
Bradfield Development Authority

Regional Stormwater Infrastructure (RSI)

Review of Environmental Factors (REF)

11 December 2024

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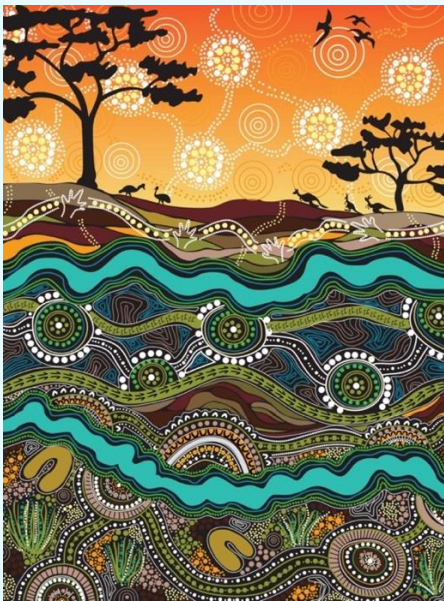
Acknowledgement of Country

Aboriginal people have had a continuous connection with the Country in the Western Sydney region from time immemorial. They have cared for Country and lived in deep alignment with this important landscape, sharing and practicing culture while using it as a space for movement and trade.

We Acknowledge that four groups have primary custodial care obligations for the area: Dharug/Darug, Dharawal/Tharawal, Gundungurra/Gundungara and Darkinjung. We also Acknowledge others who have passed through this Country for trade and care purposes: Coastal Sydney people, Wiradjuri and Yuin.

Western Sydney is home to the highest number of Aboriginal people in any region in Australia. Diverse, strong and connected Aboriginal communities have established their families in this area over generations, even if their connection to Country exists elsewhere. This offers an important opportunity for the future.

Ensuring that Aboriginal communities, their culture and obligations for Country are considered and promoted will be vital for the future. A unique opportunity exists to establish a platform for two-way knowledge sharing, to elevate Country and to learn from cultural practices that will create a truly unique and vibrant place for all.



Garungarung Murri Murri Nuru (Beautiful Grass Country)

Artwork created by Dalmarrri artists Jason Douglas and Trevor Eastwood for the Bradfield Development Authority.

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B Civil Engineer Design Report	Stantec
C Safety In Design Report	Stantec
D* Construction Environmental Management Plan	Orion
E Contamination Statement	ERM

F	Precinct Wide Geotechnical Report	Douglas Partners
G*	Project Specific Geotechnical Statement	Douglas Partners
H	Protected Matters – MNES Layers	Department of Climate Change, Energy, the Environment and Water
I	Landscape Plans	Taylor Brammer
J	Landscape Design Report	SDA Structures
K*	Landscape Structural Drawings	Taylor Brammer
L*	Electrical Services Drawings	JHA Engineers
M*	Arboricultural Impact Assessment and Tree Protection Management Plan	Active Green Services
N*	Bushfire Report	Ecological
O*	Indicative Lighting Images	JHA Consulting Engineers
P	Biodiversity Strategy and Impact Assessment	Ecological
Q	Response to Submissions	Ethos Urban
R	Precinct Wide Salinity Investigation Report	Douglas Partners
S	Maintenance Plan	BDA
T	Aboriginal Heritage Impact Permit	Department of Climate Change, Energy, the Environment and Water
U*	Dam Dewatering Plan	Ecological
V	Airport Safeguard Statement	AviPro

***Note:** Appendices with an “*” symbol indicate that the documentation was prepared with reference to a design similar to the civil drawings in Appendix A. Further design development has occurred, resulting in changes between the preliminary design and the design as presented in Appendix A. Refer to further discussion in Section 2.1.*

1.0 Executive Summary

For the purposes of this REF, 'Authority' means the Western Parkland City Authority, trading as the Bradfield Development Authority.

The Authority (the Proponent) is proposing to deliver the Regional Stormwater Infrastructure (RSI) to accommodate the delivery of Bradfield City Centre. The RSI will also provide stormwater management capacity for private land which drains to the infrastructure. This includes land zoned for mixed use on Badgerys Creek Road. This will facilitate private investment in the Aerotropolis.

Bradfield City Centre is located at 215 Badgerys Creek Road, Bradfield and is legally described as Lot 3101 in DP 1282964. The site is comprised of a single 114-hectare parcel of land and is owned by the Authority.

The RSI will be delivered in two stages and covers a site area of approximately 15.3ha of land within the broader Bradfield City Centre site. The Activity involves:

- the delivery of sustainable stormwater infrastructure, incorporating adequate storage capacity to support the development of Bradfield City Centre, while addressing the stormwater quantity and quality objectives of the Wianamatta-South Creek catchment;
- realignment of an ephemeral stream within Moore Gully; and
- creation of a high-amenity pedestrian zone including landscaping embellishments, access paths and landscaping structures.

The Activity is prescribed under Chapter 2 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021 (TI SEPP)*, which permits the construction of stormwater management systems, landscaping and landscaping structures and electricity transmission/distribution services by or on behalf of a public authority without development consent.

Specifically, the range of activities proposed as part of the RSI are captured under these provisions of the TI SEPP:

- Section 2.137 of Division 20 – Stormwater management systems is permitted to be carried out by or on behalf of a public authority without consent on land.
- Section 2.73 of Division 12 – Landscaping and landscaping structures (such as art works) is permitted to be carried out by or on behalf of a public authority without consent on land owned or controlled by the public authority.
- Section 2.44 of Division 5 – Electricity transmission or distribution services is permitted to be carried out by or on behalf of an electricity supply authority or public authority without consent on land.

For the purpose of this Activity, the Authority is the Proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act). While the Activity does not require development consent, a public authority (being the Authority in the case of this matter) is required to assess the likely impacts of the proposal in accordance with the provisions of Part 5 of the EP&A Act.

In doing so, it satisfies Section 5.5(1) of the EP&A Act which requires the Proponent to examine and fully consider, all matters affecting, or likely to affect, the environment by reason of the Activity.

Based on the consideration of the environmental impacts of the Activity and the information presented in this Review of Environmental Factors (REF), it is unlikely that the Activity would significantly affect the

environment provided it adopts the mitigation measures identified in this assessment. An Environmental Impact Statement (EIS) is not required.

Description of the Activity

The RSI will deliver a series of ponds, basins and wetlands to capture runoff and provide a holistic stormwater approach to development within the Bradfield City Centre including the delivery the stormwater quantity and quality measures of Wianamatta-South Creek. This is in line with the integrated water cycle management approach adopted for the Aerotropolis in the planning package and the approved Bradfield City Centre Master Plan.

Specifically, the scope of works includes:

Stage 1 (construction and formation of basins):

- bulk earthworks and site preparation of the basins and Moore Gully;
- realignment of an ephemeral stream within Moore Gully with all appropriate scour protections;
- temporary discharge arrangements (ultimate discharge point subject to future approval);
- stormwater quantity controls, including:
 - constructing a series of ponds with extended detention to attenuate flows and detain stormwater for reuse
 - installing and design of splitter pits to direct flows from the activity and external catchments into the appropriate treatment train
- construction of sediment basins and wetlands, and the installation of gross pollutant traps as a form of stormwater quality/onsite detention (OSD) control; and
- associated stormwater pipes and infrastructure.

Stage 2 (landscape embellishments):

- construction of access paths for maintenance and pedestrian movement; and
- creation of a riparian corridor and landscaping embellishments including pavilions.

Note: Additional basins east of the Stage 1 basins will be constructed in the future to provide additional capacity. These basins will require a separate REF approval and are not part of this current REF. However, preliminary works within the eastern area are included in this REF to support the construction of Stage 1.

The proposed Activity will be completed generally in line with the requirements of these plans:

- Western Sydney Aerotropolis Precinct Plan (Precinct Plan)
- Bradfield City Centre Master Plan (Master Plan)
- Western Sydney Aerotropolis Development Control Plan (WSA DCP).

The Authority estimates development cost of the proposed Activity is \$48 million (excluding GST).

Civil Engineering Drawings illustrating the design of the RSI are in **Appendix A**.

An outline of the design is shown in **Figure 1**.

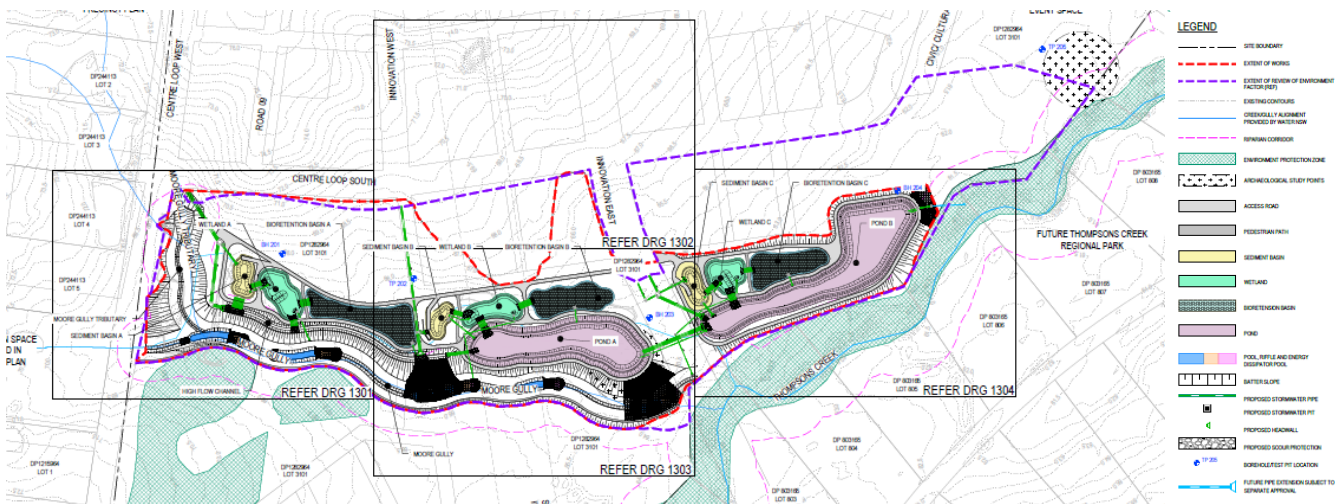


Figure 1 – Proposed layout of RSI

Environmental Impact and Mitigation Measures

The Activity is not affected by any significant environmental constraints that cannot be adequately mitigated or managed.

The boundary of the RSI includes an item registered on the Aboriginal Heritage Information System (AHIMS). All the artifacts have been already salvaged from the site under the authorisation of Aboriginal Heritage Impact Permit (AHIP) 5244. The AHIP was issued by the Department of Climate Change, Energy, the Environment and Water on 28 March 2024 (reference DOC24/136884). A procedure will be in place to appropriately manage any previously undocumented artefacts found during construction.

Previous contamination studies for the site conclude that it can be made suitable for the intended use from a remediation perspective.

Biodiversity

The current design is located on land certified land under the *Order to confer biodiversity certification on the State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Biodiversity Certification Order). Although the Authority is not required to consider the impacts of the Activity on certified land it has considered the overall tree canopy and biodiversity for the City Centre in planning to date. A vegetation management plan will outline landscaping and revegetation work to enhance biodiversity and tree canopy.

No physical works are proposed to be located on non-certified land under the Biodiversity Certification Order. Furthermore, for an abundance of caution, Mitigation Measure 10 is enforced which requires no physical works on non-certified land.

Bushfire

The site includes bushfire prone land. This is expected to change over time as Bradfield City Centre transforms from a rural setting to an urban city.

Bushfire advice (refer to **Appendix N**) has also confirmed that the landscaping works within this development will not impact the Asset Protection Zones (APZs) required to be in place to protect surrounding development. APZs to adjoining residential areas will be achieved through the separation created by the road corridor under the Stage 2A enabling works project.

With regards to the existing fire prone nature of the land, the Activity does not propose to introduce any new sensitive land uses and is not considered to increase risk to life or property.

Construction Management

Noise and vibration, air quality, soil and water quality and waste management impacts will be appropriately managed. Any impacts will be mitigated in line with the Construction Environmental Management Plan (CEMP) provided in **Appendix D**. The Activity will be carried out in accordance with the CEMP to ensure the safety of construction works, and to minimise any ongoing disruptions to adjoining development. The work will occur after the majority of significant work in Stage 2A enabling works has concluded. This will reduce the cumulative impact of noise and vibration on the nearest residential receivers. Stage 2A is covered by a separate REF.

Conclusion

The Activity is not expected to generate any significant environmental impacts that cannot be adequately managed. The design will improve the visual amenity of the area by introducing a comprehensive and high quality landscaping setting with artwork. Also, the Activity is restricted to site enabling works and will not involve the construction of any new buildings which may result in built form impacts, such as overshadowing, to adjoining development.

The Activity can therefore proceed, subject to the implementation of the specified Mitigation Measures provided in this REF.

Stakeholder consultation

In preparing this REF, the Authority has consulted with the following agencies:

- adjoining landowners
- Liverpool City Council
- NSW Department of Climate Change, Energy, the Environment and Water
 - Water Group
 - Biodiversity Conservation and Science Group
 - Heritage NSW
- State Emergency Services
- Sydney Metro
- Sydney Water
- Western Sydney Airport
- Department of Primary Industry Fisheries
- Transport for NSW

This REF has been updated considering these agencies comments. A response to submissions received is provided in **Appendix Q**.

Consultation will continue through the construction and delivery phase.

Foreword and Certification

Foreword

For the purposes of this REF, 'Authority' means the Western Parkland City Authority, trading as the Bradfield Development Authority.

This REF has been prepared on behalf of the Authority (the Proponent) by Ethos Urban to examine and fully considers all matters affecting or likely to affect the environment by reason of the proposal to construct the RSI Activity associated with the delivery of Bradfield City Centre. The purpose of this REF is to assess the potential environmental impacts of an Activity prescribed by T&I SEPP as "development without consent" under Part 5, Division 5.1 of the EP&A Act, and detail mitigation and management measures to be implemented.

For the purposes of these works, the Authority is the proponent and the determining authority under Part 5 of the EP&A Act. This REF has been prepared pursuant to the requirements of all relevant NSW and Commonwealth legislation including the guidelines issued pursuant to Section 170(1) of the *Environmental Planning and Assessment Regulation 2021 (NSW)* (EP&A Regulation), being the Guidelines for Division 5.1 assessments (DPHI June 2022) (Division 5.1 Guidelines).

After consideration of key environmental aspects and the specialist studies completed; as well as the information presented in this REF, it is concluded that by adopting the mitigation measures identified in this assessment it is unlikely that there would be any significant environmental impacts associated with the Activity.

Certification

This REF provides a true and fair review of the proposal in relation to its potential effects on the environment. It addresses, to the fullest extent possible, all matters affecting or likely to affect the environment as a result of the proposal. The information contained in this REF is neither false nor misleading.

a) Name of the person(s) who prepared the REF:

I certify that I have reviewed and endorsed the contents of this REF document, and, to the best of my knowledge, it is in accordance with the EP&A Act in full, the EP&A Regulation in full and the Guidelines approved under Section 170 of the EP&A Regulation in full, and the information it contains is neither false nor misleading.

Name, Position and Qualifications of the person(s) who prepared the REF:

Ben Porges', Senior Urbanist, Ethos Urban (BPlan)

Schandel Fortu, Director, Ethos Urban (BEP, BURP, MEM, MPJA)

Signature:



Date:

11/12/2024

2.0 Introduction

This Review of Environmental Factors (REF) has been prepared by Ethos Urban for the Authority. The aim is to assess potential environmental impacts that could arise from the construction and operation of the proposed RSI within Bradfield City Centre.

For the activity, the Authority is the proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979 (NSW)* (EP&A Act). The purpose of this REF is to:

- describe the proposal;
- document the likely impacts of the proposal on the environment; and
- detail protective measures to be implemented to mitigate impacts.

The description of the proposed activity and the assessment of environmental impacts have been completed in the context of:

- Department of Planning & Environment's (DPE) Guidelines for Division 5.1 Assessments (the Guidelines);
- section 171(2) of the *Environmental Planning and Assessment Regulation 2021 (NSW)* (EP&A Regulation); and
- Australian Government's *Environment Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act).

The REF fulfils the requirements of section 5.5 of the EP&A Act. This requires the Authority to examine, and take into account to the fullest extent possible, all matters affecting, or likely to affect, the environment by reason of the proposed activity.

2.1 Analysis of alternatives

Options considered by the Authority were to do nothing, have an alternative pathway, have an alternative design and undertake the works under the current design through the REF pathway.

Option 1 – Do nothing

Under the 'do nothing' alternative, Bradfield City Centre would not have sufficient infrastructure to accommodate future development. Without this Activity, Bradfield City Centre could not achieve the indicated 20,000 jobs, 10,000 new homes and 36ha of open space. Any application for development within the City Centre would instead have to deliver on-site stormwater infrastructure which would restrict development yield and compromise the growth of the Bradfield City Centre. This approach would not achieve the integrated water cycle approach and water sensitive urban design which is integral to the Aerotropolis. Further, the proposed infrastructure will support development on private land as well as land owned by the Authority. Without the regional system, private development of small parcels would be infeasible and delayed until Sydney Water had the capacity to design and construct the RSI.

Option 2 – Alternative pathway

The RSI could seek approval through an alternative planning pathway such as under Part 4 of the EP&A Act. However, this would have implications on the delivery of essential infrastructure. As such, this pathway was not progressed.

Option 3 – Alternative design

As part of detailed design development, Stantec has prepared a series of designs for the Activity. The preliminary design was used for agency and community consultation is shown in **Figure 2**. This design was also used for the preparation of several Appendices. As outlined on Page 5, Appendices with an “*” symbol were prepared with reference to this design. Since the consultation and preparation of appendices the design has progressed from a concept to detailed design, allowing issues raised in initial consultation and assessment to be addressed. As shown in the purple outline in Figure 2, the extent of work associated with the current design has been significantly reduced along the eastern and northern boundary.

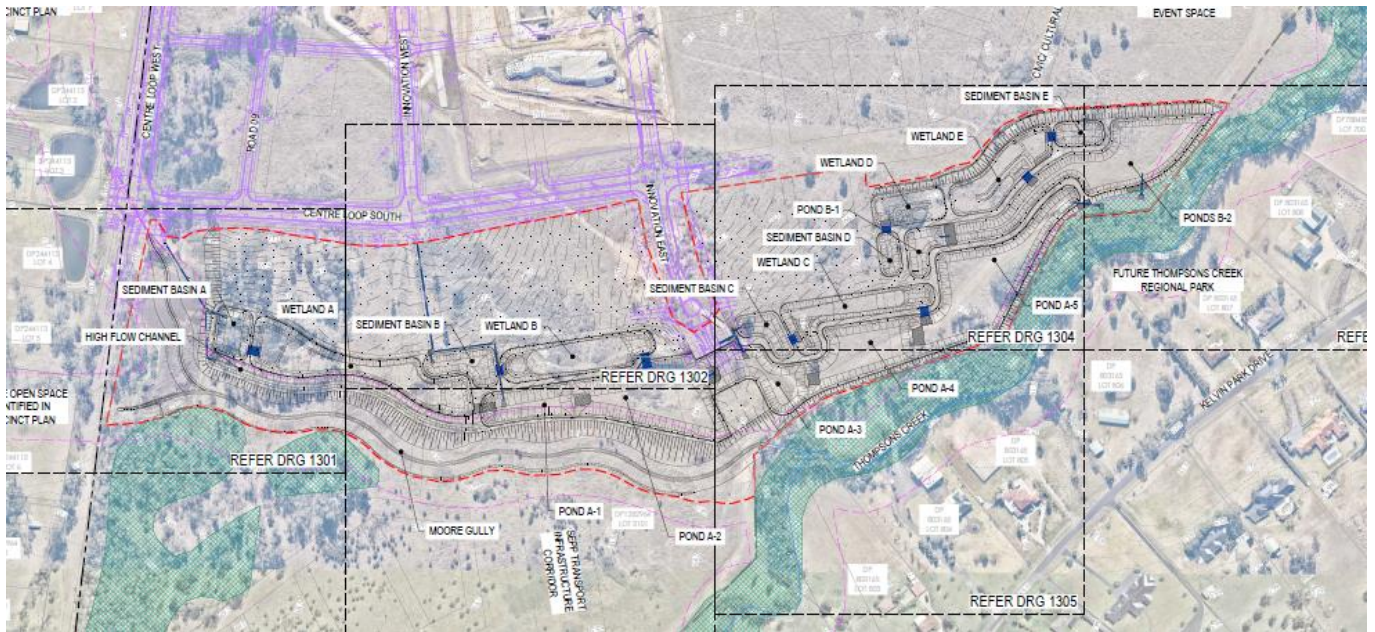


Figure 2 - Alternative Preliminary Design of RSI

Option 4 – The Proposal

The Activity is sought to be approved under Part 5 of the *Environmental Planning and Assessment Act 1979* (NSW) as outlined at **Section 6.0**.

The works will grant the Authority the ability to deliver the RSI and provide essential infrastructure required to accommodate the post-development scenario of Bradfield City Centre including the delivery the stormwater quantity and quality measures of Wianamatta-South Creek. Sydney Water will operate the RSI when basins are transferred to it in future. The Activity is further described in **Section 5.0** and is the preferred option when compared to the previous design for the following reasons:

- The proposed design includes bio-retention basins which were identified as a required item during consultation with Sydney Water. This approach is similar to the approach for the Mamre Road Precinct and will assist in reducing the area of sediment ponds and wetland areas.
- Maintenance paths can accommodate access for vehicles to maintain the landscape embellishment. The footprint of the basins has been refined to improve a more natural shape to improve aesthetics.

- Moore Gully ephemeral stream channel is proposed to be realigned to include natural elements such as a low flow channel, incorporating riffles and pools to create natural waterways for fish passage requirements.
- Wetland Water Level Control Pits have been designed in accordance with Sydney Water standard drawings to convey trickle flows into Moore Gully.

Design allowance for an interim surcharge has been proposed to provide a temporary alternative to directing flows into Thompson Creek until the Advanced Water Recycling Centre is operational.

3.0 Background

3.1 About Bradfield Development Authority

The Authority is building a stronger future for Western Sydney by delivering Bradfield City Centre and attracting investment to the region.

The Authority works with all levels of government, industry, and the community to realise the once-in-a-generation opportunities created by the new 24/7 Western Sydney International Airport and the surrounding Western Sydney Aerotropolis precinct.

Securing the future of the region is a critical priority for all levels of Government, supported by the \$20 billion trilateral government Western Sydney City Deal and landmark infrastructure.

The Authority is leading the development of one of the country's most ambitious and exciting projects – Bradfield City Centre, located in the heart of the Aerotropolis.

The focus is on investment attraction and driving economic opportunities for the benefit of the Aerotropolis and the wider Western Parkland City. This includes development such as the Advanced Manufacturing and Readiness Facility (AMRF) supports local manufacturers and new industries of the future.

3.2 Bradfield City Centre

Located at the heart of the Western Sydney Aerotropolis, Bradfield City Centre sits on the doorstep of the new Western Sydney International Airport. Bradfield City Centre will become a vibrant, 24/7 global city, driving advancements in industry and acting as a central gathering place for arts, culture, and entertainment.

It will unlock new economic opportunities, create 10,000 homes, and support 20,000 new jobs for the people of Western Sydney. Advanced manufacturing and other future looking industries based in Bradfield City Centre will act as a magnet for innovation across all Western Sydney. This will create good quality and highly skilled jobs closer to home.

At 114-hectares, Bradfield City Centre is one of the biggest urban development projects ever undertaken in Australia and is the first major city to be built in over 100 years.

3.3 Western Sydney Aerotropolis and Bradfield City Centre

The Western Sydney Aerotropolis is an 11,000-hectare region set to become the gateway and economic powerhouse of Western Sydney.

The Aerotropolis comprises the new international airport surrounded by ten precincts which focus on advanced manufacturing, technology, research, training, education, freight and logistics, agribusiness, and mixed-use development.

Bradfield City Centre is located to the south-east of the new Western Sydney International Airport at the intersection of Badgerys Creek Road and The Northern Road.

The Sydney Metro – Western Sydney Airport line runs through Bradfield City Centre, providing connections from the key centre of St Marys through to stations at Orchard Hills, Luddenham, Airport Business Park, Airport Terminal and the Aerotropolis which is located within the site.

The site is surrounded by several key roads and infrastructure corridors including Bringelly Road, Badgerys Creek Road, Elizabeth Drive, M12 and The Northern Road.

Set on natural waterways, Bradfield City Centre presents a rare opportunity to showcase the best urban design and to create a thriving, blue and green connected city in which Australians will want to live, learn and work. It will foster the innovation, industry and technology needed to sustain the broader Aerotropolis and fast track economic prosperity.

The street address for Bradfield City Centre is 215 Badgerys Creek Road, Bradfield within the Liverpool City Council Local Government Area (LGA). Bradfield City Centre is legally described as Lot 3101 DP 1282964 and has an area of 114 hectares, with road access to Badgerys Creek Road located at the north-western corner. Bradfield City Centre includes land that is located within the Aerotropolis Core and Wianamatta-South Creek Precinct, of the Western Sydney Aerotropolis.

The locational context of Bradfield City Centre in relation to the Aerotropolis is presented in the following image.

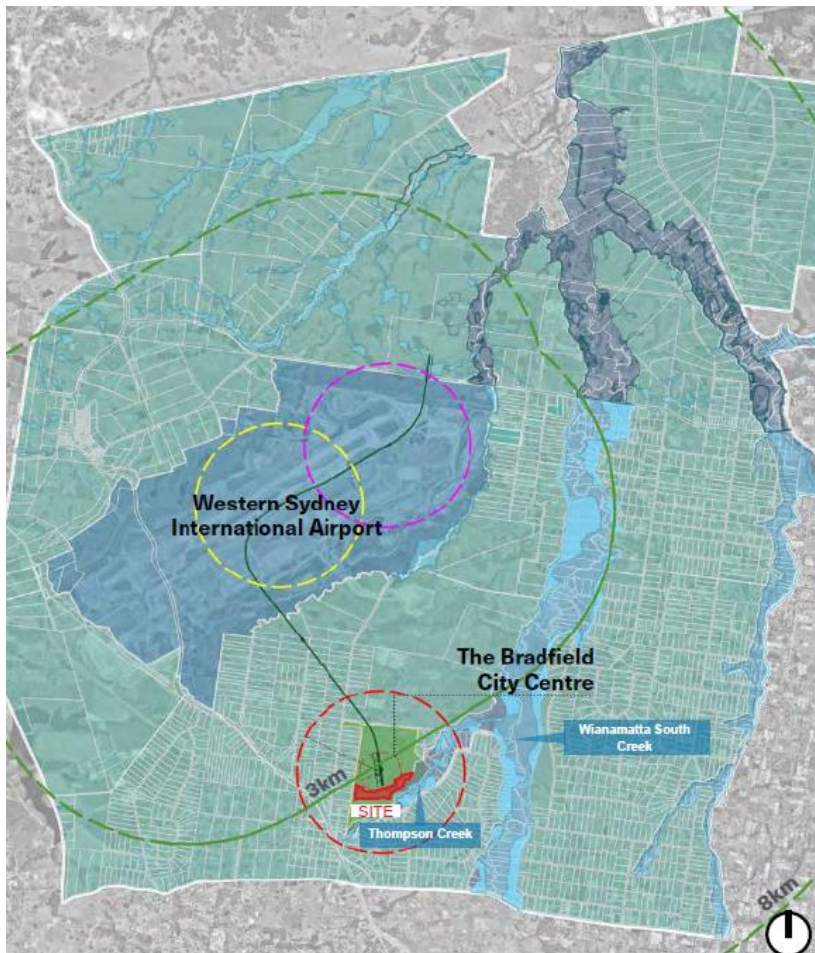


Figure 3 - Location of Bradfield City Centre

4.0 Site context and analysis

4.1 Site location

The proposed RSI is located in the southern part of the Bradfield City Centre. It is irregular in shape and runs in an east-west direction. It is approximately 15.3ha in size and includes part of Moore Gully. Moore Gully has a total catchment area of approximately 85ha and includes the area to the west of The Northern Road and Badgers Creek Road as shown in **Figure 7**.

The extent of land subject to physical works (hereafter referred to as the site) is currently devoid of physical development and predominantly includes grass and shrubs (as shown in **Figure 5**). Two farm dams are located along the stream of Moore Gully; one to the western boundary approximately 6,000m² in size and one central to the site about 1,500m² in area. A dense community of vegetation is located within the western portion of the site. The topography is relatively flat with an approximate fall of 1%. An aerial map of the site is shown in **Figure 4**.

The site is predominantly zoned MU Mixed Use under the State Environmental Planning Policy (Precincts – Western Parkland City) 2021 (Western Parkland City SEPP). A portion of the site to the east is zoned ENZ Environment and Recreation. A Major Infrastructure Corridor zoned under the TI SEPP runs in a north-south direction through the site. The location of the site within the land zone map is shown in **Figure 6**. Additionally, pursuant to the Western Parkland City SEPP, the site is identified as ‘Stormwater Infrastructure’ and ‘Local Open Space and Drainage’ under the Land Reservation Acquisition Map, with Sydney Water Corporation identified as being the relevant authority to acquire parts of the site and Liverpool City Council to acquire other parts. The Authority will negotiate a voluntary planning agreement with Liverpool City Council which will facilitate transfer of local open space to Council in future. The Authority will also reach a developer works agreement with Sydney Water to facilitate the transfer of drainage basins to Sydney Water in future.

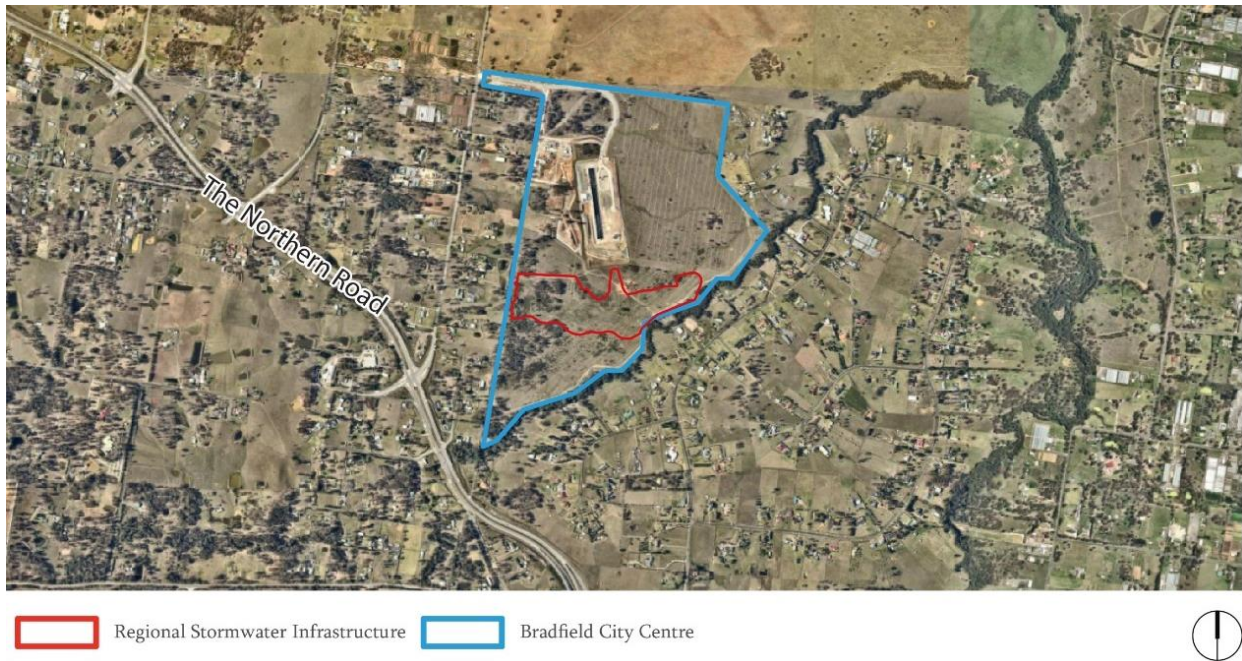


Figure 4 - Location of Regional Stormwater Infrastructure



Figure 5 - Example of grass and shrubs located on site

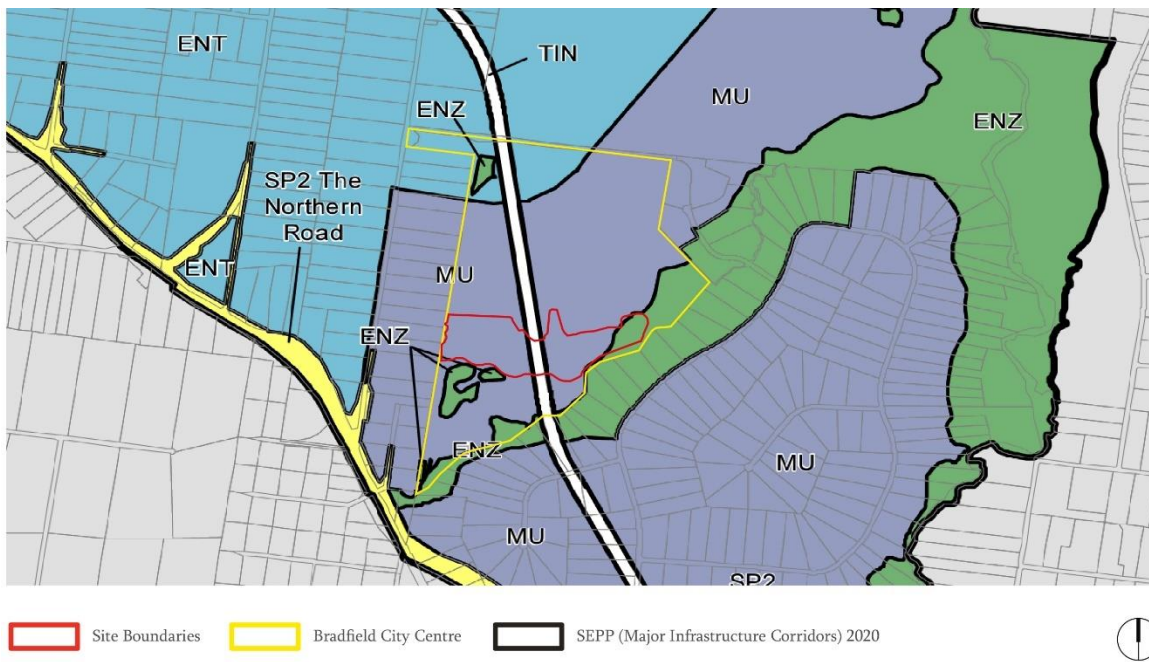


Figure 6 - Land Zoning Map

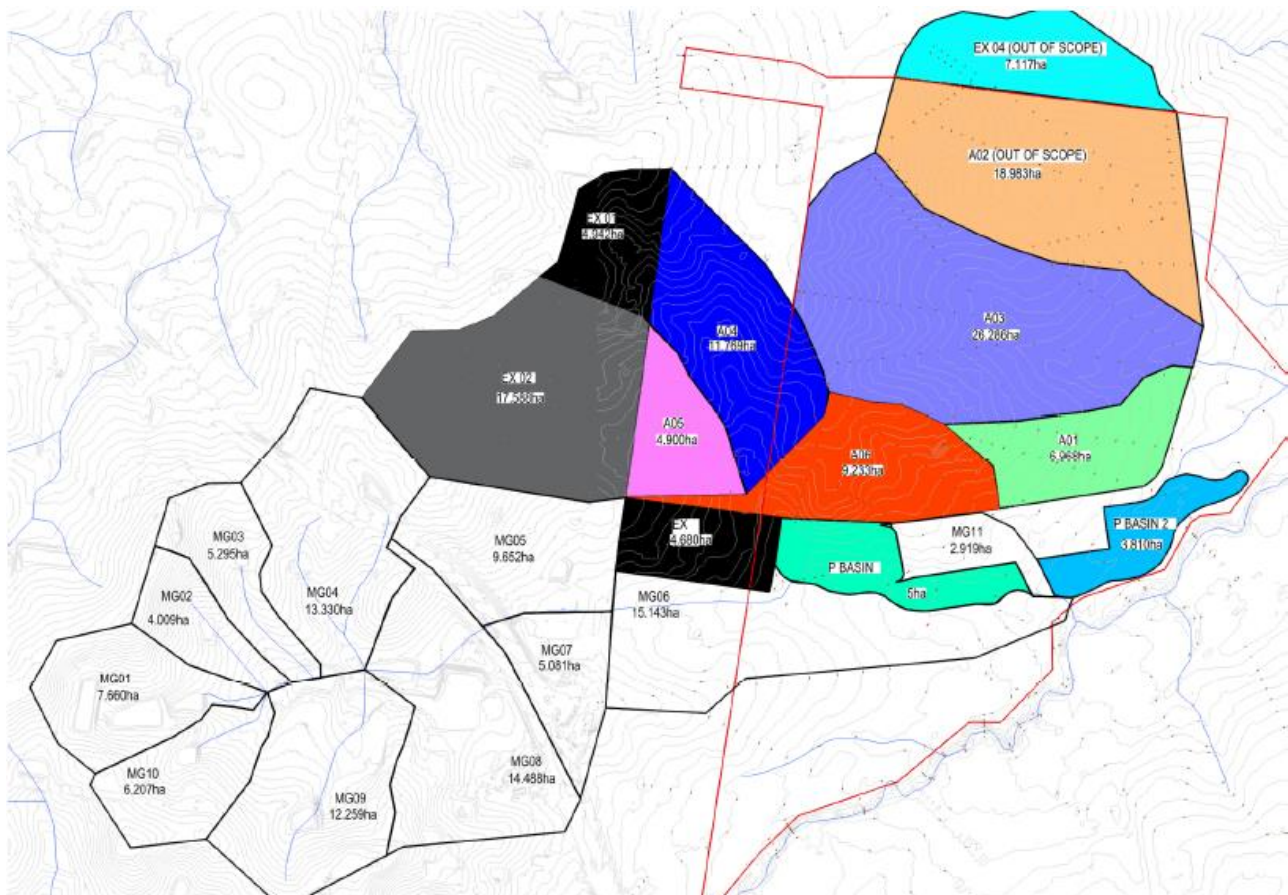


Figure 7 - Existing Catchment Plan

4.2 Site characteristics

4.2.1 Hydrology and flooding

An ephemeral channel runs through the area known as Moore Gully in a west-east direction. The portion of Moore Gully located within the subject site is part 3rd order stream, part 4th order stream. The existing channel has no defined corridor due to the gradient of the gully and the previous use of the site for agricultural purposes. As such, the water path varies between flooding events. Two dams are placed along the alignment of the stream and there is another small stream bed located to the north-east of the site. The eastern extent of Moore Gully connects to Thompsons Creek which runs in a south-west to north-east direction.

The location of the mapped watercourse and their relevant stream order is shown in **Figure 8** and **Figure 9** respectively.

As outlined above, this portion of Moore Gully has no defined channel. As such, when flooding occurs, water builds up and does not flow in an efficient manner through the gully. Water builds up during the 1% Annual Exceedance Probability (AEP) is shown in **Figure 10**.

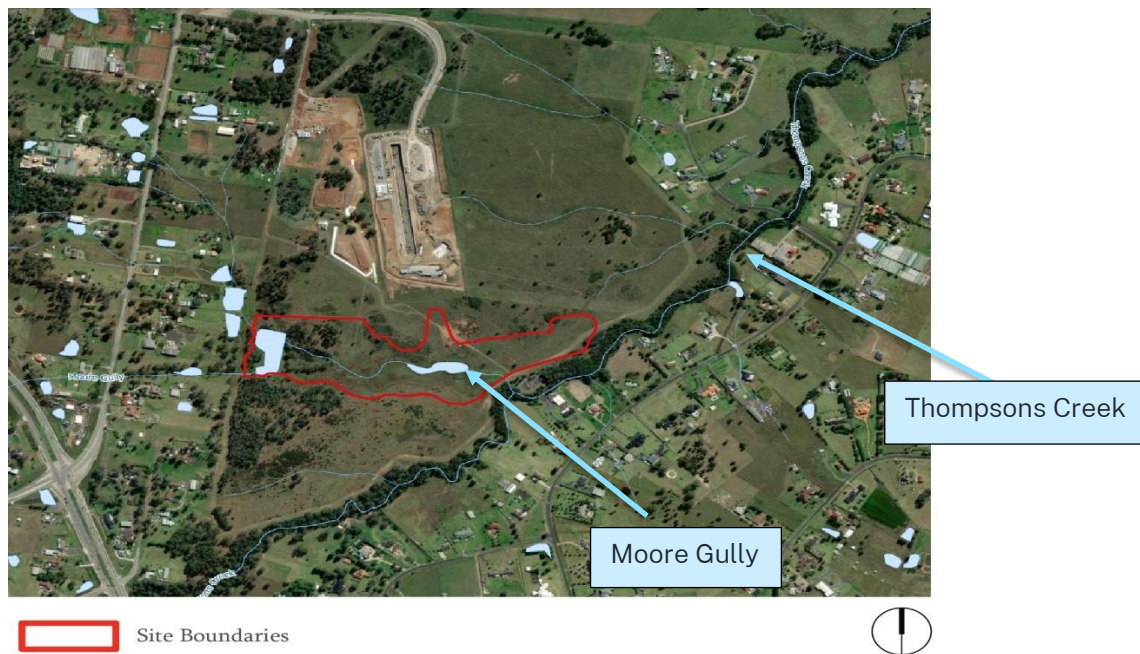


Figure 8 - Watercourse map

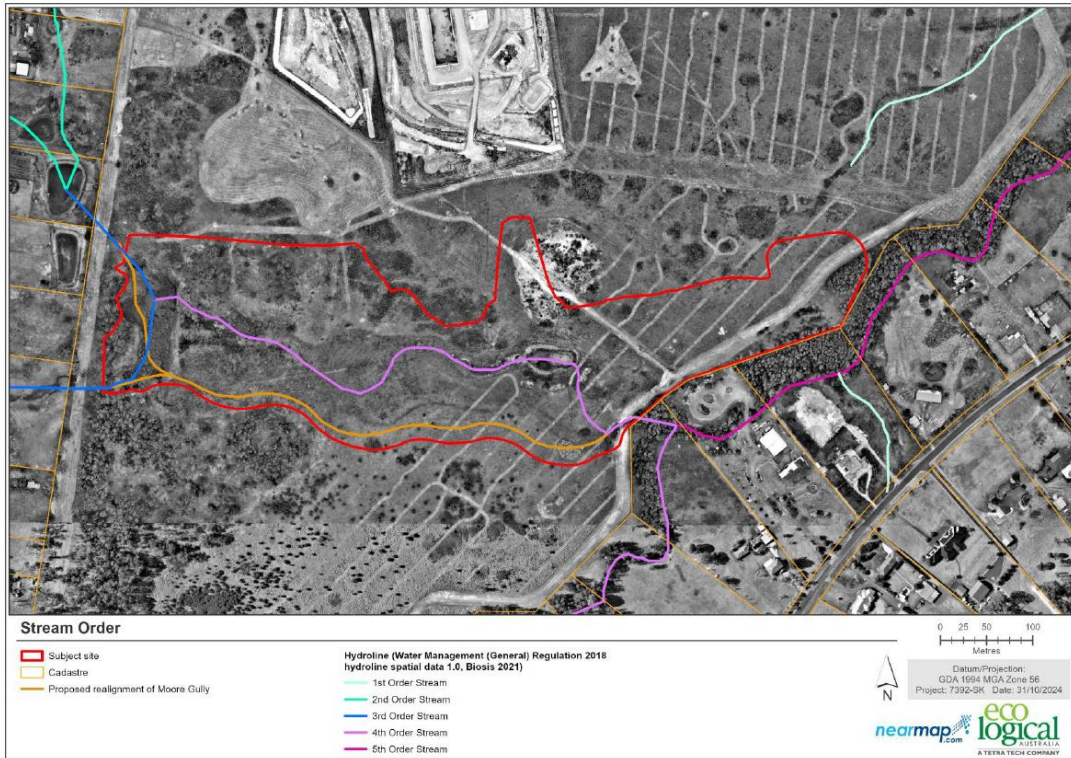


Figure 9 - Stream Order Map

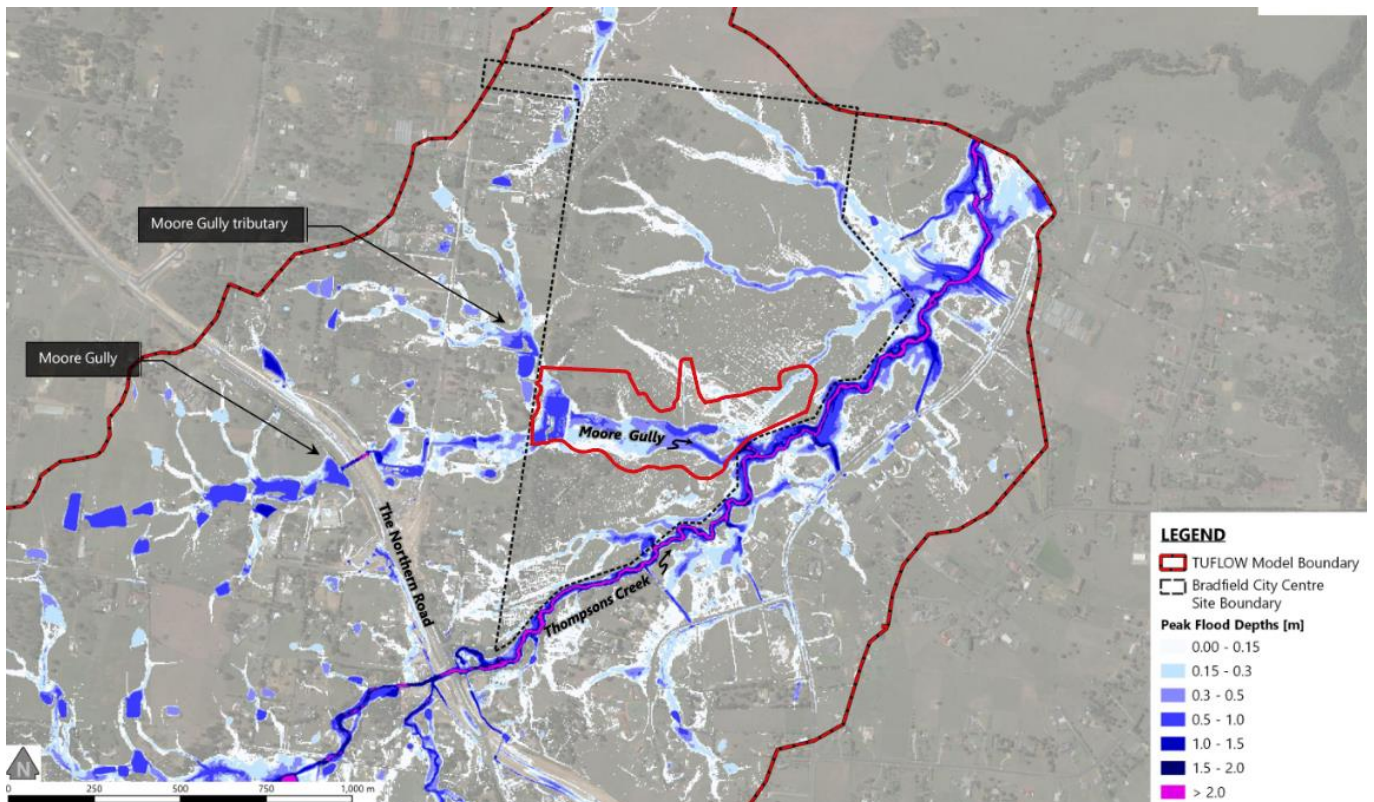


Figure 10 - Extent of Flooding during 1% AEP Event

4.2.2 Biodiversity

The site consists of several Plant Community Types (PCTs), scattered trees, watercourses, dam and wetlands. Field surveys identify the presence of four PCTs within the study area. This includes:

- PCT 781 Coastal freshwater lagoons of the Sydney Basin Bioregion and South East Corner Bioregion
- PCT 849 Grey Box – Forest Red Gum grassy woodland on flats of the Cumberland Plain, Sydney Basin Bioregion
- PCT 1071 Phragmites australis and Typha orientalis coastal freshwater wetlands of the Sydney Basin Bioregion
- PCT 1800 Swamp Oak open forest on river flats of the Cumberland Plain and Hunter Valley.

It is noted that PCT 835 Cumberland Riverflat forest is located immediately adjacent to the south-east boundary of the site. The location of PCTs is shown in **Figure 11**.

The area affected by the proposed works does not extend into land identified as 'High Biodiversity Value Area' under the High Biodiversity Value Areas Map pursuant to the Western Parkland City SEPP or non-certified area as identified in the Growth Centres Biodiversity Certification Order as shown in **Figure 12**.

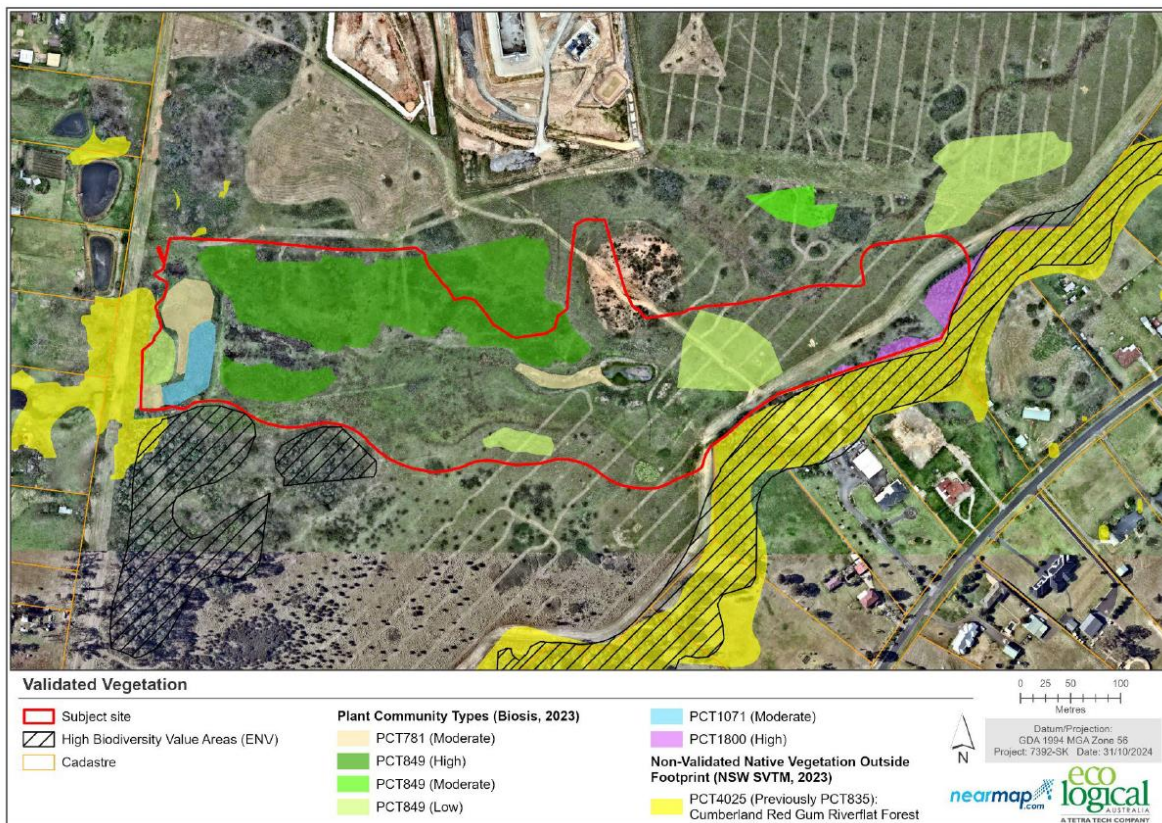


Figure 11 - Location of PCTs

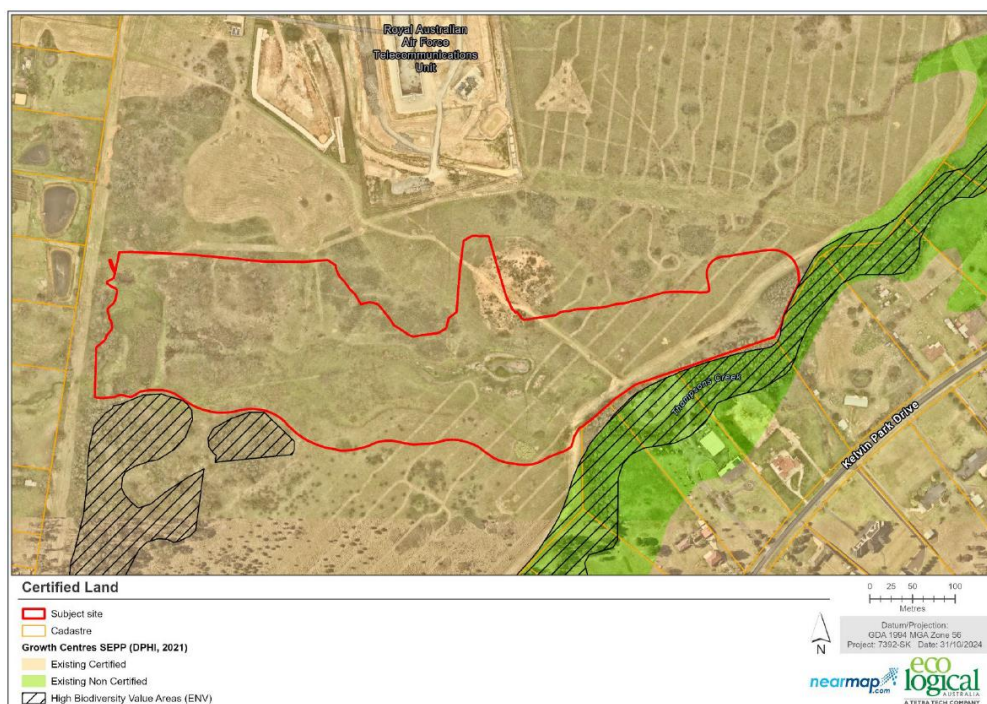


Figure 12 - Site overlay with High Biodiversity Value Area

4.2.3 European heritage

The site is not identified as an item of State or local heritage significance, nor is it located within a heritage conservation area (HCA).

Bradfield City Centre is within the vicinity of four (4) heritage items. This includes:

- State heritage items:
 - Kelvin located at 30 The Retreat, Bringelly
 - Church of the Holy Innocent located at 130 Rossmore Avenue, West Rossmore
- Local heritage items
 - Cottage located at 1186 The Northern Road, Bringelly
 - Bringelly Public School Group, including schoolhouse and former headmaster residence located at 101 Wentworth Road, Bringelly

The site's relationship to adjoining heritage items are shown in **Figure 13**.



Figure 13 - Location of heritage items adjoining Bradfield City Centre

4.2.4 Aboriginal heritage

An AHIP has been approved (refer to **Appendix T**) to authorize the harm to Aboriginal sites identified and registered with AHIMS within the study area. All impacts on these sites will proceed in accordance with the approved AHIP conditions. There are 11 registered Aboriginal sites within Bradfield City Centre. The location of these AHIMS is shown in **Figure 14**.

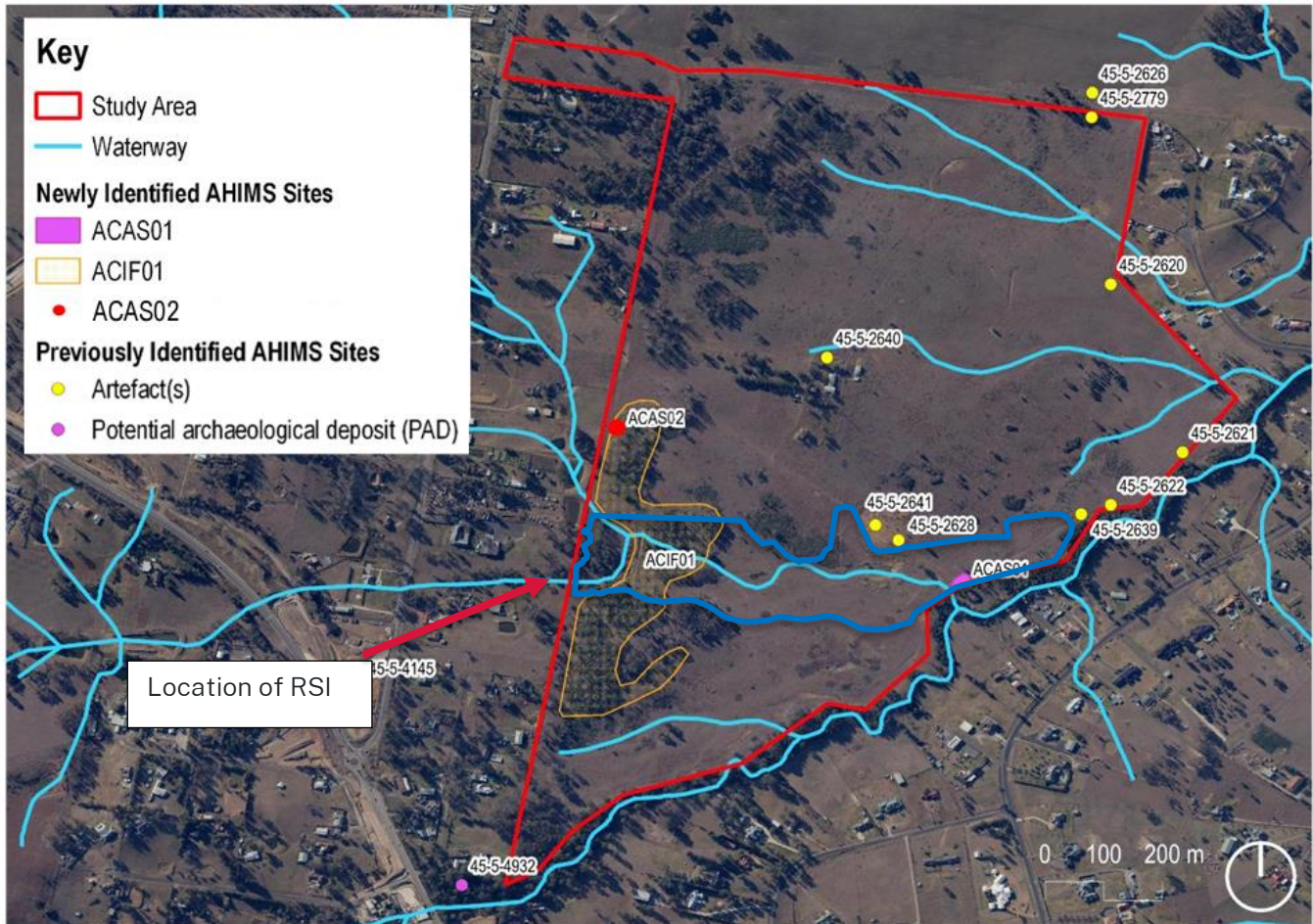


Figure 14 - Location of Aboriginal Heritage Information Management System Sites in Bradfield City Centre

4.2.5 Geology and soils

The Geotechnical Investigation prepared by Douglas Partners (**Appendix F and G**) summarises:

- **Topsoil:** Silty clay topsoil found to depths in the range 0.1–0.3 m in all test pits and boreholes.
- **Clay (residual):** Silty clay, stiff to hard, found to depths in the range 1.4–2.6 m.
- **Clay (alluvial):** Silty clay, typically stiff to very stiff, found to depths of 4.5m and 4.8m.
- **Shale bedrock (Bringelly shale):** Shale bedrock, typically very low and low strength on first contact and increasing to low-to-medium strength with depth, encountered from depths in the range 1.4–4.8 m and continuing to the limit of investigation depths of 3.5–10 m.

4.2.6 Bushfire

The RSI is mapped as Vegetation Category 3. A small portion of land located in the south-west and the east identified as Vegetation Category 1.

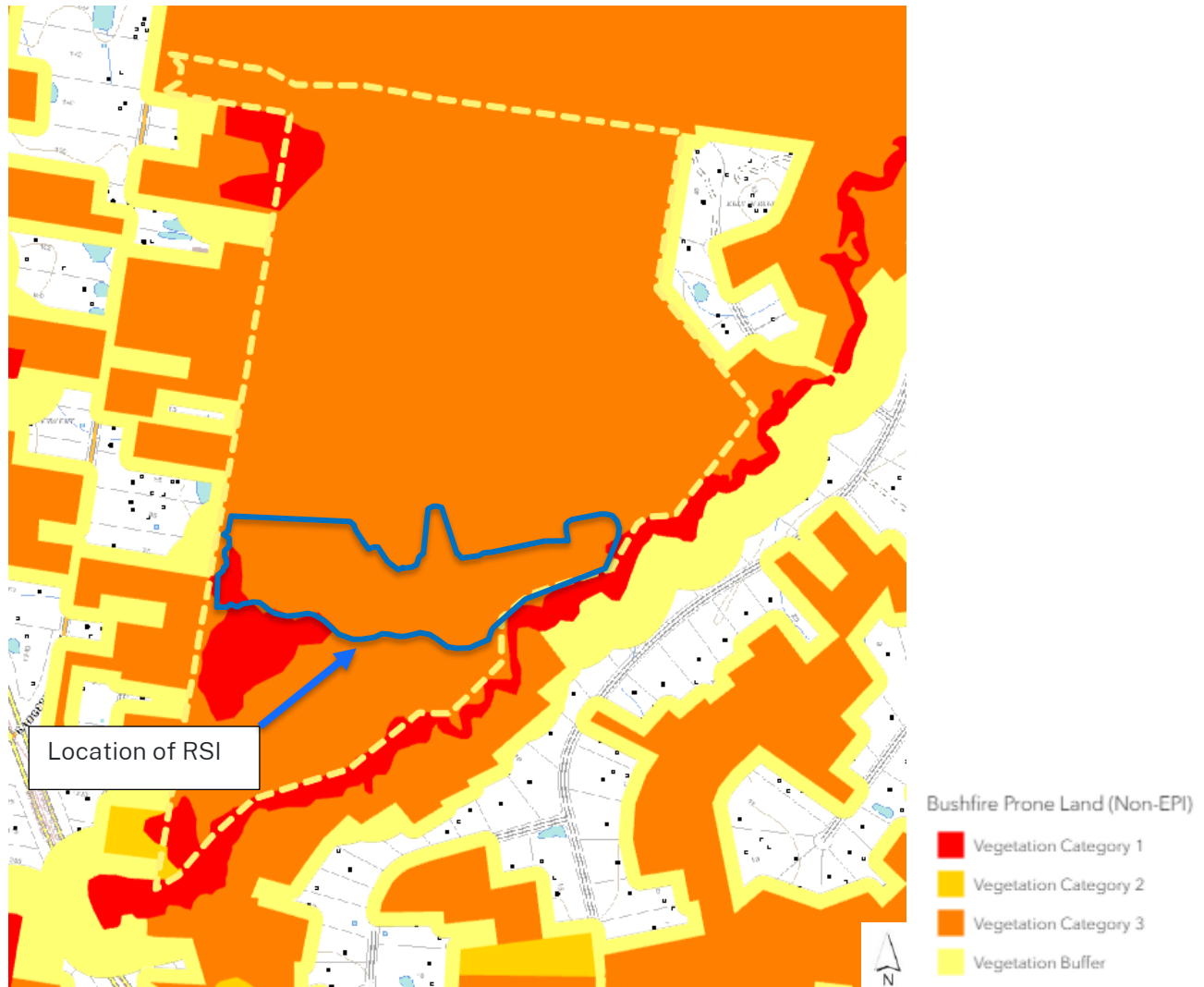


Figure 15 - Location of Bushfire Prone Land categories

5.0 Description of the activity

The Activity includes the detailed design, construction and operation of the RSI which will support the delivery of a series of ponds, basins and wetlands to capture runoff and provide holistic stormwater management for development within the Bradfield City Centre and private land draining to the system.

Specifically, the scope of works relates to:

Stage 1 (construction and formation of basins):

- bulk earthworks and site preparation of the basins and Moore Gully
- realignment of an ephemeral stream within Moore Gully with all appropriate scour protections
- temporary discharge arrangements (ultimate discharge point subject to future approval)
- stormwater quantity control, including
 - constructing a series of ponds with extended detention to attenuate flows and detain stormwater for reuse
 - installing and design of splitter pits to direct flows from the activity and external catchments into the appropriate treatment train
- construction of sediment basins and wetlands, and the installation of gross pollutant traps as a form of stormwater quality/on site detention (OSD) control
- associated stormwater pipes and infrastructure

Stage 2 (landscape embellishments):

- construction of access paths for maintenance and pedestrian movement
- creation of a riparian corridor and landscaping embellishments including pavilions.

The proposed Activity seeks to deliver stormwater quality and quantity controls in the broader Winamatta-South Creek catchment which will finally result in connection to the future Advanced Water Recycling Centre (AWRC). The AWRC will be designed and constructed by Sydney Water and the connections are separate to this REF.

The proposed layout of the civil infrastructure works related to the RSI is provided in **Figure 16** and **Appendix A**.

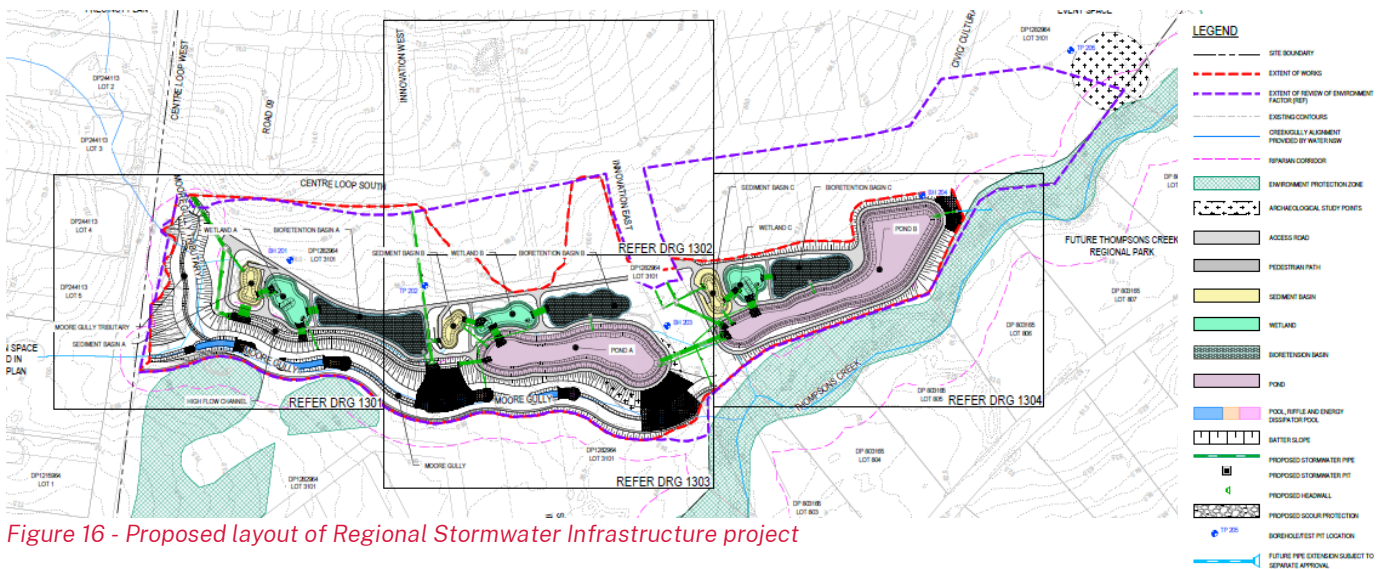


Figure 16 - Proposed layout of Regional Stormwater Infrastructure project

5.1 Site preparation

5.1.1 Vegetation removal and retention

Based on the preliminary design, the Arboricultural Impact Assessment and Tree Protection Management Plan in **Appendix M** identified that the construction process associated with that design would require:

- the removal of 216 trees
- retention of 77 trees

The 77 trees will be retained in line with specific tree protection management measures specified in **Appendix M**.

It is noted that the footprint of the current design has reduced from the previous design and would result in the removal of fewer trees. All trees to be removed are within land certified under the Biodiversity Certification Order and the Authority are not required to consider any impact of vegetation removal of certified land.

The preliminary Tree Removal Plan is provided in **Appendix A** and **Figure 17**. Prior to construction, the contractor must engage a qualified arborist to prepare a Tree Management Plan, detailing the reduced number and location of trees to be removed or retained in accordance with Mitigation Measure 29. Trees shown in red are proposed to be removed, trees shown in green are proposed to be retained and trees shown in blue are proposed to be removed by others.

Groundcover including grasses will be removed to accommodate bulk earthworks.

The Arboricultural Impact Assessment does not identify any of the trees to be removed as hollow bearing trees. In the event how bearing trees need to be removed, the controls measures outlined in Section 5.3.6 of the CEMP will be implemented.

It is noted that the Arboricultural Impact Assessment and Tree Protection Management Plan is based on the preliminary design. A vegetation management plan will be prepared as a mitigation measure 29.

5.1.2 Earthworks and temporary basins

In total, the Activity requires 37,510m³ of cut and 115,340m³ of fill, resulting in a balance of 77,830m³ of fill.

Additionally, two temporary sediment basins are proposed.



Figure 18 - Cut and Fill Plan

5.1.3 Dam dewatering

Dam dewatering will occur in accordance with the Dam Dewatering Plan provided in **Appendix U**.

In summary, this includes pumping and irrigating water across the adjacent grassland prior to the removal of topsoil and vegetation. The intake pipe will be caged or shielded to minimise injury to aquatic fauna. A suitably qualified Ecologist will be onsite during this procedure.

More information regarding dam dewatering is in **Appendix U**.

5.2 Trunk drainage overview

The RSI will involve the construction of a series of ponds, sediment basins and wetlands to service the complete development scenario of Bradfield City Centre.

Specifically, this application will involve construction over two stormwater catchment areas:

- 3 sediment basins,
- 3 wetlands,
- 3 bioretention basins,
- 2 ponds.

The future Bradfield City development will discharge into the localised stormwater drainage network to be managed and maintained by the Liverpool City Council. Gross Pollutant Traps will be sized to treat the stormwater run-off from the Bradfield City Centre development (as stated in Sydney Water's Bradfield Stormwater Modelling Memo). The stormwater treatment train has adopted the design prepared for the Aerotropolis Regional Stormwater Infrastructure Design Guideline, which consists of sediment basins and wetlands.

P01-A, P02, P03-A, P03-B and Ex03 will drain to the regional stormwater detention train before being discharged into Moore Gully. P04-A and P04-B will drain to the proposed stormwater basins to the southeast of the site before being discharged into Thompsons Creek. It is assumed that stormwater infrastructure in P01-B will treat catchments P01-B, EX-01 and EX-02 before discharging to Moore Gully tributary. The Bradfield stormwater infrastructure will not be responsible for treating or controlling the stormwater from these catchments.

Catchment P05-A and P05-B are in the northeastern section of the site, the stormwater runoff will be drained to future basins adjacent to Thompsons Creek. The stormwater treatment train will be designed as part of future stages. Similarly for Catchment P0-6, the stormwater runoff drains to the north and will be managed by the future stormwater treatment train to be designed as part of the future stages.

Stormwater will be directed through pits and pipes located in Bradfield City Centre and flow into separate low and high flows via a splitter pit. These pipes and pits will be delivered under the Stage 2A enabling works project. In conclusion, during the initial phase of development within Bradfield and the private land draining into it, the system is expected to function effectively, ensuring the capture, treatment, and management of stormwater to prevent unacceptable downstream flows or pollution.

Design allowance

The treatable flows (4EY or 3 month ARI) are diverted to the Gross Pollutant Traps (GPT's), sediment basins and wetlands for treatment. Flows greater than the 5% AEP peak flow will drain to the stormwater retention/detention ponds.

Stormwater flows greater than the 5% AEP will be drained to Moore Gully or Thompsons Creek bypassing the basin.

The ponds are designed only for on-site detention, the Bradfield City stormwater infrastructure will not be responsible for regional flood storage and no storage of this nature is proposed for the Aerotropolis. However, flood modelling has been completed as part of the design which concludes that the RSI has been designed appropriately to manage risk from flood. The RSI will accommodate flooding up to a depth of the 1% AEP.

Connection to separate works

The end of the treatment train occurs at Pond B to the east. A separate approval will seek consent to connect a pipe from Pond B to the future Advanced Water Recycling Centre (AWRC). It is noted that the AWRC will be designed and constructed by Sydney Water and the connections are separate to this REF.

5.2.1 Ownership and maintenance

The Authority is the responsible entity approving this REF; however, Sydney Water will be the asset owner and operator of the RSI.

The final design of the RSI will be subject to ongoing consultation and design development between the Authority and Sydney Water.

Maintenance will be undertaken in accordance with the Maintenance Plan provided in **Appendix S** and the relevant Sydney Water Policies.

5.3 Moore Gully realignment

This Activity includes the realignment of an ephemeral stream within Moore Gully to accommodate the Bradfield City Centre stormwater strategy.

As outlined above, Moore Gully has a low flow as a result of an undefined channel. The realignment will create a more defined channel, revegetating the riparian aspect and enabling a more effective flood management process for the area.

The extent of works proposed to realign Moore Gully stream is approximately 600m in length. The watercourse is proposed to have a general longitudinal grade of 1% with the low flow channel being of sufficient size to cater for the 0.5 x 1EY storm event.

The dedicated corridor will have a 40m offset from the top of the low flow channel on each side (as per the *Controlled activities – Guidelines for riparian corridors on waterfront land* by the Department of Planning and Environment) to account for the status of Moore Gully as a 4th order creek. Land within the realigned riparian corridor will be managed in accordance with the future Vegetation Management Plan (VMP). This may include weed removal and maintenance of the corridor. These works may extend outside the physical works boundary (shown in red).

The proposed alignment of Moore Gully stream is shown in **Figure 19**. The proposed design features a riffle and pool system which meanders through the riparian corridor. Riffle and pools have been designed to have 3% maximum slope to meet fish passage requirements. The dimensions of the pools have been designed

based on the 300mm fall from top of riffle and the pool. The pools have been designed to be 6m wide x 0.6m deep.

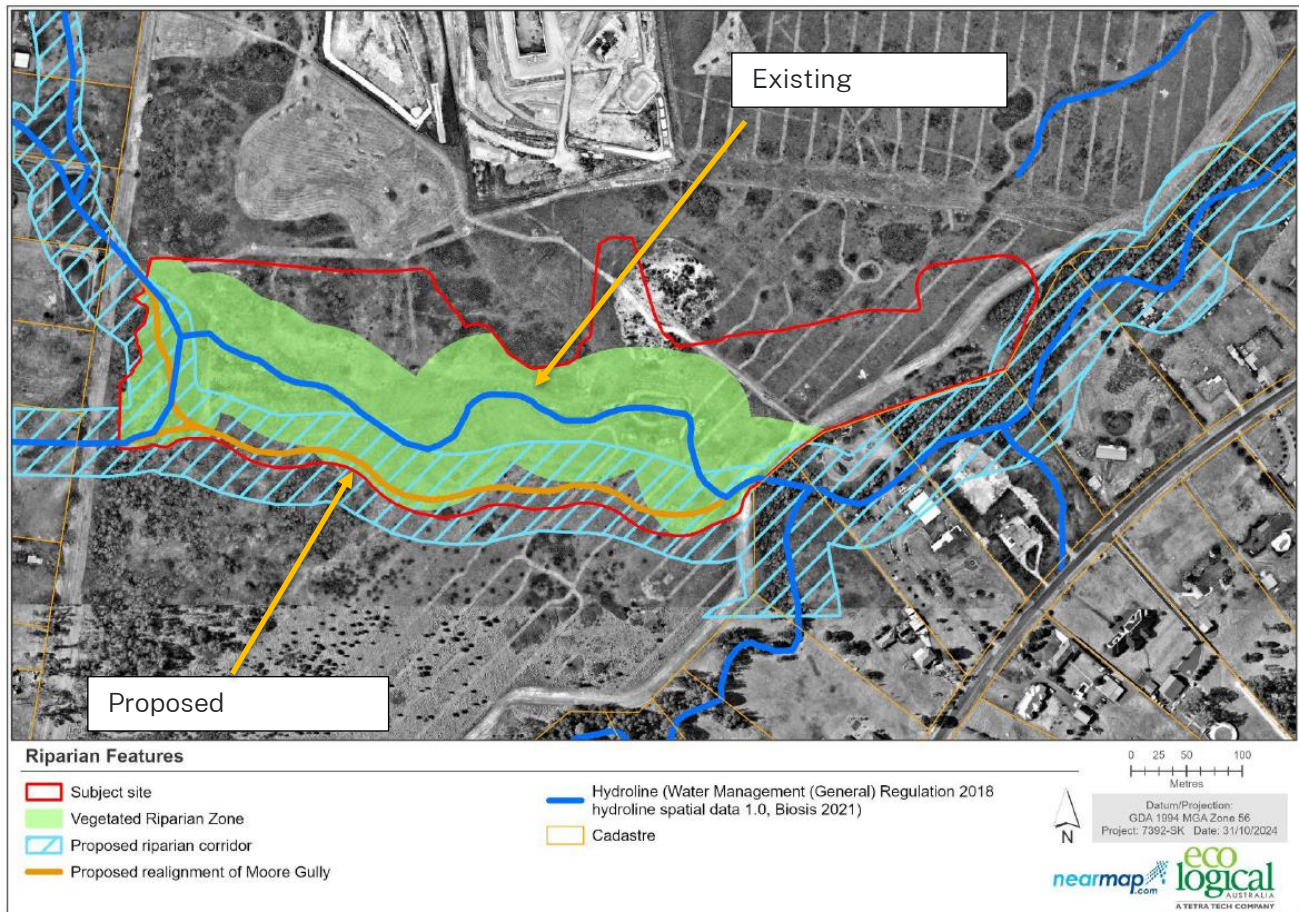


Figure 19 - Proposed alignment of Moore Gully



Figure 20 - Moore Gully Riffle and Pool Design

5.4 Landscaping and embellishments

Landscaping will be provided to create a cool, green and inviting public domain and address the functional requirements of the RSI. Landscaping and revegetation planting design has been influenced by the endemic vegetation communities. Landscaping species have been selected from the following groups:

- Cumberland Plain Woodland located on the flatter areas of the Activity.
- Cumberland Red Gum River-flat Forest species for creek and bed planting.
- Existing vegetation communities for macrophyte planting and bio-filtration planting.

Each community has been chosen due to their ability to adapt within this unique space and generate a high degree of amenity within the landscape.

An overview of the proposed landscape plan is provided in **Figure 21**. A planting palette and sections of each planting group is provided in **Appendix I**.



Figure 21 - Proposed landscape plan

Shared paths and crossings

To facilitate access to local open space from Bradfield City Centre, movement through the RSI is required.

This will include two north-south connections, referred to as the Western Crossing and the Eastern Crossing. Internal paths are also proposed throughout the RSI.

Details of the crossings are provided in the Landscape Design Report (**Appendix J**) and an extract of the eastern crossing section and 3D view is provided below. Structural drawings to support the footings and overall design of the crossings are provided in **Appendix K**. The location of crossings are shown in **Figure 23**. The path connection to land outside the site area will be conducted via separate shared paths and crossings (not part of this approval).

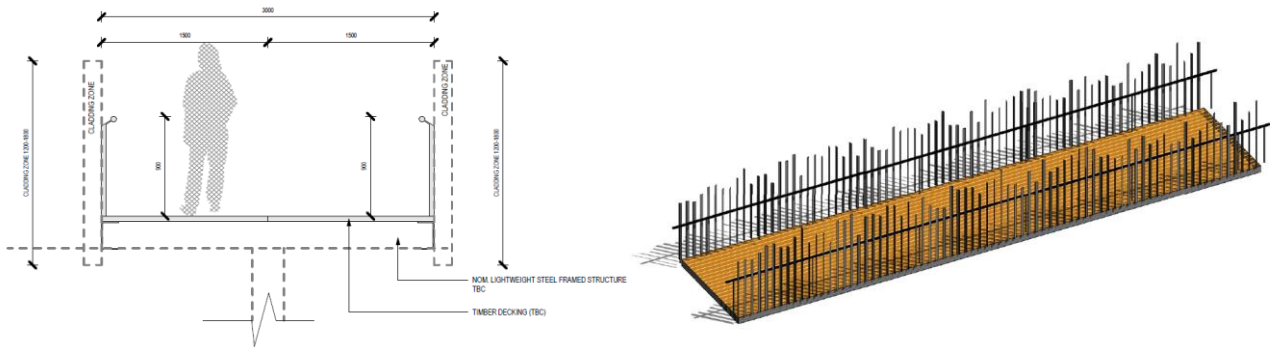


Figure 22 - Section and 3D view of western crossing



Figure 23 - Crossing locations

Pavilions

To improve the pedestrian environment and provide additional visual amenity, pavilions will be located at key pedestrian intersections.

These features will be approximately 7.8m in height with a lightweight dacron fibrine wrapping around the structure which will present as a light material.

The pavilion will be covered by a dacron roof, with an overhanging structure to provide an element of weather protection and to frame the structure. An elevation and perspective of the pavilion is provided throughout Figure 24 and Figure 25.

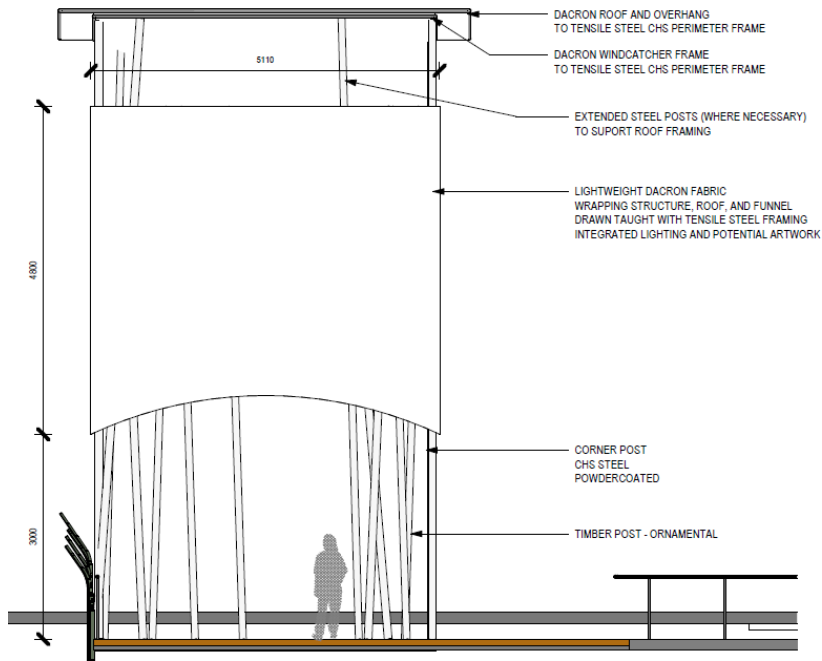


Figure 24 - Front elevation of pavilion



Figure 25 - Perspective of pavilion

Services

Lighting is proposed throughout the crossings to improve natural surveillance and safety within the area.

It will also ensure that these areas are trafficable 24/7 as they form a major connection between a proposed high residential area to the south and the city centre to the north.

Lighting will be restricted to a warm glow for amenity and ecological purposes as to not disrupt the life cycles of local fauna. A detailed description of the lighting is provided in the annotation in **Appendix L** (Lighting Plans). Indicative lighting images are also provided in **Appendix O**.

5.5 Construction

A Construction Environmental Management Plan has been prepared by Orion and is provided in **Appendix D**.

Working hours are as follows:

- 7am and 6pm, Monday to Friday;
- 7am and 1pm Saturday (if inaudible on neighbouring residential properties); and
- No noisy work Sunday and Public Holidays unless the project seeks approval to work these days.

The contractor must instruct sub-contractors regarding the hours of work.

Consent may be granted for works outside these hours with approval from the certifying authority.

Written notice must be provided at least 10 days prior to the intended event. Notice must be sent to affected parties to ensure they are aware of the intended Activity. The form and content of the notice is to be reviewed and agreed by the Authority before being provided externally.

More information about environmental protection measures are addressed in **Appendix D**.

5.6 Staging

The activity will be constructed in two stages. This includes the construction and formation of the basins as Stage 1 (including any ancillary works such as earthworks, realignment of Moore Gully, and implementation of stormwater controls). The basins will become operational following the completion of Stage 1 works. Stage 2 will feature the construction for access paths for pedestrian movement and maintenance, landscaping embellishments and installation of the pavilions.

Mitigation Measure 9 permits the Activity to be staged in accordance with a Staging Plan.

6.0 Statutory Context

The Activity is 'Development permitted without Consent' under the *State Environmental Planning Policy (Transport & Infrastructure) 2021 (NSW)* (TI SEPP). As a result, development consent under Part 4 of the EP&A Act is not necessary. An assessment under Part 5 (Environmental Assessment) of the EP&A Act is however required, and as such, a REF must be prepared.

6.1 Commonwealth Legislation

6.1.1 Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)

Under the *Environmental Protection and Biodiversity Conservation Act 1999 (Cth)* (EPBC Act), a referral is required to the Australian Government for proposed actions that have the potential to significantly impact on matters of national environmental significance or the environment of Commonwealth land.

The assessment of the proposal's impact, on matters of national environmental significance and the environment of Commonwealth land, found that there is unlikely to be a significant impact on relevant matters of national environmental significance or on Commonwealth land.

A Protected Matters Report has been generated for the site (refer to **Appendix H**) which identifies that there are no World Heritage Properties, National Heritage Places, Wetlands or Marine Parks/Areas within 1km of the site.

Further, the RSI is not development carried out by a Commonwealth agency, nor is the proposed development a matter considered to be of national environmental significance. There is unlikely to be any significant impact on any critical habitats or threatened species.

Accordingly, the proposal has not been referred to the Australian Department of Sustainability, Environment, Water, Population and Communities under the EPBC Act. This is summarised below in **Table 1**.

Table 1 – Matters of National Environmental Significance Consideration

Factor	Impact Assessment
Will the Activity have, or likely to have, a significant impact on a declared World Heritage Property?	No
Will the Activity have, or likely to have, a significant impact on a National Heritage place?	No
Will the Activity have, or likely to have, a significant impact on a declared Ramsar wetland?	No

Factor	Impact Assessment
Will the Activity have, or likely to have, a significant impact on Commonwealth listed threatened species or endangered community?	No
Will the Activity have, or likely to have, a significant impact on listed migratory species?	No
Will the Activity involve any nuclear actions?	No
Will the Activity have, or likely to have, a significant impact on Commonwealth marine areas?	No
Will the Activity have any significant impact on Commonwealth land?	No
Would the Activity affect a water resource, with respect to a coal seam gas development or large coal mining development?	No

6.2 State Legislation

6.2.1 Biodiversity Conservation Act 2016 (NSW)

Part 7 of the *Biodiversity Conservation Act 2016 (NSW)* (BC Act) outlines biodiversity assessment and approval requirements. It states that an Activity under Part 5 of the EP&A Act is to be regarded as an Activity likely to significantly affect the environment if it is likely to significantly affect threatened species.

In this circumstance, an Environmental Impact Statement (EIS) is required and must include or be accompanied by a Species Impact Statement (SIS) or a Biodiversity Development Assessment Report (BDAR). However, an EIS is not required if the likely significant effect on threatened species is the only likely significant effect on the environment.

The site is entirely located on certified land under the *Order to confer biodiversity certification on the State Environmental Planning Policy (Sydney Region Growth Centres) 2006* (Biodiversity Certification Order) (refer to **Figure 26**). In accordance with Section 8.4(4) of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (BC SEPP), the Proponent is not required to consider the biodiversity impacts on certified land.

Ultimately, there will be no significant impact on threatened species or ecological community. In this situation, an SIS or BDAR is not required.

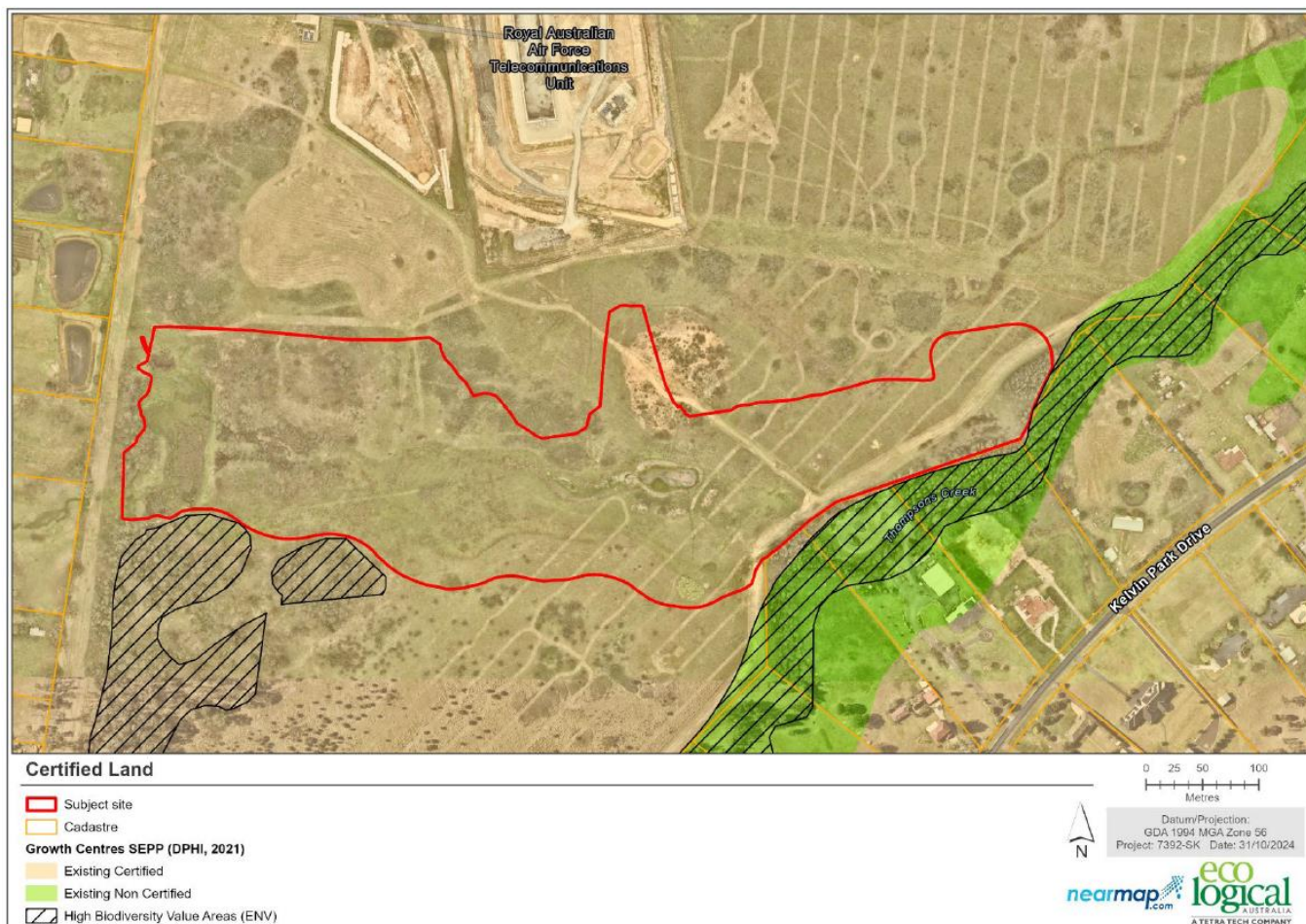


Figure 26 - Mapping of certified land under the Biodiversity Certification Order

6.2.2 Environmental Planning and Assessment Act 1979 (NSW)

The relevant considerations under the EP&A Act are as follows:

- Section 5.5(1) of the EP&A Act requires a determining authority to 'examine and take into account to the fullest extent possible all matters affecting or likely to affect the environment by reason of that Activity'. This REF contains a detailed environmental impact assessment and addresses the provisions of Section 5.5(1) of the EP&A Act.
- Section 5.5(3) of the EP&A Act is not applicable as the site is not identified as a wilderness area (within the meaning of the *Wilderness Act 1987*).
- Section 5.6 of the EP&A Act relates to the requirement to address the provisions of the EP&A Regulation and is addressed in **Section 6.2.3, 8.1 and 8.2**.
- Section 5.7 of the EP&A Act requires an Environmental Impact Statement (EIS) to be prepared if the Activity is 'a prescribed activity, an Activity of a prescribed kind or an Activity that is likely to significantly affect the environment'.

It has been confirmed in this REF that an EIS is not required.

The Authority is a public authority as defined in Section 1.4 of the EP&A Act.

The Authority is both the proponent and the determining authority for the purpose of Part 5 of the EP&A Act.

6.2.3 Environmental Planning and Assessment Regulations 2021 (NSW)

Consideration against Section 171 of the EP&A Regulation is provided in **Section 8.1** of this REF. Other relevant sections are considered below.

Table 2 – Consideration of Relevant Provisions in the EP&A Regulations

Control	Consideration
Section 35 Additional requirements for development applications in certain areas of Sydney	Section 35 of the Environmental Planning and Assessment Regulation 2021 requires that a person not apply to a consent authority for development consent to carry out development on land within the Aerotropolis unless it is accompanied by an assessment of consistency against the Aerotropolis Precinct Plan. Whilst noting that this Activity does not require development consent, an assessment is provided at Section 6.4.
Section 66 Contributions plans for certain areas in Sydney—the Act, s 4.16(1)	Section 66 of the Environmental Planning and Assessment Regulation 2021 requires that a development application for development on land within the Aerotropolis must not be determined by the consent authority unless a contributions plan has been approved for the land to which the application relates unless: - the consent authority considers the development application is of a minor nature, or - the developer has entered into a planning agreement for the matters that may be the subject of a contributions plan. The Activity does not seek development consent. Accordingly, the Activity may proceed to be determined by the Authority.

Notification Requirements

Pursuant to Section 171(4) and (5) of the EP&A Regulation, this REF is required to be published on the determining authority's website or the NSW planning portal either:

- prior to the Activity commencing; or
- if publishing the REF before the activity commences is not practicable — as soon as practicable, and no later than 1 month, after the Activity commences.

As the estimated cost of development is \$48 million (excluding GST), this REF will be published on the NSW Planning Portal

6.3 State Environmental Planning Policies

The following SEPPs apply to the site and are relevant to the assessment of the Activity as outlined below.

6.3.1 State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW)

The *State Environmental Planning Policy (Transport and Infrastructure) 2021 (NSW)* (TI SEPP) aims to facilitate the delivery of infrastructure across the State.

The table outlines the relevant provisions of which the Activity is carried out in accordance with other considerations.

Table 3 – Assessment of Relevant TI SEPP Provisions

Section within TI SEPP	Description of Works	Compliance?
Chapter 2, Division 5 Electricity Transmission or Distribution Section 2.44 Development permitted without consent	Electricity Transmission or Distribution Services The Activity includes new electricity transmission or distribution lines to accommodate lighting within the area. Section 2.44 of the TI SEPP allows for “development for the purpose of an electricity transmission or distribution network to be carried out by or on behalf of an electricity supply authority or public authority without consent on any land.” In this case the public authority is BDA. We note also that development is not on land reserved under the <i>National Parks and Wildlife Act 1974 (NSW)</i> .	Y
Chapter 2, Division 12 Parks and Other Public Reserves Section 2.73 Development permitted without consent	Landscaping, including Landscape Structures or Features The Activity includes landscaping and landscape structures. Section 2.73 of the TI SEPP permits development without consent for the purpose of “landscaping and landscaping structures or features (such as art work)” to be carried out “by or on behalf of a public authority” on land owned or controlled by the public authority. The Activity will be on land owned and controlled by BDA.	Y
Chapter 2, Division 20 Stormwater Management Systems Section 2.137 Development permitted without consent	Stormwater Management Systems The Activity includes the RSI which is defined as a stormwater management system. Section 2.137 of the TI SEPP permits development without consent “for the purpose of stormwater management systems” to be carried out “by or on behalf of a public authority without consent on any land”. The activity will be by the Authority.	Y

Chapter 2, Division 15 Railways Section 2.99 Excavation In, Above, Below or Adjoining to Rail Corridors	This application under Part 5 of the EP&A Act does not seek development consent and does not require concurrence from the rail authority (Sydney Metro). Notwithstanding the above, the Authority has consulted with Sydney Metro and Transport for NSW. Refer to Response to Submissions in Appendix Q .	Y
Chapter 4, Section 4.7 Development in future infrastructure corridor for previously permitted uses of land	The site is located on land identified as SP2 Infrastructure (Major Infrastructure Corridor). Transport for NSW would need to grant concurrence for development consent on this land if “development has an estimated development cost of more than \$200,000”. The activity does not seek development consent and does not require concurrence from Transport for NSW. Despite this, the Authority has consulted with Sydney Metro and Transport for NSW who are the relevant authority for the infrastructure corridor in this instance. Refer to Response to Submissions in Appendix Q.	N.A

6.3.2 State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)

Chapter 4 of *State Environmental Planning Policy (Resilience and Hazards) 2021 (NSW)* (Resilience and Hazards SEPP) regulates the remediation of contaminated land for the purpose of reducing the risk of harm to human health or any other aspect of the environment.

Clause 4.6 stipulates that a “consent authority must not consent to the carrying out of development unless:

- a) It has considered whether the land is contaminated, and
- b) if the land is contaminated, it is satisfied that the land is suitable in its contaminated state (or will be suitable after remediation) for the purpose of 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 that the land will be remediated before the land is used for that purpose”.

A Detailed Site Investigation (DSI) has been carried out on the site and is supported by:

- a Site Audit Statement (SAS)
- Site Audit Report (SAR)
- Asbestos Management Plan (AMP).

The investigation, statement and audit report concluded that the site is suitable for a commercial/industrial, mixed use (including residential and childcare facilities) and open space, subject to completing the works in accordance with the AMP.

A Contamination Statement has been prepared by ERM and is provided in **Appendix E**. It confirms that there is low risk of contamination being present within the site that would preclude the proposed activity. The proposed land on which this activity will be completed will be subject to DSI, SAS, SAR and AMP approved as part of the Bradfield City Centre Master Plan remediation process.

Accordingly, the Authority can be satisfied that the site will be suitably remediated by others.

Mitigation Measure 18 is imposed in **Section 10** which require confirmation of a validation report following remediation.

6.3.3 State Environmental Planning Policy (Biodiversity and Conservation) 2021

Chapter 2 of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* (Biodiversity and Conservation SEPP) outlines when an approval is required for the removal of trees within non-rural areas. This REF permits the removal of trees and is consistent with Chapter 2.

Chapter 3 applies to land zoned RU1 Primary Production, RU2 Rural Landscape and RU3 Forestry. Accordingly, the site and development is not subject to Chapter 3.

Chapter 4 applies to land within the Liverpool Local Government Area unless it is on land certified under the Biodiversity Certification Order. As the site is entirely located on certified land, the detailed controls in Chapter 4 are not relevant to consider.

Chapter 6 of the *State Environmental Planning Policy (Biodiversity and Conservation) 2021* regulates development in water catchments zones. The site is located within the Hawkesbury-Nepean catchment and relevant controls are considered in **Section 8.2**.

6.3.4 State Environmental Planning Policy (Sustainable Buildings) 2022

The proposed activity is for non-residential development and would usually be subject to Chapter 3 of the *State Environmental Planning Policy (Sustainable Buildings) 2022* (Sustainability SEPP).

Despite this, Section 3.1 only applies to the erection of a building or the alteration, enlargement or extension of an existing building.

The Sustainability SEPP does not apply to the activity.

6.3.5 State Environmental Planning Policy (Precincts – Western Parkland City) 2021

The *State Environmental Planning Policy (Precincts – Western Parkland City) 2021* (Western Parkland City SEPP) is the primary environmental planning instrument for the site.

Western Parkland City SEPP provides relevant controls for development which needs consent under Part 4 of the EP&A Act which is not needed in this instance.

Despite this, an assessment has been carried out to demonstrate compliance. Consideration of the Activity against the key provisions of Western Parkland City SEPP is provided in **Table 4**.

Table 4 – Assessment of Relevant Western Parkland City SEPP Provisions

Section	Comment
4.10 Land Use Zones	The site is zoned part MU1 Mixed Use Development and part ENZ Environment and Recreation (refer to Figure 27 below). Development for the purpose of stormwater management works is permitted with consent in the MU and ENZ zone. Whilst part of the land is located within the future infrastructure corridor under the TI SEPP, a response to Section 4.7 of the TI SEPP is provided in Section 6.3.1.

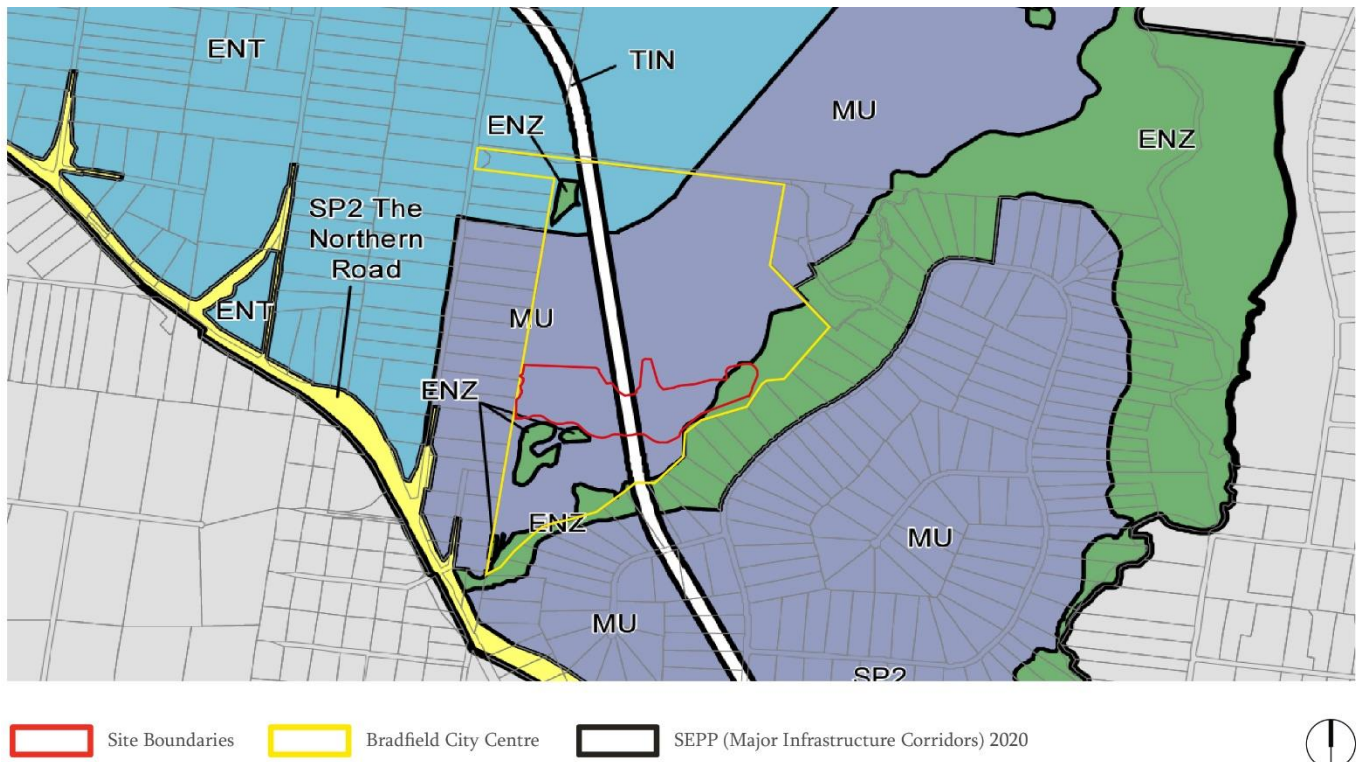


Figure 27 - Land Zoning Map

4.18 Building wind shear and turbulence	The site is not located within the 'Windshear Assessment Trigger Area'.
4.19 Wildlife hazards	The site is located within the 13km wildlife buffer zone but does not require development consent. Even so, consultation has occurred with the Western Sydney Airport. To manage wildlife hazards, Sydney Water will implement a Wildlife Risk Mitigation Plan and the wider Aerotropolis Bird & Bat Mitigation Strategy. The above plans and strategies will mitigate the risk of wildlife impacting the operation of the airport. A Wildlife Hazard Assessment and Wildlife Risk Mitigation Plan will be prepared before construction starts (refer to Mitigation Measure 31).

4.21 Lighting	The proposed activity is not considered to generate obtrusive lighting or create significant light spill outside the site. Confirmation has been provided by AviPro (Appendix V) that lighting will not be obtrusive in accordance with the NASF Guidelines. Referral to the relevant Commonwealth body is not required.
4.22 Airspace Operations	The proposed activity does not require a controlled activity approval under the Airports Act 1996 (NSW).
4.24 Flooding	Part of the land is shown on the Flood Planning Map. Whilst this activity does not seek development consent, an assessment of flooding matters is provided in Appendix B. The RSI has been designed appropriately to manage risk from flood. The RSI will accommodate flooding up to a depth of the 1% AEP. It will not likely result in unsustainable social and economic costs to the community. The basin embankments have been designed above the 1% AEP water level.
4.25 Preservation of trees and vegetation in Environment and Recreation Zone and Cumberland Plain	Part of the site is zoned Environment and Recreation. Development consent is not required for the clearing of trees in this instance as approval is granted under Part 5 of the Act.
4.25A Clearing of Native Vegetation	The Activity does not require development consent under Part 4 of the Act. Nevertheless, the Activity will not involve the clearing of any works on non-certified land.
4.26 Heritage Conservation	The land is not identified as an item of local or state heritage significance, nor is it located within a heritage conservation area. A Statement of Heritage Impacts (SOHI) has been prepared by Extent Heritage for the Bradfield City Centre Master Plan application. The SOHI finds that the delivery of Bradfield City Centre will have a minor adverse impact on the heritage significance of the State listed homestead Kelvin. Recommendations to manage this impact include sensitive urban design and use of green space. Kelvin is located north-east of the wider Bradfield City Centre site and the proposed land is located on the southern portion of the Bradfield City Centre, approximately 850m south-west of Kelvin. The site does not share an interface with Kelvin. It is considered that the Activity will not impact the heritage value of Kelvin or other heritage items.
4.27 Transport Corridor	The Activity does not seek development consent under Part 4 of the EP&A Act. Notwithstanding the above, the Authority have engaged with Sydney Metro to determine that the development will not impact on the rail corridor. Refer to Response to Submission in Appendix Q.
4.28B Aboriginal Cultural Guidelines	The Activity does not seek development consent under Part 4 of the EP&A Act.
Part 4.5 Design Excellence	The Activity does not seek development consent under Part 4 of the EP&A Act.
4.39 Development must be consistent with precinct plan	The Activity does not require development consent as approval is provided through Part 5 of the Act. Nevertheless, the Activity is generally consistent with the Aerotropolis Precinct Plan as discussed in Section 6.4 .

4.42 Consent authority to consider master plan	The Activity does not require development consent as approval is provided through Part 5 of the Act. Nevertheless, the Activity is generally consistent with the Bradfield City Centre Master Plan as discussed in Section 6.5 .
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6.4 Western Sydney Aerotropolis Precinct Plan

The proposed development is subject to the Western Sydney Aerotropolis Precinct Plan (Precinct Plan) and is located within the Aerotropolis Core Precinct. It is noted that the Precinct Plan has been modified through the approval of the Bradfield City Centre Master Plan. Consideration of relevant provisions in the Precinct Plan is provided in **Table 5**.

Table 5 – Assessment of Relevant Precinct Plan Provisions

Section	Comment
2.2 Aerotropolis Core Vision	The Activity is consistent with the vision of the Aerotropolis Core. The vision of the Aerotropolis Core seeks to support a dense urban precinct around the Aerotropolis Metro station. The Activity will deliver essential stormwater infrastructure required to serve the Bradfield City Centre.
3.2 Development Sequencing	The site is located within the First Priority Area and is provided in accordance with the Sequencing Plan. The Activity will support the orderly provision of development staging and services.
4.1 Proposed Land Use and Structure Plan	The Activity is generally aligned with land identified for ‘Open Space / Stormwater Land’ and is consistent with the Land Use and Structure Plan
4.3 Aboriginal Culture and Heritage – Recognising Country	As outlined throughout this Report, several AHIMS are located within proximity to the site. An approval has been granted to harm and remove the items. Refer to Appendix T.
4.4 Non-Aboriginal and European Heritage	The land is not identified as an item of local or state heritage significance, nor is it located within a heritage conservation area. A Statement of Heritage Impacts (SOHI) has been prepared by Extent Heritage for the Bradfield City Centre Master Plan application. The SOHI finds that the delivery of Bradfield City Centre will have a minor adverse impact on the heritage significance of the State listed homestead Kelvin. Recommendations to manage this impact include sensitive urban design and use of green space. Kelvin is located north-east of the wider Bradfield City Centre site and the proposed land is located on the southern portion of the Bradfield City Centre, approximately 850m south-west of Kelvin. The site does not share an interface with Kelvin.

It is considered that the proposed activity will not impact the heritage value of Kelvin or other heritage items.

4.5 Blue-Green infrastructure Framework	Blue-Green Infrastructure includes the integrates the blue and green systems of the waterways, riparian areas, bushland, open spaces, tree canopy and private gardens, and includes stormwater and water quality management, public and private recreation opportunities. The activity consists of stormwater and water quality management systems which integrates landscaping embellishments. The activity supports the contribution of blue-green infrastructure. Also, the location of the RSI is generally aligned with land mapped as 'Stormwater Infrastructure' and 'Riparian Corridor' in the Total Water Cycle Management plan.
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6.5 Bradfield City Centre Master Plan

The Bradfield City Centre Master Plan (WSA_MP02) was approved in September 2024. The Activity is generally consistent with the Bradfield City Centre Master Plan as outlined below.

Table 6 – Assessment of Relevant Bradfield City Centre Master Plan Provisions

Section	Comment
4.1 Master Plan	The Master Plan identifies the site as 'Stormwater Basins', 'Creek Centreline', 'Core Riparian Zone' and 'Vegetation Buffer'. The activity is generally consistent with the Master Plan.
5.5 Design Excellence Controls	It is recognised that controls relating to design excellence are tailored towards buildings and do not apply in this circumstance.
5.7 Competitive Design Excellence Process	An Architectural Design Competition is required for buildings over 55m in height, a Landmark Building and Gateway Building, public buildings and where a competitive design process is chosen by the applicant. The activity does not require an Architectural Design Competition.
5.8 State Design Review Panel	Section 5.8 relates to development. This Activity is not required to satisfy this clause as approval will be provided under Part 5 of the Act.
9.1 Pedestrian Network	The activity includes two north-south shared paths and is consistent with the desired pedestrian network for Bradfield City Centre.
9.2 Cycling Network	The activity includes off-street bike trail in the form of a shared path and is consistent with the cycling network.
10.1 Key City Spaces	The site is not identified as a key civic place per Section 10.1 but remains to contribute to the network of connected spaces and will support the overall amenity and needs of residents, workers and visitors.

10.2 Open Space Provisions	The site is identified as ‘vegetated riparian corridor’ and ‘stormwater basins and bio-retention ponds’. The activity is consistent with the Open Space Provisions Map.
10.7 The Parklands	The activity is consistent with Section 10.7 as it allows for promotes visual connection to Moore Gully through access points and circulation paths.
12.1 Staging Plan	The RSI is identified as being part of Stage 2. However, it has been brought forward ahead before the entire completion of Stage 1. The RSI provides essential stormwater services that are required to complement the delivery of development in Stage 1. As such, the acceleration of the RSI is warranted.

6.6 Western Sydney Aerotropolis Development Control Plan 2022

The Western Sydney Aerotropolis Development Control Plan 2022 (the WSA DCP) provides detailed development guidelines relevant to the siting and design of future development within the Aerotropolis Core.

This REF has been prepared under Part 5 of the EP&A Act and the WSA DCP does not formally apply. Notwithstanding, the Activity has been designed generally in accordance with the key principles.

Consideration of key controls is provided below.

Stormwater Management and Water Sensitive Urban Design

The Activity achieves the stormwater quality controls as outlined in **Section 8.4** and includes a water sensitive urban design through the implementation of landscaping embellishments and water features such as ponds and basins. Indicatively, the proposed development generally complies with the water quantity requirements as outlined in Section 4.4 of **Appendix B**

Vegetation and Biodiversity

The WSA DCP does not specify a specific deep soil and tree canopy control for this form of development.

The activity will include tree canopy to cover 36% of the entire site (at full maturity) or 80% of work within the ponds and basins which equates to approximately 43,300m² of the site.

Airport Safeguarding

The development will not permit lighting which exceeds that permitted under the NASF Guideline.

Wildlife Hazards

Wildlife management will be implemented through the adoption of a Wildlife Hazard Assessment and Wildlife Risk Management Plan, prior to the commencement of construction.

6.7 Other Legislation

Consideration of other relevant legislation is provided below.

6.7.1 Rural Fires Act 1997 (NSW)

Whilst the site is identified as being on bushfire prone land (refer to **Section 4.2.6**), the Activity does not trigger the requirement to obtain a Bushfire Safety Authority under section 100B of the *Rural Fires Act 1997 (NSW)* as the works do not involve the subdivision of land or a special fire protection purpose.

Approval is therefore not required under the *Rural Fires Act 1997 (NSW)*.

Further consideration of bushfire matters is contained in **Appendix N** and **Section 8.9**.

6.7.2 Biodiversity Conservation Act 2016 (NSW)

The *Biodiversity Conservation Act 2016 (NSW)* (BC Act) aims to protect native vegetation, species of threatened flora and fauna, endangered populations and endangered ecological communities and their habitats in NSW.

In accordance with Section 8.4 of the BC Act, a determining authority under Part 5 of the EP&A Act is not required to consider the effect on biodiversity of an Activity to the extent that it is carried out on biodiversity certified land. The site is entirely located on certified land.

Furthermore, an assessment of biodiversity impacts is provided in **Section 8.12**.

6.7.3 Heritage Act 1977 (NSW)

The site does not contain State listed heritage items and will not have an impact on surrounding items of State heritage significance. As shown in **Section 4.2.4** the site is separated from items of heritage significance and will not impact the physical or cultural significance of heritage items.

Therefore, the provisions of the *Heritage Act 1977 (NSW)* do not apply to the Activity.

6.7.4 National Parks and Wildlife Act 1974 (NSW)

The *National Parks and Wildlife Act 1974 (NSW)* relates to the establishment, preservation and management of national parks, historic sites and certain other areas and the protection of certain fauna, native plants and Aboriginal objects.

As outlined in **Section 4.2.6**, there are several AHIMS within the Bradfield City Centre and the RSI. An AHIP has been issued for the harm and removal of these items (refer to **Appendix T**).

No further approval is needed under the *National Parks and Wildlife Act 1974 (NSW)*.

6.7.5 Roads Act 1993 (NSW)

The Activity will be serviced by roads constructed under the Stage 2A enabling works project within Bradfield City Centre. The roads will be used for vehicle movement or storage of materials. This will occur prior to the roads being dedicated to the relevant roads authority.

An approval is not required under Section 138 of the *Roads Act 1993 (NSW)* until the roads have been dedicated to the relevant roads authority.

6.7.6 Water Management Act 2000 (NSW)

The proposed works are located on 'waterfront land' and would ordinarily require a Controlled Activity Approval. However, a controlled Activity approval is not required since an exemption is granted to public authorities, including the Authority under Clause 41 of the Water Management (General) Regulation 2018.

Despite not requiring a Controlled Activity Approval, the works to realign and rehabilitate Moore Gully generally comply with the appropriate guidelines including provision of required Vegetated Riparian Zones for a 4th order stream.

Further, a works approval and water access licence may be required, as identified under the *Water Management Act 2000 (NSW)*. The Authority will consult with the NSW Department of Climate Change, Energy, the Environment and Water (Water Group) on these approvals throughout the post REF approval phase.

6.7.7 Contaminated Land Management Act 1997 (NSW)

The provisions of the *Contaminated Land Act 1997 (NSW)* (CLM Act) require that the nature and extent of any potential contamination be investigated and remediated.

As discussed above, the land is subject to a DSI, SAS and SAR that confirmed the land is suitable from a contamination perspective for the Activity. This is reconfirmed in the Contamination Statement (**Appendix E**). Refer to more discussion in **Section 8.7**.

Accordingly, no further approvals are required under the CLM Act.

6.7.8 Protection of the Environment Operations Act 1997 (NSW)

The primary aim of the *Protection of the Environment Operations Act 1997 Act (NSW)* (POEO Act) is to protect, restore and enhance the quality of the environment in New South Wales, having regard to the need to maintain ecologically sustainable development, and to reduce risks to human health and prevent the degradation of the environment by the use of appropriate mechanisms.

Operational impacts such as vehicle emissions from maintenance vehicles are expected to be minimal and acceptable due to the minor nature of the Activity.

Construction impacts will be managed in accordance with the CEMP (**Appendix D**) and will address construction noise and vibration, air quality, dust, water and waste pollution in accordance with the PEO Act.

A licence under sections 47, 48, 49 or 122 of the POEO Act is not required.

6.7.9 Pesticides Act 1999 (NSW)

The Activity does not require large quantities or dangerous pesticides to be used and does not require approval under the *Pesticides Act 1999 (NSW)*.

6.7.10 Fisheries Management Act 1994 (NSW)

The *Fisheries Management Act 1994 (NSW)* (FM Act) provides for the protection and conservation of aquatic species and their habitat throughout NSW. Section 221ZX of the FM Act states that an Activity under Part 5 of the EP&A Act is “likely to significantly affect the environment if it is likely to significantly affect threatened species, populations or ecological communities”. If this occurs, a SIS is required

Impacts to threatened species, populations and communities, and critical habitats listed under the FM Act must be assessed through the ToS in accordance with section 220ZZ. If the assessment determines a project is likely to result in a significant effect to threatened species, populations, or communities then a SIS must be prepared.

The Biodiversity Strategy and Impact Assessment in **Appendix P** finds that Moore Gully is mapped as a Type 1 key fish habitat but the current condition of Moore Gully does not make it valuable for fish. It has thick aquatic weeds and low dissolved oxygen concentrations that are not suitable for most native fish in Sydney. The species that can live in such conditions are native waterbugs and invasive small fish (e.g. Plague Minnow). Moore Gully is likely to be more significant for the lower-order organisms that contribute to the food web in the catchment by replenishing food resources.

Notwithstanding, the Bradfield Master Plan Biodiversity Strategy and Impact Assessment found that the Bradfield City Centre did not contain threatened species listed under the FM Act. As such a test of significant effect on threatened species, populations or ecological communities, or their habitats, as outlined in section 220ZZ of the FM Act is not required. A SIS is therefore also not required.

However, the realignment of Moore Gully will impact Key Fish Habitat and will require consultation with DPI Fisheries under section 199 of the FM Act (mitigation measure 13).

7.0 Consultation

As part of this REFs legislative requirements, compulsory consultation is required under the following sections of the TI SEPP:

- Section 2.10 for impacts on Council related infrastructure or services
- Section 2.12 for works on flood liable land
- Section 2.13 for works on flood liable land.

Consultation letters were issued to government agencies and adjoining landowners. This includes compulsory and voluntary consultation stakeholders as follows

- adjoining landowners
- Liverpool City Council
- NSW Department of Climate Change, Energy, the Environment and Water
 - Water Group
 - Biodiversity Conservation and Science Group
 - Heritage NSW
- State Emergency Services
- Sydney Metro
- Sydney Water
- Western Sydney Airport
- DPI Fisheries
- Transport for NSW

Feedback was received from the government agencies listed above. No comments were received from adjoining landowners.

The Authority and the wider project team have considered all feedback received and have amended the design to address comments. A detailed response to comments is provided in **Appendix Q**. Key comments related to:

- approvals under other legislation. This REF outlines what further consultation is required to identify if any approvals are needed in certain instances. Refer to Mitigation Measure 13.
- the design of the RSI. This included consideration for the depth of the basins and associated impacts on Sydney Metro's assets beneath the basins. Sydney Metro has provided its in-principal support for the depth of the basins and only require further review if the depths change.
- Whether the design achieves the stormwater management controls established in the relevant planning controls. The design has been amended to comply with stormwater management controls.

As part of delivering the RSI, the Authority will continue to consult with relevant agencies and landowners where deemed necessary or relevant. This includes consultation with:

- DPI Fisheries under the s199 FM Act
- Sydney Water regarding further detailed design development and maintenance.
- Western Sydney Airport regarding implementing a Wildlife Hazard Management.

8.0 Environmental Planning Assessment

The following Section outlines the potential impacts of the Activity on the environment, and how these potential impacts will be managed.

8.1 Environmental Planning and Assessment Regulations

Table 7 below provides a summary checklist of matters to be considered under Section 171 of the EP&A Regulations.

Table 7 – Summary Checklist of Matters to be Considered

Factor	Impact
(a) the environmental impact on the community The proposal is required to support the delivery of Bradfield City Centre and private land adjoining the City Centre and will have a positive impact on the stormwater efficiency of the Bradfield City Centre. Construction impacts are limited and temporary in nature. The site is located on land certified under the Biodiversity Certification Order and the Authority are not required to consider any impact of vegetation removal of certified land. Construction impacts such as noise, vibration and pollution will be managed in accordance with the CEMP (Appendix D).	Positive
(b) the transformation of the locality, The transformation of the site is consistent with the overall delivery of the Bradfield City Centre envisioned under the Master Plan and Precinct Plan. The landscaping embellishments and replanting will improve the local environment. Measures will be in places to manage wildlife risk.	Positive
(c) the environmental impact on the ecosystems of the locality, Construction will be undertaken in accordance with the CEMP which is aimed to reduce construction impacts on the ecosystem. The realignment of Moore Gully will be undertaken in accordance with the relevant Fisheries Management Act approval. Wildlife will be managed appropriately in accordance with a Wildlife Hazard Assessment and Wildlife Risk Management Plan.	Positive
(d) reduction of the aesthetic, recreational, scientific or other environmental quality or value of the locality,	Positive

Factor	Impact
There will be no significant reduction to the aesthetic, recreational or scientific quantities or value of the locality. There will be no physical works undertaken on non-certified land. The aesthetic value of the site will improve due to landscape embellishments and the addition of public art.	
(e) the effects on any locality, place or building that has — (i) aesthetic, anthropological, archaeological, architectural, cultural, historical, scientific or social significance, or (ii) other special value for present or future generations, As outlined throughout this REF, the Bradfield City Centre is subject to an AHIP and the works will not impact further on the anthropological or archaeological significance of the site. The works will also improve the aesthetic of the site.	Positive
(f) the impact on the habitat of protected animals, within the meaning of the Biodiversity Conservation Act 2016, The Activity is located on certified land and there will be minimal impact on the habitat of protected animals.	Minor
(g) the endangering of a species of animal, plant or other form of life, whether living on land, in water or in the air, The Activity is located on certified land and the Activity will not contribute towards the endangering of a species of animal, plant or other form of life.	Nil
(h) long-term effects on the environment, The works will improve the stormwater functionality of Bradfield City Centre and will have a positive long-term effect. Wildlife will be managed in accordance with a Wildlife Hazard Assessment and Wildlife Risk Management Plan prepared by Sydney Water to ensure minimal impacts on Western Sydney Airport. The site will also be transformed into a high-quality nature reserve which people can traverse. Public art and an appropriate degree of lighting will also be provided which will also support the long-term transformation of the area.	Positive
(i) degradation of the quality of the environment, Degradation as a result of construction works will be minor and managed appropriately in accordance with the CEMP. There will be no long-term degradation of the environment. The RSI, including landscaping will be managed and maintained appropriately.	Minor
(j) risk to the safety of the environment, There will be no additional risk to the safety of the environment. The RSI has been designed to promote safety measures. A safety in design report is provided in Appendix C and confirmed how the RSI has been designed to minimize risk and hazards.	Nil
(k) reduction in the range of beneficial uses of the environment,	Nil

Factor	Impact
There will be no reduction in the range of beneficial uses of the environment. Moore Gully is currently in a poor state, with undefined channels which reflects the category of fish currently using this for passage. The RSI and relocation of Moore Gully will improve the beneficial uses of the watercourse.	
(l) pollution of the environment, The Activity will not generate any long-term pollutions to the environment. Pollution generated by construction works will be managed in accordance with the CEMP.	Nil
(m) environmental problems associated with the disposal of waste, The Activity will not generate any problems associated with the disposal of waste. Waste generated by construction works will be managed in accordance with the CEMP.	Nil
(n) increased demands on natural or other resources that are, or are likely to become, in short supply, The Activity will have no significant impacts in terms of demand for scarce resources.	Nil
(o) the cumulative environmental effect with other existing or likely future activities, The RSI has been designed to accommodate stormwater from development within the Bradfield City Centre Master Plan and has been appropriately designed to accommodate pipes, drains and other stormwater infrastructure to support the movement of water into the RSI. Any future connection to the AWRC will be considered as part of the approval process for the AWRC. Construction of the Stage 2A enabling works project and the AWRC can occur simultaneously with the RSI and can be managed in such a way where cumulative impacts will be acceptable.	Minor
(p) the impact on coastal processes and coastal hazards, including those under projected climate change conditions, The proposed works will have no impact on coastal processes and coastal hazards, including those under projected climate change conditions.	Nil
(q) applicable local strategic planning statements, regional strategic plans or district strategic plans made under the Act, Division 3.1, The Activity directly aligns with the strategic planning context as outlined: • The Greater Sydney Regional Plan as it protects and enhance the biodiversity value of the site provides additional open space accessible to residents and other users. • The Western City District Plan as it enhances the biodiversity value of the site through landscape conservation and improving green-blue infrastructure. • Western Sydney Aerotropolis Plan (2020) as it supports the delivery of infrastructure within Bradfield City Centre and contributes towards the overall support of Bradfield City Centre. • The Liverpool Local Strategic Planning Statement as it incorporates best practice biodiversity conservation principles and provides for a comfortable pleasant and visually appealing space that contributes to the health, safety and wellbeing of users.	Positive

Factor	Impact
(r) other relevant environmental factors.	Acceptable
As identified in the sections below, there are no other environmental factors that will result in any unacceptable impact to the environment.	

8.2 Section 171A of the Environmental Planning and Assessment Regulation 2021

Section 171A of the *Environmental Planning and Assessment Regulation 2021 (NSW)* requires the Authority to consider the following sections in the BC SEPP:

- Section 6.6;
- Section 6.7;
- Section 6.8; and
- Section 6.9.

These matters are considered below.

Table 8 – Consideration of relevant sections in the BC SEPP as required under Section 171A of the EP&A Regulation

Factor	Impact
Section 6.6 Water Quality and Quantity	Water flowing into Moore Gully will be minimised as stormwater within BCC has been designed to be captured within the road reserve or private lots and fed into the RSI. The scope of this Activity is not expected to negatively impact the quality of water entering Moore Gully.
Section 6.7 Aquatic Ecology	The impact on aquatic ecology will be acceptable. In seeking approval under the FM Act, the Authority will consult with DPI Fisheries to ensure an appropriate design is provided and the direct impact on aquatic ecosystems will be minimal. During construction, erosion will be controlled through the Erosion and Sediment Control Plan provided in the CEMP (Appendix D).
Section 6.8 Flooding	The development will improve the structure and bank depths of Moore Gully which will allow for less build up of water when compared to the current condition. This will ensure the appropriate flow of water through Moore Gully to Thompsons Creek and an overall improved ecosystem. The RSI will be placed next to Moore Gully and is designed to capture pollutants and general runoff from Bradfield City Centre. The basin embankments have been designed above the 1% AEP water level. There will be no adverse impact on the natural recession of floodwaters into the wetlands.
Section 6.9 Recreation and Public Access	Moore Gully is currently not accessible to the public. Throughout the broader transformation of Bradfield City Centre and through the design measures specified in this REF, the RSI will be publicly accessible. Crossing have been designed to allow for the safe passage over the RSI and Moore Gully.

8.3 Visual impact

The site is currently characterised by an undefined channel, grasslands, weeds and a range of remnant trees. The Activity seeks to increase the planting of native species.

Further, the additional of the landscaping structures such as the pavilions will improve the overall visual impact of the site. The transformation of the site into the RSI is consistent with the delivery of Bradfield City Centre. There are no strong viewpoints of the site from the existing public domain.

As such, there will be a positive visual impact related to the landscaped setting to be created as a result of the work proposed.

8.4 Water quality

The RSI will be fed stormwater from development lots and the street network in Bradfield City Centre. The Activity has been designed to treat drainage prior to off-site discharge and to facilitate the delivery the stormwater quantity and quality measures of Wianamatta-South Creek.

Treatment will include a series of sediment basins, wetlands, ponds and bioretention basins which involve stormwater harvesting and reuse. This also includes GPTs (on lot and end of line) and passively integrated street trees.

The Activity has been designed to achieve the water quality objectives contained within the Western Sydney Aerotropolis DCP as outlined in **Table 9**. MUSIC modelling and further considerations of stormwater quality is provided in **Appendix B**.

Table 9 – Assessment of Stormwater Quality Reduction Targets

Parameter	Target	Proposed	Compliance?
Gross Pollutants	90 %	97.2 %	Y
Total Suspended Solids (TSS)	90 %	90.8 %	Y
Total Phosphorus (TP)	80 %	83.5 %	Y
Total nitrogen (TN)	65 %	71.8 %	Y

MUSIC models have also been prepared and are shown in the table below. It shows that general compliance is achieved for water quality targets and both pollutant and flow reduction. Stantec notes that the 10%ile flow reduction target is not achieved but the flow of 6.L/day is considered negligible and acceptable.

Table 10 – Assessment of Stormwater Flow Reduction Target Results

Parameter	Stormwater Flow Target	Bradfield City Model	Proposed Stormwater Flow	Compliance?
Mean Annual Runoff Volume	≤2ML/ha/year	217.6 ML/year	197 ML/year	Y
90%ile Flow	1000 – 5000 L/ha/day	108830L – 544150 L/day	110592 L/day	Y
50%ile Flow	5 – 100 L/ha/day	0544.15L – 10883L/day	8000.64 L/day	Y
10%ile Flow	0 L/ha/day	0 L/day	6.7 L/day	N

8.5 Design safety

A Safety in Design Report has been prepared by Stantec and is provided in **Appendix C**.

The report confirms that the RSI has been design in accordance with the requirements of the *Work Health and Safety Act 2011*(NSW) and the Work Health and Safety Regulation Part 6.2 Clause 295.

Stantec has prepared a safety and design risk register following consultation with Sydney Water which will be used to inform the principle, contractor, subcontractor and any end users of the Activity and perceived hazards, including any risk control measures.

Recommendations have been implemented that the Activity is undertaken generally in accordance with the Safety in Design Register and the identified risk minimisation, safeguards and actions proposed.

8.6 Construction management

A Construction Environmental Management Plan has been prepared by Orion and is provided in **Appendix D**.

The purpose of the CEMP is to identify environmental risks during the construction stage and provide appropriate safeguards and controls on site. The CEMP also ensures that suitable emergency procedures are prepared and implemented in addition to documenting matters such as complaints. The CEMP includes, but is not limited to, the following:

- Public safety
- Asset protection
- Construction waste
- Hazardous materials
- Neighbour notification
- Sediment, erosion and dust control
- Noise and vibration management

- Air quality management
- Contamination management.

Mitigation Measure 1 requires the works to be undertaken in accordance with the CEMP and Mitigation Measure 26 requires certain aspects of the CEMP to be updated.

8.7 Contamination

A Contamination Statement has been prepared by ERM and is provided in **Appendix E**.

As outlined above, the wider Bradfield City Centre site is subject to a DSI, SAS, SAR and AMP. The wider Bradfield City Centre works will ensure that the site is remediated to a proper standard.

The Contamination Statement confirms that the extent of remediation carried out are appropriate for the Activity and will not preclude the works detailed under this REF.

Mitigation Measure 18 has been included which require confirmation of the relevant validation reports to occur prior to commencement of construction.

Control measures are also provided in Section 5.3.16 of the CEMP to manage contamination, including the need for an Unexpected Finds Protocol.

8.8 Geotechnical and salinity

A precinct wide Geotechnical Investigation was prepared by Douglas Partners and is provided in **Appendix F**. The report indicated that the site will be suitable for the Activity, and provides commentary on geotechnical limitations, development guidelines and indicative pavement thicknesses. This includes recommendations for creek alignment earthworks, water quality, batter slopes, retaining walls and footings. The proposed works has been adopted the recommendations where reasonable and feasible and as such, it is considered that the Activity has been designed appropriately for the local geotechnical context.

Further, a precinct wide Report on Salinity Investigation was prepared by Douglas Partner (**Appendix R**) in November 2023 without the benefit of reviewing the detailed design of the RSI and includes high level comments on how the design can respond to the local salinity context. These recommendations will be incorporated during the construction phase.

As part of the field testing, samples were collected from 10 test pits up to 3m in depth and 8 boreholes up to 1m in depth. Results are further discussed in **Appendix R** and include:

- 51% of samples were non-aggressive to steel, 44% were mildly aggressive to steel and 5% were moderately aggressive to steel.
- 44% of samples were non-aggressive to concrete, 53% were mildly aggressive to concrete and 3% were moderately aggressive to concrete.
- 35% of samples were non-saline, 27% were slightly saline, 32% were moderately saline and 6% were very saline.
- 6 of 10 samples were highly sodic, a further 3 were somewhat sodic and 1 was non sodic.
- Groundwater was reported to be very saline.

Douglas Partners has reviewed the preliminary bulk earthworks plan and note in **Appendix R** the saline soils are not considered significant constraints subject to appropriate management techniques. Additionally, sodic soils management will be required to prevent infiltration restrictions which can lead to perched water tables and seepage. These management techniques are outlined in Section 8 of **Appendix R** and relate to bulk earthworks, civil construction and service installation.

In terms of groundwater impacts, the saline groundwater can increase the salinity of the basins during low flow periods and the infiltration of water from the basin into the groundwater table may elevate saline waters closer to the surface. As such, management techniques are required for good management practices and appropriate landscaping design. Whilst a detailed assessment of salinity impacts cannot be undertaken at this stage due to ongoing design development with Sydney Water (due to ongoing discussions with the depth and design of the basins and ponds), Mitigation Measure 17 has been provided require a detailed assessment to be undertaken prior to the commencement of construction.

8.9 Bushfire impacts

A Bushfire Letter has been prepared by Eco Logical and is provided in **Appendix N**. The purpose of the letter is to provide specific advice regarding the Asset Protection Zones (APZs) requirements for future surrounding development, as a result of the revegetation and restoration of Moore Gully, with respects to the *Planning for Bushfire Protection 2019* and *Addendum to Planning for Bush Fire Protection 2022* (collectively known as the PBP).

Future development is reliant on the provision of stormwater and drainage infrastructure paths and landscaping to be compliant with the PBP. This includes provisions of appropriate landscaping and APZs to be implements so that no new future hazards are created for that have not been assessed. As such, it is the purpose of the Bushfire Letter to consider the future bushfire hazard.

Based on this assessment, the APZs of proposed surrounding development is shown within **Figure 28**. In summary, the adjoining landscaping within the proposed swimming area and managed open space will be maintained in a manner that is consistent with the principles outlined in **Appendix N**.

It is considered that the APZ adjoining residential areas can be achieved through the road corridor. The landscape scheme and associated APZs will not restrict development on adjoining land.

Enforcement of the document's recommendations include those relating to landscape design is required to be considered under Mitigation Measure 1 which endorses the Bushfire Advice Letter and requires the Activity to be carried out generally in accordance with it.

It is noted that the Bushfire Advice Letter was prepared on the preliminary design of the RSI. The design has since progressed, and a detailed design is provided in **Appendix A**. The findings of the Bushfire Letter remain relevant and the Activity will remain to be adequately managed without resulting in any adverse environmental impacts.

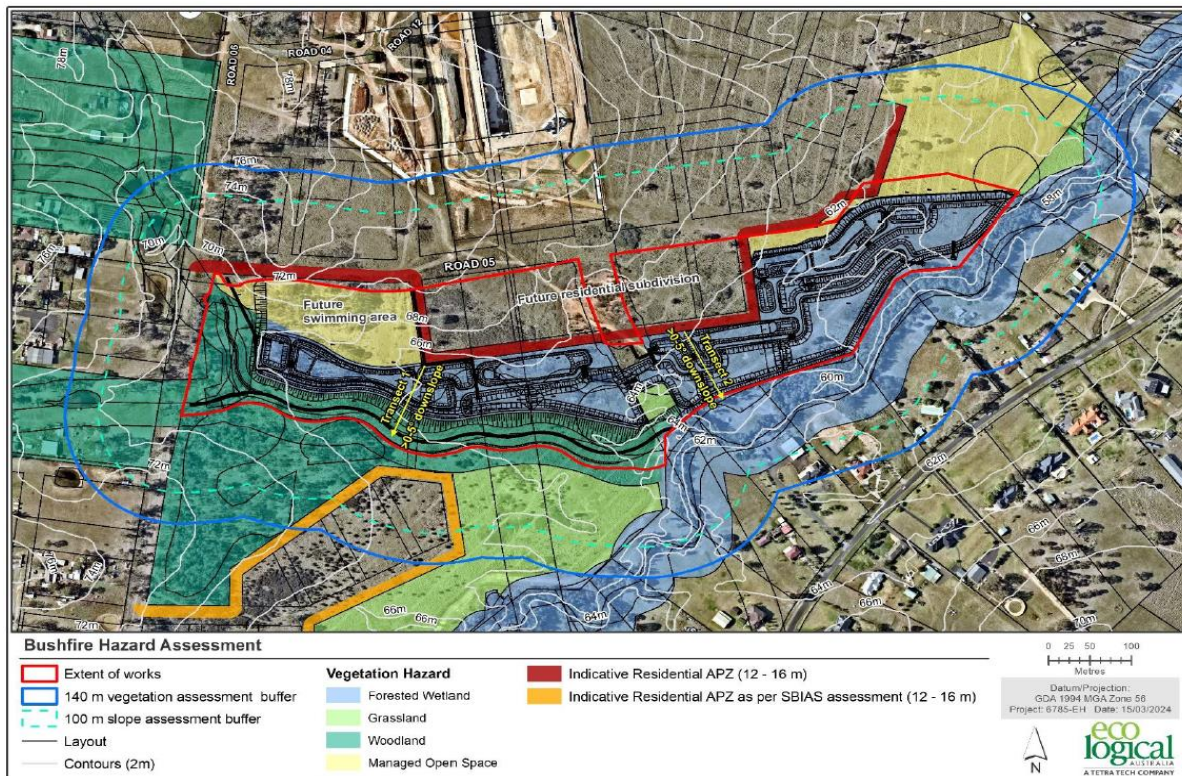


Figure 28 - Indicative Asset Protection zones

8.10 Heritage impacts

8.10.1 Aboriginal heritage impacts

As outlined in **Section 4.2.4**, the wider Bradfield City Centre site including the RSI site is subject to an Aboriginal Heritage Impact Permit (**Appendix T**) which permits the 'harm' of registered Aboriginal artefacts through salvage excavation and community collection methods.

All impacts to Aboriginal Heritage items have been assessed and considered satisfactory. In the unlikely event of discovering a significant item, an unexpected finds protocol is triggered, as outlined in the CEMP.

All conditions contained within the AHIP must be adhered to at all times. This includes the need for a salvage report in accordance with condition 18 of the AHIP.

Additionally, significant consultation with Aboriginal stakeholders occurred as part of the Master Plan process.

As outlined in the Aboriginal Cultural Heritage Assessment Report prepared by Extent Heritage (October 2023), stakeholders identified that waterways had cultural significance. The relocation of Moore Gully and creation of defined banks will support the health and functionality of the waterway.

Stakeholders also promoted the conservation of natural areas with landscape features. This Activity will promote the planting of natural species in efforts to conserve and retain natural areas.

8.10.2 Non-Aboriginal heritage impacts

With regards to non-Aboriginal heritage, the site does not share a direct interface with the adjoining heritage items discussed in **Section 4.2.3**.

The site is located approximately 1km away from the closest item of heritage significance (equally being the Kelvin and Bringelly Public School Group).

The RSI will not impact on the physical or cultural heritage significance of surrounding heritage items. Similarly, in the unlikely event of discovering significant items, the unexpected finds protocol is trigger, as outlined in the CEMP.

8.11 Arboricultural impacts

An Arboricultural Impact Assessment and Tree Protection Management Plan has been prepared by Active Green Services and is provided in **Appendix M**. A visual inspection and GPS mapping occurred in January and February 2024 and identified 438 trees within the western portion of the site.

It is noted that the Arboricultural Impact Assessment and Tree Protection Management Plan was prepared using the preliminary design which is similar to that in **Appendix A**. Since then, the overall extent of works has been reduced and the impact resulting from the detailed design (**Appendix A**) is expected to result in the removal of fewer trees. The findings of the Arboricultural Impact Assessment remain relevant and the Activity will remain to be adequately managed without resulting in any adverse environmental impacts.

The Arboricultural Impact Assessment finds that the activity will have a minor encroachment on 77 trees which can be retained subject to sensitive construction methods. A further 216 trees will be subject to major encroachment and will be required to be removed. This includes:

- 6 of high retention value
- 100 of medium retention value
- 88 of low value
- 22 of no significant value

To compensate the removal of 216 trees, it is proposed that approximately 3,977 trees will be planting as a result of the landscaping embellishments. This equates to a replanting ratio of 18.4:1 which is considered will far outweigh the impacts of removing the trees.

Implementation of the document's recommendations include those relating to tree retention is required under Mitigation Measure 1 which endorses the recommendations of the Arboricultural Impact Assessment and requires the Activity to be carried out generally in accordance with it.

Furthermore, it is recognised that the Arboricultural Impact Assessment and Tree Protection Management Plan was prepared using a previous design. The extent of works has since reduced in size and it is assumed that more trees can be retained under this design amendment. To accommodate this design change, Mitigation Measure 40 requires a Tree Management Plan to be prepared. This document is required to accurately reflect the number of trees being removed under the current design in **Appendix A**.

8.12 Biodiversity impacts

A Biodiversity Strategy and Impact Assessment has been prepared by Eco Logical and is provided in **Appendix P**. As addressed above, the site is located on certified land under the Biodiversity Certification Order. In accordance with Section 8.4(4) of the State Environmental Planning Policy (Biodiversity and Conservation) 2021 (BC SEPP), the Authority is not required to consider the biodiversity impacts on certified land.

Accordingly, the Biodiversity Strategy and Impact Assessment considers the following biodiversity impacts:

- on temporary construction activities on land not included in the Biodiversity Certification Order located outside the site boundary.
- from temporary construction activities on potential foraging habitat located in Thompsons Creek.
- on aquatic ecosystems relating to the realignment of Moore Gully.

8.12.1 Impact of construction activities on land outside the site boundary

The *River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions* TEC is located on non-certified land immediately southeast to the site.

Construction activities have the potential to impact this TEC through noise, vibration, sedimentation and changes in water quality.

A Test of Significance was completed in Section 8.1.2 of **Appendix P** and found that any temporary impacts can be mitigated through the detailed CEMP.

Any construction impacts to this TEC are expected to be minor and unlikely to adversely affect the extent of the TEC within the surrounding locality.

Overall, the Activity is unlikely to adversely alter the composition of this ecological community such that it is placed at risk of extinction in the local occurrence.

8.12.2 Impact of construction activities on potential foraging habitat

Potential foraging habitat for threatened fauna species *Myotis macropus* (*Southern Myotis*) occurs on non-biodiversity certified land located outside of the subject site (along Thomson's Creek). There is potential to affect foraging habitat through indirect construction impacts such as temporary construction noise, vibration, sedimentation and changes in water quality and a Test of Significance has been applied in Section 8.1.1 of **Appendix P**. It found that any impact will be minor and that the Activity is unlikely to adverse effect on the life cycle of this species such that a viable local population is likely to be placed at risk of extinction. The Activity will not contribute towards the fragmentation or isolation of the habitat used by the Southern Myotis species.

8.12.3 Impacts on aquatic ecology

Moore Gully channel's existing banks are of low-moderate conditions with a very small area of high condition.

Water quality monitoring results indicate impaired water quality and poor stream health conditions along the extent of Moore Gully channel within the study area.

Surveys indicate existing species include the invasive *Gambusia holbrooki* (Plague Minnow). However, Type 1 highly sensitive key fish habitat are also assumed to be present on site due to the characteristics of Moore Gully.

As such, Moore Gully is significant for the lower order organisms that contribute to the food web in the catchment by replenishing food resources.

The realignment of Moore Gully channel would result in the removal of key fish habitat including:

- 600m length of moderate and low condition constructed dams, channels and ephemeral overland flow paths (Type 1 key fish habitat).
- <100m² of high condition wetland vegetation upstream of the western dam (Type 1 key fish habitat).

The new watercourse that would replace Moore Gully's existing channel will be about 80 m south of the current alignment. The design includes natural elements such as a low flow channel, incorporating riffles and pools to create a natural waterway. Riffle and pools have been designed to have 3% maximum slope to meet fish passage requirements. The longitudinal grade of the watercourse has been designed to meet the fish passage requirements following consultation with Ecological and DCCEE Fisheries. Cross-sections are about 0.5 m wide channel for low flow, 3 m wide bank that is 1 m high, 10 m wide floodplain and surrounding batters. The RSI will also feature planting along the corridor and channel/banks.

The *General policy – fish habitat conservation and management* establishes a policy of avoiding or minimising harm to fish habitat. However, there is no opportunity to avoid harm created by the realignment of Moore Gully as the realignment is essential to support the proposed stormwater infrastructure and the future of Bradfield City Centre. Harm would be mitigated through provision of a new watercourse and riparian vegetation.

Section 3.3.3.2 of the *Fisheries NSW Policy and Guidelines for Fish Habitat Conservation and Management* (Fairfull 2013) requires a 2:1 habitat offset requirement where impacts to Types 1-3 key fish habitat cannot be avoided.

Further, the *NSW Biodiversity Offsets Policy for Major Projects: Aquatic Biodiversity* requires a 2:1 offset for impacts to Types 1-3 key fish habitat.

The replacement channel is unlikely to meet a 2:1 offset ratio for Type 1 key fish habitat, as the dimensions are similar but the type of proposed habitat does not include chain of ponds features.

However, given the low to moderate condition of the habitat to be lost (low dissolved oxygen, dense weeds, dams, overland flow path), discussions with DPI Fisheries will continue to occur to identify the appropriate measures and offset, noting the low-moderate condition of the habitat and the presence of invasive species.

Mitigation measures

A series of mitigation measures have been recommended to minimise the potential impacts of the proposed works and improve environmental outcomes across the study area. These are outlined throughout Section 6 of **Appendix P** and are enforced in **Section 10** of this REF.

8.13 Wildlife management

The RSI will form part of the regional stormwater scheme to be owned and managed by Sydney Water.

Whilst portions of Bradfield City Centre falls within the 3km buffer zone surrounding the Western Sydney Airport, the proposed regional stormwater assets and Moore Gully itself is located outside the 3km buffer and within sub area B2 (see **Figure 29** below).

Wildlife strike remains a significant focus for design and ongoing management of these assets.

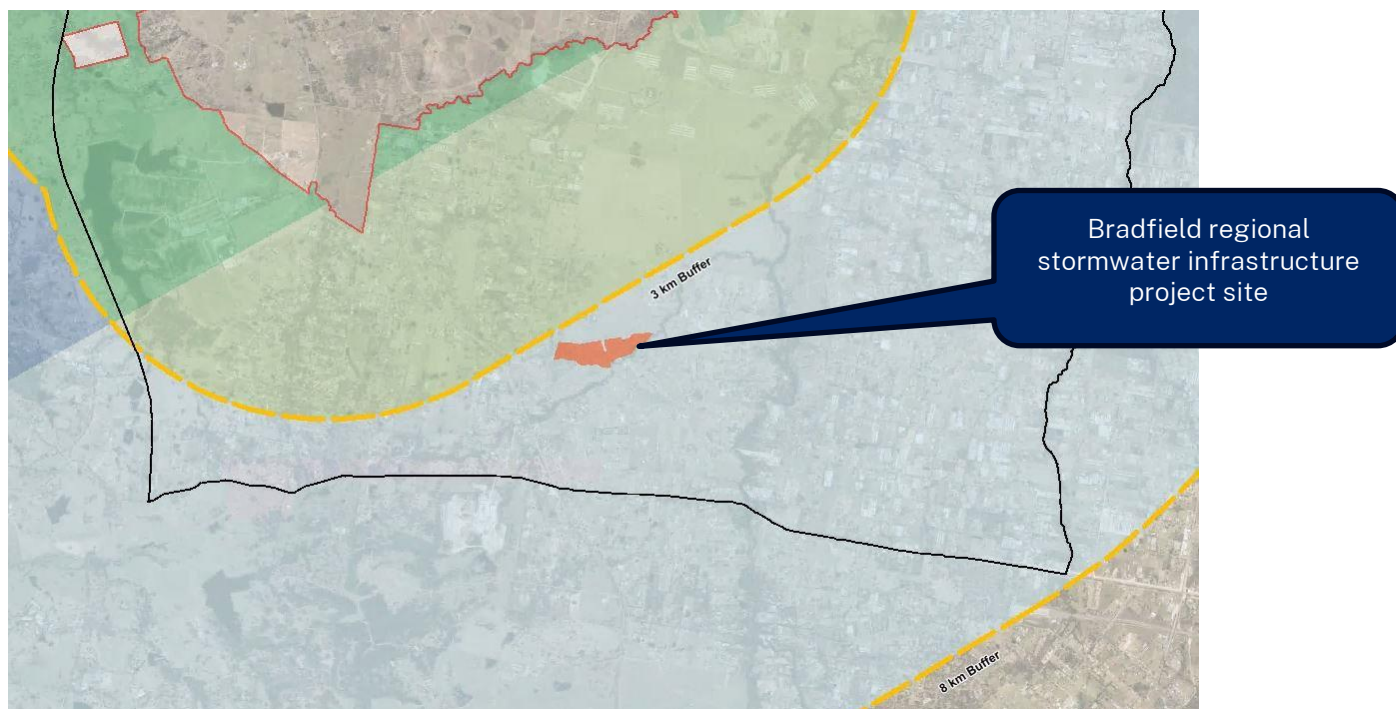


Figure 29 - Location of RSI in relation to Western Sydney Airport Buffer zone

Sydney Water has developed an Aerotropolis and Mamre Road Precincts – Bird and Bat Mitigation Strategy. This strategy applies the wildlife strike risk management frameworks developed by the Western Sydney Airport to the planned regional stormwater infrastructure.

The table in **Figure 30** identifies the risk and mitigation level for the proposed stormwater assets, specifically wetlands, waterways, natural areas, water retention basins, stormwater management facilities and landscaping – natural area revegetation. Given the project proximity to the airport (greater than 3km and to the south of the airport) the mitigation levels applicable are those for area B2.

Despite the lower mitigation level required for area B2, the proposed stormwater assets have still been designed to help mitigate the risk of wildlife strike. Design interventions include:

- sandstone logs used at the water edge to create a small vertical drop into the water which discourage bird access
- bank slopes designed with grades to avoid mud flats
- limited/selected plant species list that avoids higher risk species and reduces habitat complexity
- recreation use of the areas around the assets has been incorporated through path networks which discourages bird use and nesting

As such, mitigation measures have been adopted throughout the design of the RSI and no additional mitigation measures are required relating to how the design can mitigate wildlife interactions.

Within the Aerotropolis initial precincts Sydney Water will require a Wildlife Management Plan to be developed for each stormwater basin complex specific to the location and risk profile of each site.

The Plan will be completed by a suitably qualified ornithologist/ecologist and will stipulate the required type and timing of ongoing maintenance, monitoring and reporting. The plan is yet to be developed for the RSI.

As part of Wildlife Management Plan Sydney Water (the asset managers) will apply an adaptive approach to wildlife strike risk. This means, subject to monitoring additional mitigation interventions can be applied to help control risks.

Table 4: Condensed replica of Table 13 of the Western Sydney Aerotropolis Draft Wildlife Management Assessment Report (Avisure, 2020b) showing the relevant information related specifically to this plan.

Land Use	Standard Instrument Definition	Wildlife Attraction Risk	Western Sydney Aerotropolis: Actions for Proposed Developments / Changes to Existing Developments				
			3 km radius (Area A)	3 km radius (Area A)	8 km radius (Area B)	8 km radius (Area B)	13 km radius (Area C)
			Sub-area A1	Sub-area A2	Sub-area B1	Sub-area B2	
Wetland	Wetland	High	Conditional	Mitigate	Mitigate	Monitor	Monitor
Waterway (e.g. creeks, rivers)	Waterway	Moderate	Mitigate	Mitigate	Mitigate	Monitor	Monitor
Natural Areas	Environmental facility or environmental protection works	Low	Mitigate	Monitor	Mitigate	No Action	No Action
Sewage / wastewater treatment facility	Sewage treatment plant	High	Conditional	Conditional	Mitigate	Mitigate	Mitigate
Water retention basins	Water storage facility	High	Conditional	Mitigate	Mitigate	Monitor	Monitor
Dams	Water storage facility	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor
Stormwater management facilities	Water storage facility	Low	Mitigate	Monitor	Mitigate	No Action	No Action
Landscaping: parks and gardens	Recreation area	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: natural area revegetation	Environmental protection works	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor
Landscaping: streets and transport corridors	Road	Moderate	Mitigate	Monitor	Mitigate	Monitor	Monitor

Figure 30 - Extract of draft Wildlife Management Assessment Report

8.14 Airport interactions

8.14.1 Obstacle Limitation Surfaces

The Activity does not involve the construction of a physical building. It is unlikely that a crane will be used during construction. If so, it is expected that a mobile crane could be used, which normally only operates during daylight hours. No additional mitigation measures are needed.

8.14.2 Lighting

AviPro in **Appendix V** has confirmed that the Activity and lighting arrangements will not trigger the requirement for a detailed assessment against *NASF Guideline E: Managing the risk of distractions to pilots from lighting in the vicinity of airports*.

Lighting is expected to generate a warm glow and will not impact on the operations of the Western Sydney Airport.

8.15 Kangaroo management

The subject site contains two macropod populations, Eastern Grey kangaroos (*Macropus giganteus*) and Swamp wallabies (*Wallabia bicolor*), both of which are protected native species under the BC Act 2016. The Activity includes erection of a boundary fence on the southern boundary of the site area. This will ensure continued management of the population, including safety from ongoing construction occurring on site.

The Authority has implemented ongoing management of this population. The Authority has engaged a specialised contractor for ongoing macropod management, focusing on welfare, relocation, and population monitoring.

The management is supported by a Specialist Fauna Management Plan, with key management areas of:

- **Welfare Monitoring:** Ongoing checks and necessary provisions are maintained to ensure the wellbeing of the macropod population.
- **Relocation Efforts:** Strategies are in place to manage population levels and support ongoing site activities, including relocation as needed.
- **Population Assessment:** Surveys and other monitoring methods are utilised to evaluate the population and inform management decisions.

These strategies ensure compliance with the EP&A Act, BC Act and *Prevention of Cruelty to Animals Act 1979 (NSW)*, by addressing the environmental impacts on local fauna, maintaining the welfare of the kangaroo population, and ensuring effective site management in line with animal welfare laws.

8.16 Cumulative impacts

The Contractor will develop a detailed Construction Environment Management Plan (CEMP) prior to commencing on-site construction work for the RSI project to assess cumulative impacts effectively. This CEMP will account for concurrent and future developments, including Building 1, Sydney Metro, Building 2, Central Park, and Bradfield's residential areas (refer to Mitigation Measure 26). The plan will establish baseline environmental conditions and identify key impact areas, such as noise, air quality, traffic, and water quality, integrating findings from related assessments.

As RSI construction will occur concurrently with the approved Stage 2A Civil and Road Works project within Bradfield City Centre and recent state-significant development approvals to the north. The earthworks and major work associated with Stage 2A will be largely complete before the RSI work begins. The Contractor will stage construction to minimise overlapping impacts and ensure that RSI works do not interfere with adjacent projects and minimise disruption for residents of adjoining land. The RSI will eventually connect to the AWRC system, with the connection point to be determined under a separate approval process.

To address traffic impacts, the Contractor will coordinate traffic flow to reduce congestion and enhance pedestrian safety, particularly around shared access routes. Noise and vibration will be managed by setting cumulative thresholds, scheduling high-impact activities during off-peak periods, and continuously monitoring levels. For air quality, control measures such as dust suppression and the use of low-emission equipment will be implemented. Efficient waste and resource management practices will further minimise environmental impacts and optimize resource use across project sites.

Community engagement will form an essential part of the CEMP, with regular updates provided, feedback mechanisms established, and prompt responses to community concerns. An adaptive management strategy will allow the Contractor to adjust mitigation measures based on regular monitoring and cumulative impact reviews, ensuring transparency with stakeholders and authorities.

The Activity is not expected to result in any significant cumulative impacts that cannot be managed with responsible and high quality construction management.

8.17 Public interest

The proposed works will support the overall delivery of Bradfield City Centre by ensuring that future development can adequately responds to the relevant stormwater measures.

The works also provide a publicly accessible area which connection to water and the environment.

Wildlife will be managed appropriately through the implementation of a Wildlife Hazard Assessment and Wildlife Risk Management Plan and any biodiversity impacts are considered acceptable.

The RSI will have a positive public impact, and any temporary impacts created through the construction process will be managed through the CEMP.

9.0 Justification and conclusion

The Authority is constructing the RSI which primarily includes:

- A series of ponds and basins
- Realignment of an existing ephemeral stream within Moore Gully
- Landscaping and access paths.

The works are associated with the delivery of Bradfield City Centre, located at 215 Badgerys Creek Road, Bradfield and is legally described as Lot 101 in Deposited Plan (DP) 1282949. The site is comprised of a single 114-hectare parcel of land and is owned by the Authority. The RSI covers a site area of approximately 15.3ha.

The RSI includes a series of pedestrian paths, landscaping embellishments and pedestrian crossings in addition to the ponds and basins, and realignment of Moore Gully. The RSI primary function is to treat stormwater from future development with Bradfield City Centre and to deliver the stormwater quantity and quality measures of Wianamatta-South Creek.

The proposed activity is a prescribed activity under Chapter 2 of the *State Environmental Planning Policy (Transport and Infrastructure) 2021* which permits development for the purpose of stormwater management systems, landscaping including landscaping structures and features, and electrical transmission or distribution services without development consent.

Specifically, the range of activities proposed as part of the RSI is captured under the following provisions of the TI SEPP:

- Section 2.44 of Division 5 permits development for the purpose of an electricity transmission or distribution network to be carried out by or on behalf of an electricity supply authority or public authority without consent on any land.
- Section 73 of Division 12 permits development for the purpose of landscaping and landscaping structures or features (such as art work) to be carried out by or on behalf of a public authority on land owned or controlled by the public authority.
- Section 2.137 of Division 20 permits development without consent for the purpose of stormwater management systems to be carried out by or on behalf of a public authority without consent on any land.

For the purpose of these works, the Authority is the Proponent and the determining authority under Part 5 of the *Environmental Planning and Assessment Act 1979 (EP&A Act)*. While the proposed activity does not require development consent under Part 4 of the EP&A Act, a public authority (being the Authority in the case of this matter) is required to assess the likely impacts of the proposal in accordance with the provisions of Part 5 of the EP&A Act.

In doing so it satisfies Section 5.5(1) of the EP&A Act which requires the Proponent to examine and consider to the fullest extent possible, all matters affecting, or likely to affect, the environment by reason of the activity.

Based on the consideration of the environmental impacts of the project and the information presented in this Review of Environmental Factors (REF), by adopting the mitigation measures identified in this assessment, it is unlikely that the proposed activity would significantly affect the environment and an Environmental Impact Statement (EIS) is not required.

10.0 Requirements and Mitigation Measures

STANDARD REQUIREMENTS

1. Details of the Activity

The Activity may only be carried out:

- a. In compliance with the mitigation measures listed in Section 10.
- b. Generally in accordance with the approved plans listed in Mitigation Measure 1.
- c. Generally in accordance with the approved documentation listed in Mitigation Measure 1.

Note: The Activity must be carried out generally in accordance with the following plans and in accordance with the following documents except where the mitigation measures expressly require otherwise:

Number	Name of Plan	Date	Rev
Civil Drawings prepared by Stantec			
304000968-100-C1021	DEMOLITION AND TREE REMOVAL PLAN	2024.11.21	7
304000968-100-C1031	GENERAL ARRANGEMENT PLAN	2024.11.21	4
304000968-100-C1101	SEDIMENT & EROSION CONTROL PLAN SHEET 1	2024.11.27	5
304000968-100-C1102	SEDIMENT & EROSION CONTROL PLAN SHEET 2	2024.11.27	5
304000968-100-C1103	SEDIMENT & EROSION CONTROL PLAN SHEET 3	2024.11.27	5
304000968-100-C1104	SEDIMENT & EROSION CONTROL PLAN SHEET 4	2024.11.27	5
304000968-100-C1131	SEDIMENT & EROSION CONTROL DETAILS	2024.11.21	4
304000968-100-C1141	CUT AND FILL PLAN	2024.11.27	5
304000968-100-C1301	SITEWORKS PLAN SHEET 1	2024.11.27	5
304000968-100-C1302	SITEWORKS PLAN SHEET 2	2024.11.27	5
304000968-100-C1303	SITEWORKS PLAN SHEET 3	2024.11.27	5
304000968-100-C1304	SITEWORKS PLAN SHEET 4	2024.11.27	5

304000968-100-C1351	MOORE GULLY LONGITUDINAL SECTIONS SHEET 1	2024.11.21	4
304000968-100-C1352	MOORE GULLY LONGITUDINAL SECTIONS SHEET 2	2024.11.21	4
304000968-100-C1401	MOORE GULLY CROSS SECTIONS SHEET 1	2024.11.21	4
304000968-100-C1402	MOORE GULLY CROSS SECTIONS SHEET 2	2024.11.21	4
304000968-100-C1403	MOORE GULLY CROSS SECTIONS SHEET 3	2024.11.21	4
304000968-100-C1404	MOORE GULLY CROSS SECTIONS SHEET 4	2024.11.21	4
304000968-100-C1405	MOORE GULLY CROSS SECTIONS SHEET 5	2024.11.21	4
304000968-100-C1406	MOORE GULLY CROSS SECTIONS SHEET 6	2024.11.21	4
304000968-100-C1407	MOORE GULLY CROSS SECTIONS SHEET 7	2024.11.21	4
304000968-100-C1408	MOORE GULLY CROSS SECTIONS SHEET 8	2024.11.21	4
304000968-100-C1409	MOORE GULLY CROSS SECTIONS SHEET 9	2024.11.21	4
304000968-100-C1410	MOORE GULLY CROSS SECTIONS SHEET 10	2024.11.21	4
304000968-100-C1411	MOORE GULLY CROSS SECTIONS SHEET 11	2024.11.21	4
304000968-100-C14 12	MOORE GULLY CROSS SECTIONS SHEET 12	2024.11.21	4
304000968-100-C14 13	MOORE GULLY CROSS SECTIONS SHEET 13	2024.11.21	4
304000968-100-C14 14	MOORE GULLY CROSS SECTIONS SHEET 14	2024.11.21	4
304000968-100-C14 15	MOORE GULLY CROSS SECTIONS SHEET 15	2024.11.21	4
304000968-100-C14 16	MOORE GULLY CROSS SECTIONS SHEET 16	2024.11.21	4
304000968-100-C1901	SITE SECTION SETOUT PLAN SHEET 1	2024.11.21	4
304000968-100-C1902	SITE SECTION SETOUT PLAN SHEET 2	2024.11.21	4
304000968-100-C1903	SITE SECTION SETOUT PLAN SHEET 3	2024.11.21	4
304000968-100-C1912	SITE SECTIONS SHEET 1	2024.11.21	4
304000968-100-C1913	SITE SECTIONS SHEET 2	2024.11.21	4
304000968-100-C1913	SITE SECTIONS SHEET 3	2024.11.21	4

304000968-100-C1914	SITE SECTIONS SHEET 4	2024.11.21	4
304000968-100-C1915	SITE SECTIONS SHEET 5	2024.11.21	4
304000968-100-C1916	SITE SECTIONS SHEET 6	2024.11.21	4
304000968-100-C1917	SITE SECTIONS SHEET 7	2024.11.21	4
304000968-100-C1918	SITE SECTIONS SHEET 8	2024.11.21	4
304000968-100-C1919	SITE SECTIONS SHEET 9	2024.11.21	4
304000968-100-C1920	SITE SECTIONS SHEET 10	2024.11.21	4
304000968-100-C1921	SITE SECTIONS SHEET 11	2024.11.21	4
304000968-100-C1922	SITE SECTIONS SHEET 12	2024.11.21	4
304000968-100-C1923	SITE SECTIONS SHEET 13	2024.11.21	4
304000968-100-C1924	SITE SECTIONS SHEET 14	2024.11.21	4
304000968-100-C1925	SITE SECTIONS SHEET 15	2024.11.21	4
304000968-100-C1926	SITE SECTIONS SHEET 16	2024.11.21	4
304000968-100-C1927	SITE SECTIONS SHEET 17	2024.11.21	4
304000968-100-C1928	SITE SECTIONS SHEET 18	2024.11.21	4
304000968-100-C1930	SITE SECTIONS SHEET 19	2024.11.21	4
304000968-100-C2201	TYPICAL DETAILS SHEET 1	2024.11.21	4
304000968-100-C2202	TYPICAL DETAILS SHEET 2	2024.11.21	4
304000968-100-C2203	TYPICAL DETAILS SHEET 3	2024.11.21	4
304000968-100-C2204	TYPICAL DETAILS SHEET 4	2024.11.21	4
304000968-100-C2205	TYPICAL DETAILS SHEET 5	2024.11.21	4
304000968-100-C2206	TYPICAL STORMWATER CONNECTION DETAILS	2024.11.21	4
304000968-100-C2207	SPILLWAY DETAILS	2024.11.21	1
304000968-100-C2208	CHANNEL TYPICAL CROSS SECTIONS	2024.11.21	1

Landscape Plans prepared by Taylor Brammer

REF-LA100	Site Plan	F	22.11.2024
REF-LA101	Detailed Plan 1	F	22.11.2024
REF-LA102	Detailed Plan 2	F	22.11.2024
REF-LA103	Detailed Plan 3	F	22.11.2024
REF-LA104	Detailed Plan 4	F	22.11.2024
REF-LA105	Detailed Plan 5	F	22.11.2024
REF-LA106	Detailed Plan 6	F	22.11.2024
REF-LA200	Planting Approach 1	B	29.04.2024
REF-LA201	Planting Approach 2	B	29.04.2024
REF-LA202	Planting Schedules	C	22.11.2024
REF-LA203	Detailed Planting Plan 1	E	22.11.2024
REF-LA204	Detailed Planting Plan 2	E	22.11.2024
REF-LA205	Detailed Planting Plan 3	E	22.11.2024
REF-LA206	Detailed Planting Plan 4	E	22.11.2024
REF-LA207	Detailed Planting Plan 5	E	22.11.2024
REF-LA208	Detailed Planting Plan 6	E	22.11.2024
REF-LA300	Site Sections 1	C	22.11.2024
REF-LA301	Site Sections 2	C	22.11.2024
REF-LA400	Eastern Boardwalk	B	29.04.2024
REF-LA401	Western Boardwalk	B	29.04.2024
REF-DA403	Wayfinding Pavilion	B	29.04.2024

Approved Documentation

Safety in Design Report prepared by Stantec (Rev 4 dated 28 November 2023)

Construction Environmental Management Plan prepared by Orion (Rev 1 dated 16 January 2024)

Covering Letter: REF Trunk Stormwater Drainage BCC 215 Badgerys Creek Road, Bradfield NSW 2556 prepared by ERM (dated 22 December 2023)

Geotechnical Comment – Response to Design Queries prepared by Douglas Partners (R.006.Rev0 dated 10 April 2024)

Bradfield City Centre – Moore Gully Riparian Corridor Landscape Architecture Design Report prepared by Taylor Brammer (Rev d dated 27 November 2024)

Landscape Structural Drawings prepared Drawings No. S0.01-S2.11 by SDA Structures and Taylor Brammer (Rev P1 dated 28 February 2024)

WPCA Bradfield City Centre: Electrical Services Drawings E000-E112 prepared by JHA and Taylor Brammer (Rev P2 dated 22 March 2024)

ARBORICULTURAL IMPACT ASSESSMENT & TREE PROTECTION MANAGEMENT PLAN prepared by Active Green Services (dated May 2023)

Bushfire Advice – Bradfield City Centre Trunk Stormwater Infrastructure Review of Environmental Factors prepared by Eco Logical (Dated 15 March 2024)

Bradfield City Regional Stormwater Infrastructure: Addendum to Biodiversity Strategy and Impact Assessment Version 2 prepared by Eco Logical (Rev 2 dated 1 November 2024)

Maintenance Plan prepared by the Authority/Sydney Water (undated)

Dam Dewatering Plan prepared by Eco Logical (Version 1 dated 2 April 2024)

Aviation Safeguard Statement prepared by AviPro (dated 21 August 2024)

In the event of any inconsistency between the approved plans and supporting documentation, the approved plans prevail. In the event of any inconsistency between the approved plans and a mitigation measure, the mitigation measure prevails.

MITIGATION MEASURES

2. Amendment Tracking

A design register must be maintained for any changes to the approved plans, clearly outlining the proposed modifications and their alignment with the original approval. The register should include commentary from the Crown Certifier, and each change must be endorsed by the relevant parties before implementation.

3. Compliance with the Building Code of Australia and Australian Standard

All work must be undertaken in accordance with the Building Code of Australia and referenced Australian Standards.

4. Access for People with Disabilities

Street furniture and publicly accessible routes must be designed and constructed to provide access for people with a disability in accordance with the Building Code of Australia and referenced standards. Prior to the issue of a Crown Certificate, the Crown Certifier must ensure that evidence of compliance with this condition from a suitably qualified person is provided and that the requirements are incorporated into any certified plans.

5. Complaints Response

Complaints received shall be recorded, investigated and resolved as soon as possible. On receiving a complaint, works shall be reviewed to determine whether issues relating to the complaint can be avoided or minimised. Feedback shall be provided to the complainant explaining what remedial action was taken.

6. Protection of Aboriginal Heritage Items

Works are not permitted to impact or harm or work within the buffer zone of Aboriginal Heritage Item TP15.

7. Aquatic Ecologist Advice

Where considered reasonable and feasible, the project is to implement any recommendations from an Aquatic Ecologist or other suitably qualified person.

8. Sydney Metro Interface

Should any stormwater measure which sits above the underground rail alignment increase in depth, consultation is required with Sydney Metro.

9. Staging

The project may be constructed and operated in stages. Where compliance with conditions is required to be staged due to staged construction or operation, a Staging Report (for either or both construction and operation as the case may be) must be prepared.

A Staging Report must:

- (a) if staged construction is proposed, set out how the construction of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when construction of each stage will commence and finish;
- (b) if staged operation is proposed, set out how the operation of the whole of the project will be staged, including details of work and other activities to be carried out in each stage and the general timing of when operation of each stage will commence and finish (if relevant);
- (c) specify how compliance with conditions will be achieved across and between each of the stages of the project; and
- (d) set out mechanisms for managing any cumulative impacts arising from the proposed staging.

Where construction or operation is being staged in accordance with a Staging Report, the terms of the mitigation measures that apply or are relevant to the works or activities to be carried out in a specific stage must be complied with at the relevant time for that stage as identified in the Staging Report.

10. No Works on Non-Certified Land

This Activity does not permit the removal of vegetation or any physical works on land not certified under the Biodiversity Certification Order.

11. Compliance Reporting

- a. *Within two (2) months of the commencement of operation of the development, and every six (6) months thereafter (or as otherwise agreed to in writing by the Western Parkland City Authority), the Contractor must prepare and submit a Compliance Report for the Activity to the satisfaction of the Authority.*
- b. *Each Compliance Report must provide an assessment of the environmental performance of the development over the previous year, and must:*
 - (a) confirm the status of each of the mitigation measures identified including evidence they have been satisfied, where relevant;*
 - (b) identify any complaints received over the life of the development including whether there are any evident trends; and*
 - (c) identify any discrepancies between the predicted and actual impacts of the Activity and analyse the potential cause of any significant discrepancies.*

PRIOR TO COMMENCEMENT OF ANY WORK ON SITE

12. Crown Certificate

Crown work cannot commence on site unless the Crown work is certified by or on behalf of the Crown to comply with the Building Code of Australia in accordance with section 6.28 of the *Environmental Planning and Assessment Act 1979 (NSW)*.

13. Required Consultation

Prior to the commencement of any works, the following consultation must be completed to the satisfaction of the Authority:

- Consultation with DCCEE (Water Group) on an approval and water access license in relation to the *Water Management Act 2000 (NSW)*.
- Consultation with DPI Fisheries involving the impact of Key Fish Habitat in relation to Section 199 of the *Fisheries Management Act 1994 (NSW)*.

14. Design Submission Package

Prior to commencement of construction, the design must be certified by the Water Service Coordinator (WSC) or an equivalent qualified civil designer. Upon receipt of this certification, Sydney Water will issue a job-specific letter, which is required prior to the commencement of construction under the Developer Works Policy.

15. Protection of Public Infrastructure

Prior to the commencement of construction, the following must be carried out

- a. consult with the relevant owner and provider of services and infrastructure that are likely to be affected by the activity to make suitable arrangements for access to, diversion, protection and support of the affected infrastructure
- b. prepare a dilapidation report identifying the condition of all public infrastructure in the vicinity of the site (including roads, gutters and footpaths) that have the potential to be affected
- c. submit a copy of the dilapidation report to the relevant asset manager.

16. Riparian Corridor Guidelines

Prior to the commencement of any work, evidence of consultation and engagement with a suitably qualified ecologist shall be provided to the Authority. Evidence will be provided that the detailed design Moore Gully generally complies with the DPIE Department's *Guidelines for Controlled Activities - Riparian Corridors*. This includes consideration to reduce and avoid crossings and batters in the inner 50% vegetated riparian zone.

17. Additional Salinity Assessment

. Prior to the commencement of any works on site, an additional salinity assessment may be required during the detailed design phase of the project. Based on the findings of this assessment, any necessary mitigation measures identified must be implemented and strictly adhered to throughout the duration of the project.

18. Contamination

Confirmation of the relevant validation report(s) must occur prior to commencement of construction to confirm the suitability and successful remediation of the site.

19. Site Fencing

The Head Contractor is to ensure adequate signage and temporary fencing is installed and maintained to restrict access and prevent unauthorised access to the Site at all stages throughout construction. The Contractor will be required to install perimeter fencing to all external work areas.

20. Construction Methodology

The Contractor will be responsible for the overall management of the Site and subsequently will be required to produce a site-specific Site Management Plan. The plan may include the following:

- providing written notification to the adjoining landowners and affected parties informing them of proposed scheduling of the works. Notification to be reviewed by the Authority prior to sending.
- clearly communicating and displaying the name of the Authority and Contractor using the Authority's approved NSW Government branding (including the name and details of a contact person).
- providing notice to Council of the intended time for commencement of the works.
- compliance with local construction working hour requirements.
- maintaining a copy of the REF Conditions on-site throughout the entire construction period.

21. Site Induction and Briefing

All personal must be inducted onto the site in accordance with the CEMP, Incident Management Plan and the Site Induction provided by the contractor and recorded.

The contractor is to further ensure all personnel have site familiarity knowing of amenity, site office and access locations as well as knowledge and understanding of the CEMP.

Training and awareness shall be provided by the contractor to ensure:

- the full extent of the Erosion and Sediment Control Measures outlined under the CEMP is implemented at site
- emergency response training to ensure the proper protocols are followed in such events.

22. Safety

The Contractor will be delegated the responsibility of Principal Contractor in accordance with the *Work Health and Safety Act 2011 (NSW)* (WHS Act). The Contractor shall take all reasonable care and actions to meet its obligations under the WHS Act as contractually and legislatively required. In its role as an employer and site manager, the Contractor must maintain a working environment, which minimises all risks to the health and safety of its employees, Sub-Contractors, visitors to site and the community.

The Contractor will be required to fulfil this responsibility by complying with or exceeding all relevant industry and or the Authority's requirements, whilst attending to the following items:

- Identifying any risk related activities and ensuring procedures are followed to eliminate these risks.

- Where risk elimination is not possible, controlling foreseeable hazards or risks.
- Complying with relevant Work Health and Safety, workplace industry management and workers compensation legislation and regulations.
- Providing appropriate instruction, inductions and training for employees, Sub-Contractors, and visitors to site.
- Compiling a Site-specific Work Health Safety Management Plan prior to commencing works on site.
- Providing adequate facilities for employees at work sites.

Employee and Sub-Contractor responsibilities under the WHS Act include:

- avoiding unsafe work practices including putting themselves or others in an unsafe position.
- adhering to the Personal Protective Equipment (PPE) site requirements of the Head Contractor's WHS Management Plan.
- reporting unsafe behaviour and/or potentially unsafe site conditions while on site immediately to the WHS representative.

The Contractor is required to provide adequate training of its employees, Sub-Contractors and site visitors including mandatory site inductions. The Site induction should make all parties aware of their site responsibilities and may include the following:

- Implementation of safe work method statements (SWMS) for all activities prior to commencing these activities.
- Implement pre-start checks for all plant.
- Encourage all personnel to report possible hazards and near misses to promote a safe work culture.
- Emergency evacuation, mustering and response plans shall be prepared and implemented, including site inductions for all site personnel and visitors.
- Hoarding or fencing should be erected between the work site and the public place if the work involved is likely to obstruct or inconvenience pedestrian or vehicular traffic – in accordance with Council requirements.
- All work practices are to comply with SafeWork NSW requirements and the WHS Act.
- Description of the Site works and layout.
- Nominating restricted access areas.
- Locating toilet and break facilities.
- Location of site and safety signage.
- Document and induct site operatives of first aid arrangements, accident and emergency procedures and emergency evacuation routes.
- Identify the Site WHS Representative.
- Explain requirements for PPE.

It is the responsibility of the Contractor that all site personnel are aware of and adhere to all PPE requirements as per their WHS Plan. This could include the following:

- Safety helmets (AS1800 and AS1801).
- Safety footwear (AS2210.1/.2).
- Eye Protection (AS1336 and AS1337).
- Ear Protection (AS1270).

Protection installations may include barricades, guards, fencing, footpaths, warning signs, lighting, watching, traffic flagging, safety helmets and clothing, removal of obstructions, protection of services and anything else necessary to be provided to:

- Protect people and property, adjoining properties, and trees not part of the project scope.
- Avoid unnecessary interference with the passage of people and vehicles.
- Prevent nuisance and unreasonable noise and disturbance.
- Ensure that the works do not obstruct or damage roadways or footpaths and drains on or adjacent to the site.

Prior to works commencing on site, searching and verification of existing services is recommended. It is recommended to be performed in a grid basis to ensure completeness, and to be undertaken via various means including but not limited to:

- Review of supplied documentation.
- Visual inspection.
- The use of ground penetrating radar or alternatives (if required).
- Consultation with Services Authorities (if required).

Each identified service is to be exposed by non-destructive techniques such as vacuum extraction, confirmed if still active, surveyed, marked and diverted if required.

23. Incident Management

The nominated principal civil contractor must ensure the development, implementation, and communication of their Emergency Response Plan to all team members, contractors, and visitors on-site.

In the event of an emergency, the Site Supervisor is responsible for executing the appropriate procedures outlined in their Emergency Response Plan and Safe Work Method Statement. Emergency incidents can occur during or outside regular working hours. It is imperative that personnel receive training on the procedures to follow during such incidents, and contact details for emergency services organisations should be provided to expedite resource deployment.

Any hazards or safety-related incidents, including injuries, accidents, near misses, or environmental issues, must be promptly reported to the Project Supervisor and the Authority in accordance with the contractor's Accident and Incident Management procedure. The Project Supervisor and the relevant Operations Manager will then report the incident to the appropriate authority and initiate mitigation measures as soon as it is safe to do so.

Following an incident or accident, an incident notification form should be completed as soon as practicable, with investigations and improvement actions to be carried out upon approval and authorisation.

24. Emergency Response Procedure

A detailed Emergency Management Plan will need to be developed prior to site establishment works as part of the WHS Management Plan.

25. Construction Traffic Management Plan

The Contractor is required to provide a Construction Traffic Management Plan (CTMP) prior to commencing works for the Authority's approval. The plan is to maintain safe and adequate pedestrian and road traffic access within the surrounding road network and public domain.

The CTMP is to help explain how risks will be managed at the construction workplace. This may include details of:

- Designated travel paths for vehicles including entry and exit points, haul routes for debris or plant and materials, or traffic crossing other streams of traffic.
- Pedestrian and traffic routes.
- Predicted number of construction vehicle movements, detail of vehicle types and demonstrate that proposed construction vehicle movements can work within the context of road changes in the surrounding area, noting that construction vehicle movements are to be minimised during peak periods.
- Designated delivery and loading and unloading areas.
- Travel paths on routes remote from the workplace including places to turn around, dump material, access ramps and side roads.
- Details of crane arrangements including location of any crane(s) and crane movement plan.
- How often and where vehicles and pedestrians interact.
- A detailed plan of any proposed hoarding and/or scaffolding.
- Proposed construction hours.
- Traffic control measures for each expected interaction including drawings of the layout of barriers, walkways, signs, and general arrangements to warn and guide traffic around, past or through the workplace or temporary hazard.
- Requirements for special vehicles like large vehicles and mobile cranes.
- Requirements for loading from the side of road onto the Site.
- The responsibilities of people managing traffic at the workplace.
- The responsibilities of people expected to interact with traffic at the workplace.
- Instructions or procedures for controlling traffic including in an emergency.
- How to implement and monitor the effectiveness of a traffic management plan.
- Construction worker parking.
- Identify the cumulative construction activities of the development and other projects within or around the development site, including Sydney Metro Western Sydney Airport and private development. Proposed measures to minimise the cumulative impacts on the surrounding road network should be clearly identified and included in the CPTMP.

The CTMP should be monitored and reviewed regularly including after an incident to ensure it is effective and considers changes at the workplace. Workers should be aware of and understand the CTMP and receive information instruction, training, and supervision. The Site induction should cover the CTMP.

The final plan shall be submitted to TfNSW for information purposes.

26. Construction Environmental Management updates

A detailed Construction Environmental Management Plan must be prepared prior to commencing works by the Contractor. The detailed CEMP must include all measures provided in the current high level CEMP prepared by SMEC and attached at Appendix D. This plan must identify specific mitigation, safeguards and management and avoidance measures. These measures will be designed to avoid or minimise the potential indirect and direct impacts associated with the construction works.

A copy of the detailed CEMP must be provided to Sydney Metro for information purposes.

The Construction Environmental Management is to be updated to include details of the following:

- defining a minimum disturbance footprint required for works
- earthwork details, construction methods,
- construction site management – access, storage/stockpile areas, erosion and sediment control
- schedule, sequence, and duration of works,
- rehabilitation plan for all disturbed areas,
- measures to educate workers and people using the site during construction works to be aware of flood risk.
- Develop appropriate emergency plans for the during of works.
- Quantify all water take for the project including water demands during construction and ongoing, water take due to aquifer interference during excavation or take associated with water storages.
- Confirm adequate and secure water supply for the project. This includes confirmation that water can be sourced from an appropriately authorised and reliable supply or demonstration sufficient entitlement can be obtained prior to take.
- Assessment and consideration of cumulative impacts onto and from development/activities occurring concurrently during the construction period, including the provision of noise monitors on site to ensure cumulative noise thresholds are not exceeded.

27. Riparian Buffer Zones

Confirmation from suitable qualified person is to be provided to the Crown Certifier that the riparian buffer zones widths comply with the requirements specified in DPI Fisheries Policies and Guidelines section.3.2.3.2.

28. Vegetation Management Plan

Prior to the commencement of construction, a Vegetation Management Plan (VMP) is to be developed and adopted in full. The VMP must include (but is not limited to):

- Document and map relevant vegetation management zones,
- Define treatment to specific zones,
- Implement a rehabilitation strategy,
- Describe monitoring and reporting mechanisms

The VMP must be prepared by a suitably qualified ecologist. The VMP must be issued to Liverpool City Council and Sydney Water for their records.

29. Tree Planting

Prior to commencement of construction works, the contractor is responsible for preparing, a Tree Management Plan by an arborist qualified person which accurately records the number and location of trees being removed as well as trees being retained. As part of the Tree Management Plan, the contractor is required to provide an updated Tree Removal Plan due to the reduction of the scope of works area. The Tree Management Plan must be submitted to the Authority for record keeping purposes.

If considered reasonable and feasible, it is recommended trees are planted in a variety of pots from 200mm to 100L to enhance environmental resilience and ensure trees at different growth stages.

30. Crossing Design and Access Paths

If considered reasonable and feasible, it is recommended crossing access paths should not be treated like a T or X intersection but rather use soft radial corners to enable better cyclist / pedestrian movement.

Access paths should be unobstructed and feature appropriate surface treatment.

31. Wildlife Management

Prior to the issue of a Crown Completion Certificate, a Wildlife Hazard Assessment and Wildlife Risk Management Plan must be prepared by a suitably qualified persons and all reasonable and feasible recommendations and strategies must be adopted. Evidence of how recommendations and strategies have been adopted must be provided to the Authority or Sydney Water.

DURING CONSTRUCTION OF STAGES 1 AND STAGE 2

32. Site notice

A site notice must be prominently displayed in a prominent position at the site during construction to inform the public of project details, and must satisfy the following requirements:

- a. the site notice(s) must be durable and weatherproof and must be displayed throughout the works period;
- b. the approved hours of work, the name of the builder, structural engineer, site/project manager, the responsible managing company (if any), its address and 24-hour contact phone number for any inquiries must be displayed on the site notice(s); and
- c. the site notice(s) must be mounted at eye level on the perimeter hoardings/fencing and must state that unauthorised entry to the site is not permitted.

33. No Obstruction of Public Way

Building materials, machinery, vehicles, refuse, skip bins or the like must not be stored or placed in the public way (outside of any approved construction works zone) under any circumstances.

34. Implementation of CEMP and Sub Plans

The construction works are to be undertaken in accordance with the approved CEMP prepared by Orion.

35. Construction Hours

Construction may only be carried out between the following hours:

- a. 7:00am and 6:00pm, Monday to Friday inclusive; and
- b. 7am and 1pm Saturday (if inaudible on neighbouring residential properties)

No noisy work Sunday and Public Holidays unless the project seeks approval from the certifying authority in accordance with Section 3.4 of the CEMP.

36. Construction Vehicle Entering the Site

The principal contractor must ensure construction vehicles (including concrete agitator trucks) do not arrive at the site or surrounding residential properties outside of the construction hours of work outlined under Mitigation Measure 34.

37. Flooding Recommendations

It is recommended the contractor reviews the Bureau of Meteorology (BoM) weather forecast prior to starting a workday. Upon advice from the BoM or when evidence leads to an expectation of flooding, it is recommended the contractor close the worksite and secure all materials and equipment in the risk of an event of riverine flooding.

38. Sediment and Erosion Control

Sediment and erosion control plan should comply with the construction phase targets within the Technical guidance for achieving Wianamatta–South Creek stormwater management targets (DPE 2022).

39. Project Site Management

The Head Contractor is to ensure adequate signage and temporary fencing is installed and maintained to restrict access and prevent unauthorised access to the Site at all stages throughout construction.

The Contractor will be required to install perimeter fencing to all external work areas.

PRIOR TO OPERATION OF ACTIVITY

40. Section 73 Certificate

Prior to the operation of the Activity, a Section 73 Certificate (or similar) must be issued from Sydney Water to certify that the design of the Activity has been prepared to an appropriate standard.

41. Works as Executed Drawings

Works-as-executed drawings are also to be forwarded to the relevant asset manager for information purposes at the completion of the project.

42. Flood Signage

Signage must be implemented educating people using the site about the risk of flooding and other information tools.

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