sydney International Speedway prior to the start of new speedway racing season in 2021.** | • To minimise the potential impact to speedway racing operations in Sydney, the project is planned to be constructed and operating prior to the start of speedway racing season in 2021. |

### 25.8.3 Biophysical, economic and social considerations including the principles of ecologically sustainable development

Comprehensive investigations have been carried out in the preparation of the Environmental Impact Statement to assess the biophysical, economic and social impacts. The key potential impacts that cannot be avoided are summarised above in Section 25.5. As described in Section 25.6, the project would incorporate environmental management and design features so that any unavoidable potential impacts are managed and mitigated as far as feasible and reasonable and to an acceptable level.

Biophysical, economic and social considerations have also been assessed in the context of the principles of ecologically sustainable development. The *Environmental Planning and Assessment Act 1979* adopts the definition of ecologically sustainable development contained in the *Protection of the Environment Administration Act 1991*. An assessment of the biophysical, economic and social impacts of the Sydney International Speedway in the context of the principles of ecologically sustainable development is provided below.

#### Precautionary principle

The environmental risk analysis documented in Chapter 24 (Environmental risk analysis) addresses the potential impacts of the project. That analysis, together with the detail assessment carried out in preparing this Environmental Impact Statement indicates that there would be no threat of serious or irreversible damage to the environment.

In addition, the lack of full scientific certainty has not been used as a reason for postponing measures to prevent environmental degradation. As detailed in each impact assessment chapter, mitigation measures have been proposed to manage identified risks/threats of environmental harm.

The assessments carried out are consistent with accepted scientific and assessment methodologies and have considered relevant statutory and agency requirements. The assessments have applied a conservative approach with regard to proposed construction and operational arrangements, and the modelling used has been carried out in collaboration with key stakeholders and relevant statutory and agency requirements.

#### Intergenerational equity

The objectives of the Sydney International Speedway are around the provision of a world class speedway facility that, once operational, would be a positive legacy for future generations. It would provide long term economic and social benefits such as community participation, particularly for Western Sydney, by enabling the continued growth of speedway in this location. As speedway racing, along with other motorsport codes, is a key contributor to the NSW economy, this would have beneficial implications for local businesses in the area associated with visitors attracted from across the state, country and internationally.

The project also supports the objectives of the long term *Greater Sydney Region Plan – A Metropolis of Three Cities* (Greater Sydney Commission, 2018) to provide access to sporting facilities in response to population growth and recognition of the role of sporting facilities to enhance and promote social connections and networks within the community. More locally, the project supports the strategic directions of the Community Strategic Plan for Blacktown City associated with 'a smart and prosperous economy' and 'a sporting and active city'.

### Conservation of biological diversity and ecological integrity

Conservation of biological diversity and ecological integrity has been considered throughout the project development and design stages. The project footprint has been developed to avoid impacts to Commonwealth protected ecological communities and avoid or minimise impacts to other areas of high ecological value. Detailed assessment has been carried out to identify flora and fauna impacts and mitigation measures have been identified for implementation. Impacts on biological diversity and ecological integrity have been assessed as minor.

### Improved valuation and pricing of environmental resources

Economic appraisal of the Sydney International Speedway draws on a number of established methodologies which provide for the valuation of externalities, including environmental externalities, and their inclusion in the appraisal process. Environmental parameters which can be valued include air pollution, greenhouse gas emissions, noise pollution, water runoff, nature and landscape and urban separation. Valuations typically adopt broad average values.

The value placed on the environment was inherent in the development of the design. In addition, the costs associated with the planning and design of measures to avoid/minimise adverse environmental impacts and the costs to implement them have been built into the overall project costs. Ongoing and detailed design together with specific issue based management plans would represent further commitment to the recognition of the value of protecting environmental resources.

## 25.9 Conclusion

Sydney International Speedway has been assessed as State significant infrastructure in accordance with the provisions under Division 5.2 of Part 5 of the *Environmental Planning and Assessment Act 1979*. In particular, the assessment addresses the requirements of the Secretary of the Department of Planning, Industry and Environment. It also includes consideration of the issues raised by stakeholders during the development of the project.

Key environmental issues have been examined throughout the design development process. Consultation has been carried out with affected stakeholders during the assessment process so that key potential impacts of the project have been identified at an early stage, and where possible, avoided or appropriate mitigation measures developed. This has resulted in a number of changes to the earlier designs that have mitigated many of the potential significant impacts.

Notwithstanding, the project would have some residual (unavoidable) impacts.

Key residual impacts associated with the project are identified in Chapter 6 to 23 and include:

- Removal of 0.63 hectares of native vegetation, classified as a threatened ecological community under the *Biodiversity Conservation Act 2016* which would be offset in accordance with the Biodiversity Assessment Method
- Increase in vehicle movements on the local road network pre and post-race events at the Sydney International Speedway, resulting in a minor decrease in road network performance and slight delays at a nearby intersection for short periods of time.

The residual impacts identified would not result in any unacceptable impacts and further mitigation would be considered during the detailed design stage including the decision on appropriate construction methodologies and the implementation of the environmental management practices.

Identified residual impacts need to be considered within the context of the overall objectives of the project and the significant benefits that the Sydney International Speedway would provide for the NSW motorsport racing community and in supporting the growth of speedway racing in NSW.

On balancing the strategic need and benefits of the project with the residual impacts, the Sydney International Speedway is considered to be in the public interest.

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# 26 References

# 26 References


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