


Sydney Harbour Bridge Cycleway Northern Access Proposal

Statement of Heritage Impact

Report to Arcadis / Transport for NSW

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 artefact

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EXECUTIVE SUMMARY

The Sydney Harbour Bridge Cycleway route is a critical link in the metropolitan Sydney regional bike network connecting the proposed North Shore cycleway on the Pacific Highway with the existing Kent Street cycleway in the Sydney Central Business District (CBD). The current step access to the heavily used Sydney Harbour Bridge Cycleway is not easily accessible and prevents many customer groups from using the facility, and its usage has decreased over time despite a significant growth in bike purchases and uptake in the recent years.

Transport for NSW proposes to upgrade the existing cycleway connection between the Sydney Harbour Bridge northern cycleway and the bike network at Milsons Point. Artefact Heritage has been engaged by Arcadis on behalf of Transport for NSW to prepare a Statement of Heritage Impact (SOHI) for the thirty per cent concept design for the Review of Environmental Factors (REF) and for submission as part of an application for Section 60 (S60) approval under the *Heritage Act 1977* (Heritage Act).

This report provides details of the heritage significance of the listed heritage items, assesses potential impacts to the significance of the heritage items from the proposal, and assesses potential impacts to non-indigenous archaeological remains. This report has considered and is consistent with the heritage management strategies outlined in the Sydney Harbour Bridge Conservation Management Plan¹.

The proposal would occur within the following statutory listed heritage curtilages:

Listing	Number	Name	Location
National Heritage List (NHL)	105888	Sydney Harbour Bridge	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000
State Heritage Register (SHR)	00781	Sydney Harbour Bridge, approaches and viaducts (road and rail)	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000
SHR	01194	Milsons Point Railway Station Group	North Shore railway, Milsons Point, NSW 2061
Roads and Traffic Authority (now TfNSW) Section 170	4301067	Sydney Harbour Bridge, approaches and viaducts	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000
Transport Asset Holding Entity (TAHE) Section 170	4801059	Sydney Harbour Bridge (Rail Property Only)	Arthur and Argyle Streets, Sydney, NSW 2000
TAHE Section 170	4801026	Milsons Point Railway Station	Alfred Street, Milsons Point, NSW 2061

¹ GML Heritage. *Sydney Harbour Bridge Conservation Management Plan*. Prepared by GML and Transport for NSW, 2021.

Listing	Number	Name	Location
North Sydney Local Environmental Plan 2013 (North Sydney LEP)	I0538	Bradfield Park (including northern section)	Alfred Street South, Milsons Point
North Sydney LEP	I0539	Milsons Point Railway Station Group	North Shore railway, Milsons Point, NSW 2061
North Sydney LEP	I0530	Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway	Bradfield Highway and North Shore railway, Milsons Point/Dawes Point, NSW 2000

Summary of Findings

Table 1-1 provides a summary of the findings of this SOHI.

Table 1-1 Summary of heritage impacts (direct and indirect) to the Sydney Harbour Bridge and surrounding heritage listings

Design feature	Listing(s) impacted	Impact grading and discussion
Removal of part of a parapet near the Burton Street stairs along the viaduct.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Moderate (Direct physical and visual)
The connection between the newly built ramp and the existing cycleway on the Sydney Harbour Bridge.	SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
Raised median strips in the middle of the upper connection platform.	TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts 	
Paving finishes and line marking between on the existing cycleway and new cycleway.	North Sydney LEP: <ul style="list-style-type: none"> I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	
Creation of a landing point for the ramp in Bradfield Park.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	Moderate (Direct physical and visual)
Partial obstruction of the Burton Street entrance to Milsons Point Station and the Burton Street archway.	SHR: <ul style="list-style-type: none"> 01194: Milsons Point Railway Station Group TAHE Section 170 Register: <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station North Sydney LEP: <ul style="list-style-type: none"> I0539: Milsons Point Railway Station Group 	Minor to negligible (Direct visual)

Design feature	Listing(s) impacted	Impact grading and discussion
Introduction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the Sydney Harbour Bridge.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group <p>TfNSW Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Minor to Moderate (Direct physical and visual)
A change to the layout of Bradfield Park, including the removal of some landscaping elements, vegetation, and introduction of new pedestrian and cycle pathways.	<p>North Sydney LEP 2013:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	Minor (Direct physical and visual)
Alfred Street south cycleway and pedestrian pathway adjustments.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Neutral (Direct physical and visual)
Bus stop adjustments along Alfred Street.	<p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
On-street parking adjustments.	<p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	
Associated landscaping.		
New pedestrian crossings and round about adjustments on both Middlemiss and Lavender Streets.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Neutral (Direct physical and visual)
Associated landscaping.	<p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	

Design feature	Listing(s) impacted	Impact grading and discussion
Construction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the Sydney Harbour Bridge. TAHE	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group <p>TfNSW Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Moderate to Minor (Indirect visual)
Excavation in Bradfield Park Central and North, and on each side of Burton Street for the columns footings and associated works.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) <p>TfNSW Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Negligible to Neutral (Indirect physical)
Ancillary sites during construction.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) <p>TfNSW Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Negligible to Neutral (Indirect physical and visual)

Heritage Approval Pathway

Impacts to the SHR within the study area would be managed via the Section 60 process of the Heritage Act.

The proposal would not result in a significant impact to the National Heritage values of the Sydney Harbour Bridge (see 8.6).

Historical Archaeology

Impact to significant archaeological remains within the SHR curtilages would be managed via the Section 60 process of the Heritage Act. Due to the size of the proposal, a major works application form will be required. To support this application, it is recommended that an Archaeological Research Design is prepared for the proposal. The Archaeological Research Design should include a management plan for potential archaeological remains.

Impacts to historical archaeology outside of the SHR curtilages may be eligible to be managed under Section 139 (4) exceptions.

The management plan should clearly identify which works should be managed under the relevant Sydney Harbour Bridge Conservation Management Plan and which works should be managed under exemptions from Heritage Act approval (i.e. Section 139(4) exemptions).

Recommendations – built heritage

The following recommendations and mitigations are provided to ensure no unnecessary impacts occur prior to and during the construction of the proposal, and that the operation of the proposal also avoids impact.

Approvals and management measures

The following measures should be implemented prior to finalisation of the detailed design:

- The design must progress in accordance with the conservation policies and management measures outlined in the *Sydney Harbour Bridge Conservation Management Plan* prepared by GML (2021) and the *Supplementary Detailed Heritage Framework* (draft) prepared by TZG (2021).
- A Heritage Interpretation Strategy (HIS) for the proposal must be prepared. Heritage interpretation opportunities must be considered during progression of detailed design for the proposal, in accordance with the recommendations in the *Sydney Harbour Bridge Conservation Management Plan* prepared by GML (2021) and the *Supplementary Detailed Heritage Framework* (draft) prepared by TZG (2021), as well as any other future heritage interpretation documentation prepared for the proposal. Appropriate heritage interpretation must be incorporated into the design for the proposal in accordance with the NSW Heritage Office's *NSW Heritage Manual* (1996), *Interpreting Heritage Places and Items Guidelines* (2005b), and *Heritage*

Interpretation Policy (2005a). The *Sydney Harbour Bridge Interpretation Plan* 2007 must also be referred to during the preparation of the HIS. Opportunities for interpretive displays in appropriate locations should be explored as part of the HIS.

- Preparation of the heritage approvals for this proposal must consider the requirement to update and/or provide further assessment and documentation following review and approval of the Section 60 application by Heritage NSW. This could include (but is not limited to):
 - Further heritage impact assessment on the detailed design for the proposal
 - A materials and finishes palette
 - Photographic Archival Recording of the site and surrounding areas.

Detailed design considerations

The following considerations should guide the detailed design phase of the proposal:

- The Design Integrity Panel (DIP), chaired by the Government Architect NSW and incorporating heritage, design and Connecting with Country expertise, should have continued involvement in the design process. Heritage NSW should be invited to attend meetings as observers.
- Heritage impact assessment and specialist heritage advice by an appropriately qualified and experienced heritage architect should continue to inform the detailed design and delivery of the proposal.
- Continue to develop and refine the architectural and structural design of the ramp to ensure a lightweight and contemporary architectural and structural design that compliments its heritage and open space context.
- Further review is required to refine the detailing for the ramp connection with the bridge viaduct to ensure the design is sensitive and elegant but remains safe for users.
- Further review is required to refine the cutting detail of the section of parapet to be removed for the cycleway ramp connection. Consideration of the exposed parapet cut on the eastern side near the lift structure could be use as precedent for this proposal.
- Review is required of a suitable place for relocation of the section of parapet. Consideration of the relocated parapet on the south-eastern side near the lift could be use as precedent for this proposal.
- Continue to develop and refine the lighting design along the proposal. The lighting design should retain and minimise impacts to the existing lighting arrangement, which has an important role in lighting the Sydney Harbour Bridge viaduct structure and surrounding elements.

- The existing heritage walk in Bradfield Park including heritage interpretive signage should be incorporated within the new design for the northern landing plaza and public domain.
- Further consultation with key heritage stakeholders, including (but not limited to) TfNSW Heritage, Heritage NSW, and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) must be undertaken in detailed design.
- A materials and finishes palette for the ramp and landing in Bradfield Park should be further developed in detailed design, incorporating specialist heritage input and DIP advice
- The heritage interpretation and Connecting with Country opportunities should be developed and documented within the HIS in consultation with the Design Integrity Panel (DIP), Aboriginal knowledge holders and Heritage NSW.
- Photographic Archival Recording (PAR) and reporting must be carried out prior to the construction phase of the project. The PAR must be prepared in accordance with the NSW Heritage Office's *How to Prepare Archival Records of Heritage Items* (1998a), and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006). The record would be prepared by a suitably qualified heritage consultant using archival-quality material. Records for SHR listed items would be held at the NSW Heritage Council and State Library. Records for LEP-listed items would be held by the local Council and local library. A copy of the record would be held by the owner of the asset.

Construction

The following must be considered and implemented in the construction of the proposal:

- The Design Integrity Panel (DIP), incorporating heritage, design and Connecting with Country expertise, should have continued involvement throughout the construction of the proposal. Heritage NSW should be invited to attend meetings as observers.
- A Construction Environmental Management Plan (CEMP) must be prepared for the proposal prior to construction works commencing. This plan must outline all relevant environmental and heritage constraints, mitigations and control measures to ensure unapproved impacts are avoided.
- No changes to the overall design intent, overall design footprint or constructability of the proposal can occur in this phase of the proposal without consultation with the proposal heritage specialist.
- Site rehabilitation measures related to construction sites will be incorporated within an Urban Design and Landscape Plan or similar documents. The objective of the rehabilitation will be to minimise long-term impacts on the visual amenity of the items by recreating a sympathetic environment. A landscape scheme would be prepared for the North Sydney LEP listed Bradfield Park to capture the new plantings, retained plantings and overall landscaping within and around the item's curtilage. The scheme

will consider appropriate plantings, including those proposed as part of the Connecting with Country plan for the project.

- A heritage induction briefing should be prepared for the proposal to be delivered to all staff working on the proposal. The briefing should be prepared by a qualified heritage specialist, and ideally delivered by the proposal heritage specialist. It should contain key information about heritage significance, areas to avoid and key do's and don'ts within the heritage areas.
- Construction vibration monitoring is recommended throughout the construction phase of the proposal to ensure no indirect impacts occur to heritage items and the public domain as a result of the works.
- Operating plant (swinging, reversing, moving etc.) must adhere to standard setbacks and clearances from heritage structures and items which are not identified to be impacted.
- Temporary hording and signage should be placed around heritage buildings and structures to be avoided during works, and should consider interpretative signage or artwork on the hording to lighten the visual impacts during construction.

Operation

There are no specific operational heritage recommendations for this proposal.

Historical archaeology

The following recommendation and mitigations apply to historical archaeology:

- Appointment of a suitably qualified Excavation Director and preparation of Archaeological Research Design during detailed design must be undertaken for the proposal. The ARD would identify if any monitoring or archaeological testing would be required during the construction phase of the proposal.
- The Transport for NSW *Unexpected Heritage Finds Procedure* (2021) must be followed as part of the proposal. If any unexpected finds are located during construction, works must stop and the project archaeologist contacted immediately.

CONTENTS

1.0	Introduction.....	1
1.1	Preamble.....	1
1.2	Proposal background	1
1.3	The proposal and study area.....	2
1.4	Methodology	5
1.5	Limitations.....	6
1.6	Report authorship and acknowledgements.....	7
2.0	Statutory context	8
2.1	Summary.....	8
2.2	Relevant legislation	8
2.2.1	Environment Protection and Biodiversity Conservation Act 1999	8
2.2.2	NSW Heritage Act 1977	14
2.2.3	Conservation Management Plan.....	18
2.2.4	Transport Asset Holding Entity (TAHE) and Transport for NSW Section 170 Register	18
2.2.5	Environmental Planning and Assessment Act 1979	19
2.2.6	State Environmental Planning Policy (Transport and Infrastructure) 2021.....	23
2.2.7	State Environmental Planning Policy (Biodiversity and Conservation) 2021.....	23
2.2.8	UNESCO World Heritage Convention.....	24
3.0	The proposal	26
3.1	Preamble: Process preceding elevated linear bike ramp proposal.....	26
3.2	Thirty per cent concept design	26
3.3	Elevated linear bike ramp works.....	34
3.4	Alfred Street south cycle path and associated works.....	34
4.0	Historical background	36
4.1	Development of Milsons Point and Kirribilli	36
4.2	Sydney Harbour Bridge	36
4.3	Establishment of Bradfield Park	39
4.4	Development of the study area.....	40
4.5	Milsons Point Railway Station	41
5.0	Site description.....	44
5.1	Introduction	44
5.2	Visual site inspection.....	45
5.3	Visual setting and key views.....	59

6.0	Assessment of heritage significance	61
6.1	Sydney Harbour Bridge, Milsons Point Railway Station & Bradfield Park	61
6.1.1	Preamble	61
6.1.2	World heritage considerations.....	61
6.1.3	National heritage significance	61
6.1.4	State heritage significance: Sydney Harbour Bridge	62
6.1.5	State heritage significance: Milsons Point Railway Station.....	62
6.1.6	Local heritage significance.....	63
7.0	Archaeological Potential and Significance	64
7.1	Previous studies.....	64
7.1.1	E Higginbotham Consultant Archaeological Services 1992, Report on the Archaeological Monitoring Program of Works in Association with the Construction of the Sydney Harbour Tunnel at Bradfield Park, Milsons Point	64
7.1.2	Di Fazio 2001 'Bradfield Park North, Milsons Point Archaeological Assessment' 65	
7.1.3	HLA Envirosiences Pty Limited 2004, Archaeological Recording Bradfield Park North, Milsons Point, New South Wales.....	65
7.1.4	JCIS Consultants 2017, Archaeological Monitoring – Excavation of Footings for sculpture in Bradfield Park Milsons Point, NSW	68
7.1.5	Artefact Heritage 2018 and 2022, Sydney Harbour Bridge Northern Cycle Ramp – Geotechnical Works Historical SOHI.....	68
7.2	Previous impacts.....	71
7.3	Overview of the study area development.....	71
7.3.1	Phase 1: Early land grants (1800 – 1861) (Figure 57).....	71
7.3.2	Phase 2: Residential and commercial development (1861 – 1920s) (Figure 60)	72
7.3.3	Phase 3: Resumption and major construction (Sydney Harbour Bridge) (1920s – 1932) 72	
7.4	Summary of archaeological potential.....	78
7.5	Archaeological significance	80
7.6	Statement of archaeological significance.....	82
7.7	Archaeological impact assessment	83
7.7.1	Terminology.....	83
7.7.2	Potential works	84
7.7.3	Assessment of impacts on historical archaeology	85
8.0	Heritage impact assessment.....	87
8.1	Introduction	87
8.2	Statement of heritage impact.....	87

8.2.1	Key features and impacts of the proposal	87
8.3	Direct heritage impacts.....	89
8.4	Indirect heritage impacts	93
8.5	Cumulative impacts.....	95
8.6	Impact on National Heritage Values of the Sydney Harbour Bridge.....	95
8.6.1	National Heritage Values – Summary of Statement of Significance	95
8.6.2	National Heritage Criteria.....	96
8.6.3	Summary assessment of heritage impact on National Heritage values	96
8.6.4	Summary assessment of heritage impact on National Heritage values according to the National Heritage Significant Impact Criteria	97
8.6.5	Conclusion.....	99
8.7	Assessment against CMP policies.....	100
9.0	Conclusions and recommendations	111
9.1	Overview of findings	111
9.2	Heritage approval pathway.....	113
9.2.1	Historical archaeology	113
9.3	Recommendations – built heritage	114
9.3.1	Approvals and management measures.....	114
9.3.2	Detailed design considerations	115
9.3.3	Construction	116
9.3.4	Operation.....	117
9.3.5	Historical archaeology	117
10.0	References	118

FIGURES

Figure 1: Overview of the proposed elevated bike ramp (Courtesy: Aspect, 2022)	2
Figure 2: Overview of the proposal footprint and the study area	3
Figure 3: Sydney Harbour Bridge National Heritage List curtilage (Source: Commonwealth Department of Agriculture, Water and the Environment).....	12
Figure 4: Sydney Harbour Bridge National Heritage List curtilage (Source: Commonwealth Department of Agriculture, Water and the Environment).....	13
Figure 5: Sydney Harbour Bridge approaches and viaducts (Source: NSW Government, Heritage Management System)	15
Figure 6: Milsons Point Railway Station Group (Source: NSW Government, Heritage Management System)	16
Figure 7: SHR curtilages (Artefact, 2022)	17
Figure 8: LEP curtilages (Artefact, 2022).....	22
Figure 9: Buffer zone for Sydney Opera House world heritage listing (Source: SREP (Sydney Harbour Catchment), NSW Department of Planning & Environment)	25
Figure 10: The elevated linear bike ramp proposal. (Source: Aspect, 2022).....	27
Figure 11: Montage showing the proposed ramp landing and surrounding landscaping in Bradfield Park North (Source: Aspect, 2022)	28
Figure 12: The proposed cycleway along Alfred Street (Source: Aspect, 2022).....	29
Figure 13: General Arrangement Plan: intersection of Alfred Street, Middlemiss Street and Lavender Street. Source: Urban Design drawings, Aspect, 2022)	30
Figure 14: General Arrangement Plan: Bradfield Park bike ramp landing (Source: Urban Design drawings, Aspect, 2022)	31
Figure 15: General Arrangement Plan: cycleway arrangement and connection to the bridge (Source: Urban Design drawings, Aspect, 2022)	32
Figure 16: General Elevation of the Cycleway against Bradfield Park North, Milsons Point Station and the Sydney Harbour Bridge parapet (Source: Urban Design drawings, Aspect, 2022).....	33
Figure 17: Photograph of dwellings on Burton Street, Milsons Point prior to resumption for the construction of the Sydney Harbour Bridge, circa early 1920s. (Source: State Library NSW)	37
Figure 18: Side view of dwelling at 129 Alfred Street, 1926, resumed for Sydney Harbour Bridge (Source: North Sydney Council)	37
Figure 19: Structures at 121 Alfred Street, 1926, resumed for the Sydney Harbour Bridge (Source: North Sydney Council)	38
Figure 20: Historical photograph of construction of Sydney Harbour Bridge showing building extant within study area at the time (prior to demolition), 1930s. (Source: North Sydney Council).....	38

Figure 21: Construction of Sydney Harbour Bridge showing several buildings extant within the study area prior to demolition, circa 1920s (Source: North Sydney Council).....	39
Figure 22: Bradfield Park towards Alfred Street following construction of the Sydney Harbour Bridge, 1937 (Source: North Sydney Council).	40
Figure 23: Original Milsons Point Railway Station (used for north shore train services only), date unknown (Source: State Library of New South Wales [Home and Away - 35108]).....	42
Figure 24: “Opening of the North Sydney Railway”, 1893. This was for the first station at what is now Milsons Point Railway Station, for services only on Sydney’s North Shore (Source: National Archives of Australia [C4076:HN126])	42
Figure 25: Aerial view south over Milsons Point showing Sydney Harbour Bridge, 1963. (Source: National Library of Australia)	43
Figure 26: Location of current cycle route including stairs used by cyclists (Artefact, 2021) 44	
Figure 27: Bradfield Park: View looking south towards the entrance to Milsons Point Railway Station and Bradfield Park Central (Artefact, 2021)	45
Figure 28: Bradfield Park Central: paved area near entrance to Milsons Point Railway Station (Artefact, 2021).....	46
Figure 29: Bradfield Park Central: paved area near entrance to Milsons Point Railway Station (Artefact, 2021).....	46
Figure 30: Bradfield Park Central: entrance to Milsons Point Railway Station from Alfred Street South (Artefact, 2021).....	47
Figure 31: Bradfield Park Central: cycleway stairs in background (Artefact, 2021)	47
Figure 32: Northern approach for cyclists to the Sydney Harbour Bridge (Artefact, 2021) ...	48
Figure 33: Bradfield Park South: location for temporary ancillary works during construction of proposal (Artefact, 2021)	48
Figure 34: Bradfield Park Central: recreational area to be used for temporary ancillary works during construction of the proposal (Artefact, 2021)	49
Figure 35: Burton Street (Artefact, 2021).....	49
Figure 36: Bradfield Park Central: entrance to Milsons Point Railway Station (Artefact, 2021)	50
Figure 37: Bradfield Park from Alfred Street South: location of the proposed elevated linear ramp (Artefact, 2021)	50
Figure 38: Bradfield Park North: commemorative sculpture and drinking fountain (Artefact, 2021).....	51
Figure 39: Bradfield Park North: area of mostly open space located below the route of the proposed elevated linear ramp (Artefact, 2021).....	51
Figure 40: Bradfield Park North looking north: grassed area located near the route of the proposed Alfred Street South cycle path (Artefact, 2021)	52
Figure 41: Bradfield Park North looking south: grassed area located near the route of the proposed elevated linear ramp (Artefact, 2021).....	52

Figure 42: Bradfield Park North: view towards Alfred Street South (Artefact, 2021).....	53
Figure 43: Bradfield Park North: park bench seating below concrete wall. Note: the abrupt interface between the austere and hard appearance of the bridge approach structure and the park setting of Bradfield Park North (Artefact, 2021).....	53
Figure 44: Bradfield Park North: ground level interpretation of the location of former streets, lanes and houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021).....	54
Figure 45: Bradfield Park North: the covered seating structure has nil aesthetic value and is arguably intrusive (Artefact, 2021).....	54
Figure 46: Bradfield Park North: view from Alfred Street South looking south. Note: The static interpretation panel is one of several interpretative devices (Artefact, 2021)	55
Figure 47: Bradfield Park North: Detail view of static interpretation panel. This proposed cycleway is part of a history of change at this location (Artefact, 2021)	55
Figure 48: Bradfield Park North: interpretation. The existing interpretation reveals the location and footprint of houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021)	56
Figure 49: Bradfield Park North: interpretation. The existing interpretation reveals the location and footprint of houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021)	56
Figure 50: Bradfield Park: landscaping and public amenity (Artefact, 2021)	57
Figure 51: Bradfield Park North: public art (Artefact, 2021).....	57
Figure 52: Bradfield Park Central: Main pedestrian thoroughfare between Alfred Street South and Milsons Point Railway Station (Artefact, 2021)	58
Figure 53: Bradfield Park is part of the North Sydney Council Public Art Trail (Artefact, 2021)	58
Figure 54: Sydney Harbour Bridge Cycleway Northern Access Project: visual setting and key views (NSW Government).....	59
Figure 55: Sydney Harbour Bridge Cycleway Northern Access Project: key locations offering views of the Sydney Harbour Bridge (NSW Government).....	60
Figure 56: Map showing the boundaries of Previous Projects.....	70
Figure 57: Undated parish map showing study area during Phase 1	74
Figure 58: Plan of Campbells Estate c.1840s with study area. Source NLA MAP F 903.....	75
Figure 59: Water Board Block Plan of North Sydney from 1891s with proposed design.	76
Figure 60: Proposed Designs overlaid on 1890s Buildings (Phase 2).....	77
Figure 61: Overview of archaeological potential	79
Figure 62: Overview of 1890s building envelopes with potential column locations.....	86

TABLES

Table 1-1 Summary of heritage impacts (direct and indirect) to the Sydney Harbour Bridge and surrounding heritage listings	iv
Table 2-1: NHL items located within the study area	9
Table 2-2: Summary of the National Heritage self-assessment findings	10
Table 2-3: SHR items located within the study area.	14
Table 2-4: s170 items located within the study area.	18
Table 2-5: LEP items located within the study area.	19
Table 2-6: Nearby heritage places (Milsons Point):	20
Table 3-1: Concept design plans reviewed for this SOHI.....	26
Table 7-1: Archaeological potential summary for the study area.....	78
Table 7-2: Assessment of Archaeological Significance against the NSW Heritage Act criteria	80
Table 7-3: Archaeological potential summary for the study area.....	83
Table 7-4: Terminology for assessing the magnitude of heritage impact	83
Table 8-1: Terminology for assessing the magnitude of heritage impact	87
Table 8-2: Direct heritage impacts to the Sydney Harbour Bridge and surrounding heritage listings	89
Table 8-3: Indirect heritage impacts to the Sydney Harbour Bridge and surrounding heritage listings	93
Table 8-4: Terminology for assessing the magnitude of heritage impact	100
Table 9-1: Summary of heritage impacts (direct and indirect) to the Sydney Harbour Bridge and surrounding heritage listings	111

1.0 INTRODUCTION

1.1 Preamble

This Statement of Heritage Impacts (SOHI) is based on the thirty per cent concept design and has been prepared to support the Review of Environmental Factors (REF) and to support an application under Section 60 of the *Heritage Act 1977* (Heritage Act). Descriptions of the proposal are current as of September 2022, with outcomes of further detailed design to be subject to updated heritage impact assessment.

1.2 Proposal background

The NSW Government is committed to cycling as a key mode of city-serving, sustainable infrastructure. Active transport infrastructure provides positive community health, amenity and environmental outcomes. Active transport involves walking, cycling and other physical modes of travel. The NSW Government is looking to address continued access and safety constraints, and find ways to encourage more people to cycle, to develop active, healthy and carbon neutral ways to move across the metropolis.

The Sydney Harbour Bridge cycleway route is a critical link in the metropolitan Sydney regional bike network connecting the proposed North Shore cycleway on the Pacific Highway with the existing Kent Street cycleway in the Sydney Central Business District (CBD). Over the last decade, a rolling average of just under 2,000 cyclist trips have been completed each weekday on the Sydney Harbour Bridge Cycleway making it one of the busiest links in the Metro Sydney Bike Network. However, the current step access to the heavily used Sydney Harbour Bridge Cycleway is not easily accessible and prevents many customer groups from using the facility, and its usage has decreased over time despite a significant growth in bike purchases and uptake in the recent years. The step access and safety barriers create a bottleneck that would prevent the cycleway from meeting projected demand.

The proposal is required to not only improve safety and accessibility for cyclists and pedestrians, but also to support the future growth in the number of cyclists travelling between the Lower North Shore, North Sydney CBD and Sydney's CBD. The proposal would provide a linear ramp for cyclists to access the Sydney Harbour Bridge Cycleway more easily; and a safer, separated connection on Alfred Street South from Burton Street to the existing bike network on Middlemiss Street. The proposal is part of a suite of projects that aim to make it easier for people to access and use the Sydney Harbour Bridge. Other proposals include upgrades of the Sydney Harbour Bridge's southern cycleway access and the recently completed pedestrian access lift on the northern and southern sides of the Sydney Harbour Bridge pedestrian pathway.

Following extensive consultation and design development, Transport for NSW is upgrading the existing cycleway connection between the Sydney Harbour Bridge northern cycleway and the bike network at Milsons Point. Artefact Heritage has been engaged by Arcadis on behalf of Transport for NSW to prepare a SOHI for the 30 per cent concept design for submission as part of an application for Section 60 (S60) approval under the Heritage Act.

This report provides details of the heritage significance of the listed heritage items, assesses potential impacts to the significance of the heritage items from the proposal, and assesses potential impacts to non-Aboriginal archaeological remains. This report has considered and is consistent with the heritage management strategies outlined in the Sydney Harbour Bridge Conservation Management Plan (GML 2021).

1.3 The proposal and study area

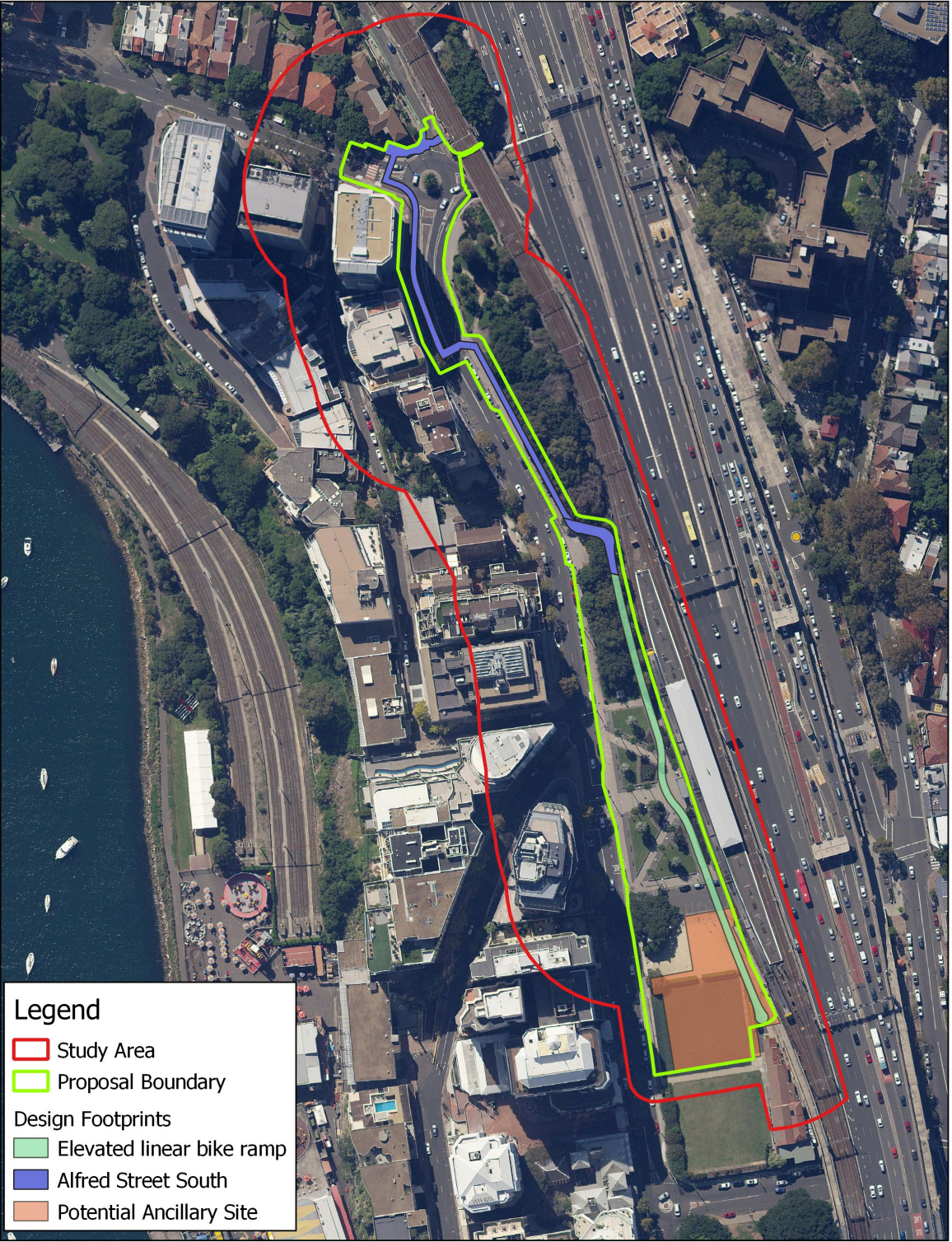
Transport for NSW (Transport) proposes to upgrade the existing cycleway connection between the Sydney Harbour Bridge Cycleway and the bike network in Milsons Point. The cycleway connection would interface with a new cycle path along Alfred Street South (the proposal).

The proposal is located on Cammeraygal land and is in Milsons Point, within the North Sydney Local Government Area (LGA). The proposal is bounded by Middlemiss Street to the north, the Sydney Harbour Bridge to the east, Fitzroy Street to the south and Alfred Street South to the west.

The proposal would consist of a three-metre-wide elevated linear bike ramp that extends 200 metres from Bradfield Park North, near Burton Street, interfacing with the Sydney Harbour Bridge Cycleway south of the existing stair access. The ramp would connect to a new cycle path which would extend along the east side of Alfred Street South, between Middlemiss Street and Burton Street, and include a new street crossing on Alfred Street South. The two-way cycle path would be 2.5 metres wide and connect to the existing bike network in Milsons Point.



Figure 1: Overview of the proposed elevated bike ramp (Courtesy: Aspect, 2022)



Proposed Design
21266 SHB Northern
Cycleway
LGA: North Sydney

Scale: 1:2,000
Size: A4
Date: 10-11-2022

0 50 100 m



Figure 2: Overview of the proposal boundary and the study area

Key features of the proposal would include:

- A design-led approach to the integration of new cycling infrastructure with its existing important open space and heritage setting
- A new elevated linear bike ramp, with deck about three metres wide and about 200 metres in length between the Sydney Harbour Bridge Cycleway and Bradfield Park North including:
 - Steel ramp structure with deck incorporating Designing with Country motifs, and balustrade with integrated lighting
 - Precast columns carefully sited within Bradfield Park North and Central
 - Provision of a bike riders rest area next to the Sydney Harbour Bridge Cycleway connection
 - A gathering space , lighting and cycle path within Bradfield Park North connecting the elevated linear bike ramp and the proposed Alfred Street South cycle path
- Alfred Street South pedestrian and cycle path upgrade including:
 - New 2.5-metre-wide two-way cycle path on Alfred Street South from the ramp landing, linking to the existing bike network in Middlemiss Street. The cycle path would be located on the east side of Alfred Street South between the ramp landing and the new street crossing at 110 Alfred Street South. On the west side of Alfred Street South the cycle path would be located between the new crossing and Lavender Street
 - Replacement of the existing pedestrian refuge crossing at the north end of Alfred Street South with a pedestrian and bike rider crossing located near 110 Alfred Street South and an upgrade to the pedestrian crossing at Lavender Street
 - Low speed shared path and verge widening on the north side of Lavender Street
 - Adjustments to the Lavender Street roundabout
 - New street tree planting, shrub planting and footpath paving
 - Relocation of the existing bus stop on Alfred Street South near Lavender Street about 60 metres to the south of its current location
 - Permanent removal of up to 15 parking spaces along Alfred Street South.

The proposal, would also include, but not be limited to:

- Kerb and pavement work, and line marking
- Drainage and utility adjustments

- Street furniture adjustments
- Changes to street parking, parking meter locations and regulatory signage
- Minor lighting upgrades to Bradfield Park North and in other locations where required to meet safe lighting standards.

Construction of the proposal would take around 18 months and, subject to planning approval, is expected to commence mid-2023.

The study area generally includes an area of about 50 metres either side of the centre of the proposal boundary; and includes the maximum possible extent of a potential ancillary facility site (Refer to Figure 1). The proposal boundary and study area are shown in Figure 2.

1.4 Methodology

This SOHI has been prepared as one concise report that combines an assessment of built heritage and archaeological impacts from the proposal. This report was prepared by Artefact following a site visit, a review of relevant documentation, and attendance at relevant meetings.

The methodology for this report is consistent with the proposal brief and the standard methodology for SOHI.

This report is informed by the following guiding documents:

- *Assessing Heritage Significance* (NSW Heritage Office, 2001)
- *Statements of Heritage Impact* (NSW Heritage Office and Department of Urban Affairs & Planning, 2002)
- *Design in Context: Guidelines for Infill Development in the Historic Environment* (NSW Heritage Office and Royal Australian Institute of Architects, 2005)
- *The Burra Charter* (Australia ICOMOS, 2013)
- *NSW Heritage Manual* (NSW Heritage Office & Department of Urban Affairs and Planning NSW Heritage Manual, 1996)
- *Commonwealth of Australia, Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (Department of the Environment 2003).

The report includes the following key components:

- Searches of statutory and non-statutory heritage registers, including the NSW SHR, the NSW State Heritage Inventory (SHI), the North Sydney LEP, the Commonwealth Heritage List, the NHL, and the World Heritage List
- Preparation of concise historical information relevant to the proposal and the study area
- Statements of significance for items in the vicinity of the proposal

- Assessment of significance of relevant items
- Details of the design and the proposal
- Assessment of impacts to any built (historic) heritage places or items in the subject area (including conservation areas, built heritage, landscapes, etc.)
- Assessment of Impacts to any archaeology within the study area (including relics and works)
- Proposed mitigation and management measures (including measures to avoid significant impacts) generally consistent with the guidelines in the NSW Heritage Manual, alongside recommendations for approval of the proposal
- Analysis of works against the Sydney Harbour Bridge Conservation Management Plan (CMP) and other key guiding documents.

The following key reports were used to inform this SOHI:

- *Sydney Harbour Bridge Northern Cycleway Access Urban Design and Heritage Framework* (Cox Architecture, 2021)
- *Sydney Harbour Bridge Geotechnical Studies SOHI* (Artefact, 2018)
- *Scoping Design Report for Cycleway Options* (TZG, SMM and Aurecon, 2021)
- *Sydney Harbour Bridge Cycleway Access Project – North: Supplementary Detailed Heritage Framework* (TZG, 2021)
- *Sydney Harbour Bridge Cycleway Access Program Stage 1: Northern Access Final Business Case* (Transport for NSW, 2021)
- *Sydney Harbour Bridge Cycleway Northern Access Planning Pathway and Environmental Risk Assessment Memo* (Transport for NSW, 2019)
- *Sydney Harbour Bridge Conservation Management Plan* (GML Heritage, 2021).

1.5 Limitations

The key objective of this SOHI is to understand the nature of the proposal and its design, and to assess the impact of the proposal (as defined in Section 1.2) on the heritage values of the study area, being the northern approach to the Sydney Harbour Bridge, Bradfield Park, and relevant heritage curtilages.

This report does not replace existing reports about the Sydney Harbour Bridge, including for example the extensive historical information and other information about the Sydney Harbour Bridge in the 2021 *Sydney Harbour Bridge Conservation Management Plan* prepared by GML or the draft *Sydney Harbour Bridge Cycleway Access Project – North: Supplementary Detailed Heritage Framework* prepared by Tonkin Zulaikha Greer in 2021. These and other documents are referred to in this report and should be viewed for additional

contextual information. New information is only provided specifically on the impact of the proposal at the northern end of the Sydney Harbour Bridge and surrounds.

1.6 Report authorship and acknowledgements

The built heritage component of this report was prepared by David Ward (Heritage Consultant) and finalised by Jess Mauger (Senior Heritage Consultant). The archaeological component of this report was prepared by Gareth Holes (Heritage Consultant) with input from Isabelle Wheeler (Heritage Consultant), and finalised by Jenny Winnett (Principal). Historical information in this report has been updated, revised, and expanded, but is informed largely by earlier work from Charlotte Simons (Senior Heritage Consultant). This report was reviewed by Scott MacArthur (Principal) and by Dr Sandra Wallace (Director).

2.0 STATUTORY CONTEXT

2.1 Summary

The Sydney Harbour Bridge is listed on the following statutory and non-statutory registers or lists:

- National Heritage List (since 2007)
- State Heritage Register (1999)
- *North Sydney Council Local Environmental Plan* (2013)
- Transport for NSW Section 170 Heritage and Conservation Register
- National Trust Register (1974)
- Register of the National Estate (1978).

2.2 Relevant legislation

2.2.1 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legislative framework for the protection and management of matters of national environmental significance, that is, flora, fauna, ecological communities and heritage places of national and international importance. Heritage items are protected through their inscription on the World Heritage List (WHL), Commonwealth Heritage List (CHL) or the National Heritage List (NHL).

Under Part 9 of the EPBC Act, approval under the EPBC Act is required for any action occurring within, or outside, a National or Commonwealth Heritage place that has, will have, or is likely to have a 'significant impact' on the heritage values of a World, National or Commonwealth heritage listed property (referred to as a 'controlled action' under the Act). A 'significant impact' is defined as:

an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts.

The EPBC Act stipulates that a person who has proposed an action that will, or is likely to, have a significant impact on a site that is listed on the WHL, CHL or NHL must refer the action to the Minister for Environment and Water (hereafter Minister). The Minister will then determine if the action requires approval under the EPBC Act. If approval is required, an environmental assessment would need to be prepared. The Minister would approve or decline the action based on this assessment.

National Heritage List

The NHL was established under the EPBC Act, which provides a legal framework to protect and manage nationally and internationally important flora, fauna, ecological communities, and heritage places. Under the EPBC Act, nationally significant heritage items are protected through listing on the NHL or the CHL.

There is one item listed on the NHL located within the study area. This item is shown in Table 2-1.

Table 2-1: NHL items located within the study area.

NHL Number	Name	Location
105888	Sydney Harbour Bridge	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000

The Sydney Harbour Bridge was included on the NHL in 2007. The listing includes the bridge, pylons, constructed approaches, and parts of Bradfield and Dawes Point Parks. The NHL curtilage is the same as the SHR curtilage, except that the northern extent of the NHL listing ends at Lavender Street, Milsons Point, while the SHR curtilage ends at Blues Street, North Sydney.

Proposed development (or ‘actions’) that will have, or are likely to have, a ‘significant impact’ on the world heritage values of a declared World Heritage property (such as the Sydney Opera House), or on the National Heritage values of a National Heritage Place (such as the Sydney Harbour Bridge), must be referred to the Minister.

A ‘significant impact’ is defined as an action that has an important, notable consequence, dependent upon the sensitivity, value and quality of the environment that is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts. The *Commonwealth of Australia, Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (Department of the Environment, 2003) state that an action is likely to have a significant impact on the National Heritage values of a place if there is a real chance or possibility that it will cause:

- One or more of the National Heritage values to be lost
- One or more of the National Heritage values to be degraded or damaged
- One or more of the National Heritage values to be notably altered, modified, obscured or diminished.

National Heritage impacts – self-assessment process

The study area is contained within an NHL Place, therefore this SOHI has been guided by the self-assessment process outlined in *Significant Impact Guideline 1.1* of the EPBC Act, to assess the impact of the proposed action on the heritage values for the Sydney Harbour Bridge. This assessment process is different to Section 7.0, as it is assessed under different legislative drivers. The self-assessment process examines the environmental context of the

Place, the proposed impact and avoidance or mitigation strategies to determine if a significant impact will occur.

A detailed self-assessment against the National Heritage values of the Place, according to the Significant Impact Criteria under the *Significant Impact Guideline 1.1*, can be found in Section 8.6. The self-assessment assesses the impacts of the proposal in line with the specific values of the place and in accordance with the Significant Impact Criteria. A summary of the self-assessment findings can be found in Table 2-2.

Table 2-2: Summary of the National Heritage self-assessment findings

Action	Comments
Permanently remove, destroy, damage or substantially alter the fabric of a National Heritage place in a manner which is inconsistent with relevant values	The proposal would not remove, destroy, damage or substantially alter the significant fabric of the place. The relevant and significant values of the Sydney Harbour Bridge are primarily focussed on its extraordinary engineering associated with John Job Crew Bradfield, and the symbology it provides to the Australian people and the world as a cultural landmark. In addition, another key value is the place is an integral transport link between the north and south sides of the Harbour. The proposal would positively contribute to its key function and would not inhibit the significant values of the place.
Extend, renovate, refurbish or substantially alter a National Heritage place in a manner which is inconsistent with relevant values	Whilst the proposal offers a change to the existing pedestrian/cycle pathways along the Sydney Harbour Bridge, the proposal would not unreasonably alter the place or detract from its significant values.
Permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a National Heritage place	The proposal is unlikely to permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts of National or State Heritage significance.
Involve activities in a National Heritage place with substantial and/or long-term impacts on its values	Substantial and/or long-term impacts are not expected from this proposal on the significant values of the Place. The proposal does see a change to the Place, but it would not cause unacceptable impacts to significant values associated with the iconic structural elements of the Sydney Harbour Bridge, such as the arch span.
Involve the construction of buildings or other structures within, adjacent to, or within important sight lines of, a National Heritage place which are inconsistent with relevant values, and	The proposal would not involve construction of buildings within sight lines of the place however it would involve the construction of structures adjacent to the Place. These structures, in the form of ramps and pathways, would not impact the sight lines nor inhibit appreciation of the Place from the public domain. The proposal is actively discrete and would contribute to the ongoing function of the Sydney Harbour Bridge as a key transport link.

Action	Comments
Make notable changes to the layout, spaces, form or species composition of a garden, landscape or setting of a National Heritage place in a manner which is inconsistent with relevant values.	<p>While Bradfield Park would see some changes in layout, form and some plantings, the park would not be detrimentally impacted by these works.</p> <p>It is noted that Bradfield Park falls within the National Heritage listing of the Sydney Harbour Bridge but is not specifically mentioned in the listing citation for the Bridge.</p> <p>However Bradfield Park is recognised for its significant landscape and setting contributions to the Bridge on the northern side in the SHR listing for the Bridge and the LEP listing for the Park.</p> <p>Overall, the changes introduced by the proposal would be consistent with the existing form and setting, and would not impact the significant values of the Sydney Harbour Bridge.</p>



Figure 3: Sydney Harbour Bridge National Heritage List curtilage (Source: Commonwealth Department of Agriculture, Water and the Environment)

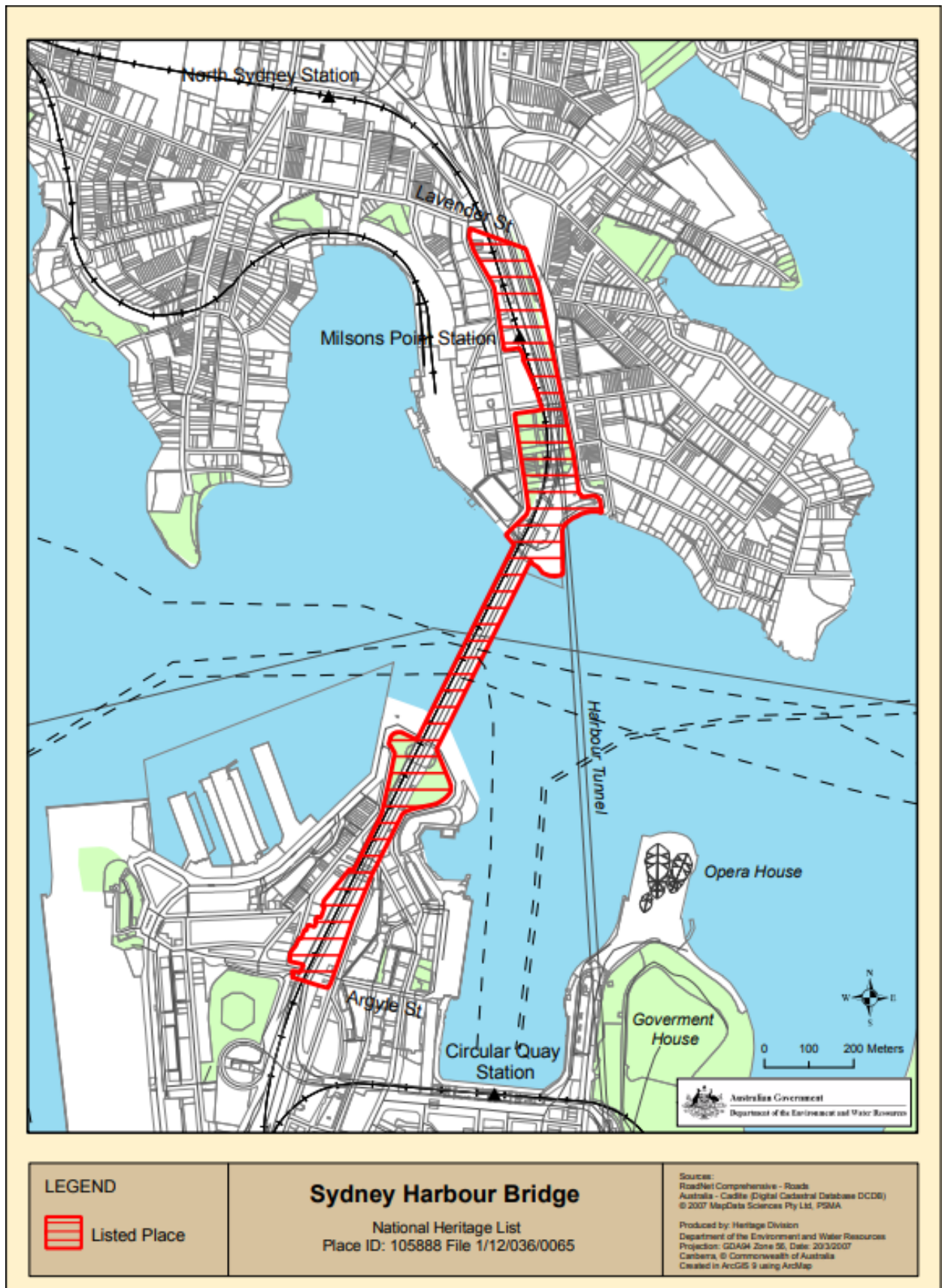


Figure 4: Sydney Harbour Bridge National Heritage List curtilage (Source: Commonwealth Department of Agriculture, Water and the Environment)

2.2.2 NSW Heritage Act 1977

The Heritage Act is the primary piece of state legislation affording protection to heritage items (natural and cultural) in NSW. Under the Heritage Act, 'items of environmental heritage' include places, buildings, works, relics, moveable objects, and precincts identified as significant based on historical, scientific, cultural, social, archaeological, architectural, natural or aesthetic values. State significant items can be listed on the NSW SHR and are given automatic protection under the Heritage Act against any activities that may damage an item or affect its heritage significance. The Heritage Act also protects 'relics', which can include archaeological material, features and deposits.

In some circumstances a Section 60 approval may not be required if works are undertaken in accordance with the Standard Exemptions for Works Requiring Heritage Council Approval (Heritage NSW, 2020) or in accordance with agency specific exemptions.

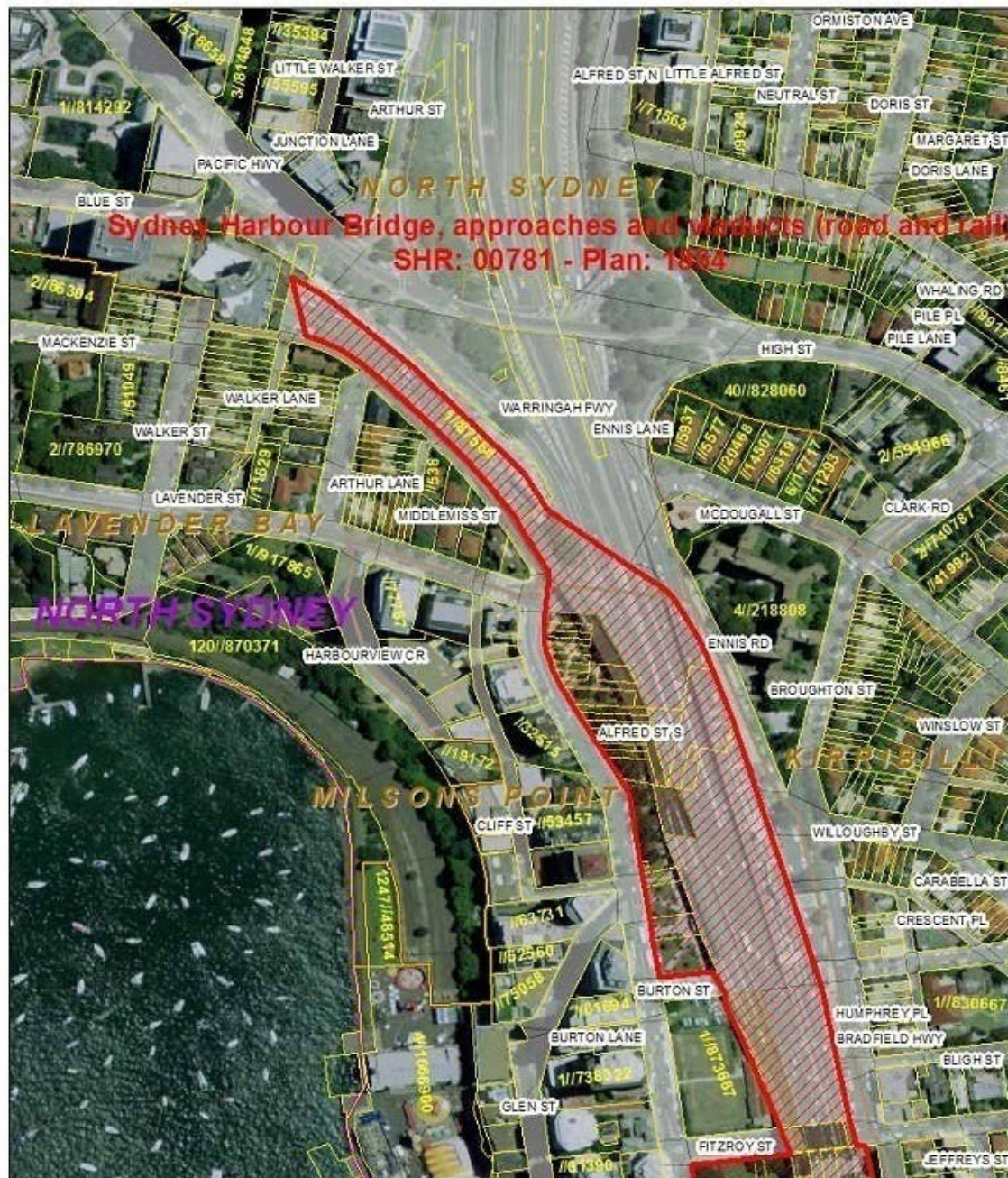
For this proposal, the standard exemptions are not applicable, and the proposal must be submitted to the NSW Heritage Council for approval under Section 60 of the Heritage Act.

There are two items listed on the SHR located within the study area. These items are shown in Table 2-3.

Table 2-3: SHR items located within the study area.

SHR Number	Name	Location
00781	Sydney Harbour Bridge, approaches and viaducts (road and rail)	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000
01194	Milsons Point Railway Station Group	North Shore railway, Milsons Point, NSW 2061

Heritage Council of New South Wales



State Heritage Register - SHR 00781, Plan 1864
Sydney Harbour Bridge, Approaches & Viaducts

Gazettal Date: 25 June 1999

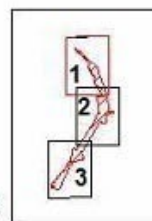
0 50 100 150 200 Metres

Scale: 1:4,000

Datum/Projection: GCS GDA 1994



Map 1 of 3



Legend

- SHR Curtilage
- Land Parcels
- Railways
- Roads
- LGAs
- Suburbs

Figure 5: Sydney Harbour Bridge approaches and viaducts (Source: NSW Government, Heritage Management System)

Heritage Council of New South Wales



State Heritage Register

Gazettal Date: 02/04/1999

0 12.5 25 50 75 100
Metres

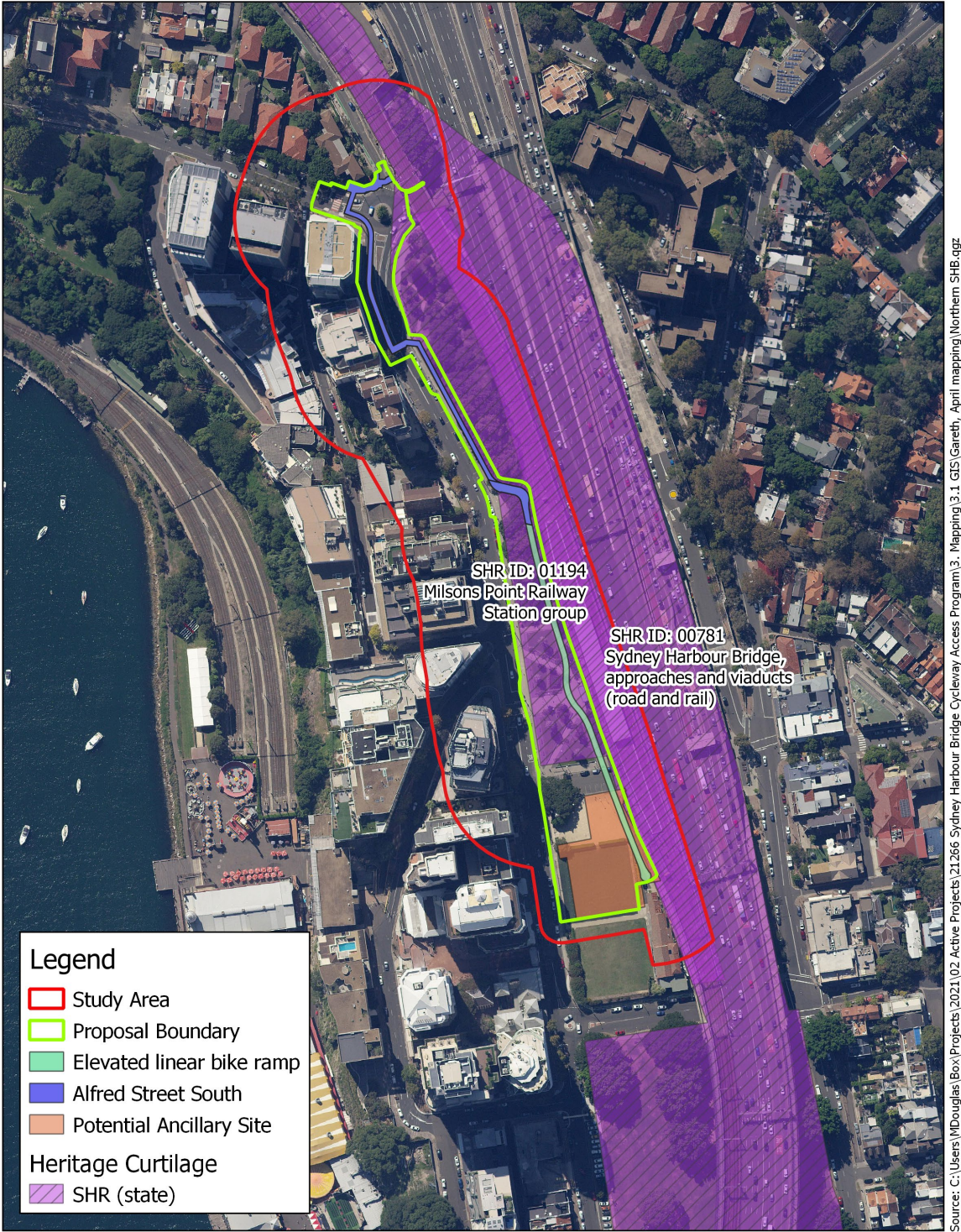
Scale: 1:2,000

Produced by: Michelle Galea

Legend

- SHR Curtilage
- Land Parcels
- LGAs
- Suburbs

Figure 6: Milsons Point Railway Station Group (Source: NSW Government, Heritage Management System)



SHR Curtilages
21266 SHB Northern Cycleway
LGA: North Sydney

Scale: 1:2,500
Size: A4
Date: 10-11-2022

0 60 120 m



Figure 7: SHR curtilages (Artefact, 2022)

2.2.3 Conservation Management Plan

A Conservation Management Plan (CMP) for the Sydney Harbour Bridge was prepared in 2007 by Godden Mackay Logan for Transport for NSW. The report was revised in 2021 by GML Heritage and was endorsed by the Heritage Council of NSW in July 2021. The CMP is a comprehensive document in two volumes. Relevant policies in the CMP are included in section 8.7 of this SOHI.

The current Sydney Harbour Bridge CMP (volume 1) can be viewed at this link:

[https://heritagensw.intersearch.com.au/heritagenswjsui/bitstream/1/10629/1/Sydney Harbour Bridge%20CMP%20Vol.%201%20-%20for%20stamping%20-%20Endorsed.pdf](https://heritagensw.intersearch.com.au/heritagenswjsui/bitstream/1/10629/1/Sydney%20Harbour%20Bridge%20CMP%20Vol.%201%20-%20for%20stamping%20-%20Endorsed.pdf)

Volume 2 can be viewed at this link:

<https://heritagensw.intersearch.com.au/heritagenswjsui/bitstream/1/10629/2/SHB%20CMP%20Vol.%202%20-%20for%20stamping%20-%20Endorsed.pdf>

2.2.4 Transport Asset Holding Entity (TAHE) and Transport for NSW Section 170 Register

The Heritage Act requires all government agencies to identify and manage heritage assets under their ownership and control. Under Section 170 of the Heritage Act, government agencies must establish and keep a register which includes all items of environmental heritage listed on the SHR, environmental planning instruments or which may be subject to an interim heritage order that are owned, occupied or managed by that government body. Government agencies must also ensure that all items entered on its register are maintained with due diligence in accordance with *State Owned Heritage Management Principles* (Heritage Council, 2005) approved by the Minister on advice of the NSW Heritage Council. These principles serve to protect and conserve the heritage significance of identified sites, items and objects and are based on relevant NSW heritage legislation and statutory guidelines.

There are two items listed on S170 registers located within the study area. These items are shown in Table 2-4 and mentioned in this report for completeness. The fact that the items are listed on the S170 register does not create any additional external approval process other than what is already outlined in this report.

Table 2-4: s170 items located within the study area.

s170 register listing	Name	Location
Roads and Traffic Authority (now TfNSW) Section 170 Register No. 4301067	Sydney Harbour Bridge, approaches and viaducts	Bradfield Highway and North Shore Railway, Milsons Point/Dawes Point, NSW 2000
TAHE Section 170 Register No. 4801059	Sydney Harbour Bridge (Rail Property Only)	Arthur and Argyle Streets, Sydney, NSW 2000
TAHE Section 170 Register No. 4801026	Milsons Point Railway Station	Alfred Street, Milsons Point, NSW 2061

2.2.5 Environmental Planning and Assessment Act 1979

The *Environmental Planning & Assessment Act 1979* (EP&A Act) is administered by the Department of the Premier and Cabinet and provides planning controls and requirements for environmental assessment in the development approval process. The EP&A Act has three main parts of direct relevance to environmental cultural heritage. Namely, Part 3 which governs the preparation of planning instruments, Part 4 which relates to development assessment process for local government (consent) and Part 5 which relates to activity approvals by governing (determining) authorities.

A REF is being prepared under Part 5, Division 5.1 of the EP&A Act to determine the potential environmental impacts of the proposal.

Local Environmental Plans (LEPs)

North Sydney Local Environmental Plan 2013

The North Sydney LEP is the applicable local planning instrument for the North Sydney LGA. The North Sydney LEP aims to make local environment provisions for land in North Sydney in accordance with relevant standard environmental planning instruments under Section 33A of the EP&A Act

The study area contains several locally listed heritage items. These items are listed in Table 2-5.

Table 2-5: LEP items located within the study area.

North Sydney LEP Number	Name	Location
I0538	Bradfield Park (including northern section)	Alfred Street South, Milsons Point
I0539	Milsons Point Railway Station Group	North Shore railway, Milsons Point, NSW 2061
I0530	Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway	Bradfield Highway and North Shore railway, Milsons Point/Dawes Point, NSW 2000

Table 2-6: Nearby heritage places (Milsons Point):

Suburb	Item	Address	Location	Listing	Place ID (Item No.)
Milsons Point					
Milsons Point	Alfred Street (entrance to Luna Park)	Alfred Street South	Intersection Alfred Street South, Dind Street and road reserve	Local	I0529
Milsons Point	Bradfield Park (including northern section)	Alfred Street South		Local	I0538
Milsons Point	Sydney Harbour Bridge north pylons	Bradfield Park, Alfred Street South		Local	I0541
Milsons Point	North Sydney Olympic Pool	4 Alfred Street South	Lot 100, DP 875048	Local	I0537
Milsons Point	House	22 Alfred Street South	SP 83350	Local	I0522
Milsons Point	House	24 Alfred Street South	SP 83350	Local	I0523
Milsons Point	House	26A Alfred Street South	Lot A, DP 437985	Local	I0525
Milsons Point	House	28 Alfred Street	Lot X, DP 403084	Local	I0526
Milsons Point	Camden House	48 and 56 Alfred Street South	SP 40513; Lot 102, DP 814884	Local	I0527
Milsons Point	Chinese Christian Church	100 Alfred Street South	Lot 14, DP 54205	Local	I0528
Milsons Point	Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway	Sydney Harbour Bridge and approach viaducts, including 2-44 Ennis Road and 32-76 Middlemiss Street		State	I0530
Milsons Point	Commercial building	2-2A Glen Street	Lot 1, DP 437535; Lot 3, DP 172924	Local	I0531
Milsons Point	Milsons Point Railway Station Group			State	I0539
Milsons Point	Seawall and wharf site		Lot 1, DP 849664	Local	I0540
Milsons Point	House	15 Northcliff Street	Lot 6, DP 223842	Local	I0532

Sydney Harbour Bridge Cycleway Northern Access Proposal
Statement of Heritage Impact

Suburb	Item	Address	Location	Listing	Place ID (Item No.)
Milsons Point	House	17 Northcliff Street	Lot 7, DP 223842	Local	I0533
Milsons Point	House	19 Northcliff Street	Lot 8, DP 223842	Local	I0534
Milsons Point	House	21 Northcliff Street	Lot 9, DP 223842	Local	I0535
Milsons Point	Luna Park	1 Olympic Drive	Lots 2-4, DP 1066900; Lots 1247, 1250 and 1256-1258, DP 48514; Lots 10- 12, DP 1113743	State	I0536

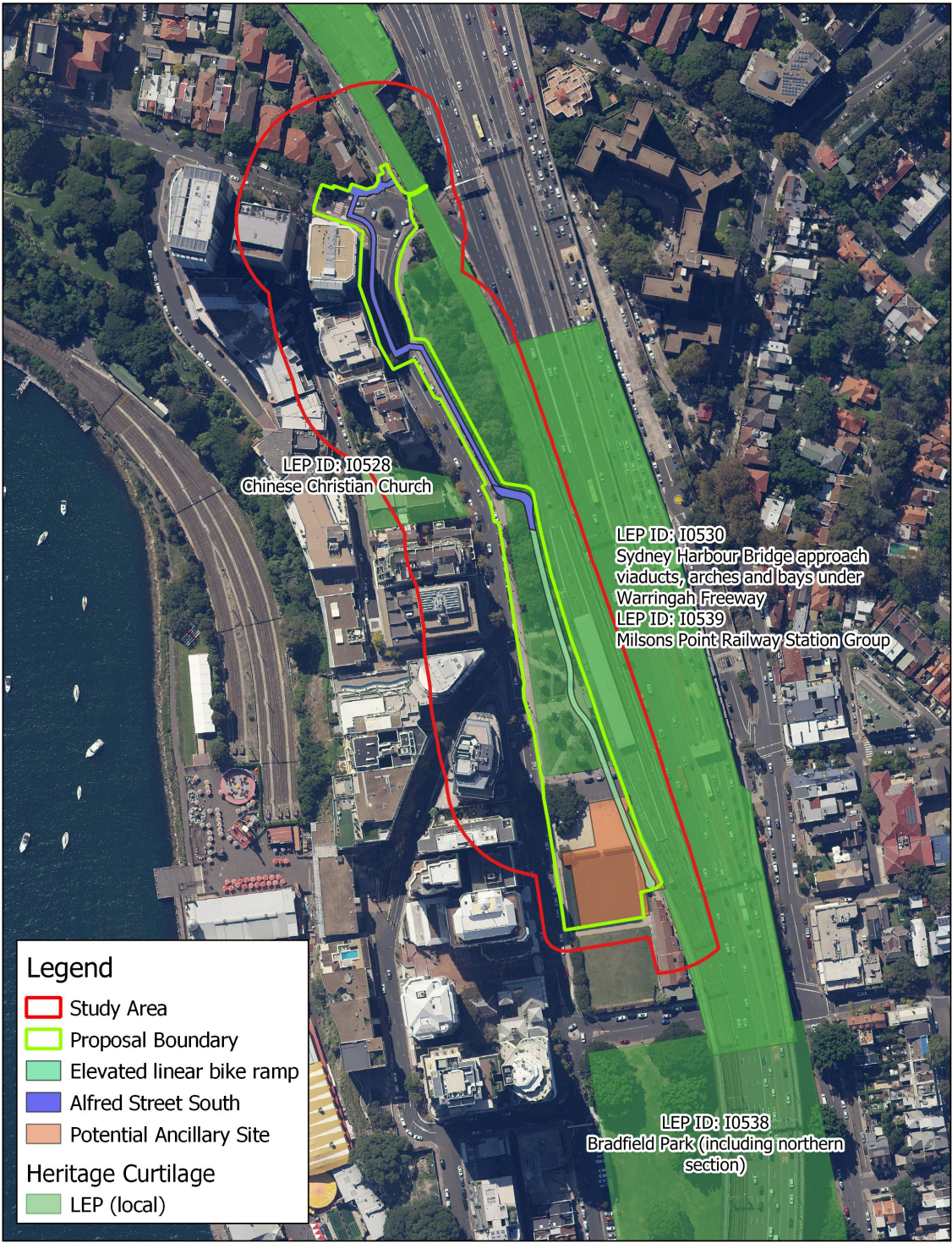


Figure 8: LEP curtilages (Artefact, 2022)

2.2.6 State Environmental Planning Policy (Transport and Infrastructure) 2021

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

The Transport and Infrastructure SEPP assists local government, the NSW Government and the communities they support, by simplifying the process for providing essential infrastructure in areas such as education, hospitals, roads and railways, emergency services, water supply and electricity delivery.

The Transport and Infrastructure SEPP outlines the planning rules for these works and facilities, including:

- Where such development can be undertaken
- What type of infrastructure development can be approved by a public authority under Part 5 of the EP&A Act following an environmental assessment (REF) (known as 'development without consent')
- What type of development can be approved by the relevant local council, Minister for Planning or Department of Planning under Part 4 of the EP&A Act (known as 'development with consent')
- What type of development is exempt or complying development
- The relationship of other statutory planning instruments to the Transport and Infrastructure SEPP.

This SOHI will form part of the REF submission to Transport for NSW for assessment under Part 5 of the EP&A Act.

2.2.7 State Environmental Planning Policy (Biodiversity and Conservation) 2021

The Sydney Harbour Bridge is included in the State Environmental Planning Policy (SEPP) (Biodiversity and Conservation) 2021 as Listing 67 – Sydney Harbour Bridge, including approaches and viaducts (road and rail).

The heritage provisions in relation to the Sydney Harbour Catchment are in Chapter 10.5 in the Biodiversity and Conservation SEPP. This outlines the protection of heritage items within the Sydney Harbour catchment area and what kinds of development can occur at or near a heritage item with or without consent from the relevant consent authority.

Division 3A also outlines the protections within the Sydney Opera House buffer zone, which includes the Sydney Harbour Bridge. These protections focus on the need for development to preserve views and vistas between the Sydney Opera House and other public places within that zone, to preserve the world heritage value of the Sydney Opera House, and to avoid any diminution of the visual prominence of the Sydney Opera House when viewed from other public places within that zone. This buffer zone is shown in Figure 9.

2.2.8 UNESCO World Heritage Convention

On 28 June 2007 the Sydney Opera House and buffer zone (including part of Sydney Harbour and the Sydney Harbour Bridge) was included on the UNESCO World Heritage List under the World Heritage Convention.

The Sydney Harbour Bridge Cycleway Northern Access Proposal is outside the buffer zone for the Opera House, therefore does not trigger referral in relation to this matter.

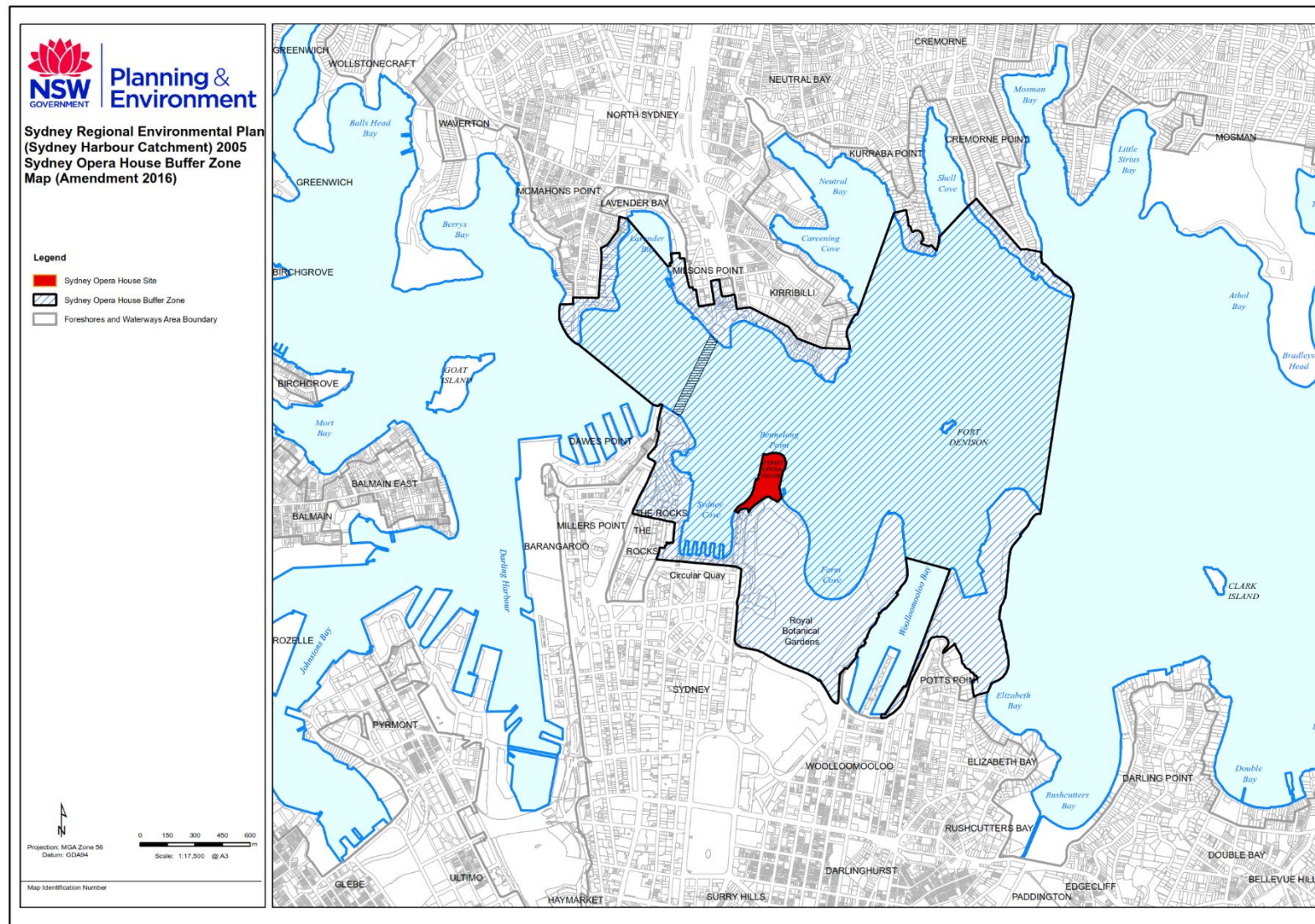


Figure 9: Buffer zone for Sydney Opera House world heritage listing (Source: SREP (Sydney Harbour Catchment), NSW Department of Planning & Environment)

3.0 THE PROPOSAL

3.1 Preamble: Process preceding elevated linear bike ramp proposal

The proposal, including the elevated linear bike ramp is shown in Section 3.2.

Prior to selecting the elevated linear bike ramp proposal, Transport for NSW engaged three design companies to create design solutions for a new elevated linear bike ramp. Transport for NSW introduced a community consultation phase leading to a competitive design process. The design phase involved three leading urban design and architectural firms (Aspect Studios, REALMstudios, and Civile), each providing a design solution. Following an extensive optioneering process, the Aspect Studios design was chosen.

3.2 Thirty per cent concept design

This SOHI has reviewed the following design plans:

Table 3-1: Concept design plans reviewed for this SOHI

Plan Number	Plan Title	Date and Issue	Prepared By
SHBCNA-CAT-AR-DRG-000 001 to 15	SHB Cycleway Northern Access Concept Design Architecture	01/07/2022 30% concept design	Collins and Turner
SHBCNA-EOC-ED-RPT-000001	Sydney Harbour Bridge Cycleway Northern Access Structural Engineering and Lighting Concept Design Report	08/07/2022	Eckersley O'Callaghan
SHBCNA-EOC-ED-RPT-000002	AND Sydney Harbour Bridge Cycleway Northern Access Structural Engineering Basis of Design Report	30% concept design	
SHBCNA-EOC-ED-DRG-000001 to 405	SHB Cycleway Northern Access Concept Design Urban Design	08/07/2022 30% concept design	Eckersley O'Callaghan
SHBCNA-ASP-UD-DRG-000001 to 507	SHB Cycleway Northern Access Concept Design Urban Design	08/07/2022 30% concept design	Aspect Studios
No. L00.100	Sydney Harbour Bridge Cycleway Landscape Selections	01/07/2022 30% concept design	Collins and Turner

Plan Number	Plan Title	Date and Issue	Prepared By
Final Version D	Sydney Harbour Bridge Cycleway Northern Access Project: Concept Design Report	15/07/2022 30% concept design	Aspect Studios etc for TfNSW

The following is a montage of images and urban design plans which have been updated as part of the 30 per cent concept design. This graphical information reveals the visual impact of the proposed elevated linear bike ramp from above and from street level.

These montages are indicative only and are subject to detailed design.



Figure 10: The elevated linear bike ramp proposal. (Source: Aspect, 2022)



Figure 11: Montage showing the proposed ramp landing and surrounding landscaping in Bradfield Park North (Source: Aspect, 2022)



Figure 12: The proposed cycleway along Alfred Street (Source: Aspect, 2022)

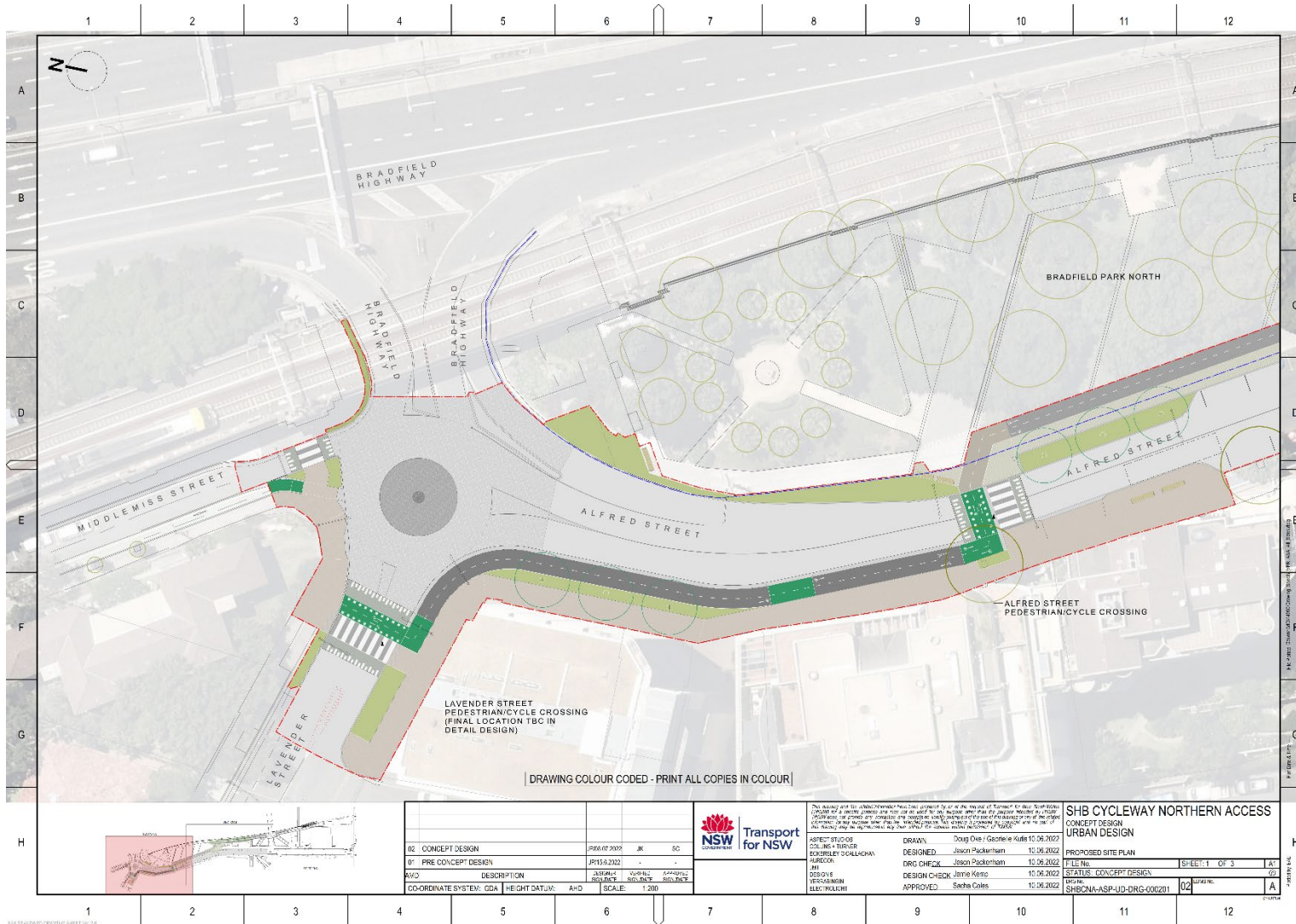


Figure 13: General Arrangement Plan: intersection of Alfred Street, Middlemiss Street and Lavender Street. Source: Urban Design drawings, Aspect, 2022)

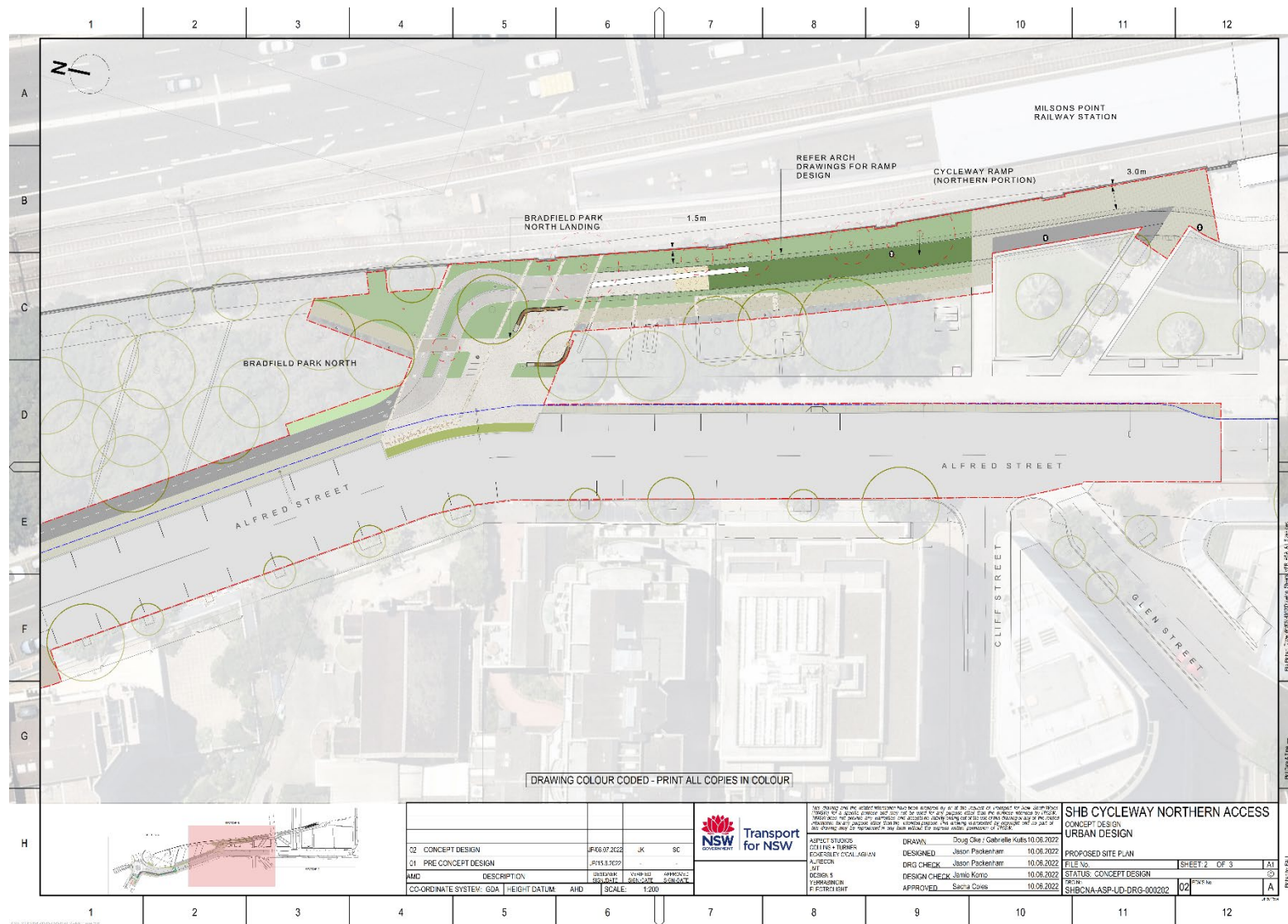


Figure 14: General Arrangement Plan: Bradfield Park bike ramp landing (Source: Urban Design drawings, Aspect, 2022)

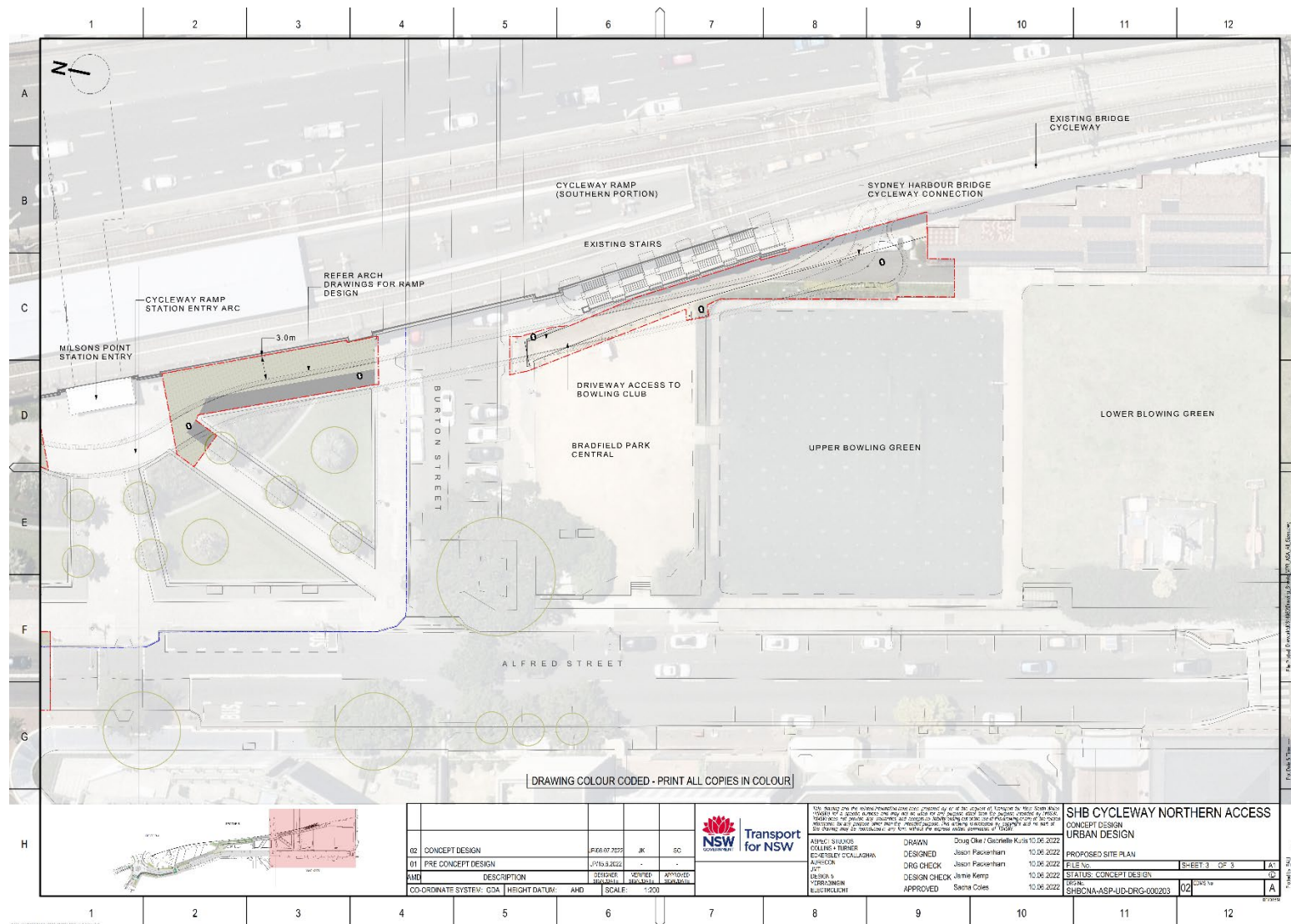


Figure 15: General Arrangement Plan: cycleway arrangement and connection to the bridge (Source: Urban Design drawings, Aspect, 2022)

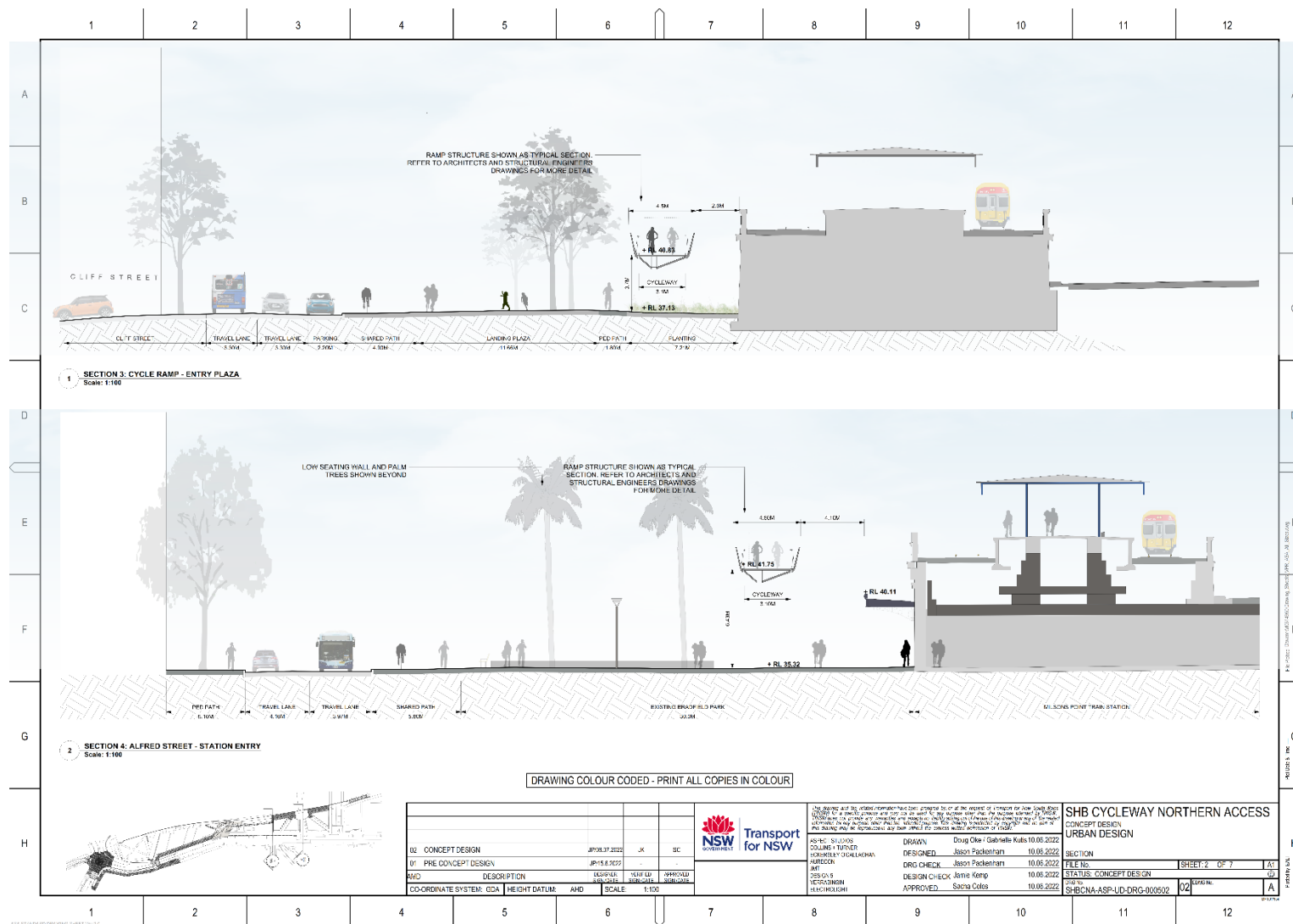


Figure 16: General Elevation of the Cycleway against Bradfield Park North, Milsons Point Station and the Sydney Harbour Bridge parapet (Source: Urban Design drawings, Aspect, 2022)

The thirty per cent concept design includes the following central elements and approaches:

- “Designing with Country” including recognising the Sydney Harbour Bridge as a crossing between Gadigal and Cammeraygal Country
- Respecting the heritage values of the Sydney Harbour Bridge including for example, recognising in the design the sweep of the bridge approach and the arch of the span
- Opening (retaining) most of Bradfield Park for public use
- Balancing (minimising) the visual impacts of the new structure by placing it to the east (close to the bridge approach) and extending the cycleway to the north of the station plaza
- Privileging existing users (pedestrians) and minimising conflicts
- Shortening the ramp as much as possible to reduce open space and heritage impacts but still ensuring the ramp gradient is accessible to a range of cycle users
- Use of enduring materials and a design that is “beautiful” and “light”
- Recognising Bradfield Park as a “key open space” with heritage status, including keeping the park open and uncluttered, and retaining the legibility of key focal points in the park (e.g. the Milsons Point Railway Station entrance and the key plantings)

3.3 Elevated linear bike ramp works

A new elevated linear bike ramp, with deck about three metres wide and about 200 metres in length between the Sydney Harbour Bridge Cycleway and Bradfield Park North including:

- Steel ramp structure with deck incorporating Designing with Country motifs, and balustrade with integrated lighting
- Precast columns carefully sited within Bradfield Park North and Central
- Provision of a bike riders rest area next to the Sydney Harbour Bridge Cycleway connection
- A gathering space, lighting and cycle path within Bradfield Park North connecting the elevated linear bike ramp and the proposed Alfred Street South cycle path

3.4 Alfred Street south cycle path and associated works

The Alfred Street South pedestrian and cycle path upgrade would include:

- New 2.5-metre-wide two-way cycle path on Alfred Street South from the ramp landing, linking to the existing bike network in Middlemiss Street. The cycle path would be located on the east side of Alfred Street South between the ramp landing and the new street crossing at 110 Alfred Street South. On the west side of Alfred Street South the cycle path would be located between the new crossing and Lavender Street

- Replacement of the existing pedestrian refuge crossing at the north end of Alfred Street South with a pedestrian and bike rider crossing located near 110 Alfred Street South and an upgrade to the pedestrian crossing at Lavender Street
- -Low speed shared path and verge widening on the north side of Lavender Street
- Adjustments to the Lavender Street roundabout
- New street tree planting, shrub planting and footpath paving
- Relocation of the existing bus stop on Alfred Street South near Lavender Street, about 60 metres to the south of its current location
- Permanent removal of up to 15 parking spaces along Alfred Street South.

The proposal, would also include, but not be limited to:

- Kerb and pavement work, and line marking
- Drainage and utility adjustments
- Street furniture adjustments
- Changes to street parking, parking meter locations and regulatory signage
- Minor lighting upgrades to Bradfield Park North and in other locations where required to meet safe lighting standards.

4.0 HISTORICAL BACKGROUND

4.1 Development of Milsons Point and Kirribilli

The pre-contact history is addressed in a companion report for the proposal. The post-contact history of what is now Bradfield Park dates to 1800, when the area comprised part of a land grant to Robert Ryan (HLA Envirosciences, 2003). Little to no evidence exists of subdividing or farming taking place in present-day Kirribilli until 1806, when prominent merchant Robert Campbell purchased the grant (Sydney Morning Herald, 1950). In 1822, the whole area was leased to James Milson, the first European to permanently settle in the Kirribilli area and after whom Milsons Point is now named. Milson kept cattle and grew various crops on the land and the property remained undisturbed until the late 1820s, with no records of subdivision, lease or development in existence.

Following the death of Robert Ryan in 1846, George Campbell took over the ownership of the site. Subdivision and sale of the land during the 1850s resulted in the development of Milsons Point Wharf and Lane Cove Road (Alfred Street) in 1861. Development in the area increased after the establishment of the North Shore Steam Ferry Company that year and facilitated the consolidation of the road network and services in the area. Urban development continued in the area in the decades that followed, with working class terrace housing taking effect in the Milsons Point area until construction of the Sydney Harbour Bridge northern approaches in 1924 (HLA Envirosciences, 2003).

4.2 Sydney Harbour Bridge

As early as 1815, Francis Greenway had suggested to Governor Macquarie that a bridge be constructed across the harbour, and throughout the nineteenth century various proposals were made for such a bridge. Tenders were eventually called for the design of a bridge in 1923, with specifications set out by J.J.C Bradfield, who had been appointed as Chief Engineer, Sydney Harbour Bridge, City Transit and Metropolitan Railway Construction. Bradfield recommended the arch design of the English firm Dorman Long & Co Ltd, which was accepted by the Government in March 1924 (GML, 2007).

During the early 1920s, hundreds of buildings on either side of the harbour were resumed and demolished to construct the bridge and approaches (Figure 17 to Figure 21). A total of 438 houses were demolished and the reclamation works that followed resulted in a more usable foreshore. In 1924, construction of the northern approaches commenced, with the tipping of soil from the North Sydney railway site and tunnels to form a ramp up to the start of the bridge. Concrete walls were constructed along Broughton Street, Alfred Street, Bradfield Highway and Pacific Highway, and reinforced concrete arched bridges were completed at Fitzroy Street, Burton Street, Lavender Street and Arthur Streets between 1928 and 1929 (HLA Envirosciences, 2003). Construction of the bridge continued until 1932.

The construction of the approaches of the Sydney Harbour Bridge also included the construction of the railway infrastructure. From 1929 to 1932, Milsons Point Railway Station Group was constructed at the northern approach. The station was originally called Kirribilli Station, however, prior to its completion and opening it was renamed Milsons Point. Construction of the Sydney Harbour Bridge finished in January 1932, and in February the

bridge was test loaded. At the time of its completion, the Sydney Harbour Bridge was the largest structure in Sydney. It was officially opened on 19 March 1932 by Premier Jack Lang, followed by a parade over the bridge (GML, 2007).



Figure 17: Photograph of dwellings on Burton Street, Milsons Point prior to resumption for the construction of the Sydney Harbour Bridge, circa early 1920s. (Source: State Library NSW)



Figure 18: Side view of dwelling at 129 Alfred Street, 1926, resumed for Sydney Harbour Bridge (Source: North Sydney Council)



Figure 19: Structures at 121 Alfred Street, 1926, resumed for the Sydney Harbour Bridge (Source: North Sydney Council)

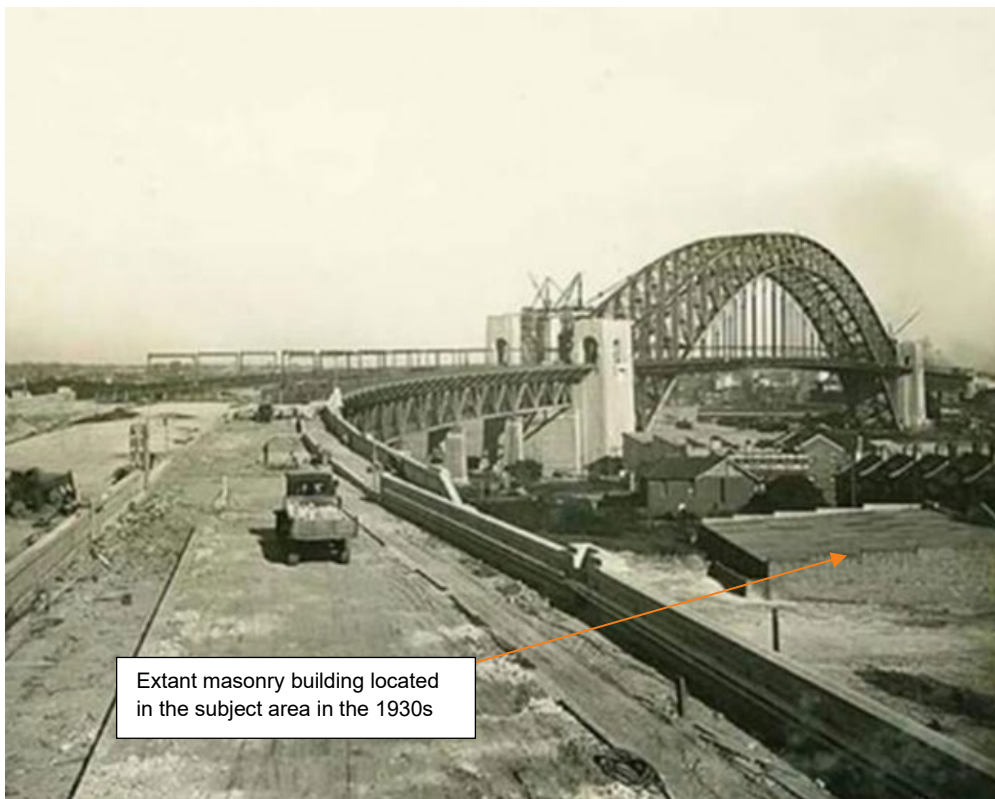


Figure 20: Historical photograph of construction of Sydney Harbour Bridge showing building extant within study area at the time (prior to demolition), 1930s. (Source: North Sydney Council)



Figure 21: Construction of Sydney Harbour Bridge showing several buildings extant within the study area prior to demolition, circa 1920s (Source: North Sydney Council).

4.3 Establishment of Bradfield Park

In 1932, following completion of the Sydney Harbour Bridge, the northern approach area was named after Dr J.J. Bradfield, chief engineer for the bridge construction. In 1934, a comprehensive plan for the layout of the park was adopted. Despite large scale rehabilitation plans, early work on the park was restricted to general clearing, and initial plantings (HLA Envirosiences, 2003). In 1934, the planned rockery garden at the northern portion of the park was completed.

In 1935, North Sydney Council purchased approximately 14 acres of land beneath the newly completed Sydney Harbour Bridge (HLA Envirosiences, 2003). During World War Two, Bradfield Park was temporarily used by the Royal Australian Air Force for use as a mobilisation and demobilisation depot. At this time, several huts were established on the site and were later removed. After World War Two, Bradfield Park became a reception centre for migrants from Europe. In 1980, a report on Bradfield Park by George Wellings Smith & Co described the northern section as giving a sense of 'almost depressive enclosure' due to the high-rise buildings and traffic noise, and as being 'primarily a lawn type with comparatively few trees' some benches and tables at the northern end (HLA Envirosiences, 2003).

In 2003, Bradfield Park North was significantly upgraded with substantial landscaping works. During the works, archaeological excavations uncovered footings and remains of houses and other structures that existed on the site prior to the construction of the Sydney Harbour Bridge. Upgrade works involved installation of new paving and lighting, stormwater, drainage, and irrigation works, plantings, and provision of park furniture. The grassed

entrance to Milsons Point Station was reconfigured as a paved plaza area, featuring stone-clad seating walls, and raised lawn areas with feature plantings (Artefact Heritage, Roads and Maritime, 2015).



Figure 22: Bradfield Park towards Alfred Street following construction of the Sydney Harbour Bridge, 1937 (Source: North Sydney Council).

4.4 Development of the study area

Prior to the construction of the Sydney Harbour Bridge northern approaches, the study area was originally part of a land grant provided to multiple landowners before being granted to Robert Campbell, followed by James Milson.

Development in the area increased after the establishment of the North Shore Steam Ferry Company in 1861. This facilitated the construction of a formalised road network and services, including the establishment of Alfred Street in 1861. By 1868 there were several dwellings located within the study area along with several cottages and residences along the eastern side of Alfred Street. The road network within the study area comprised Alfred Street and Milson Street to the east, intersected by Willoughby Street to the north, and Burton Street and Fitzroy Street to the south.

By 1891, cottages, terraces, and freestanding residences can be seen in a block plan of the area, revealing significant development along the eastern side of Alfred Street (State Records NSW, 1904). These structures were largely associated with the working-class community of Milsons Point, comprising a mix of commercial and residential dwellings (Sands Directory, 1886). Archival images from the c1890s reveal that many structures within the study area were built on stone foundations due to the topography of the land along Alfred Street towards the harbour below. A tramline was also in use along Alfred Street by the 1890s.

There appears to have been limited or no further development within the study area between the turn of the century and the commencement of construction for the bridge and approaches. The study area was resumed by the government, the workers terraces and cottages demolished, and the immediate area excavated for the construction of the retaining wall of the Sydney Harbour Bridge northern approaches. In 1934, the rockery garden was completed at the northern section of Bradfield Park. In 1935, North Sydney Council purchased approximately 14 acres of land beneath the newly completed Sydney Harbour Bridge (HLA Envirosiences, 2003). In 2003, Bradfield Park North was significantly upgraded with substantial landscaping works.

4.5 Milsons Point Railway Station

Milsons Point Railway station originally opened at Lavender Bay in 1893. The original location provided direct access to ferries and the one-time terminus of the North Shore railway line. This was an earlier station serving the Hornsby to Milsons Point line (Figure 23). Prior to the construction of the Sydney Harbour Bridge there was no rail line crossing the harbour linking northern and southern Sydney. Milsons Point Railway Station had two temporary locations during construction of the Harbour Bridge before opening at its current location in 1932. One of the original locations is now one of the Sydney Harbour Bridge's northern pylons (Dictionary of Sydney).

First work on the bridge commenced in 1924 with construction of the bridge approaches and the approach spans. Construction of the approach spans was undertaken concurrently with erection of the steelwork for the actual bridge structure. The building of the approaches on the north side included the construction of North Sydney Station, Milsons Point Station and a number of underbridges to carry the railway. The approaches were designed and built by the Sydney Harbour Bridge Branch of the Public Works Department and the Metropolitan Railway Construction Branch of the NSW Government Railways. The northern approaches were built using spoil from the excavation of the North Sydney station site to build a ramp up to the main bridge level. Retaining walls of concrete, built by Monier Concrete, were built along Broughton and Alfred Streets and Bradfield and Pacific Highways.

Concrete had been extensively used for foundations and walls since the 1890s. By 1910 reinforced concrete was in use, but not for superstructures directly supporting railway tracks. The Bellevue Street underbridge at Glebe was the first to use it for this purpose, in 1919.

The Milsons Point station was constructed between 1929 and 1932 as part of the northern approaches. It was initially called Kirribilli Station but was changed to Milsons Point before its opening. By June 1931 the station platform had been completed and a portion of the platform awnings had also been erected. The railway decking had advanced as far as Milsons Point, tracks had begun to be laid and the transoms delivered for installation. By January 1932 the platforms had been covered with asphalt, the brickwork of the shops in the arcade below the station was completed as was the tiling, the laying of magnesite flooring in the station office, terrazzo flooring in the lavatories, the erection of the metal awnings at the Alfred Street and Broughton Street entrances, terracotta facing to the station and installation of gates and barriers. Trackwork was completed and ballast laid along the tracks at the same time.

On 19 March 1932 the Milsons Point station was officially opened as part of the larger bridge opening celebrations to roadway, railway and pedestrian traffic by the then premier of NSW, JT Lang. (State Heritage Inventory)

Milsons Point Railway Station was added to the New South Wales State Heritage Register on 2 April 1999.

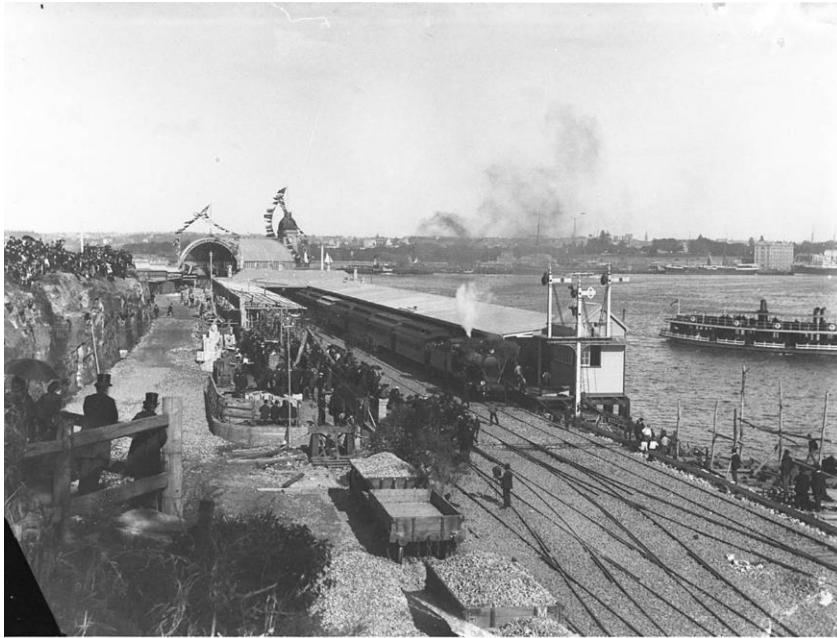


Figure 23: Original Milsons Point Railway Station (used for north shore train services only), date unknown (Source: State Library of New South Wales [Home and Away - 35108])

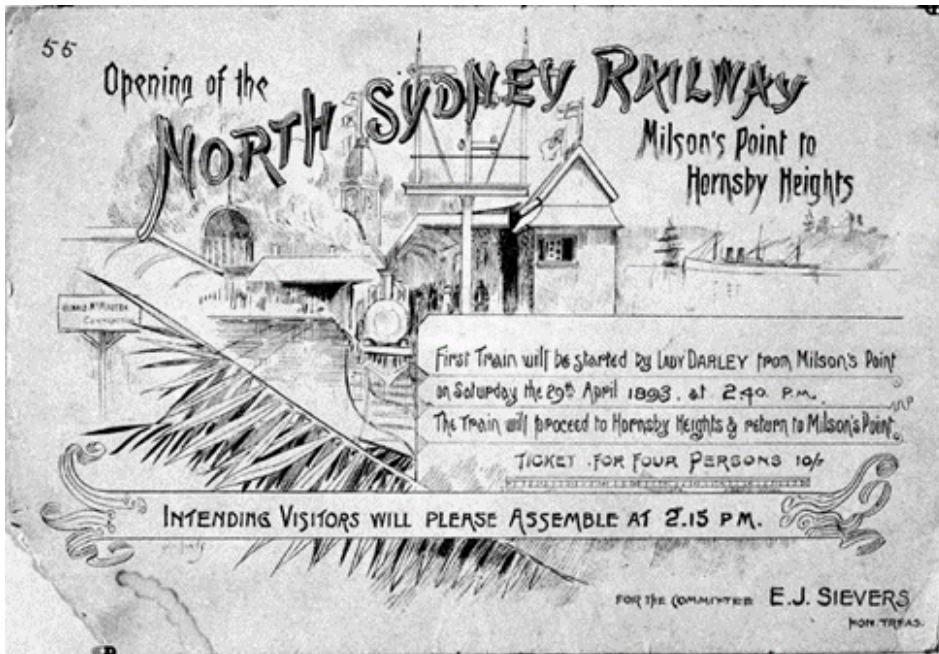


Figure 24: "Opening of the North Sydney Railway", 1893. This was for the first station at what is now Milsons Point Railway Station, for services only on Sydney's North Shore (Source: National Archives of Australia [C4076:HN126])



Figure 25: Aerial view south over Milsons Point showing Sydney Harbour Bridge, 1963. (Source: National Library of Australia)

5.0 SITE DESCRIPTION

5.1 Introduction

The southern section of study area comprises a combination of parking spaces, a formal plaza, and bowling club to the west of the Sydney Harbour Bridge northern approaches and Milsons Point Station, within Bradfield Park Central and Bradfield Park South. The northern section of the study area (Bradfield Park North) contains an open park space featuring a large group of old Western Australian Peppermint Trees or Willow-Myrtle trees (*Agonis flexuosa*), park furniture, formal paved areas, and interpretative signage. The interpretive elements reveal the location of houses and other structures removed prior to the construction of the Sydney Harbour Bridge. The central area of the park, near the entrance to the railway station, includes a diagonal sandstone kerb edged with a concrete gutter: a remnant of the kerbing that edged Willoughby Street prior to construction of the Sydney Harbour Bridge. The central portion of the study area also features a grassed area near the entrance to a paved plaza in front of the Milsons Point Railway Station entrance.

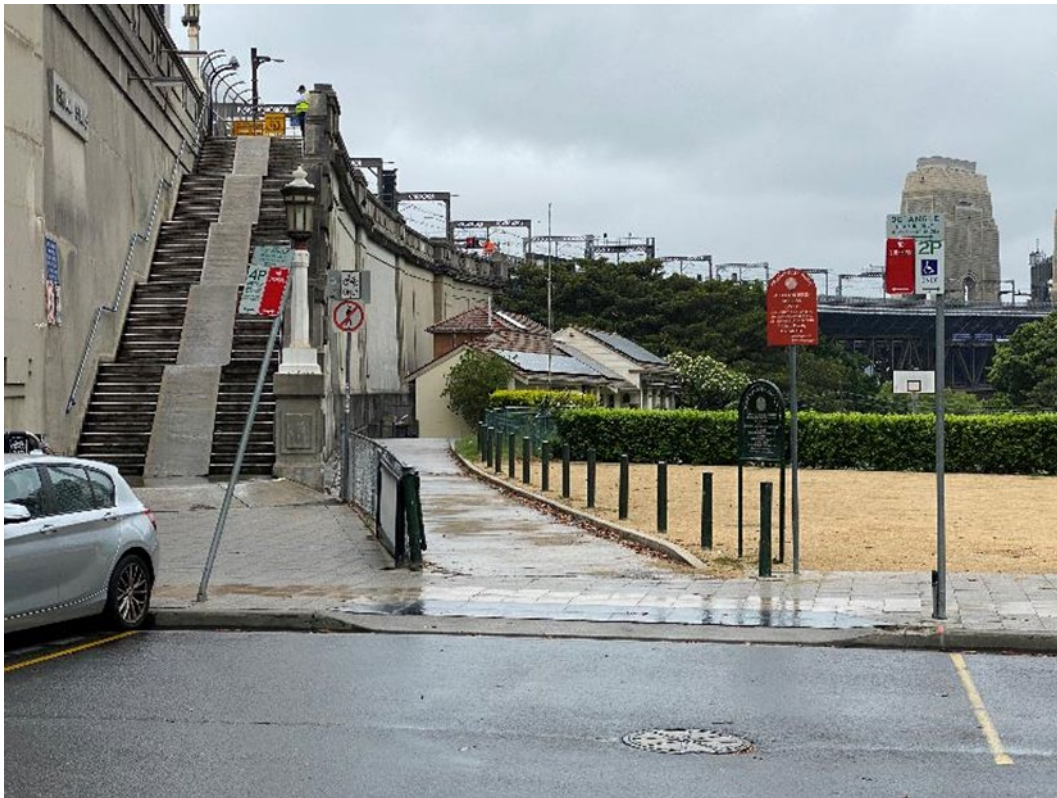


Figure 26: Location of current cycle route including stairs used by cyclists (Artefact, 2021)

5.2 Visual site inspection

An inspection of the study area was conducted by Scott MacArthur (Principal) on 18 January 2022. During the site inspection, observations were made about the overall intactness of the study area.

The study area was traversed on foot and photographs were taken of local features, identified views and structures (shown in Figure 27 to Figure 53).



Figure 27: Bradfield Park: View looking south towards the entrance to Milsons Point Railway Station and Bradfield Park Central (Artefact, 2021)



Figure 28: Bradfield Park Central: paved area near entrance to Milsons Point Railway Station (Artefact, 2021)



Figure 29: Bradfield Park Central: paved area near entrance to Milsons Point Railway Station (Artefact, 2021)



Figure 30: Bradfield Park Central: entrance to Milsons Point Railway Station from Alfred Street South (Artefact, 2021)



Figure 31: Bradfield Park Central: cycleway stairs in background (Artefact, 2021)



Figure 32: Northern approach for cyclists to the Sydney Harbour Bridge (Artefact, 2021)



Figure 33: Bradfield Park South: location for temporary ancillary works during construction of proposal (Artefact, 2021)



Figure 34: Bradfield Park Central: recreational area to be used for temporary ancillary works during construction of the proposal (Artefact, 2021)



Figure 35: Burton Street (Artefact, 2021)



Figure 36: Bradfield Park Central: entrance to Milsons Point Railway Station (Artefact, 2021)



Figure 37: Bradfield Park from Alfred Street South: location of the proposed elevated linear ramp (Artefact, 2021)



Figure 38: Bradfield Park North: commemorative sculpture and drinking fountain (Artefact, 2021)



Figure 39: Bradfield Park North: area of mostly open space located below the route of the proposed elevated linear ramp (Artefact, 2021)



Figure 40: Bradfield Park North looking north: grassed area located near the route of the proposed Alfred Street South cycle path (Artefact, 2021)



Figure 41: Bradfield Park North looking south: grassed area located near the route of the proposed elevated linear ramp (Artefact, 2021)



Figure 42: Bradfield Park North: view towards Alfred Street South (Artefact, 2021)



Figure 43: Bradfield Park North: park bench seating below concrete wall. Note: the abrupt interface between the austere and hard appearance of the bridge approach structure and the park setting of Bradfield Park North (Artefact, 2021)

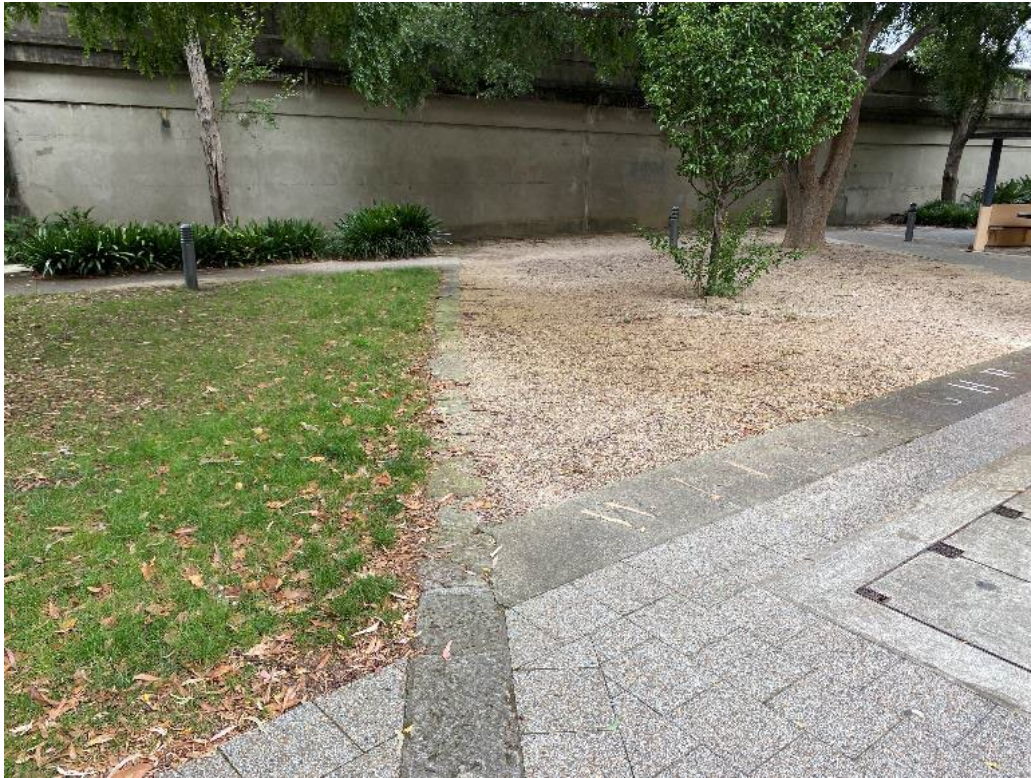


Figure 44: Bradfield Park North: ground level interpretation of the location of former streets, lanes and houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021)



Figure 45: Bradfield Park North: the covered seating structure has nil aesthetic value and is arguably intrusive (Artefact, 2021)

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Page 55

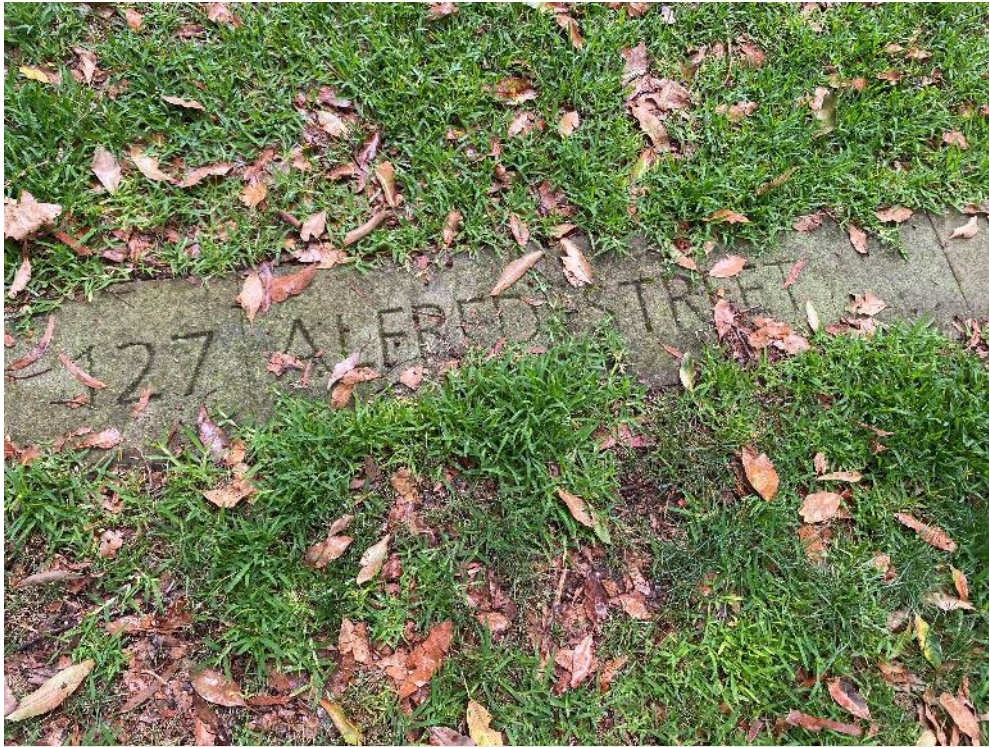


Figure 48: Bradfield Park North: interpretation. The existing interpretation reveals the location and footprint of houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021)



Figure 49: Bradfield Park North: interpretation. The existing interpretation reveals the location and footprint of houses demolished for the construction of the Sydney Harbour Bridge (Artefact, 2021)



Figure 50: Bradfield Park: landscaping and public amenity (Artefact, 2021)



Figure 51: Bradfield Park North: public art (Artefact, 2021)



Figure 52: Bradfield Park Central: Main pedestrian thoroughfare between Alfred Street South and Milsons Point Railway Station (Artefact, 2021)



Figure 53: Bradfield Park is part of the North Sydney Council Public Art Trail (Artefact, 2021)

5.3 Visual setting and key views

The information in this section demonstrates the visual impact of the cycleway at important views, including towards Milsons Point Railway Station and the Sydney Harbour Bridge. The visual setting and key views are depicted in Figure 54 and Figure 55.



Figure 54: Sydney Harbour Bridge Cycleway Northern Access Project: visual setting and key views (NSW Government)

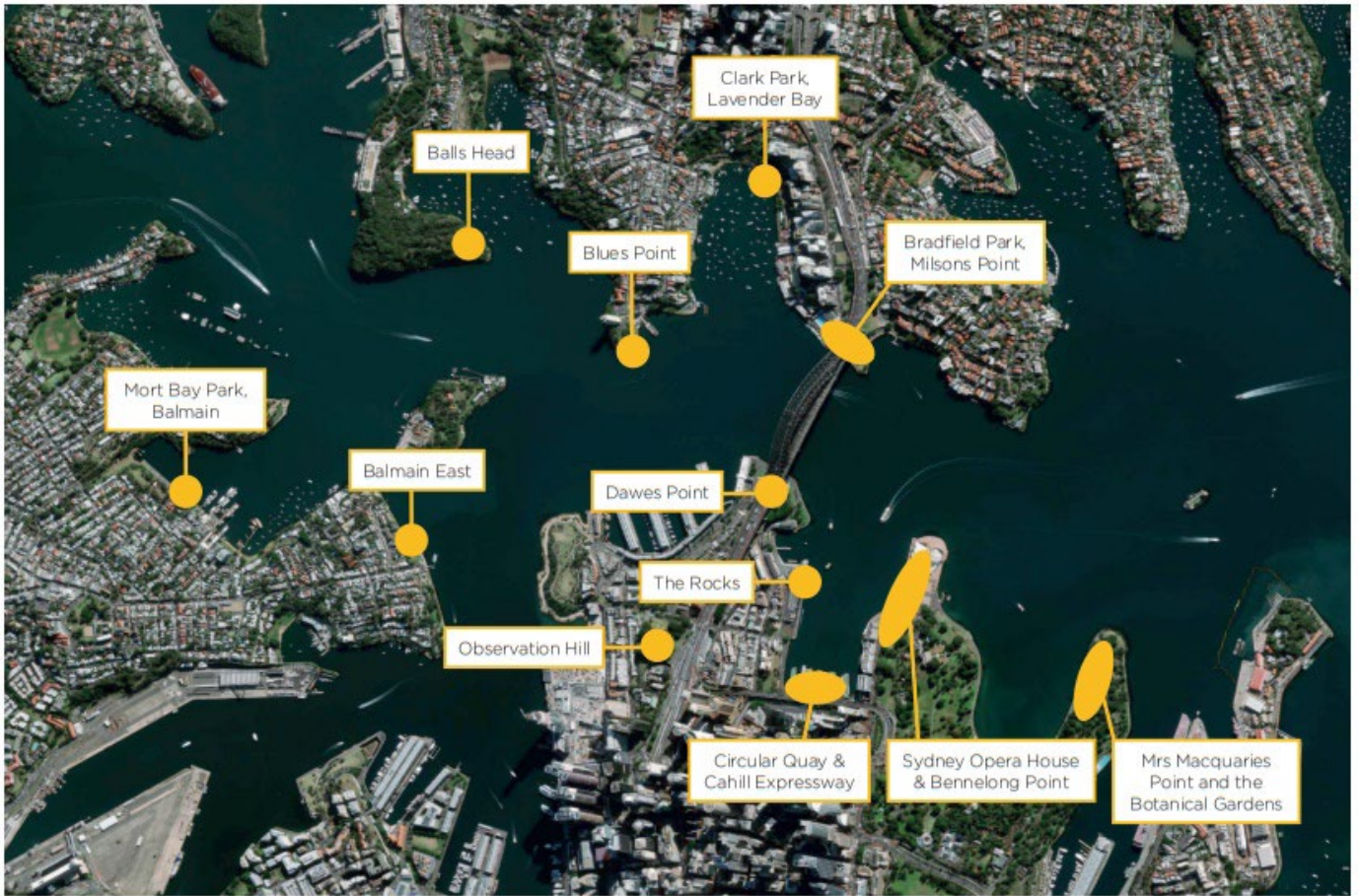


Figure 55: Sydney Harbour Bridge Cycleway Northern Access Project: key locations offering views of the Sydney Harbour Bridge (NSW Government)

6.0 ASSESSMENT OF HERITAGE SIGNIFICANCE

6.1 Sydney Harbour Bridge, Milsons Point Railway Station & Bradfield Park

6.1.1 Preamble

The Sydney Harbour Bridge is a monumental landmark in the centre of the city of Sydney, and one of the world's most globally recognised bridges. It is an important visual element in the Sydney cityscape viewed from many key points around the harbour. The steel arched form, Art Deco inspired granite pylons and composite approach spans create an iconic and dramatic composition that consistently evokes a positive response from observers. The Sydney Harbour Bridge is listed on multiple heritage registers and has heritage value at a local, state, and national level. Milsons Point Railway Station and Bradfield Park have separate listings at the state and local levels and are also captured by the SHR curtilage for the Sydney Harbour Bridge.

6.1.2 World heritage considerations

The Sydney Harbour Bridge is not listed on the World Heritage List, but the bridge is within the visual catchment (buffer zone) of the World Heritage listed Sydney Opera House.

6.1.3 National heritage significance

The NHL listing of the Sydney Harbour Bridge includes the following statement of significance:

The building of the Sydney Harbour Bridge was a major event in Australia's history, representing a pivotal step in the development of modern Sydney and one of Australia's most important cities. The bridge is significant as a symbol of the aspirations of the nation, a focus for the optimistic forecast of a better future following the Great Depression. With the construction of the Sydney Harbour Bridge, Australia was felt to have truly joined the modern age, and the bridge was significant in fostering a sense of collective national pride in the achievement.

The Sydney Harbour Bridge was an important economic and industrial feat in Australia's history and is part of the nationally important story of the development of transport in Australia. The bridge is significant as the costliest engineering achievement in the history of modern Australia, and this was extraordinary feat given that it occurred at the severest point of the Great Depression in Australia.

The bridge is also significant for its aesthetic values. Since its opening in 1932, the Sydney Harbour Bridge has become a famous and enduring national icon, and remains Australia's most identifiable symbol. In its harbour setting, it has been the subject for many of Australia's foremost artists, and has inspired a rich and diverse range of images in a variety of mediums – paintings, etchings, drawings, linocuts, photographs, film, poems, posters, stained glass - from its construction phase through to the present.

The Sydney Harbour Bridge is also significant as one of the world's greatest arch bridges. Although not the longest arch span in the world, its mass and load

capacity are greater than other major arch bridges, and no other bridge in Australia compares with the Sydney Harbour Bridge in its technical significance. In comparing Sydney Harbour Bridge with overseas arch bridges, Engineers Australia has drawn attention to its complexity in combining length of span with width and load carrying capacity. The construction of Sydney Harbour Bridge combined available technology with natural advantages provided by the site. The designers took advantage of the sandstone base on which Sydney was built, which enabled them to tie back the support cables during construction of the arch, and to experiment with massive structures. Although designed more than 80 years ago, the bridge has still not reached its loading capacity.

The bridge is also significant for its important association with the work of John Job Crew Bradfield, principal design engineer for the New South Wales Public Works Department, who ranks as one of Australia's greatest civil, structural and transport engineers (DEE, 2007),

6.1.4 State heritage significance: Sydney Harbour Bridge

The SHR listing for the Sydney Harbour Bridge and approaches includes the following summary statement of significance:

The bridge is one of the most remarkable feats of bridge construction. At the time of construction and until recently it was the longest single span steel arch bridge in the world and is still in a general sense the largest. The bridge, its pylons and its approaches are all important elements in townscape of areas both near and distant from it. The curved northern approach gives a grand sweeping entrance to the bridge with continually changing views of the bridge and harbour. The bridge has been an important factor in the pattern of growth of metropolitan Sydney, particularly in residential development in post World War II years. In the 1960s and 1970s the Central Business District had extended to the northern side of the bridge at North Sydney which has been due in part to the easy access provided by the bridge and also to the increasing traffic problems associated with the bridge (Walker and Kerr 1974).

6.1.5 State heritage significance: Milsons Point Railway Station

Milsons Point Railway Station consists of a platform office and shelter, along with platform faces, subway entrances, concourse, walls and abutments and the Burton Street Underbridge, and is located approximately 25 metres west of the study area. The station was constructed between 1929 and 1932 as part of the northern approaches to the Sydney Harbour Bridge. It was originally called Kirribilli Station but was changed to Milsons Point prior to its opening.

Milsons Point Railway Station is listed as a State significant heritage item due to its historical, associative, aesthetic, social and research potential heritage values. The SHI database contains the following statement of significance for the item:

Milsons Point station has state historical significance as an essential component of the northern approaches to the Sydney Harbour Bridge. The form and detail of the

subway and tunnels in particular are significant as part of the overall design and specifications for the bridge as set down by Chief Engineer JJC Bradfield. The Milsons Point station retains a number of original features and decorative elements from its original construction phase including the platform building and entrance way awning from the Alfred Street side.

6.1.6 Local heritage significance

Bradfield Park (including northern section) is listed as an item of local significance on the North Sydney LEP for its rarity and representativeness. The SHI listing of Bradfield Park includes the following statement of significance:

Important local park with extensive views of Sydney harbour and the city skyline. Important locale for the historic icon of the Bow of the H.M.A.S. Sydney, a significant ship in Australian history. Associated with the harbour bridge construction and named for J.J.C. Bradfield. Formerly central township of Milsons Point and historically a most significant area for the North Shore.

7.0 ARCHAEOLOGICAL POTENTIAL AND SIGNIFICANCE

Non-Aboriginal archaeological potential is defined as the potential of a site to contain historical archaeological relics, as classified under the Heritage Act. Non-Aboriginal archaeological potential is assessed by identifying former land uses and associated features through historical research and evaluating whether subsequent actions (either natural or human) may have impacted on evidence for these former land uses.

A separate Aboriginal Due Diligence report has been prepared for this proposal by Artefact Heritage Services.

7.1 Previous studies

A number of previous studies were identified that contribute to the understanding of the current study area, these have been summarised below. The study areas of these previous studies are shown in Figure 56. The results of these studies will contribute to assessment of the potential and significance of the site.

7.1.1 E Higginbotham Consultant Archaeological Services 1992, Report on the Archaeological Monitoring Program of Works in Association with the Construction of the Sydney Harbour Tunnel at Bradfield Park, Milsons Point

In 1992 E. Higginbotham published the results of an archaeological monitoring program undertaken as part of the construction of the Sydney Harbour Tunnel. The Archaeological monitoring program included works at the southern end of Bradfield Park, approximately two hundred metres south of the current study area.

Arrangement was made for the archaeologist to be on call during the bulk excavation of the Milson's Point ferry and tram terminus. A small number of items with local archaeological significance, were identified during the monitoring program. The identified archaeological remains included a section of the former sea wall, a Scotch marine boiler, a rock sewer line and a small section of sandstone wall.

Sea Wall

A section of sea wall was identified during the construction of the tunnel, similar in experience to the existing section of the sea wall located to the east. Comprised of large sandstone blocks, the sea wall was interpreted as dating from the 1870s and 1880s when the land in the area was reclaimed.

Scotch Marine Boiler

A Scotch Marine Boiler was found in the backfill of the former construction yards for the Sydney Harbour Bridge. It was suggested that the boiler may have been used in the construction of the bridge, inspection of the historical photographs show no evidence of this boiler in use. It was most likely discarded as it was no longer sound.

Rock Cut Sewer

A rock cut sewer line was identified, measuring one metre in height and 1.3 metres in width with rock cut sides. The sewer was located approximately 1.9 metres beneath the Australian

Datum. The sewer was interpreted as dating from 1913, when low level sewage pumping stations were constructed at Jeffrey and McDougall Streets North Sydney.

Sandstone wall

A small section of sandstone wall was identified potentially relating to the former public wharf and dock. A significance assessment was not included in the report (as it was prepared under a different system of assessing significance), however the remains were described as 'of significance' so it can be assumed that they were locally significant works.

Impacts and Conclusions

The archaeological remains were heavily impacted by bulk excavation however they demonstrate the range of archaeological remains that are present within Bradfield Park despite the significant impact caused by the construction of the bridge. No assessment of significance was completed as part of the results report.

7.1.2 Di Fazio 2001 'Bradfield Park North, Milsons Point Archaeological Assessment'

This archaeological assessment was carried out by Di Fazio in 2001 as part of an Assessment of Heritage Impact for the proposed landscaping upgrades to Bradfield Park North. The assessment concluded that due to the evidence of demolition and subsequent use of the site for construction works, which involved heavy disturbance combined with levelling and dumping of soil from outside the site, archaeological material was likely to have been removed or damaged. The assessment identified a small possibility that some structural remains of the residential buildings, such as basements and foundations, would remain in the subsurface areas of the site, although it would be unlikely they would be in good condition.

7.1.3 HLA Envirosciences Pty Limited 2004, Archaeological Recording Bradfield Park North, Milsons Point, New South Wales

In 2003 North Sydney Council completed landscape rehabilitation works within Bradfield Park, part of the current study area. An archaeological assessment was carried out, as discussed above. A program of archaeological monitoring was undertaken during the landscaping works identifying several archaeological features within the park. These included:

- Walls and paved area
- Sandstone walls
- Foundation walls at the northern end of the site
- Wells, tanks or cisterns

While the Sandstone walls (HLA, 2003a) and one well or cistern (HLA, 2003b) were subject to interim reports, the 2004 report consolidates the results, as summarised below.

Walls and paved area

Initially identified as a small area of in situ bricks, running east from Alfred Street South, further investigations identified more brick remains and a concrete paved area. The remains

within areas likely to be impacted were exposed using a toothless digger bucket and hand excavation, the presence of a large number of tree roots further limited the investigation.

The exposed remains included two parallel lines of semi-dry pressed bricks in alternate rows of headers and footers. The two walls were approximately five metres apart and appear to be truncated by a concrete wall at the eastern end. Each brick was stamped “Ives Oaks”, although this was often indistinct.

A thin layer of unreinforced concrete was identified, likely indicating an exterior paved area. The area between the walls was largely devoid of artefacts, while to the north of the walls a large amount mixed collapsed bricks and artefacts were identified and left in situ.

Further remains of brick walls were identified near the southern boundary of Alfred Street South however no investigation of the wall was possible due to the presence of tree roots. Investigations along the projected line of the wall away from the trees failed to identify any remains.

The remains were identified with structures on the 1890s Water Board plans between 121 and 127 Alfred Street.

Sandstone Walls

A series of three sandstone walls were identified at the southern end of the site. The walls extended perpendicular from the concrete wall that formed Bridge abutments, towards Alfred Street South.

The sandstone walls were interpreted as most likely retaining walls from 117-115 Alfred Street dating from the c.1880-1890s, used to separate the allotments and provide a level building surface.

The following statement of significance is provided for the sandstone walls from the SoHI (HLA, 2003a):

The surviving stone walls are significant through their ability to demonstrate that the construction of the bridge had both a positive and negative impact on the North Shore community. The walls demonstrate that the Bridge resulted in the destruction of established houses and other buildings at Milsons.

Foundation walls at the northern end of site

A double line of cream machine made bricks were identified at the northern end of the site, running under the rockery and garden beds associated with the Jessie Broomfield Memorial Drinking Fountain, the rockery and garden is believed to date to 1934.

The bricks are 250 x 100 x 90 millimetres, therefore are non standard size and likely date from before 1923, a rectangular lozenge frog was visible however no makers marks were seen.

The North Sydney Detail sheet from the 1890s shows a ‘workshop’ in the vicinity of the wall however it does not align with the intact remains.

Wells, tanks or cisterns

A brick 'well' was identified between two of the sandstone walls, at the southern end of site. The well was of brick construction 1.65 metres in diameter and contained a brown/black sediment with a high concentration of artefacts, the manufacturing date of several of the artefacts indicates that the well was backfilled sometime after 1910.

The well was only excavated to the impact depth of 500 millimetres and could be seen extending beyond this depth, it was not possible to ascertain whether the well was a true well or a tank/cistern to hold captured or purchased water.

A second well/tank was identified near the project office, however this feature was not excavated and was left in situ.

The significance of the cesspit or well was assessed as being associated with the existing established significance of Bradfield Park, being reflective of the occupation and use of Bradfield Park, along with having local significance under Criterion E of the State Heritage Criteria.

Impacts and Conclusions

While limited sections of the remains were impacted during the landscape rehabilitation works these impacts were shallow in nature and limited in scope. An effort was made to limit the impacts to the intact archaeological remains with further investigation limited to those areas likely to suffer impacts associated with the works. The archaeological remains were seen to extend beyond the investigated area therefore substantial archaeological remains likely remain within the study area.

The HLA report concluded that:

These archaeological remains have the potential to demonstrate the nature of the community living at Milsons Point and through archaeological research the remains have the potential to contribute to an enhanced understanding of the history of NSW much in the way that archaeological research at the Rocks (the other end of the Bridge) has.

The report also further recommended that:

The management plans for Bradfield Park be revised in light of these findings as the remains on the site would satisfy criterion (e) of the NSW Heritage Office significance assessment criterion.

Criterion (e) - an item has potential to yield information that will contribute to an understanding of NSW's cultural or natural history (or the cultural or natural history of the local area); Recent archaeological research in Bradfield Park North has identified that the area has a high archaeological potential with remains able to contribute information on the nature of the community and life in the area prior to the construction of the Sydney Harbour Bridge.

It should be a requirement that any proposed sub-surface works in the remainder of Bradfield Park be specifically assessed for their impact on archaeological remains by the preparation of an Archaeological Assessment to the NSW Heritage Office Archaeological Assessment Guidelines.

While the report assessed the whole of Bradfield Park as far south as Fitzroy Street as having high archaeological potential, no assessment of significance was undertaken regarding the archaeological remains was undertaken. Further the mapping provided as part of the report was extremely limited and does not allow the archaeological remains to be located within the context of the park.

7.1.4 JCIS Consultants 2017, Archaeological Monitoring – Excavation of Footings for sculpture in Bradfield Park Milsons Point, NSW

North Sydney Council initiated The North Sydney Public Art Trail (NSPAT) in 2015. As part of the project, 20 sites in North Sydney were identified as locations for public art. Site 18 was located in Bradfield Park North, Milsons Point. Development Consent was issued in July 2015 with the conditions that:

Condition B2 Engagement of an Archaeologist; a suitably qualified archaeologist shall be engaged to provide detailed input into the installation of artworks at Location 4 (Quibaree Park) and Location 18 (Bradfield Park North). (Reason: To ensure that the installation does not impact on or disturb archaeological relics.)

A site inspection in 2017 did not identify any surface indications of archaeological remains although a stone wall was found 4.5 metres south of the study area. An overlay of the study area on the North Sydney Block Plan No.7, did not identify any structures in the study area.

The work consisted of a three by three metre square excavation orientated to Alfred Street, initial excavation of the square was done to a depth of 0.5 metres with a further diagonal strip 375 millimetres wide excavated a further 15 metres depth. The excavation revealed a mixed demolition and construction rubble layer overlying the natural Hawkesbury Sandstone. A plastic service was found cutting the sandstone.

No archaeological remains were identified during the excavation, and no further archaeological work was required. Despite this JCIS concluded that Bradford Park retained a high archaeological potential for sub-surface archaeology, supporting the previous assessment by HLA.

7.1.5 Artefact Heritage 2018 and 2022, Sydney Harbour Bridge Northern Cycle Ramp – Geotechnical Works Historical SOHI

In 2018 Artefact Heritage was engaged by Aurecon on behalf of the former Roads and Maritime to prepare a Non-Aboriginal SOHI for geotechnical works intended to provide information that would contribute to the development of the concept and detailed design of the Sydney Harbour Bridge Northern Cycle Ramp project. While the study area boundary for the 2018 SoHI is slightly different to the current proposal extent, they broadly overlap. Artefact were also engaged by TfNSW in 2022 to update this SOHI to conduct further geotechnical investigations to inform the Cycleway Northern Access project.

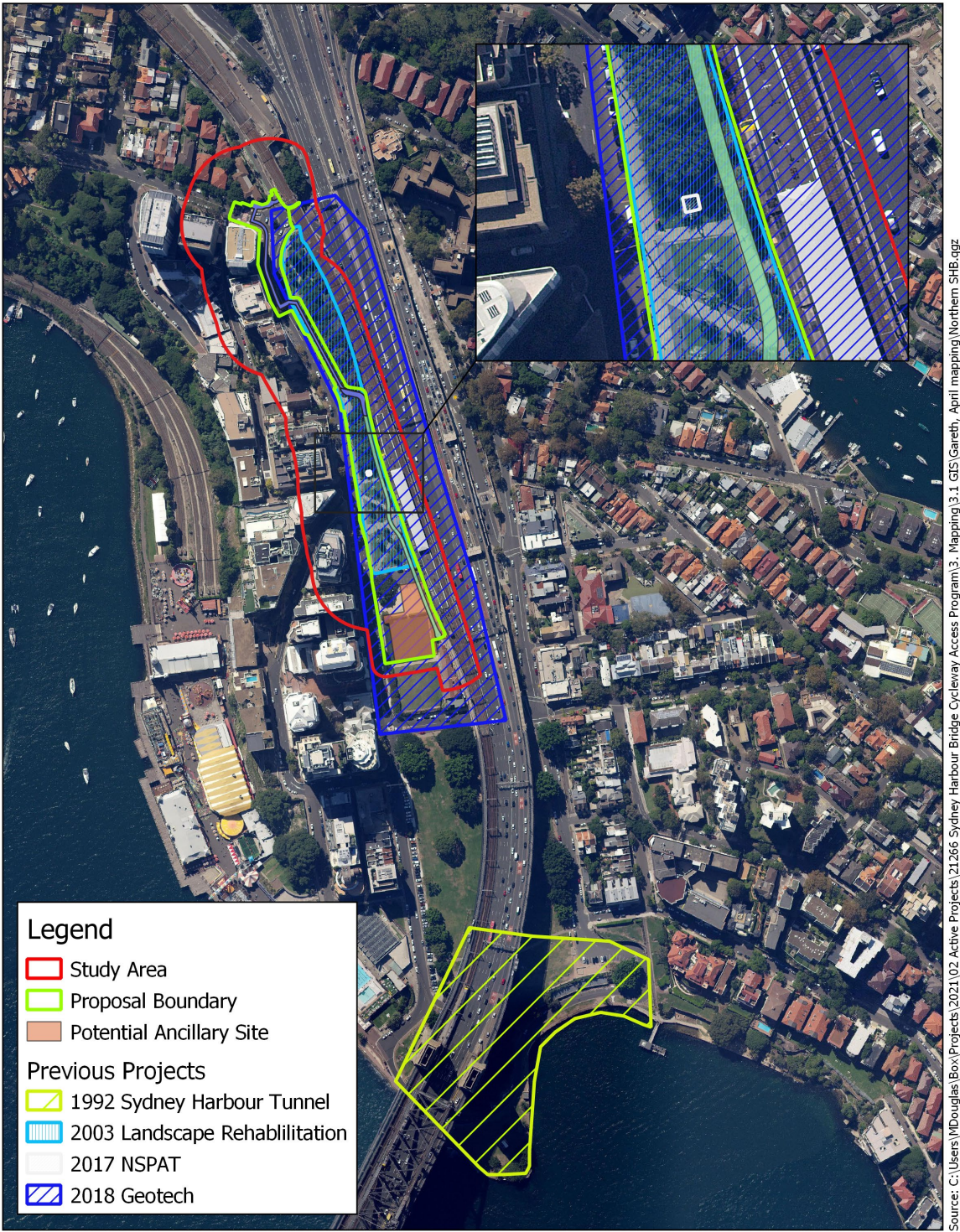
The 2018 SOHI included an extensive history of the Bradfield Park area as well as an assessment of the archaeological potential within the study area. The 2018 SOHI concluded that there was high potential for locally significant material dating to Phase 2 (1860s –

1920s) and low potential for locally significant material from Phase 1 (1788 – 1860s). Phase 3 (1920s – 1930s) was determined to have high potential for material that would not reach the threshold for local significance.

The geotechnical works in 2018 comprised the excavation of six boreholes, it was recommended that a Section 57 Application be made under the NSW Heritage Act and the works should proceed under the *Roads and Maritime Standard Management Procedure: Unexpected Heritage Items* (2015). Monitoring was not recommended as “boreholes do not offer adequate visibility and impacts are expected to be negligible.”

The 2022 SOHI included an updated version of the extensive history of the Bradfield Park area with an updated assessment of the archaeological potential in the study area. The 2022 SOHI concluded there was nil to low potential for locally significant ‘relics’ and ‘works’ associated with Phase 1 landscape modification and informal habitation, and high potential for locally significant ‘relics’ and ‘works’ associated with Phase 2 residences and commercial premises. The 2022 assessment found that the proposed works would result in negligible adverse impact to potential archaeological resources.

The geotechnical works in 2022 comprised the excavation of eight boreholes, four within the SHR curtilage of the Sydney Harbour Bridge, and 4 outside all heritage curtilages. The SOHI recommended that an application for a Section 60 approval be issued to Heritage NSW for their consideration prior to works commencing for the 4 boreholes within the SHR and that the 4 boreholes outside heritage curtilage were consistent with the exceptions under Section 139 of the Act and did not require any approval or permit. The SOHI also recommended all works proceed under the *TfNSW Standard Management Procedure: Unexpected Heritage Items* (2021).



Previous Projects

**21266 SHB Northern
Cycleway**
LGA: North Sydney

Figure 56: Map showing the boundaries of Previous Projects

7.2 Previous impacts

The study area, in comparison to the southern approaches of the Sydney Harbour Bridge, has undergone less phases of development. However, the consolidation of Milsons Point involving development of buildings and the establishment of Alfred Street during the mid to late nineteenth century would have likely impacted on archaeological remains associated with Phase 1.

The construction of the retaining wall of the Sydney Harbour Bridge northern approaches would have had similar extensive impacts to archaeological remains from the earlier two phases. Despite the assessed 'low' archaeological potential identified by Di Fazio in 2001, the uncovering of archaeological relics and sandstone walls resulting from excavations of Bradfield Park North in 2003 demonstrate the potential for intact archaeological remains to exist within the study area.

Since the construction of the bridge, there have been no more developments in this location, except for services underneath the footpath and landscaping. This may have caused localised impacts to archaeological material.

7.3 Overview of the study area development

There are three identifiable phases of development for the study area, which may be present in the archaeological record:

- Phase 1: Early land grants (1800 – 1861)
- Phase 2: Residential and commercial development (1861 – 1920s)
- Phase 3: Resumption and major construction (Sydney Harbour Bridge) (1920s – 1932).

7.3.1 Phase 1: Early land grants (1800 – 1861) (Figure 57)

Phase 1 relates to the earliest European developments in the area, and the early period of settlement at Milsons Point. The study area was originally part of a land grant provided to multiple landowners before being granted to Robert Campbell, followed by James Milson. A plan dating to 1840-49 indicates that the study area did not feature any visible developments at this time, and likely did not feature any prior to that. During this phase, the area was likely used for pastoral activities as suggested in the plan by the nearby barn, yards and calf pens. A new road appears to have been formed within the study area leading from Lane Cove and St Leonards to a new steam punt wharf. The central portion of land within the study area is labelled as having been a quarry.

Archaeological remains from this period are likely to consist of ephemeral evidence of land clearing and pastoral activities, such as tree boles, burnt stumps, furrows and irrigation channels, post holes from fence lines, and charcoal patches and isolated artefact scatters from informal camps. There is potential for evidence of earlier road alignments. However, any road during this phase would have likely been an informal dirt or gravel track, which are poorly visible within the archaeological record.

7.3.2 Phase 2: Residential and commercial development (1861 – 1920s) (Figure 60)

Development in the area increased after the establishment of the North Shore Steam Ferry Company in 1861. This facilitated the construction of a formalised road network and services, including the establishment of Alfred Street (originally called Lane Cove Road) in 1861. A plan of Milsons Point in 1868 shows that by this time there were several dwellings located within the study area along with several cottages and residences along the eastern side of Alfred Street. The road network within the study area is seen to comprise Alfred Street and Milson Street to the east, both running along a north-east axis, intersected by Willoughby Street to the north, Burton Street and Fitzroy Street to the south.

By 1891, a Water Board plan of the area indicates the east side of Alfred Street had been considerably developed, featuring cottages, terraces and freestanding residences (see Figure 59). Sources from this period indicate that these structures within the study area were largely associated with the working class community of Milsons Point, and comprised a combination of commercial and residential dwellings (Sands Directory 1886). Historical photographs illustrate that numerous structures within the study area were raised on stone foundations due to the sloped topography leading south along Alfred Street towards the harbour. A tramline is seen to have been established along Alfred Street.

Archaeological remains from this phase are likely to consist of stone or brick footings, yard surfaces, evidence of lot boundaries, and minor occupation-related deposits. Archaeological remains of properties established prior to the provision of reticulated water and municipal garbage collection in the late nineteenth century could possibly include cesspits, privies, wells or cisterns. Due to the presence of municipally provided waste management towards the end of the nineteenth century, deposits containing artefacts would be less likely in archaeological remains dating from this time onwards. Potential archaeological remains from Phase 2 could also include the remains of roads demolished to make way for the Sydney Harbour Bridge including the section of Willoughby Street between Alfred Street and Broughton Street, and Milson Street which was located between Alfred Street and Broughton Street. Remains associated with these roads could include evidence of the road surfaces, kerbing, drainage and associated deposits.

7.3.3 Phase 3: Resumption and major construction (Sydney Harbour Bridge) (1920s – 1932)

There appears to have been no further developments within the study area until construction started for the Sydney Harbour Bridge. At this time the study area was resumed by the government, the workers terraces and cottages were demolished and the immediate area was excavated for the construction of the retaining wall of the Sydney Harbour Bridge northern approaches. Historical photographs and drawings indicate there was a natural slope towards the southern end of the study area, and that many of the buildings within the study area were elevated on stone foundations and in some cases constructed on levelled sites.

Since the construction of the Sydney Harbour Bridge approaches, the main notable developments within the study area involve the upgrade landscaping works to Bradfield Park.

Archaeological remains in the area would primarily consist of the backfill deposits associated with the Sydney Harbour Bridge. The installation of the services and landscaping works at Bradfield Park are unlikely to have accumulated archaeological deposits and artefacts.

6.4.4 Phase 4: Minor Changes to Bradfield Park Area (SHB) (1940s – 2016)

From 1940's onwards aerial imagery denotes some minor changes within the Bradfield Park Area, with shrubbery and tree growth and some the appearance of a building around the 1970s towards the southern end of the study area and a recent development of a parking area on Burton Street.

The study area has no potential to contain archaeological remains associated with Phase 4.

Source: C:\Users\MDouglas\Box\Projects\2021\02 Active Projects\21266 Sydney Harbour Bridge Cycleway Access Program\3. Mapping\3.1 GIS\Gareth, April mapping\Northern SHB.qgz



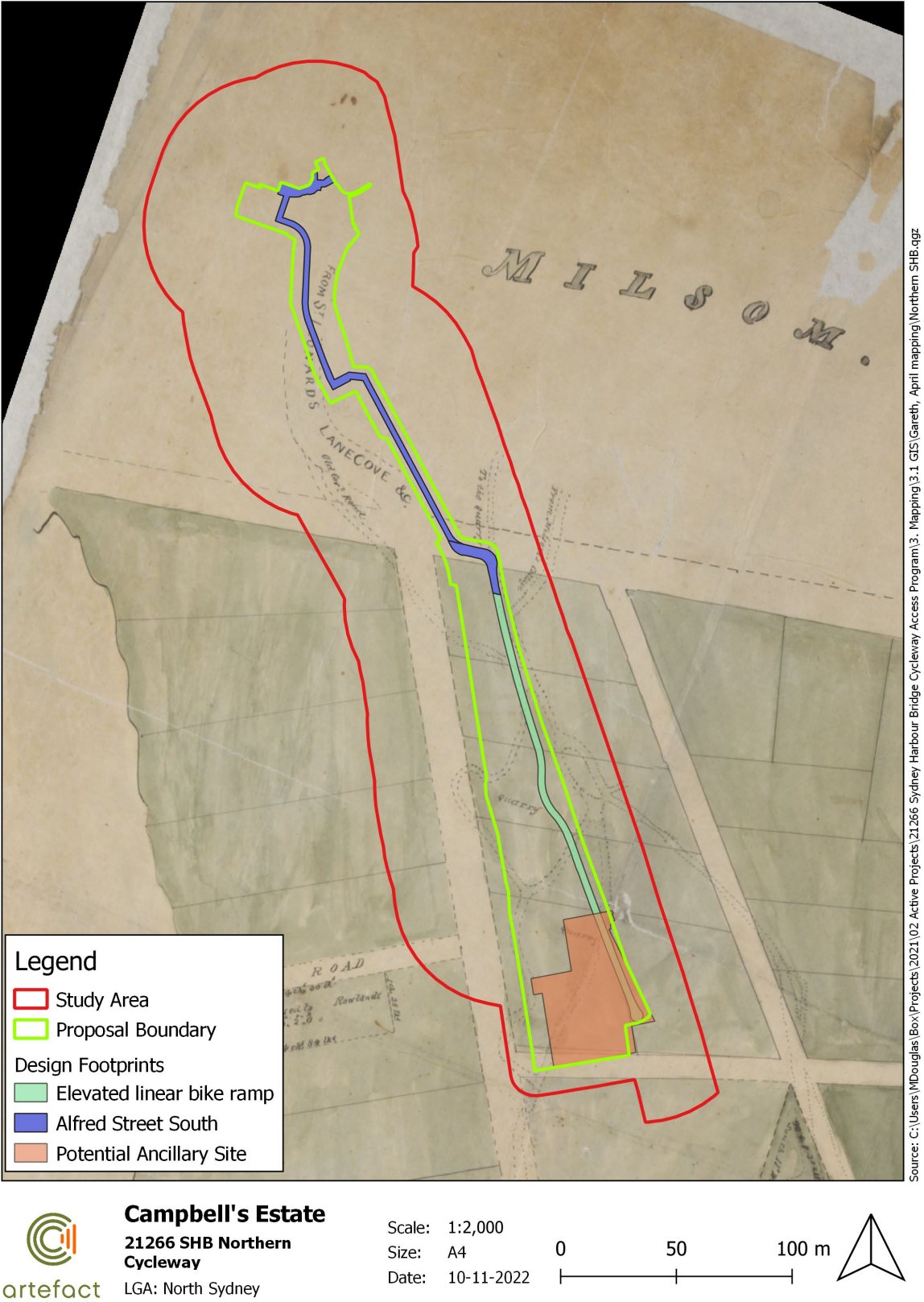
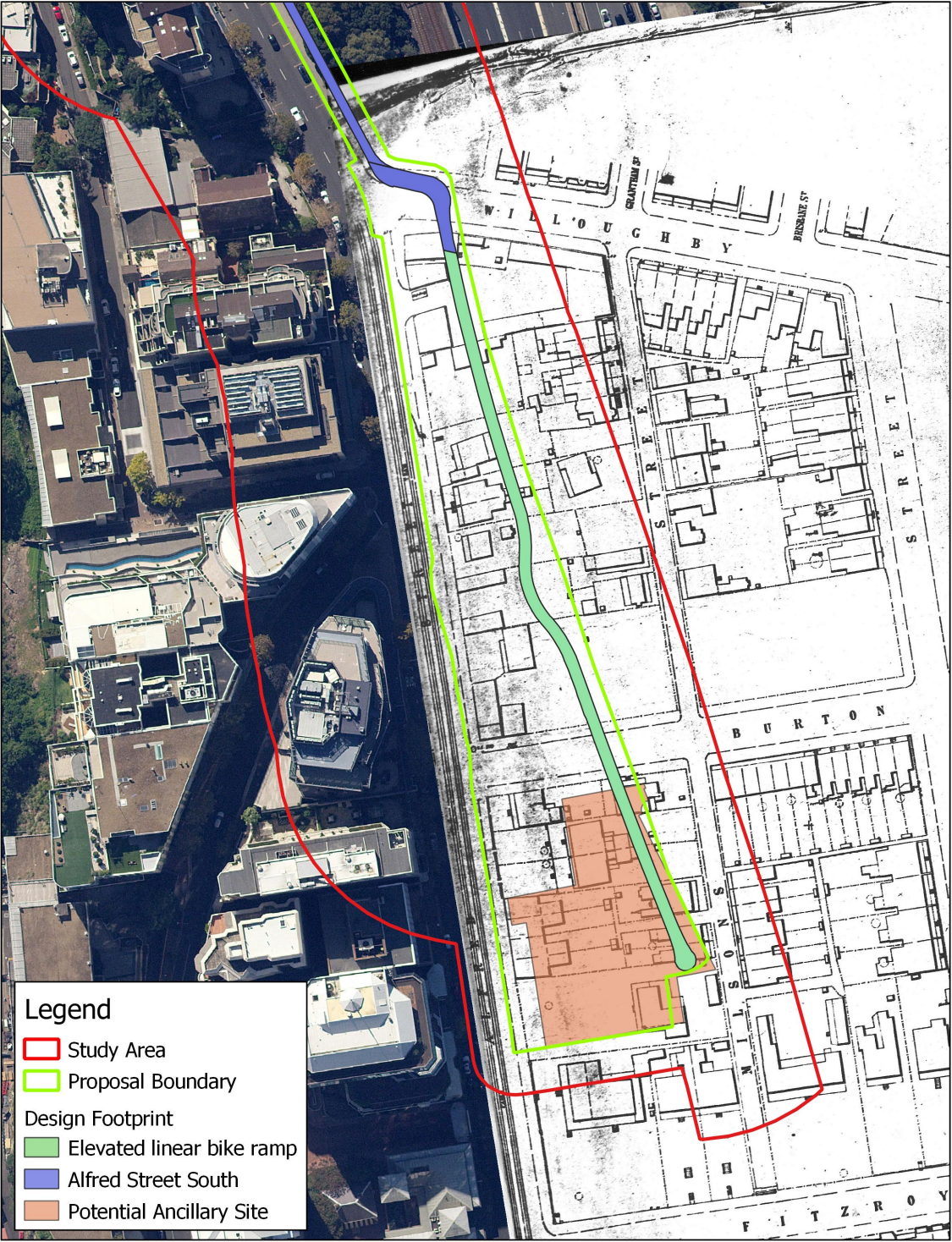



Figure 58: Plan of Campbells Estate c.1840s with study area. Source NLA MAP F 903





Waterboard 1890's
Sheet 7
21266 SHB Northern
Cycleway
LGA: North Sydney

Scale: 1:1,250
Size: A4
Date: 10-11-2022

0 30 60 m




Figure 59: Water Board Block Plan of North Sydney from 1891s with proposed design.

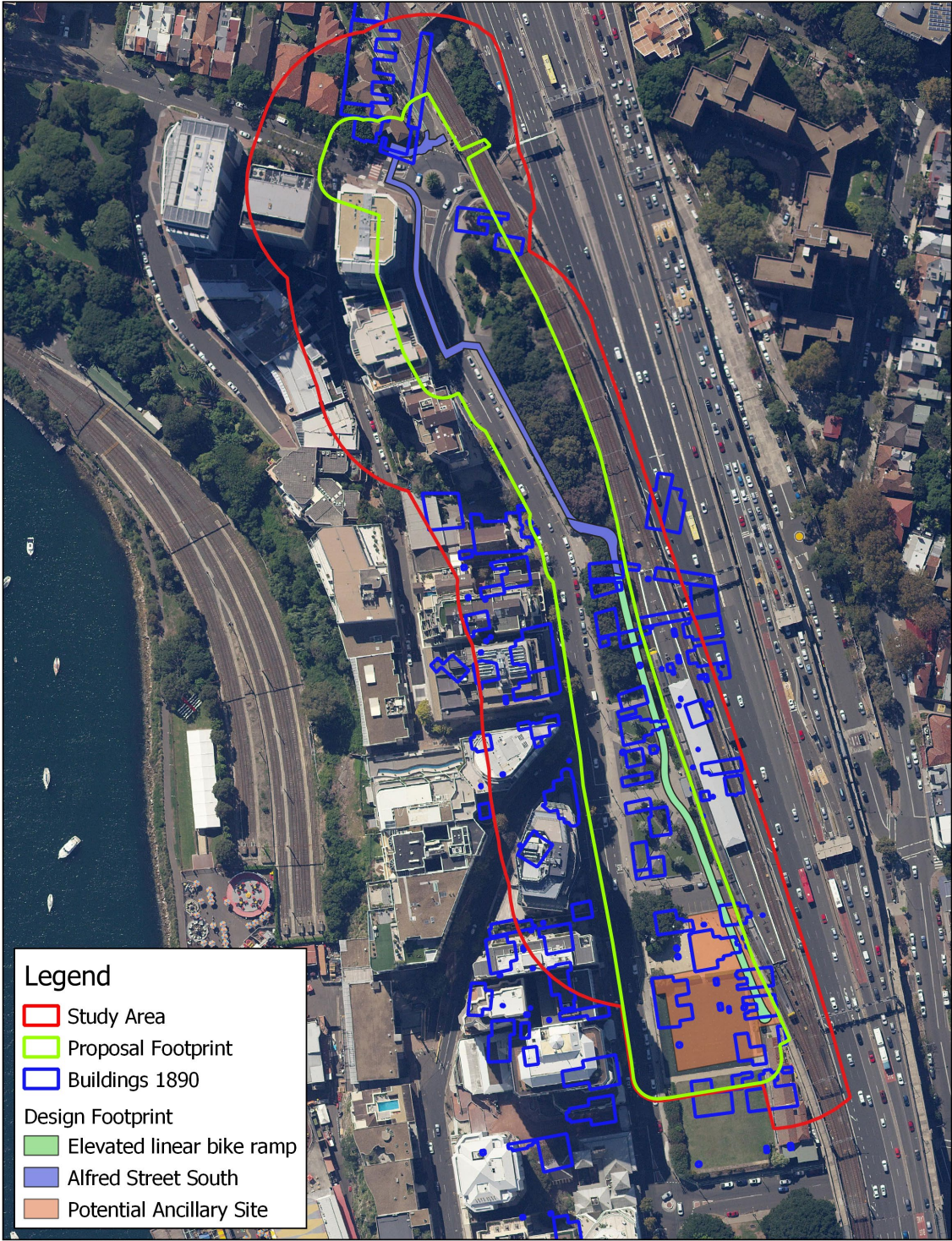


Figure 60: Proposed Designs overlaid on 1890s Buildings (Phase 2)

7.4 Summary of archaeological potential

The archaeological potential of the study area is provided in Table 7-1.

Table 7-1: Archaeological potential summary for the study area

Phase	Potential archaeological remains	Potential
Phase 1 (1800 – 1861)	<p>Evidence of land clearance and use, informal camps and early road surfaces, such as tree boles, burnt stumps, furrows, irrigation channels, post holes, fire pits, isolated artefact scatters and informal road surfaces, kerbing and drainage.</p> <p>It is possible remains associated with the quarry may be present although these would likely have been infilled and be difficult to discern.</p>	Nil-low
Phase 2 (1861 – 1920s)	<p>Evidence of the residential and commercial development of workers cottages and terraces, including brick or stone building footings, lot boundaries, yard surfaces and minor occupation-related deposits. Evidence of more formal road surfaces, drainage and kerbing.</p> <p>Remains of residences along Alfred Street may also be present and are known to have been excavated in the north of the park (HLA 2003).</p>	High
Phase 3 (1920s – 1932)	Backfill deposits from the SHB construction.	High (Nil potential for relics)
Phase 4 (1940s – 2016)	Minor development works on Bradfield Park	Nil (extant)



Archaeological Potential
21266 SHB Northern
Cycleway
LGA: North Sydney

Figure 61: Overview of archaeological potential

7.5 Archaeological significance

An assessment of the archaeological significance for potential remains associated with the study area is assessed below in Table 7-2.

Table 7-2: Assessment of Archaeological Significance against the NSW Heritage Act criteria

Criterion	Discussion
A) an item is important in the course, or pattern, of NSW's cultural or natural history (or the local area)	<p>The study area was part of the grant provided to Robert Campbell and then to James Milson, both well-known local figures. However, the likely ephemeral nature of the remains means it would be difficult to directly associate them with the works of Campbell or Milson and therefore remains from Phase 1 and 2, while unlikely to be found, any intact remains would be locally significant for their ability to contribute to our knowledge of the early development and occupation of Sydney's North Shore</p> <p>Although the Phase 3 backfill deposits within the study area are associated with the construction of the SHB, the deposits themselves are of little significance. This historical phase would not reach the level of local significance under this criterion.</p>
B) an item has strong or special association with the life or works of a person, or group of persons, of importance in NSW's cultural or natural history (or the local area)	<p>The study area was part of the grant provided to Robert Campbell and then to James Milson, both well-known local figures. However, the likely ephemeral nature of the remains means it would be difficult to directly associate them with the works of Campbell or Milson and therefore remains from Phase 1 and while unlikely to be found, any intact remains would be locally significant for their ability to contribute to our knowledge of the early development and occupation of Sydney's North Shore although the Phase 3 backfill deposits within the study area are associated with the construction of the SHB, the deposits themselves are of little significance. This historical phase would not reach the level of local significance under this criterion.</p>
C) an item is important in demonstrating aesthetic characteristics and/or a high degree of creative or technical achievement in NSW (or the local area)	<p>It is considered unlikely that the potential archaeological resources would be extensive or indeed intact. Considering they primarily represent the later nineteenth century development commercial development of a suburban area, it is not considered that the potential archaeology would have any particular aesthetic or technical significance.</p>
D) an item has strong or special association with a particular community or cultural group in NSW for social, cultural or spiritual reasons (or the local area)	<p>It is possible that the local community may have an interest in any archaeological remains, and any information that may be obtained through archaeological salvage excavation. However, it is unlikely that this association would be considered to be particularly strong or special.</p> <p>It is unlikely that potential archaeological remains would meet the significance threshold for local or state significance under this criterion.</p>
E) an item has potential to yield information that will contribute to an understanding of the development of NSW or the local area	<p>Phase 1 dates to the earliest European settlement of the North Shore. As historical research suggests that there was little development on the</p>

Criterion	Discussion
understanding of NSW's cultural or natural history (or the local area)	<p>Campbell and Milson grant and that it was primarily used for agricultural pursuits, it is unlikely that this phase would have produced any substantial archaeological remains. Archaeological remains associated with land clearance, quarrying and grazing activities would be ephemeral in nature. The potential for archaeological evidence from this phase is nil-low. Any intact remains would be locally significant for their ability to contribute to our knowledge of the early development and occupation of Sydney's North Shore.</p> <p>Archaeological remains from Phase 2 are primarily associated with the residential development of the study area during the mid to late nineteenth century. Substantial remains from this phase may have research potential associated with the development of the North Shore during this period, analysis of which may provide insight into the preferences and ways of life of the working-class community of Milsons Points at this time. Archaeological remains may also provide information on the material expressions of the relative isolation of the north shore prior to construction of the bridge, and difference with the CBD. The relatively short occupation of the site between the 1860s and the 1920s could offer a 'snapshot' of life prior to the easy access to the city and the acceleration of development. If intact archaeological remains are located, they would be locally significant.</p> <p>Phase 3 is associated the SHB construction. Archaeological remains of this phase would primarily consist of backfill deposits. These deposits do not hold any research potential and would not be of any significance.</p>
F) an item possesses uncommon, rare or endangered aspects of NSW's cultural or natural history (or the local area)	<p>There is some potential that the archaeological remains could demonstrate the transition from a primarily agricultural area to a city fringe suburban area in the second half of the nineteenth century.</p> <p>If substantial and intact archaeological resources associated with the nineteenth and twentieth century usage of the site are found, they may meet the threshold for local significance under this criterion.</p>
G) an item is important in demonstrating the principal characteristics of a class of NSW's cultural or natural places or cultural or natural environments (or the local area)	<p>There is some potential that the archaeological remains could demonstrate the transition from a primarily agricultural area to a city fringe suburban area in the second half of the nineteenth century.</p> <p>The remains may meet the threshold of local significance under these criteria.</p>

Consideration of archaeological research potential is also required when undertaking a significance assessment of an historical archaeological site. In *Assessing the Research Significance of Historic Sites* (1984), Bickford and Sullivan developed three questions to gauge significance:^[1]

^[1] Bickford, A. & S. Sullivan, 1984. Assessing the Research Significance of Historic Sites. In: Sullivan S. & S. Bowdler (eds.) *Site Surveys and Significance Assessment in Australian Archaeology* (Proceedings of the 1981

- Can the site contribute knowledge that no other site can?
- Can the site contribute knowledge that no other resource can?
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?

The following responses answer the questions posed by Bickford and Sullivan regarding the study area overall.

- Can the site contribute knowledge that no other site can?
 - The potential archaeological resource may contribute to our knowledge of the early development and occupation of North Sydney if intact
- Can the site contribute knowledge that no other resource can?
 - The study area is unlikely to contribute knowledge that no other resource can. Similar sites have been subject to considerable archaeological analysis in recent years.
- Is this knowledge relevant to general questions about human history or other substantive questions relating to Australian history, or does it contribute to other major research questions?
 - This site is unlikely to contribute insight or data that would provide considerable insight into Australian history, or major research questions.

7.6 Statement of archaeological significance

The study area has the potential to contain an archaeological resource associated with early agricultural land use and the historical development of the suburb of Milsons Point. Intact archaeological remains may provide information regarding domestic life, agricultural development, living conditions and the growth of the local economy from the late nineteenth century to the early twentieth century. However, these aspects of the past are well documented, well understood and are not particularly rare or significant.

Archaeological remains are likely to consist of footings associated with former structures. As previously identified by HLA, the study area also has Low potential to contain archaeological relics in the form of backfilled artefact-bearing deposits within decommissioned wells.

If any intact remains of this type are located, they may reach the threshold for local significance under criteria A), B), E) and F).

Springwood Conference on Australian Prehistory), Department of Prehistory, Research School of Pacific Studies, The Australian National University, Canberra, p. 23–24.

A summary of the archaeological significance of the potential archaeological remains is provided in Table 7-3 below.

Table 7-3: Archaeological potential summary for the study area

Phase	Potential	Significance
Phase 1 (1788 – 1860s)	Nil-low	Local
Phase 2 (1860s – 1920s)	High	Local
Phase 3 (1920s – 1930s)	High (Nil potential for relics)	Unlikely to reach the threshold of local significance
Phase 4 (1940s – 2016)	Nil	None

7.7 Archaeological impact assessment

Land use change will affect the heritage value of the site and/or place. A SOHI should also address how the heritage value of the site/place can be conserved or maintained, or preferably enhanced by the proposed works.

This report has been prepared in accordance with the NSW Heritage Office & Department of Urban Affairs and Planning *NSW Heritage Manual* (1996) and NSW Heritage Office *Statements of Heritage Impact* (NSW Heritage Office, 2002). The guidelines pose a series of questions as prompts to aid in the consideration of impacts due to the proposal. The questions vary in the guideline, depending on the nature of the impact to the heritage site.

Each of these questions is addressed below.

7.7.1 Terminology

In order to consistently identify the potential impact of the proposed works, the terminology contained in Table 7-4 has been referenced throughout this document.

Table 7-4: Terminology for assessing the magnitude of heritage impact

Grading	Definition
Major	<p>Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource.</p> <p>These actions cannot be fully mitigated.</p>
Moderate	<p>Actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures.</p> <p>The impacts arising from such actions may be able to be partially mitigated.</p>

Grading	Definition
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

7.7.2 Potential works

The current proposal concept design is at thirty per cent. As such, the proposal description is limited in detailed scope. It is assumed that earthworks for the proposal would be associated with the following:

- Service location works
 - Excavation of shallow potholes using Non Destructive Digging (NDD) leaves archaeological remains largely intact, and where potholing is shallow, remains are often visible and able to be identified and recorded. Impacts of potholing will generally be negligible to minor.
- Excavation required for column footings
 - The impact area of piling is generally small (if this is the methodology adopted). Piling rigs used may have a minor impact on a much larger area due to their size and weight and the requirement to prepare the surface prior to use. Piling generally has poor visibility, and a small impact area therefore impacts are likely to be minor.
 - Figure 62 shows the intersection of proposed columns with building envelopes associated with 1890s development (noting these locations may be subject to change as design progresses). In general, these locations avoid structural remains, but may impact on deposits and/or surfaces associated with the former buildings. Impact would be minor.
- Construction of Alfred Street South cycle path
 - Previous excavations have demonstrated that archaeological remains are located immediately below the ground level. Resurfacing is likely to expose archaeological remains however impacts are likely to be minor.
- Construction of elevated bike ramp connection of Sydney Harbour Bridge Northern cycleway
 - It is assumed that the movement of plant required to construct the elevated cycle path is unlikely to result in archaeological impacts.

- Reinstatement of any disturbed areas
 - Previous excavations have demonstrated that archaeological remains are located immediately below the ground level. Resurfacing is likely to expose archaeological remains however impacts are likely to be minor.

7.7.3 Assessment of impacts on historical archaeology

Impacts to archaeological resources are likely to occur during the construction works. The thirty per cent concept design proposal description provided for this assessment is generally high level. On that basis this assessment has been based on a worst case scenario for impacts within the study area. The level of impact is dependent on the methodology adopted for excavation works. Detailed design information is required prior to ascertaining the precise degree of archaeological impacts.

The cycleway design and potential ancillary buildings are located within Bradfield Park. Evidence from previous excavations has demonstrated that historical structures and associated deposits, dating from Phase 2 (1861-1920s) are present throughout Bradfield Park (Figure 62).

Should intact archaeological remains survive within the proposal boundary then these remains are likely to be subject to moderate impact in areas proposed for excavation. As previous work has demonstrated, archaeological remains are present immediately below the current ground surface. Therefore, even shallow ground works have the potential to result in impact to archaeological resources.

The proposed columns pass through both the frontages and yards of former 1890s properties (see Figure 62). Yards are more likely to contain archaeological 'relics' within backfilled wells and cesspits. The presence of artefact deposits associated with structural remains and wells/tanks containing artefactual material has been previously demonstrated through archaeological excavation in the vicinity.

Overall, the potential for the works to impact on significant archaeological resources is **moderate** however this would be appropriately mitigated through archaeological resource management measures such as archival recording and analysis, as well as future opportunities for heritage interpretation. These recommendations are noted in Section 9.3.5.

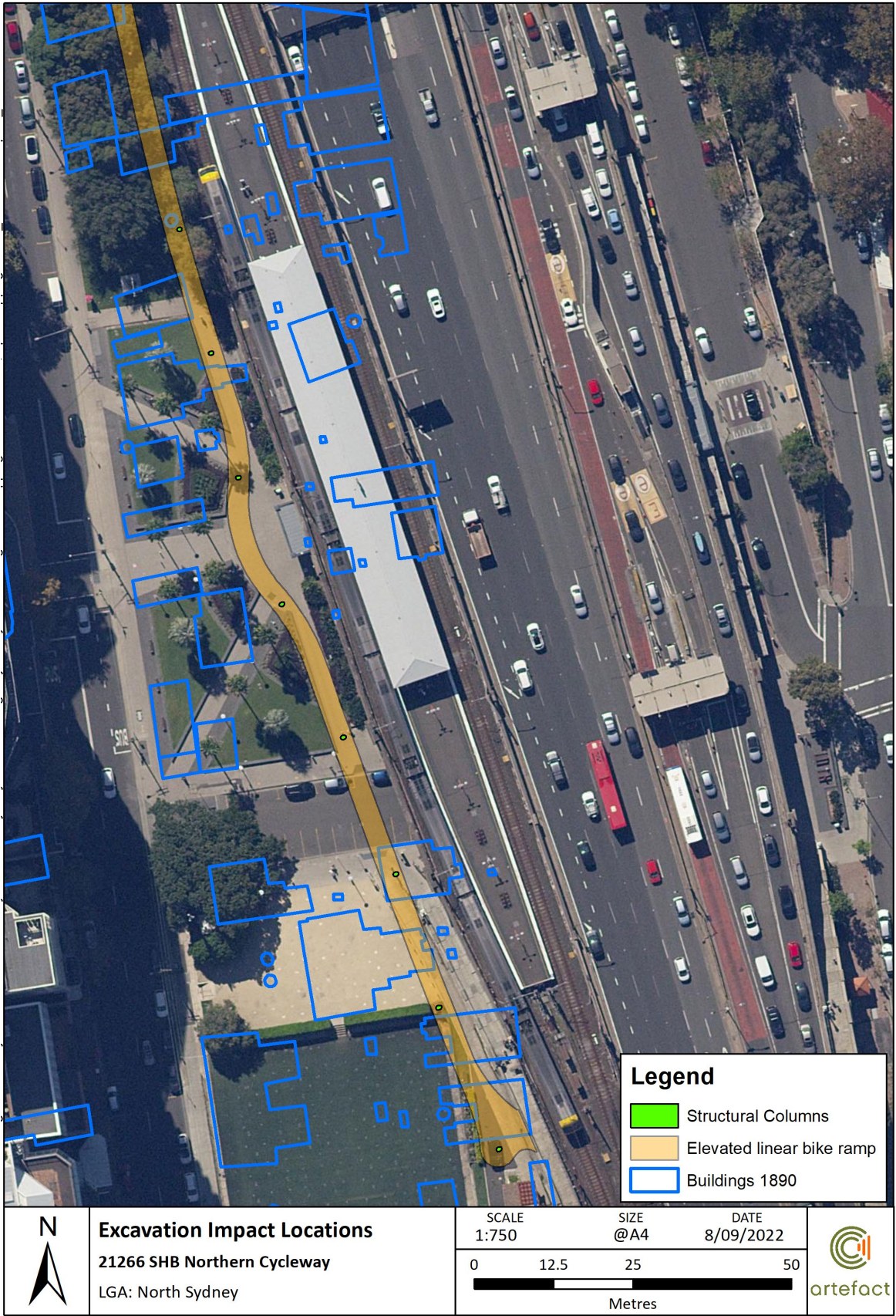


Figure 62: Overview of 1890s building envelopes with potential column locations.

8.0 HERITAGE IMPACT ASSESSMENT

8.1 Introduction

The objective of a SOHI is to evaluate and explain how a proposed development or other change will affect the heritage values of a place. A SOHI should also address how the heritage values of a place can be retained, the impacts minimised or avoided, or be enhanced by the proposal.

8.2 Statement of heritage impact

This heritage impact assessment is based on the thirty per cent concept design. A detailed design was not available at the time of writing and impacts have been assessed as worst-case scenario.

The following table defines the standard terminology used to grade heritage impact.

Table 8-1: Terminology for assessing the magnitude of heritage impact

Grading	Definition
Major	Actions that would have a long-term and substantial impact on the significance of a heritage item. Actions that would remove key historic building elements, key historic landscape features, or significant archaeological materials, thereby resulting in a change of historic character, or altering of a historical resource. These actions cannot be fully mitigated.
Moderate	Actions involving the modification of a heritage item, including altering the setting of a heritage item or landscape, partially removing archaeological resources, or the alteration of significant elements of fabric from historic structures. The impacts arising from such actions may be able to be partially mitigated.
Minor	Actions that would result in the slight alteration of heritage buildings, archaeological resources, or the setting of an historical item. The impacts arising from such actions can usually be mitigated.
Negligible	Actions that would result in very minor changes to heritage items.
Neutral	Actions that would have no heritage impact.

8.2.1 Key features and impacts of the proposal

The following aspects of the proposal respect or enhance the heritage significance of the place for the following reasons:

- The proposal design process recognises and addresses the heritage values of the Sydney Harbour Bridge.
- The placement of the proposed elevated linear bike ramp retains a large proportion of the park setting and retains the park for public use.
- The introduction of the proposed elevated linear bike ramp provides new opportunities for interpretation of the Sydney Harbour Bridge and Bradfield Park.

- The introduction of the proposed elevated linear bike ramp allows the park to be viewed and experienced from above as well as at ground level.
- The visual impacts of the proposed elevated linear bike ramp are ameliorated to some extent by placement to the east (close to the bridge approach) and extending the proposed elevated linear bike ramp to make it a linear addition consistent with the bridge approach structure, while also reducing the gradient of the bridge and maximising the topography of the site.
- Providing a contemporary and original design that embraces the Indigenous and non-Indigenous history and heritage of the place.

The following aspects of the proposal could detrimentally impact on heritage significance:

- The proposal introduces a large, new structure within a park setting. The elevated linear bike ramp will be highly visible from street level and from all vistas within Bradfield Park. This impact is mitigated through good contemporary design, by locating the proposed elevated linear bike ramp close to the concrete bridge approach, and by graduating the proposed elevated linear bike ramp from its connection to the Sydney Harbour Bridge and to Bradfield Park.

The following alternative solutions have been considered and discounted for the following reasons:

- Lifts at the end of existing cycleway were considered and discounted. Modelling confirmed that lifts could not adequately service demand, resulting in unacceptable congestion and delays. Lifts would have visual and open space impacts without the benefits to cyclists that a ramp can provide.
- A travelator was also considered and discounted as it would create compounding delays with cyclists having to dismount and stand still whilst on the travelator. This option would create significant heritage and visual impacts to the Sydney Harbour Bridge and Bradfield Park.
- Converting Sydney Harbour Bridge deck space currently used by vehicles for use by cyclists was considered but discounted. Due to the narrow width of lanes and the need for a safety barrier between vehicles and bikes two lanes of the Bridge would need to be used for a bicycle path. This reduction in road space would have unacceptable impacts to Bradfield Highway traffic and would render the Milsons Point exit unusable for vehicles.
- A 'do nothing' option of retaining the existing access arrangement was considered and discounted. The existing stairs constrain capacity, deter uptake of cycling by less experienced riders and do not provide equitable access for all cyclists.

8.3 Direct heritage impacts

It is noted that this impact assessment is based on a thirty per cent concept design and detailed design was not available at the time of writing. Impacts are generally high level and worst-case scenario. Further detailed impact assessment would be required at a later stage of the proposal to further inform heritage approvals. The direct impacts to the Sydney Harbour Bridge and surrounding heritage listings would consist of the following design elements summarised in Table 8-2.

Table 8-2: Direct heritage impacts to the Sydney Harbour Bridge and surrounding heritage listings

Design feature	Listing(s) impacted	Impact grading and discussion
Removal of part of a parapet near the Burton Street stairs along the viaduct.	NHL: <ul style="list-style-type: none">105888: Sydney Harbour Bridge	Minor to Moderate The cutting of part of a parapet on the western cycleway would result in Moderate physical impacts. This would see a removal of original fabric and replacement with contemporary material in the form of a linking ramp between the new structure and the existing. Whilst it is not ideal to remove original fabric, it would see a small section of the larger parapet removed whilst the remaining of the structure would be retained. Design refinement has also included aligning the cutting before the roundel decorative piece to ensure the symmetry of the parapet is retained and the cut is flush. The section of parapet being removed is also proposed to be reused within Bradfield Park North as an interpretation piece, subject to detailed design.
The connection between the newly built ramp and the existing cycleway on the bridge.	SHR: <ul style="list-style-type: none">00781: Sydney Harbour Bridge, approaches and viaducts (road and rail)	The connection between the new ramp and the existing cycleway would be designed to be at the same level as the existing and would not be dominant in material, colour, form or scale. Keeping the landing level and clean would ensure the new design would merge with the existing heritage fabric in a sympathetic way.
Raised median strips in the middle of the upper connection platform.	TAHE Section 170 Register: <ul style="list-style-type: none">4301067: Sydney Harbour Bridge, approaches and viaducts	Raised median strips, line marking, and different pavement finishes are also proposed on the upper platform of the ramp structure which would delineate cyclists to slow down or move to the side. Whilst these design elements are necessary for the safety of pedestrians and cyclists, they present a Minor physical and visual impact to the existing viaduct structure, disturbing the flush concrete finish and introducing a physical and visual obstruction between the ramp connection and existing cycleway.
Paving finishes and line marking between on the existing cycleway and new cycleway.	North Sydney LEP: <ul style="list-style-type: none">10530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway	There would also be Minor visual impacts as a result of the partial demolition of the parapet and construction of a connection between the new ramp and the existing cycleway. Impacts would see a change to the existing approach of the cycleway and staircase near Burton Street but would not compromise the visual prominence of the bridge itself.

Design feature	Listing(s) impacted	Impact grading and discussion
Creation of a landing point for the ramp in Bradfield Park.	North Sydney LEP 2013: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	<p>Moderate</p> <p>The landing point for the ramp structure would result in Moderate physical and visual impacts to the setting of Bradfield Park North.</p> <p>The construction would see a direct physical impact to the park layout and a disturbance to the landscape features of Bradfield Park north. This change would see the existing wayfinding altered and the visual appeal of the park as an open, public space partially obstructed.</p> <p>Whilst public amenity of the park would be altered due to the landing, it would also see a positive impact as general mobility of cyclists and pedestrians would be improved, relieving the congestion of Burton Street stairs and surrounds.</p>
Partial obstruction of the Burton Street entrance to Milsons Point Station and the Burton Street archway.	<p>SHR:</p> <ul style="list-style-type: none"> 01194: Milsons Point Railway Station Group <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station <p>North Sydney LEP 2013:</p> <ul style="list-style-type: none"> I0539: Milsons Point Railway Station Group 	<p>Minor to negligible</p> <p>The new structure would partially obstruct the Burton Street archway and entrance to Milsons Point Station. This would result in Minor to negligible direct visual impact to these key heritage features in the precinct.</p> <p>Current renders from Alfred Street South facing the viaducts show that the new ramp structure and piers would not fully block viewpoints to these features but would see a minor interruption from the public domain. The archway and the entrance to the Station would remain legible.</p>
Introduction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the bridge.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts 4801026: Milsons Point Railway Station <p>North Sydney LEP 2013:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge 	<p>Minor to Moderate</p> <p>The ramp and associated structural elements would see a Moderate to Minor direct physical and visual impact to the setting of Bradfield Park Central and North, the Northern Bowling Green, Milsons Point Station and the Bradfield Highway approaches on the Alfred Street South side.</p> <p>Generally, the interface of the ramp and the public domain is sympathetic to the heritage precinct and the landscape features of the open park setting. The materiality of the slim-line balustrades and piers, as well as the light colour palate, winding profile, setback from Alfred Steet, clearance from the viaducts, as well as the height of the structure, all blend well within the wider precinct. However, it is noted that the introduction of this structural element would result in a change to this open space and would partially obstruct the existing uncluttered feel to the precinct.</p> <p>Physical impacts would include the construction of the piers and the ramp landing, which would see potential disruption to the layout of the park space, the removal of original fabric within Bradfield Park Central and North, and the removal of some vegetation.</p>

Design feature	Listing(s) impacted	Impact grading and discussion
	approach viaducts, arches and bays under Warringah Freeway	
A change to the layout of Bradfield Park, including the removal of some landscaping elements, vegetation, and introduction of new pedestrian and cycle pathways.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	<p>Minor</p> <p>The proposal would see a change to the layout of Bradfield Park Central and North, with the construction of the ramp structure and landing, as well as the introduction of new pedestrian and cycle pathways within and along the parks.</p> <p>Minor physical and visual impacts would result from this change however it is noted that the layout of the park would remain largely similar to the existing with small changes such as the removal of some landscaping elements, retaining walls or garden beds, and some vegetation. It is also noted that the new pathways would generally mirror the existing alignment of pedestrian footpaths along Alfred Street and within Bradfield Park North.</p> <p>Design refinement has also included the retention of significant trees within the park area, as well as existing heritage interpretation elements such as the sandstone strips outlining previous subdivisions and road alignments. The design also proposed to include more heritage interpretation opportunities in this area, including use of native plantings and use of paving finishes and potentially the reuse of the parapet cutting, subject to detailed design. These would all result in positive impacts to the overall setting of the heritage precinct.</p>
Alfred Street south cycleway and pedestrian pathway adjustments.	NHL: <ul style="list-style-type: none"> I05888: Sydney Harbour Bridge 	<p>Minor to Neutral</p> <p>The proposed works along Alfred Street South, such as the associated pathway adjustments and transport and amenity adjustments, would result in a Minor to Neutral physical and visual impact to nearby listings. These works would see a change to the existing arrangement of Alfred Street South but would not detrimentally impact the heritage values of any nearby listed items. It is noted majority of these works would occur outside of the curtilage of the listed items but may intersect with a listing boundary closer to the Bradfield Park side of the street.</p>
Bus stop adjustments along Alfred Street.	SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
On-street parking adjustments.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	<p>These works would result in a change to the streetscaping and amenities along Alfred Street south which would see a positive impact to the efficiency, useability and character of the street.</p>
Associated landscaping.		

Design feature	Listing(s) impacted	Impact grading and discussion
<p>New pedestrian crossings and round about adjustments on both Middlemiss and Lavender Streets.</p> <p>Associated landscaping.</p>	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	<p>Minor to Neutral</p> <p>The proposed works at the roundabout intersection with Middlemiss, Lavender and Alfred Streets would result in a Minor to Neutral physical and visual impact to nearby listings. These works would see a change to the existing arrangement of the roundabout but would not detrimentally impact the heritage values of any nearby listed items. It is noted majority of these works would occur outside of the NHL and SHR curtilages but may intersect with a listing boundary closer to the Bradfield Park side of the intersection.</p> <p>These works would result in a change to the streetscaping and amenity at this intersection which would see a positive impact to the efficiency, useability and character of the street. It is also noted that the palm tree in the middle of the roundabout is to be retained, maintaining the visual appeal and notability of this intersection.</p>

8.4 Indirect heritage impacts

The indirect impacts to the Sydney Harbour Bridge and surrounding heritage listings would consist of the following design elements, summarised in Table 8-3.

Table 8-3: Indirect heritage impacts to the Sydney Harbour Bridge and surrounding heritage listings

Design feature	Listing(s) impacted	Impact grading and discussion
Construction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the bridge.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts 4801026: Milsons Point Railway Station <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	<p>Moderate to Minor</p> <p>A Moderate to Minor level of indirect visual impacts would result from the construction of the elevated ramp.</p> <p>The construction of the new structure would see indirect visual impacts to the wider heritage precinct in the form of construction works, temporary hording, and plant movement.</p> <p>These works would also see temporary interruption to free-flowing movement and amenity in the public domain of the parks, the Burton Street archway and staircase, and the entrance to Milsons Point Station.</p> <p>It is noted the constructability of this proposal is assessed at a high level and must be reviewed once more information is available.</p>
Excavation in Bradfield Park Central and North, and on each side of Burton Street for the columns footings and associated works.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	<p>Negligible to Neutral</p> <p>Excavations associated with these works is expected to have Negligible to Neutral indirect physical impacts.</p> <p>It is unlikely any excavation associated with the construction phase of this proposal would result in any adverse physical impacts to the heritage listings and features of the precinct. However it is possible that indirect physical impacts such as cracking or displacement could be caused by works associated with trenching, piling, jackhammering or concrete cutting within the vicinity of heritage items.</p> <p>It is noted the constructability of this proposal is assessed at a high level and must be reviewed once more information is available.</p>

Design feature	Listing(s) impacted	Impact grading and discussion
Ancillary sites during construction.	<p>NHL:</p> <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge <p>SHR:</p> <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) <p>TAHE Section 170 Register:</p> <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts <p>North Sydney LEP:</p> <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	<p>Negligible to Neutral</p> <p>The use of sites such as the space adjacent to the Northern Bowling Green and Burton Street archway as ancillary sites during the construction phase of this proposal would result in Negligible to Neutral indirect physical and visual impacts.</p> <p>The impacts would be temporary in nature and are not expected to have any heritage impact.</p> <p>It is noted the constructability of this proposal is assessed at a high level and must be reviewed once more information is available.</p>

8.5 Cumulative impacts

The introduction of the elevated ramp and upgrades to Alfred Street south cycle path can be understood within the context of change to the Sydney Harbour Bridge over time to meet new and evolving requirements and would be one of many changes to the Sydney Harbour Bridge since its construction. In this case, this involves an improvement for cyclists and the first substantial change to the northern cycleway for many decades. The proposal is therefore part of a history of change that involves a **Moderate to Minor** level of impact to the original design of the Sydney Harbour Bridge and to Bradfield Park.

The proposed elevated linear bike ramp should also be viewed as a complete, permanent addition to the Sydney Harbour Bridge: an addition that is unlikely to be altered substantively during its lifetime. Therefore, the elevated linear bike ramp is part of the evolution of the Sydney Harbour Bridge to meet commuter needs. However, it does represent a new intervention that contributes to the cumulative change that comes with catering for contemporary commuter requirements.

It is noted that the cumulative impacts are based on thirty per cent concept design and impacts have been assessed at a high level. Further detailed impact assessment would be required at a later stage of the proposal to further inform heritage approvals.

8.6 Impact on National Heritage Values of the Sydney Harbour Bridge

This following section is the impact assessment on the National Heritage values of the Sydney Harbour Bridge (ID #105888) in accordance with the *Matters of National Environmental Significance: Significant Impact Guidelines 1.1* (Department of the Environment, 2003). For further information on the process and Significant Impact Guidelines, refer to Section 2.2.1.

8.6.1 National Heritage Values – Summary of Statement of Significance

The following is the Summary Statement of Significance of the National Heritage values of the Sydney Harbour Bridge.

The building of the Sydney Harbour Bridge was a major event in Australia's history, representing a pivotal step in the development of modern Sydney and one of Australia's most important cities. The bridge is significant as a symbol of the aspirations of the nation, a focus for the optimistic forecast of a better future following the Great Depression. With the construction of the Sydney Harbour Bridge, Australia was felt to have truly joined the modern age, and the bridge was significant in fostering a sense of collective national pride in the achievement.

The Sydney Harbour Bridge was an important economic and industrial feat in Australia's history and is part of the nationally important story of the development of transport in Australia. The bridge is significant as the most costly engineering achievement in the history of modern Australia, and this was extraordinary feat given that it occurred at the severest point of the Great Depression in Australia.

The bridge is also significant for its aesthetic values. Since its opening in 1932, the Sydney Harbour Bridge has become a famous and enduring national icon, and remains Australia's

most identifiable symbol. In its harbour setting, it has been the subject for many of Australia's foremost artists, and has inspired a rich and diverse range of images in a variety of mediums – paintings, etchings, drawings, linocuts, photographs, film, poems, posters, stained glass - from its construction phase through to the present.

The Sydney Harbour Bridge is also significant as one of the world's greatest arch bridges. Although not the longest arch span in the world, its mass and load capacity are greater than other major arch bridges, and no other bridge in Australia compares with the Sydney Harbour Bridge in its technical significance. In comparing Sydney Harbour Bridge with overseas arch bridges, Engineers Australia has drawn attention to its complexity in combining length of span with width and load carrying capacity. The construction of Sydney Harbour Bridge combined available technology with natural advantages provided by the site. The designers took advantage of the sandstone base on which Sydney was built, which enabled them to tie back the support cables during construction of the arch, and to experiment with massive structures. Although designed more than 80 years ago, the bridge has still not reached its loading capacity.

The bridge is also significant for its important association with the work of John Job Crew Bradfield, principal design engineer for the New South Wales Public Works Department, who ranks as one of Australia's greatest civil, structural and transport engineers.

8.6.2 National Heritage Criteria

The Sydney Harbour Bridge is registered on the National Heritage List for meeting its listing criteria A, E, F, G and H.

The values of the Sydney Harbour Bridge that meet the National Heritage criteria are set out in full in the listing on the National Heritage List, available here:

https://www.environment.gov.au/cgi-bin/ahdb/search.pl?mode=place_detail;place_id=105888

8.6.3 Summary assessment of heritage impact on National Heritage values

While acknowledging there will be some negative impacts to significant fabric, the overall impact of this proposal will be positive.

With this new structure and associated elements, a better experience of cycling and commuting across the Sydney Harbour Bridge will be available to people who may never have been able to access the cycleway before. It would also ensure the continuation of the Sydney Harbour Bridge being a critical transport link between north and south Sydney, which is completely in line with the identified National Values.

The improved functionality and accessibility of the northern cycleway will potentially enhance the accessibility to the Sydney Harbour Bridge and to both the inner city and North Sydney areas, which will continue to attract national and international visitors to cycle or walk across the Sydney Harbour Bridge as well as every day local Sydneysiders and commuters.

The proposed upgrades to the cycleway will result in some adverse impacts on the significant fabric of the Sydney Harbour Bridge parapets. However the design aesthetic and choice of materials of the new design respects the original fabric. These impacts are acknowledged as not insubstantial, but the design renders, as well as the peer review and

optioneering process, have confirmed that improvements of commuter experience and mobility across the Sydney Harbour Bridge Cycleway will be considerable. These impacts are therefore considered necessary to ensure the Sydney Harbour Bridge continue to be used as a critical and iconic transport link.

Our conclusion is that the accessibility and functional related to the new cycleway ramp works will strengthen the core function of the Sydney Harbour Bridge as an iconic and critical transport link, and have a positive impact on its National Heritage values.

8.6.4 Summary assessment of heritage impact on National Heritage values according to the National Heritage Significant Impact Criteria

The Significant Impact Criteria for a National Heritage place, as stated in the *Significant Impact Guidelines* are as follows:

An action is likely to have a significant impact on the National Heritage values of a National Heritage place if there is a real chance or possibility that it will cause:

- *one or more of the National Heritage values to be lost*
- *one or more of the National Heritage values to be degraded or damaged, or*
- *one or more of the National Heritage values to be notably altered, modified, obscured or diminished.*

Comment:

The above assessment concludes that none of the National Heritage values of the Sydney Harbour Bridge will be lost, degraded or damaged through these proposed cycleway works.

None of the National Heritage values would be altered, modified, obscured or diminished. Whilst physical fabric of the Sydney Harbour Bridge approaches would be altered and modified, these are not considered significant impacts in relation to the National Heritage values of the bridge, which generally pertain to the cultural landmark status and engineering marvel that is the bridge. It is noted these changes would see improved access and amenity to the bridge's users and potentially enhance the ability of the Sydney Harbour Bridge to attract more users and admirers.

An action is likely to have a significant impact on historic heritage values of a National Heritage place if there is a real chance or possibility that the action will:

Historic heritage values:

- *permanently remove, destroy, damage or substantially alter the fabric of a National Heritage place in a manner which is inconsistent with relevant values*
- *extend, renovate, refurbish or substantially alter a National Heritage place in a manner which is inconsistent with relevant values*
- *permanently remove, destroy, damage or substantially disturb archaeological deposits or artefacts in a National Heritage place*

- *involve activities in a National Heritage place with substantial and/or long-term impacts on its values*

Comment:

The proposed works would permanently remove some fabric of the Sydney Harbour Bridge, specifically along the parapet where the cycleway ramp would connect with the existing cycleway. All these works would be carried out in a manner that is consistent with the relevant National Heritage values of the bridge. The works would involve a permanent change to the Sydney Harbour Bridge but would not result in substantial or long term impacts to the National Heritage values.

- *involve the construction of buildings or other structures within, adjacent to, or within important sight lines of, a National Heritage place which are inconsistent with relevant values, and*
- *make notable changes to the layout, spaces, form or species composition of a garden, landscape or setting of a National Heritage place in a manner which is inconsistent with relevant values.*

Comment:

Construction of the ramp structure would occur within sight-lines of the Sydney Harbour Bridge but would not obscure or block any significant views to and from the bridge.

Whilst Bradfield Park would see some changes in layout, form and some plantings, the park would not be detrimentally impacted by these works. It is noted that Bradfield Park falls within the National Heritage listing of the Sydney Harbour Bridge but is not specifically identified in the listing citation. However it is also noted that Bradfield Park is recognised within the SHR statement of significance for the Sydney Harbour Bridge as well as in its own LEP listing, as forming an important aspect of the setting of the Bridge on the northern side and is afforded community esteem via its individual local listing.

Furthermore, the design of the ramp, including the overall alignment close to the viaduct, the minimal architectural form of the ramp, and configuration of landing plaza have all been developed with close regard to the landscape value of Bradfield Park and the station entry plaza, as well as its important contribution to the visual, setting and landscape character at the northern approaches of the Sydney Harbour Bridge.

Other cultural heritage values:

- *restrict or inhibit the continuing use of a National Heritage place as a cultural or ceremonial site causing its values to notably diminish over time*
- *permanently diminish the cultural value of a National Heritage place for a community or group to which its National Heritage values relate*
- *destroy or damage cultural or ceremonial, artefacts, features, or objects in a National Heritage place, and*

- *notably diminish the value of a National Heritage place in demonstrating creative or technical achievement.*

Comment

The proposed works would not restrict or inhibit the continuity of use of the Sydney Harbour Bridge, nor would they permanently diminish the cultural value of the bridge to the local community. This proposal would potentially enhance the continued use of the Sydney Harbour Bridge and its value to the community. The proposed works would not destroy or damage cultural or ceremonial, artefacts, features or objects associated with the Sydney Harbour Bridge. They would also not diminish the value of the Sydney Harbour Bridge from demonstrating its creative and technical achievement as an engineering feat.

8.6.5 Conclusion

Works proposed as part of the Sydney Harbour Bridge Cycleway Northern Access proposal are substantial and will have some adverse impacts on fabric of the Burton Street viaducts, the setting of the Sydney Harbour Bridge within Bradfield Park, and also on views to the northern approaches of the bridge. However, the technical achievement of the Sydney Harbour Bridge's design and its status as an iconic cultural landmark will be respected and not diminished by these works.

It is to be noted that a range of upgrade projects have been successfully delivered at the Sydney Harbour Bridge over time, with technology, function and transport having evolved alongside the operation of the Bridge since its construction. These include projects which have introduced new elements to the Sydney Harbour Bridge, such as new pedestrian lifts, sleeper replacement and replacement of other rail infrastructure on the rail line, arch maintenance projects, as well as replacement of flags and associated flag poles. All past projects have complied with the conservation objectives of the Conservation Management Plan for the Bridge and support its ongoing use and function without detracting from National Heritage values.

The impacts on fabric and spaces by the proposal are permanent but none will have a 'significant impact' on the National Heritage values.

It is important to note the changes proposed in this proposal will substantially improve access and amenities for commuters and visitors to the Sydney Harbour Bridge, and potentially enhance and strengthen the ability of the Sydney Harbour Bridge to attract more diverse modes of transport by commuters and visitors, thus retaining its status as one of Australia's most iconic cultural landmarks, and respecting its National Heritage values.

It is concluded that the proposal is not likely to cause the loss, degradation or diminishment of National Heritage values (i.e. would not constitute a significant impact) and therefore an EPBC Act referral is not recommended.

8.7 Assessment against CMP policies

The following table records only those policies that are assessed as directly relevant to the proposal.

Table 8-4: Terminology for assessing the magnitude of heritage impact

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
1.2	Policy 1 – Retention of cultural significance	Any change in ownership, future uses, maintenance, repair and/or adaptation works and asset management programs should include retention and appropriate care of the significant elements and attributes of the place as a matter of highest priority.	Yes	The proposal comprises adaptation works that retain significant elements and attributes in the study area of the Sydney Harbour Bridge.
1.5		Alternatives to actions with adverse heritage impacts to the heritage values of the Sydney Harbour Bridge must be explored and assessed before such actions are undertaken	Yes	The proposal has been subject to extensive assessment and consideration of design options.
3.1	Policy 3 – Coordination with management plans	The analysis and recommendations of the CMP should be checked against and coordinated with any associated management plans for the Sydney Harbour Bridge to ensure consistency of aims, approach and outcomes.	Yes	Relevant management plans have informed the development of the proposal.
6.3	Policy 6 – Professional heritage advice	Transport for NSW or its agent must obtain advice from an external heritage practitioner where an approval under s60 of the Heritage Act is required.	Yes	Transport for NSW has obtained advice from Artefact Heritage, TZG Architects, and from design and heritage professionals at Aspect. Design 5 Architects are engaged by the winning design team and have informed the concept design with specialist advice Design 5 will continue to advise the proposal throughout detailed design.
9.1	Policy 9 – Priority of cultural heritage value	Decisions regarding change to the Sydney Harbour Bridge should be based on a clear and balanced understanding of the impacts on its cultural heritage values – positive and negative, and measures taken to either avoid or mitigate adverse impacts including cumulative impacts.	Yes	The proposal has been subject to extensive consultation, optioneering and assessment. The resultant proposal has been assessed in this document – including analysis of cultural heritage values and cumulative impacts. The consultation outcomes are included in the REF.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
10.1	Policy 10 – Management objectives	<p>Ongoing management of the Sydney Harbour Bridge should aim to:</p> <ul style="list-style-type: none"> • Retain its fundamental cultural heritage values and attributes • Conserve significant elements and values • Enhance opportunities for presentation and interpretation of the history of the Sydney Harbour Bridge to the public. • Continue its function as the main road, rail, pedestrian and cycle connection across Sydney Harbour, in continuous use since 1932 • Continue and enhance its linkage with associated elements within the setting of the Sydney Harbour Bridge, including Bradfield Park and Plaza, Dawes Point (Tar-Ra) Park and other foreshore areas within the view lines of the Sydney Harbour Bridge (via interpretation, related activities, transport routes, etc). 	Yes	The proposal does not have a negative impact on the cultural heritage values and attributes of the Sydney Harbour Bridge or other adjacent heritage places. The proposal also provides opportunities for improved interpretation and for improved linkages (primarily for cyclists).
12.1	Policy 12 – Maintaining key views of the Sydney Harbour Bridge in its setting	The significant physical and visual character of the Sydney Harbour Bridge within its harbour setting should be conserved.	Yes	The proposed elevated linear bike ramp is to be in a relatively discrete location in the context of the Sydney Harbour Bridge in its entirety. The proposed elevated linear bike ramp would result in localised view impacts however these are ameliorated to some extent by the design and configuration of the elevated linear bike ramp and that the elevated linear bike ramp is recessive in relation to the northern approaches, to Milsons Point Railway Station and to the Sydney Harbour Bridge. It does not impact negatively on the Sydney Harbour Bridge within its harbour setting.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
12.2		Views and vistas to and from the Sydney Harbour Bridge from key points to the north, south, east and west should be maintained.	Yes	See comment for 12.1 above. The proposed elevated linear bike ramp would not obscure any view of the Sydney Harbour Bridge from the north or west but does involve localised view impacts to the park and to Milsons Point Railway Station and bridge approaches.
12.3		New structures or large plantings on the harbour foreshores of Dawes Point and Milsons Point should not obscure the visual form and setting of the Sydney Harbour Bridge.	Yes	See comments above for 12.1 and 12.2.
12.4		New structures or large plantings on the northern or southern side of the harbour should not obscure or detract from views of Sydney Harbour and the city from the Sydney Harbour Bridge.	Yes	See comments above for 12.1 and 12.2.
13.1	Policy 13 – Retention of existing open space for public use/recreation	The existing parklands adjacent to the Sydney Harbour Bridge are of Exceptional significance and should remain as public parks to continue to provide passive recreation and facilitate unimpeded views to the Sydney Harbour Bridge.	Yes	The proposal does not change the current use of Bradfield Park and does not impede access to the park or restrict views to the Sydney Harbour Bridge. It does result in a visual impact, but this is ameliorated by good design and by locating most of the proposed elevated linear bike ramp at elevation. The preferred design has been selected with a view to preserving the open nature of the plaza and parklands, with some inevitable change to current conditions due to the need to land the ramp near where concrete bandstand is and construct new piers
13.2	Policy 13 – Retention of existing open space for public use/recreation	The future management of the Sydney Harbour Bridge, approaches and parklands should ensure the continuation of their open character and scale, providing an unencumbered setting whilst retaining the existing open spaces and historic viewing areas.	Partially	See comment for 13.1 above. The installation of the proposed elevated linear bike ramp to some extent detracts from the existing setting but retains the open space and existing use of Bradfield Park.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
14.1	Policy 14 – Integrity of original design	The clarity of the main structural form and silhouette of the Sydney Harbour Bridge and its associated elements, when viewed from key points around the harbour should be maintained and not obscured.	Partially	The proposed elevated linear bike ramp does not obscure the Sydney Harbour Bridge from any key viewing points. The design of the proposed elevated linear bike ramp respects the design of the Sydney Harbour Bridge.
14.2		Views of the original form of the granite pylons and approach span piers should be maintained, and any appropriate new uses accommodated within these elements.	Yes	Views of the granite pylons and approach spans are not impeded. The proposed elevated linear bike ramp does interrupt the view of the concrete approach from the park and Alfred Street South but the design of the cycleway ameliorates the hard visual transition between the park and the concrete approach.
14.3		The fabric and design integrity of the main components of the Sydney Harbour Bridge, comprising the arch, hangers, roadway, pylons, approach spans, piers; and approaches including tunnels, tenancy spaces, the substation and switch house, and Milsons Point Railway Station, should be conserved.	Yes	The proposed elevated linear bike ramp does not involve the removal of components identified in policy 14.3 but it does involve some physical intervention where the proposed elevated linear bike ramp connects to the bridge approach, however the parapet section to be removed could be relocated in the park for interpretation, subject to landowner agreement.
14.4		Significant/original decorative and or functional minor elements, such as cast-iron railings, steel windows, rainwater elements, pressed metal awnings, balustrades, lighting, steps and decoration, should be conserved.	Partially	The work involves minimal impact to fabric where the proposed elevated linear bike ramp connects to the Sydney Harbour Bridge northern approach. There is no significant impact to significant decorative and or functional minor elements.
14.6		Where feasible and reasonable, original design elements that contribute to the heritage value of the bridge should be restored or recreated, and the introduction of distracting elements minimised.	Not applicable	The proposed elevated linear bike ramp respects and embraces the heritage values of the Sydney Harbour Bridge.
16.4	Policy 16 – Use appropriate specialist personnel	Significant fabric should be retained and maintained in situ and, where feasible, in its current state and form.	Yes. Further details may be required.	The section of the bridge parapet to be removed could be relocated in the park for interpretation subject to landowner agreement.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
17.1	Policy 17 – Records of intervention and maintenance	All works to the Sydney Harbour Bridge should be appropriately recorded, and the records catalogued and stored as part of the management of the Sydney Harbour Bridge archives. This includes any specialist heritage advice used to support s60 approvals and/or s57 Standard Exemptions.	Yes	Transport for NSW is required to document all works and approvals and to retain records. An archival recording is required prior to commencement of the proposed elevated linear bike ramp.
18.1	Policy 18 – General management of adaptation and change	All proposals for intervention, adaptation and change should be evaluated in terms of the nature of the proposal, its purpose, long-term context and how this relates to the identified cultural heritage values of the Sydney Harbour Bridge. Protection and enhancement of the significant elements of the Sydney Harbour Bridge through appropriate adaptation and change for new or additional necessary functions should be a key management goal.	Yes	There has been extensive work to address heritage and other considerations during planning and evaluation of the proposed elevated linear bike ramp. The REF should be referred to for further details of planning and evaluation, etc. to manage adaptation and change.
18.2		Changes to the Sydney Harbour Bridge due to its ongoing historically significant function as the main road, rail, pedestrian and cycle connection across Sydney Harbour, in continuous use since 1932 should be given priority over changes determined by the needs of secondary uses such as tourism and recreation.	Yes	The proposed elevated linear bike ramp is consistent with an historically significant function: the use of the Sydney Harbour Bridge for cycle access.
18.3		Assess and minimise the impact of physical alterations on the cultural heritage significance of the Sydney Harbour Bridge, particularly where these changes are outside the Standard or Site-Specific Exemptions under Section 57(2) of the <i>Heritage Act</i> .	Yes. Further impact assessment to accompany the detailed design process and lodgement of heritage application.	The proposed elevated linear bike ramp is consistent with an historically significant function: the use of the Sydney Harbour Bridge for cycle access.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
18.4		Any adverse impacts on the heritage values of the Sydney Harbour Bridge, as a whole or its particular components arising from new work, should be minimised by: <ul style="list-style-type: none"> • Exercising caution and reviewing the imperative for any new work with potentially adverse heritage impacts • Examining alternative solutions and their relative impacts to determine the option with the least adverse heritage impacts • Ensuring, where possible, that changes (to use, layout and fabric) are reversible and/or have minimal adverse impacts on the cultural heritage significance of the Sydney Harbour Bridge. This should include restricting changes to areas/fabric of no/less heritage value which have higher tolerances/thresholds for change. 	Yes	The elevated linear bike ramp has been subject to rigorous assessment and design development to minimise impacts.
18.5		New work must aim to facilitate the continuation of the historically significant function of the Sydney Harbour Bridge as the main road, rail, pedestrian and cycle connection across Sydney Harbour, without obscuring or adversely affecting the integrity of the original design, significant fabric or its heritage values.	Yes	The proposed elevated linear bike ramp is consistent with an historically significant function: the use of the Sydney Harbour Bridge for cycle access.
18.6		Proposals affecting the Sydney Harbour Bridge should be assessed to determine whether their purpose is compatible with the fundamental heritage values and historic use of the Sydney Harbour Bridge as the main road, rail, pedestrian, and cycle connection across Sydney Harbour.	Yes	The proposed elevated linear bike ramp has been subject to rigorous assessment and design development, etc. to minimise impacts and to ensure compatibility while addressing the need for improved cycle access.
18.7		The introduction of new services should be designed to be as unobtrusive as possible. Redundant original or early services should be recorded prior to removal.	Yes.	Most services will be installed on the proposed elevated linear bike ramp. Further details are to be provided in the final design specifications.
18.8		The attachment of services to steelwork should be minimised and located as unobtrusively as possible. Where existing services, such as electrical power and compressed air, are obtrusive, opportunities should be investigated for their relocation to reduce visual impact on significant fabric.	Yes.	Most services will be installed on the proposed elevated linear bike ramp. It is unlikely that services would need to be attached to steelwork. Further details are to be provided in the final design specifications.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
18.9		Services should not be fixed to the external surfaces of granite or rendered concrete elements such as the pylons or approach span piers.	Yes.	Most services will be installed on the proposed elevated linear bike ramp. Further details are to be provided in the final design specifications.
18.10		New work should be designed in accordance with Burra Charter principles, particularly the requirements of Article 22.2 that it readily be identifiable as new work, but at the same time respect and have minimal impact on the cultural significance of the Sydney Harbour Bridge.	Yes	The design development and heritage assessment for the proposal has considered principle 22.2 of the Burra Charter.
18.11		Heritage practitioners must consider the cumulative impacts of proposals on the Sydney Harbour Bridge, particularly where their advice would accompany a section 60 approval application or be used to assess the appropriateness of a particular exemption.	Yes	See 8.5, in particular: The proposed elevated linear bike ramp does represent a new intervention that contributes to the cumulative change that comes with updating of the place over time to cater to modern needs. The proposal follows other proposals such as the new lifts, new lighting, and upgrading of sleepers from timber to concrete, none of which adversely affect historic function, form and overall integrity of the Sydney Harbour Bridge but rather, support ongoing and continued use of the Sydney Harbour bridge as a major transport link, a use which is intrinsic to the item's heritage value.
19.1	Policy 19 - lighting	All remaining original Sydney Harbour Bridge lighting should be retained, conserved and used where possible.	Not applicable.	Lighting is to be installed on the proposed elevated linear bike ramp. There is no impact to existing lighting.
19.2		The design and installation of new light fittings for use on the Sydney Harbour Bridge should complement the design character of significant bridge elements and be reversible.	To be considered further in detailed design.	The new light fittings will be contemporary and are to be installed on the proposed elevated linear bike ramp only.
20.3	Policy 20 – Traffic, safety and directional signage	All new signs (including leased areas of the approaches, pedestrian, cycling, traffic, safety and directional) installed on the bridge, approaches and approach spans should form part of an integrated range of signs that complement the history and character of the Sydney Harbour Bridge.	To be considered further in detailed design.	Signage on the bridge and approaches will be considered during the detailed design phase.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
20.4		All signage is to conform to work Health and Safety requirements.	Yes	Signage on the bridge and approaches will be considered during the detailed design phase and will conform with health and safety requirements.
24.1	Policy 24 - Advertising	The Sydney Harbour Bridge, including the arch, pylons, approach spans and approaches, should not be used for commercial advertising in any form including signage, projections, or other media, except as follows: <ul style="list-style-type: none"> Advertising associated with commercial tenancies as discussed in Policy 23.4 	Not applicable.	The proposal does not include any advertising.
29.1	Policy 29 – Conservation of archaeological resources	The surviving archaeological resources of the area within the curtilage of the CMP, particularly the remains of the Dawes Point Battery and associated material, should be conserved and managed in accordance with their cultural heritage values.	To be considered further in detailed design.	Should intact archaeological remains survive within the footprint of the proposal, and it is highly likely they will, then these remains are likely to be subject to moderate to major impact. It is likely that archaeological relics would be impacted, although such deposits would be isolated and limited. This is in comparison to the potential for structural remains, the presence of artefact deposits associated with structural remains and wells/tanks containing artefactual material, which has already been demonstrated at the site in previous projects. Further assessment is required prior to and during detailed design phase to minimise impacts to historical archaeology.
29.2		Opportunities should be investigated, and appropriate measures implemented to interpret to the public the archaeological resources of the area within the curtilage of the Sydney Harbour Bridge.	Yes.	The proposed elevated linear bike ramp is an opportunity to refresh current interpretation and amenity in Bradfield Park, to make these elements cohesive with the palette of materials and finishes to be used for the ramp, and to make consistent with other elements in the park/plaza. Interpretation opportunities including the preparation of a Heritage Interpretation Strategy will be developed during detailed design.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
29.3		Any subsurface disturbance of land that may have archaeological potential should be carried out in accordance with archaeological provisions of the Heritage Act and the Transport for NSW <i>Heritage Guidelines</i> .	Yes.	Section 60 process to follow management recommendations in this SOHI.
29.4		In the event of archaeological investigations being carried out on land within the CMP curtilage, appropriate measures should be implemented to interpret the purpose, process and outcomes of the investigation to the public.	Not applicable.	No investigations proposed.
30.1	Policy 30 – Engagement and interpretation	The current circulation functions of the Sydney Harbour Bridge, including roads, rail tracks, cycleways , and pedestrian paths and stairs, should be utilised where practicable to provide opportunities to interpret the history and cultural significance of the Sydney Harbour Bridge to the public.	Yes. To be considered further in detailed design.	Interpretation is embedded in the winning design proposal. The proposed elevated linear bike ramp is an opportunity to refresh the interpretation of Bradfield Park and surrounds as well as opening new views and vantage points from the proposed elevated linear bike ramp itself.
30.2		Entry/exit points for access to and across the Sydney Harbour Bridge (particularly for pedestrian and cyclists) should be a focus for interpretation of both its tangible and intangible heritage values, including historic or other associational links between different circulation routes and/or components.	Yes. To be considered further in detailed design.	Interpretation is embedded in the winning design proposal. The proposal is an opportunity to refresh the interpretation of Bradfield Park and surrounds.
32.1	Policy 32 – Interpretation requirements	Measures to appropriately interpret the significance of the Sydney Harbour Bridge should be considered in conjunction with all future proposals for change and development.	Yes. To be considered further in detailed design.	Interpretation is embedded in the winning design proposal. The proposal is an opportunity to refresh the interpretation of Bradfield Park and surrounds.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
32.2		The <i>Sydney Harbour Bridge Interpretation Plan 2007</i> should be referred to for guidance on how to interpret the heritage values of the Sydney Harbour Bridge.	Yes.	Interpretation is embedded in the winning design proposal. The proposed elevated linear bike ramp is an opportunity to refresh the interpretation of Bradfield Park and surrounds as well as opening new views and vantage points from the proposed elevated linear bike ramp itself. Interpretation in accordance with the 2007 plan, the CMP and the Supplementary Detailed Heritage Framework (TZG, draft 2021) should all be considered in detailed design. The proposal could potentially also prepare a HIS during this stage.
34.1	Policy 34 – Coordination of statutory compliance	<p>A range of individuals and organisations have an ongoing interest in the future heritage management of the Sydney Harbour Bridge. Ongoing consultation with these is integral to effective heritage management of the site. The following must be consulted and involved in any proposal for the Sydney Harbour Bridge or its broader context that have the potential to significantly impact on its heritage values:</p> <ul style="list-style-type: none"> Heritage agencies; for example, the Department of Agriculture, Water and the Environment (Clth) (now DCCEW); Heritage NSW and the NSW Department of Planning, Industry and Environment. Affected landowners and managers of land within the heritage curtilage; for example, the City of Sydney Council, north Sydney Council, RailCorp and Property NSW. Community organisations; for example, the National Trust of Australia (NSW), Engineers Australia, etc. 	Yes	The optioneering phase for this proposal involved extensive stakeholder consultation.

Policy #	Overarching policy	Policy detail	Are works consistent with CMP policy? (Yes/No?)	Comments
34.2		The policies of this CMP and associated management plans for the Sydney Harbour Bridge should be coordinated with the relevant requirements and guidelines of statutory heritage instruments under which the Sydney Harbour Bridge is listed. Potential areas of conflict between these documents which relate to conservation requirements/imperatives should be subject to discussion/negotiation to ensure consistency in process and outcomes. ²	Yes	The statutory requirements are addressed in this report and in earlier reports.

² Sydney Harbour Bridge Conservation Management Plan, Godden Mackay Logan and Transport for NSW, (Draft) 2021

9.0 CONCLUSIONS AND RECOMMENDATIONS

9.1 Overview of findings

The following table provides a summary of the findings of this SOHI.

Table 9-1: Summary of heritage impacts (direct and indirect) to the Sydney Harbour Bridge and surrounding heritage listings

Design feature	Listing(s) impacted	Impact grading and discussion
Removal of part of a parapet near the Burton Street stairs along the viaduct.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Moderate (Direct physical and visual)
The connection between the newly built ramp and the existing cycleway on the bridge.	SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
Raised median strips in the middle of the upper connection platform.	TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts 	
Paving finishes and line marking between on the existing cycleway and new cycleway.	North Sydney LEP: <ul style="list-style-type: none"> I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	
Creation of a landing point for the ramp in Bradfield Park.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	Moderate (Direct physical and visual)
Partial obstruction of the Burton Street entrance to Milsons Point Station and the Burton Street archway.	SHR: <ul style="list-style-type: none"> 01194: Milsons Point Railway Station Group TAHE Section 170 Register: <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station North Sydney LEP: <ul style="list-style-type: none"> I0539: Milsons Point Railway Station Group 	Minor to negligible (Direct visual)
Introduction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the bridge.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts TAHE Section 170 Register: <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	Minor to Moderate (Direct physical and visual)

Design feature	Listing(s) impacted	Impact grading and discussion
	<ul style="list-style-type: none"> I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	
A change to the layout of Bradfield Park, including the removal of some landscaping elements, vegetation, and introduction of new pedestrian and cycle pathways.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	Minor (Direct physical and visual)
Alfred Street south cycleway and pedestrian pathway adjustments.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Neutral (Direct physical and visual)
Bus stop adjustments along Alfred Street.	SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
On-street parking adjustments.	North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) 	
Associated landscaping.		
New pedestrian crossings and round about adjustments on both Middlemiss and Lavender Streets.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge 	Minor to Neutral (Direct physical and visual)
Associated landscaping.	SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 	
Construction of a new structure into the setting of Bradfield Park, Milsons Point Station and the Bradfield Highway approaches of the bridge.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) 01194: Milsons Point Railway Station Group TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts TAHE Section 170 Register: <ul style="list-style-type: none"> 4801026: Milsons Point Railway Station North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0539: Milsons Point Railway Station Group I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Moderate to Minor (Indirect visual)

Design feature	Listing(s) impacted	Impact grading and discussion
Excavation in Bradfield Park Central and North, and on each side of Burton Street for the columns footings and associated works.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Negligible to Neutral (Indirect physical)
Ancillary sites during construction.	NHL: <ul style="list-style-type: none"> 105888: Sydney Harbour Bridge SHR: <ul style="list-style-type: none"> 00781: Sydney Harbour Bridge, approaches and viaducts (road and rail) TfNSW Section 170 Register: <ul style="list-style-type: none"> 4301067: Sydney Harbour Bridge, approaches and viaducts North Sydney LEP: <ul style="list-style-type: none"> I0538: Bradfield Park (including northern section) I0530: Sydney Harbour Bridge approach viaducts, arches and bays under Warringah Freeway 	Negligible to Neutral (Indirect physical and visual)

9.2 Heritage approval pathway

Impacts to the SHR within the study area would be managed via the Section 60 process of the Heritage Act.

The proposal would not result in a significant impact to the National Heritage values of the Sydney Harbour Bridge (see 8.6).

9.2.1 Historical archaeology

Impact to significant archaeological remains within the SHR curtilages would be managed via the Section 60 process of the Heritage Act. Due to the size of the proposal, a major works application form will be required. To support this application, it is recommended that an Archaeological Research Design is prepared for the proposal. The Archaeological Research Design should include a management plan for potential archaeological remains. This should include an assessment as to which works should be managed under the relevant Sydney Harbour Bridge Conservation Management Plan or the exemptions from Heritage Act approval.

Impacts to historical archaeology outside of the SHR curtilages may be eligible to be managed under Section 139 (4) exceptions.

9.3 Recommendations – built heritage

The following recommendations and mitigations are provided to ensure no unnecessary impacts occur prior to and during the construction of the proposal, and that the operation of the proposal also avoids impact.

9.3.1 Approvals and management measures

The following recommendations and mitigations are provided to ensure no unnecessary impacts occur prior to and during the construction of the proposal, and that the operation of the proposal also avoids impact.

Approvals and management measures

The following measures should be implemented prior to finalisation of the detailed design:

- The design must progress in accordance with the conservation policies and management measures outlined in the *Sydney Harbour Bridge Conservation Management Plan* prepared by GML (2021) and the *Supplementary Detailed Heritage Framework* (draft) prepared by TZG (2021).
- A Heritage Interpretation Strategy (HIS) for the proposal must be prepared. Heritage interpretation opportunities must be considered during progression of detailed design for the proposal, in accordance with the recommendations in the *Sydney Harbour Bridge Conservation Management Plan* prepared by GML (2021) and the *Supplementary Detailed Heritage Framework* (draft) prepared by TZG (2021), as well as any other future heritage interpretation documentation prepared for the proposal. Appropriate heritage interpretation must be incorporated into the design for the proposal in accordance with the NSW Heritage Office's *NSW Heritage Manual* (1996), *Interpreting Heritage Places and Items Guidelines* (2005b), and *Heritage Interpretation Policy* (2005a). The *Sydney Harbour Bridge Interpretation Plan 2007* must also be referred to during the preparation of the HIS. Opportunities for interpretive displays in appropriate locations should be explored as part of the HIS.
- Preparation of the heritage approvals for this proposal must consider the requirement to update and/or provide further assessment and documentation following review and approval of the Section 60 application by Heritage NSW. This could include (but is not limited to):
 - Further heritage impact assessment on the detailed design for the proposal
 - A materials and finishes palette
 - Photographic Archival Recording of the site and surrounding areas.

9.3.2 Detailed design considerations

The following considerations should guide the detailed design phase of the proposal:

- The Design Integrity Panel (DIP), chaired by the Government Architect NSW and incorporating heritage, design and Connecting with Country expertise, should have continued involvement in the design process. Heritage NSW should be invited to attend meetings as observers.
- Heritage impact assessment and specialist heritage advice by an appropriately qualified and experienced heritage architect should continue to inform the detailed design and delivery of the proposal.
- Continue to develop and refine the architectural and structural design of the ramp to ensure a lightweight and contemporary architectural and structural design that compliments its heritage and open space context.
- Further review is required to refine the detailing for the ramp connection with the bridge viaduct to ensure the design is sensitive and elegant but remains safe for users.
- Further review is required to refine the cutting detail of the section of parapet to be removed for the cycleway ramp connection. Consideration of the exposed parapet cut on the eastern side near the lift structure could be use as precedent for this proposal.
- Review is required of a suitable place for relocation of the section of parapet. Consideration of the relocated parapet on the south-eastern side near the lift could be use as precedent for this proposal.
- Continue to develop and refine the lighting design along the proposal. The lighting design should retain and minimise impacts to the existing lighting arrangement, which has an important role in lighting the Sydney Harbour Bridge viaduct structure and surrounding elements.
- The existing heritage walk in Bradfield Park including heritage interpretive signage should be incorporated within the new design for the northern landing plaza and public domain.
- Further consultation with key heritage stakeholders, including (but not limited to) TfNSW Heritage, Heritage NSW, and the Department of Climate Change, Energy, the Environment and Water (DCCEEW) must be undertaken in detailed design.
- A materials and finishes palette for the ramp and landing in Bradfield Park should be further developed in detailed design, incorporating specialist heritage input and DIP advice
- The heritage interpretation and Connecting with Country opportunities should be developed and documented within the HIS in consultation with the Design Integrity Panel (DIP), Aboriginal knowledge holders and Heritage NSW.

- Photographic Archival Recording (PAR) and reporting must be carried out prior to the construction phase of the project. The PAR must be prepared in accordance with the NSW Heritage Office's *How to Prepare Archival Records of Heritage Items* (1998a), and *Photographic Recording of Heritage Items Using Film or Digital Capture* (2006). The record would be prepared by a suitably qualified heritage consultant using archival-quality material. Records for SHR listed items would be held at the NSW Heritage Council and State Library. Records for LEP-listed items would be held by the local Council and local library. A copy of the record would be held by the owner of the asset.

9.3.3 Construction

The following must be considered and implemented in the construction of the proposal:

- The Design Integrity Panel (DIP), incorporating heritage, design and Connecting with Country expertise, should have continued involvement throughout the construction of the proposal. Heritage NSW should be invited to attend meetings as observers.
- A Construction Environmental Management Plan (CEMP) must be prepared for the proposal prior to construction works commencing. This plan must outline all relevant environmental and heritage constraints, mitigations and control measures to ensure unapproved impacts are avoided.
- No changes to the over all design intent, overall design footprint or constructability of the proposal can occur in this phase of the proposal without consultation with the proposal heritage specialist.
- Site rehabilitation measures related to construction sites will be incorporated within an Urban Design and Landscape Plan or similar documents. The objective of the rehabilitation will be to minimise long-term impacts on the visual amenity of the items by recreating a sympathetic environment. A landscape scheme would be prepared for the North Sydney LEP listed Bradfield Park to capture the new plantings, retained plantings and overall landscaping within and around the item's curtilage. The scheme will consider appropriate plantings, including those proposed as part of the Connecting with Country plan for the project.
- A heritage induction briefing should be prepared for the proposal to be delivered to all staff working on the proposal. The briefing should be prepared by a qualified heritage specialist, and ideally delivered by the proposal heritage specialist. It should contain key information about heritage significance, areas to avoid and key do's and don't's within the heritage areas.
- Construction vibration monitoring is recommended throughout the construction phase of the proposal to ensure no indirect impacts occur to heritage items and the public domain as a result of the works.
- Operating plant (swinging, reversing, moving etc.) must adhere to standard setbacks and clearances from heritage structures and items which are not identified to be impacted.

- Temporary hording and signage should be placed around heritage buildings and structures to be avoided during works, and should consider interpretative signage or artwork on the hording to lighten the visual impacts during construction.

9.3.4 Operation

There are no specific operational heritage recommendations for this proposal.

9.3.5 Historical archaeology

The following recommendation and mitigations apply to historical archaeology:

- Appointment of a suitably qualified Excavation Director and preparation of Archaeological Research Design during detailed design must be undertaken for the proposal. The ARD would identify if any monitoring or archaeological testing would be required during the construction phase of the proposal.
- The Transport for NSW *Unexpected Heritage Finds Procedure* (2021) must be followed as part of the proposal. If any unexpected finds are located during construction, works must stop and the proposal archaeologist contacted immediately.

10.0 REFERENCES

Bradfield Park Plan of Management, North Sydney Council, 2014

Urban Design Framework for the Northern Cycleway Access, Spackman Mossop Michaels Landscape Architects and TZG Architects, 2021

Sydney Harbour Bridge Cycleway Access Project North, Urban Design and Heritage Framework prepared by Cox Architecture on behalf of Transport for NSW, Infrastructure and Place, 2021

Bradfield, J. J. C. 1933. The Sydney Harbour Bridge and Approaches, Proceedings of Institute of Civil Engineers, Vol.238, Part 2.

Curon, P. H. 1985. Times of Crisis: Epidemics in Sydney 1788-1900. Sydney University Press, Sydney, in *Sydney Harbour Bridge Conservation Management Plan*. 2007. Prepared by Godden Mackay Logan Pty Ltd for the RTA.

HLA Envirosciences Pty Limited, 2003. *Statement of Heritage Impact, Sandstone Walls: Bradfield Park North, Milsons Point*. Prepared for North Sydney City Council.

HLA Envirosciences Pty Limited, 2003. *Section 65a Research Design: Cesspit or Well, Bradfield Park North, Milsons Point*. Prepared for North Sydney City Council.

GML Heritage. *Sydney Harbour Bridge Conservation Management Plan*. Prepared by GML and Transport for NSW, 2021.

Office of Environment and Heritage (OEH) 2002: "Sydney Harbour Bridge, approaches and viaducts". Accessed online at:
<http://www.environment.nsw.gov.au/heritageapp/viewheritageitemdetails.aspx?id=4301067>

Office of Environment and Heritage (OEH) 2006: "Sydney Harbour Bridge approaches group including pylons, pedestrian stairs and access roads". Accessed online at:
<http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2426283>

Office of Environment and Heritage (OEH) 2007: "Sydney Harbour Bridge, approaches and viaducts (road and rail)". Accessed online at:
<http://www.environment.nsw.gov.au/heritageapp/viewheritageitemdetails.aspx?id=5045703>

Office of Environment and Heritage (OEH) 2009b: "Sydney Harbour Bridge (Rail Property Only)". Accessed online at:
<http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=4801059>

Office of Environment and Heritage 2010a: "Milsons Point Railway Station Group". Accessed online at:
<http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?id=5012106>

Office of Environment and Heritage: "Bradfield Park (including northern section)". Accessed online at:

<http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=2180028>

Park, Margaret, 'Milsons Point' – Dictionary of Sydney. Accessed online at:
http://dictionaryofsydney.org/entry/milsons_point

Smith, K. V. 2006. Eora: Mapping Aboriginal Sydney 1770-1850, Exhibition Catalogue, State Library of NSW, Sydney, p.1 in Sydney Harbour Bridge Conservation Management Plan. 2007. Prepared by Godden Mackay Logan Pty Ltd for the RTA, p.9.

TZG for TfNSW. 2021. *Sydney Harbour Bridge: Cycleway Access Project: North – Supplementary Detailed Heritage Framework*.



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