



Event Management Framework The Crescent Summer Series

Parramatta Park Trust

14 August 2018

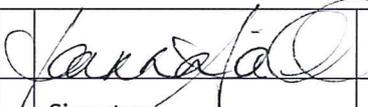
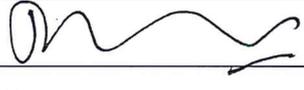


Revision Control & Authorisation Record

Revision Control

Revision	Description / Details	Date
1	Draft Event Management Framework	24 July 2018
2	Final Event Management Plan	14 August 2018
3		

Authorisation Record

Review by PPT Director Business Development	Joanna Savill		14.08.2018
	Name	Signature	Date
Review by PPT Director Parklands Development and Strategy	Joshua French		14.08.2018
	Name	Signature	Date
Approval by Acting PPT Executive Director	Jacob Messer		14.08.2018
	Name	Signature	Date

Only the PPT **Executive Director** is authorised to approve amendments to this plan. The PPT **Directors**, Business Development and Parkland Development and Strategy are responsible for control, maintenance and issue of this plan, for disposal of any superseded documentation, and for informing other project participants of changes to the project plan in accordance with PPT's document control protocols.

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“The crowds which found their way to Parramatta Park yesterday probably established something like a record for an ordinary holiday. The trains arriving from Sydney and suburbs at shortly after 10 and 11 o'clock were crowded, and from each a large procession marched to the national pleasure ground. Sunday and day school scholars were conducted through the town to the park gates, and off to some shady sheltered spot ...it was a ‘crowded and lively scene everywhere,’ over 8,000 being estimated to have passed through the gates. The Salvation Army was early on the scene, and its music added to the indications of the presence of a great multitude of which most were young, and all bent on merry-making... and the unrestricted invasion and occupation of Parramatta's historic enclosure complete and satisfactory.”

*Empire Day news report
Daily Telegraph, 3 October 1899*

reproduced in part from the *Heritage Impact Assessment, Crescent Summer Series (2018-2019)*, dsca, 2018

1. Introduction

About Parramatta Park

Parramatta Park (Park) is located on the western edge of the Parramatta CBD and eastern edge of Westmead (see **Figure 1**). It is surrounded by one of the fastest growing residential and business areas in NSW. The Park has operated as a public park for 160 years and attracts more than 2 million visits each year.



Figure 1- Map showing the footprint of Parramatta Park

The Park itself spans 85 hectares of land containing areas of cultural and natural heritage value, encompassing approximately 10 hectares of remnant Cumberland Plain vegetation. Old Government House and the Domain is one of the Australian Convict Sites on the UNESCO World Heritage List¹. Similarly, these areas are recognised on the National Heritage List² and the World Heritage List³ (protected under the *Environment Protection and Biodiversity Conservation Act 1999*) and the State

¹ <http://whc.unesco.org/en/list/1306>

² <http://www.environment.gov.au/heritage/places/national-heritage-list>

³ <https://www.environment.gov.au/heritage/about/world-heritage>

Heritage Register⁴ (under the *NSW Heritage Act 1977*). In addition, the Park is listed in the Local Government Heritage Listing (under the *Parramatta Local Environmental Plan 2011*⁵).

A detail history and description of the Park can be found in the *Parramatta Park Conservation and Management Plan, Parramatta Park Trust, 2008*⁶.

The following statement of significance has been reproduced from the State Heritage Register inventory sheet for the Park⁷:

“Parramatta Park demonstrates continuous cultivation and land-use from the management of the Cumberland Plain grasslands by the Burrumatta clan of the Dharug Aboriginal people and later through the processes of colonisation, from exploration to occupation, including land clearing and building. The first farm to produce sufficient food to feed the penal colony was established here beside the river in 1788, saving the settlement from starvation.

Following Governor Phillip's establishment of the Governor's Domain in 1790 the area contained agricultural land, stockyards, lumber yards, and most significantly, the governor's residence and vice-regal offices. Old Government House at Parramatta demonstrates the growth of the Colony, from an impermanent cottage, built with the limited material available, into a grand residence with some of the finest extant plaster and joinery from the Georgian period.

A landmark site, the Park and House retains historical association with successive governors, and was the location for significant interaction between Aboriginal and European people. It demonstrates early town planning and landscaping design and features strategic and picturesque views and vistas, created to frame Old Government House and enforce the status of the Governor over the convicts and free settlers inhabiting the township below. As such it is a conscious recreation of English landscapes of control.

The Domain was used for botanical and astronomical scientific research, and the Park is considered both a European and Aboriginal archaeological resource of national significance.

The Park has evolved from being one of the earliest successful agricultural sites of the colony, including the site of the only 18th century vice-regal residence and seat of colonial government remaining intact today, to one of the most important and earliest open spaces dedicated for public use. The Park has continuously operated as a public park since 1857, reinforced by its gazettal as a National Park in 1917. Old Government House was used by Governors until 1855, tenanted by the King's School and other organisations, and then operated by the National Trust since 1970 as a house museum. Parramatta Park retains strong associations with the local Aboriginal community.

The whole site is a unique and rare demonstration of the evolution of New South Wales and Australian Society since 1788.”

⁴ <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051462>

⁵ <https://www.legislation.nsw.gov.au/#/view/EPI/2011/540/sch5>

⁶ <https://www.parrapark.com.au/assets/Uploads/Resources/plans-of-management/PPT-Conservation-and-Management-Plan-Final-v2-2007.pdf>

⁷ <http://www.environment.nsw.gov.au/heritageapp/ViewHeritageItemDetails.aspx?ID=5051462>

Role of Parramatta Park Trust

Parramatta Park Trust (Trust) is responsible for protecting the heritage and environmental values of the Park. It manages the Park as a recreation and entertainment facility for a diverse range of users, while facilitating growth through events and other revenue-generating activities.

*Section 6 of the Parramatta Park Trust Act 2001*⁸ (*PPT Act*) outlines the objects of the Trust as follows:

1. To maintain and improve the Trust lands;
2. To encourage the use and enjoyment of the Trust lands by the public by promoting the recreational, historical, scientific, educational and cultural heritage value of those lands;
3. To ensure the conservation of the natural and cultural heritage values of the Trust lands and the protection of the environment within those lands; and
4. Such other objects, consistent with the functions of the Trust in relation to the trust lands, as the Trust considers appropriate.

Events in the Park

Aligned with *Object (2)* of the *PPT Act 2001*, the Trust created a set of objectives to realise its function under the Act and strategically position the Park as a major cultural institution in Parramatta, the Central City.

The following objectives are embodied in the creation of the Crescent Summer Series (CSS):

- Grow Park visitation and engagement with Park users;
- Raise awareness of the Park's heritage significance and value;
- Promote the Park (and The Crescent) as a major outdoor venue and cultural events hub for Western Sydney and as the cultural heart of Parramatta;
- Reach a commercially viable model for the delivery and management of quality free and ticketed events, for a range of audiences;
- Encourage major event activity over the peak summer period, maximising visitation targets, cultural impact and financial returns, and reducing impacts over the remainder of the year; and
- Contribute to the cultural and economic development of Parramatta as Sydney's Central City.

In 2014-15, the Trust invested \$7M in creating a purpose-built event space in The Crescent with a 2500 m² paved stage platform, power, water and sewer connection points. Each season the Trust strategically invests in the provision of temporary event infrastructure (concert stage and back of house storage facilities) to facilitate free cultural and community events either run by the Trust or by third parties (Hirers). To offset this investment, the Trust has sought bookings for commercial ticketed events from leading event producers and promoters (Hirers) and hopes to reach full cost-recovery by 2020.

Cost-recovery is essential to allocate funds towards new and enhanced activities and heritage programs. Some of these heritage programs include the ongoing tours of The Dairy Precinct in

⁸ <https://www.legislation.nsw.gov.au/~view/act/2001/17/full>

cooperation with Parramatta City Council, the heritage monument maintenance programs and Aboriginal cultural heritage programs in the Park, including the recent Darug Yarning Circle.

Vision for the Crescent Summer Series (CSS)

Parramatta Park's spectacular outdoor venue, The Crescent, is one of Sydney's most sought-after major outdoor event spaces. Forming a natural amphitheatre along Parramatta River, The Crescent features a purpose-built event space designed for concerts, festivals and performances for audiences of up to 18,000. It is home to the City of Parramatta's annual Australia Day concerts, an annual performance by the Sydney Symphony Orchestra, Tropfest and other free community events. Some of Australia's biggest rock 'n roll legends have also played here in the past, including Midnight Oil concerts in the 1980s and the Harvest music festival in 2012.

In summer, with a temporary stage and back-of-house, it is designed to be a 'plug-and-play' venue for hire by promoters and festival organisers. Programming includes a mix of free outdoor concerts and ticketed music festivals.

The Purpose of this document

The purpose of this document is to set out the management tools and processes the Trust uses to manage events in the Park.

The document is written with the intention to provide a reference tool for holding events in the Park that align with the event classifications set out in this document.

The document is structured as follows:

1. Introduction – Provision of background information;
2. Event management framework – Detailed information on how events are assessed, approved and monitored for quality assurance purposes;
3. Event information – Classifications of events, footprint and other related information;
4. Site information – Specific site values and characters required to be acknowledged and actively protected;
5. Planning and approvals for events;
6. Event Implementation, monitoring and post event evaluation; and
7. Appendices.

Acknowledgement of Traditional Owners

The Trust as part of the Department of Planning and Environment cluster acknowledges and respects the Traditional Custodians of the land on which we live and work.

2. Event Management Framework

Events held within the Park during the Crescent Summer Series are guided by key documents and policies which have been endorsed by the Trust Board. The Trust acknowledges that the implementation of an ongoing event program requires monitoring, evaluation and continuous improvement. As a consequence, this Event Management Framework (EMF) will be updated on an ongoing basis in response to the outcomes of any post-event audit.

The EMF is guided by the following in order of precedence:

1. Legislative governance and any associated site-specific exemptions;
2. Statutory management plans;
3. Trust policies and non-statutory management plans;
4. Event specific management reports; and
5. Risk assessment, compliance and reporting procedures.

Governance

2.1.1 Legislative governance

The Trust is bounded by a number of legislative Acts and Regulations including the following:

Federal legislation

- *Environment Protection and Biodiversity Conservation Act 1999*⁹; and
- *Environment Protection and Biodiversity Conservation Regulation 2000*¹⁰.

State legislation

- *Parramatta Park Trust Act 2001*¹¹;
- *Parramatta Park Trust Regulation 2012*¹²;
- *NSW Heritage Act 1977*¹³;
- *National Parks and Wildlife Act 1974*¹⁴;
- *National Parks and Wildlife Regulation 2009*¹⁵; and
- *State Environmental Planning Policy (Infrastructure) 2007*¹⁶

⁹ <https://www.legislation.gov.au/Series/C2004A00485>

¹⁰ <https://www.legislation.gov.au/Series/F2000B00190>

¹¹ [https://www.legislation.nsw.gov.au/~view/act/2001/17/full](https://www.legislation.nsw.gov.au/~/view/act/2001/17/full)

¹² <https://www.legislation.nsw.gov.au/regulations/2012-406.pdf>

¹³ <https://www.legislation.nsw.gov.au/inforce/469e6ec5-1ab8-6e78-fda8-e7e26871bfb1/1977-136.pdf>

¹⁴ <https://www.legislation.nsw.gov.au/inforce/cb5ba894-2a75-4a36-f576-df69950c59f8/1974-80.pdf>

¹⁵ <https://www.legislation.nsw.gov.au/regulations/2009-427.pdf>

¹⁶ <https://www.legislation.nsw.gov.au/#/view/EPI/2007/641>

2.1.2 Site Specific Exemption

Under *section 57(2) of the Heritage Act – Site Specific Exemptions part (7)*, the Trust is exempted for ‘*erection and dismantling of temporary structures, signs, crowd control barriers, banners, stages, lighting and sound and public-address equipment associated with special events and functions held in the Park*’.

2.1.3 Management plans

The following documents are the primary planning and policy tools the Trust refers to in managing the Park:

Statutory agreements and management plans

- *Conservation Agreement for the protection and conservation of the World Heritage Values and National Heritage Values of the Australian Convict Sites, Old Government House and Domain, Parramatta New South Wales*¹⁷;
- *Development in Parramatta City and the impact on Old Government House and Domain’s World and National Heritage Listed Values, Technical Report, Planisphere 2012*¹⁸;
- *Parramatta Park Conservation Management Plan*¹⁹ (CMP); and
- *Old Government House and Domain Management Plan 2009*²⁰.

Non-statutory management plans

- *Australian Convict Sites Strategic Management Framework*²¹;
- *Landscape Master Plan 2002*;
- *Parramatta Park Master Plan 2015*;
- *The Burra Charter – The Australian ICOMOS Charter for Places of Cultural Significance 2013*²²;
- *Create in NSW: The NSW Arts and Cultural Policy Framework (2015)*.

¹⁷ This conservation agreement is an instrument prepared under Part 4 of EPBC Act (Commonwealth) <http://www.environment.gov.au/resource/development-parramatta-city-and-impact-old-government-house-and-domains-world-and-national>

¹⁸ Available at the above weblink

¹⁹ <https://parrapark.com.au/assets/Uploads/Resources/plans-of-management/PPT-Conservation-and-Management-Plan-Final-v2-2007.pdf>

²⁰ http://whc.unesco.org/download.cfm?id_document=105334

²¹ <https://www.environment.gov.au/heritage/publications/aust-convict-sites-strategic-management-framework>

²² http://portal.iphan.gov.br/uploads/ckfinder/arquivos/The-Burra-Charter-2013-Adopted-31_10_2013.pdf

Trust Policies

The Trust has prepared policies which govern the implementation of the CSS, these include:

- *Crescent Summer Series Heritage Business Plan and Policy Summary; and*
- *Parramatta Park Trust Event Management Policy 2018.*

These are summarised in the following sections.

2.1.4 Crescent Summer Series Business Plan and Policy Summary

This document discusses the business objective of the Trust to enable funding of free community events via a cost-recovery model for the Crescent Summer Series. This objective also helps support the Trust's ongoing financial focus on the implementation of Aboriginal and non-Aboriginal cultural heritage programs.

The Trust has estimated it must attract a limited number of major commercial events in order to offset and support these costs.

In a highly competitive market, and with regard for the challenges of attracting desirable events to Western Sydney the Trust has identified the following as key elements in delivering this plan:

- A concert-ready stage and associated minor infrastructure suitable for large events for part of the CSS program period;
- Booking certainty for up to 18 months in advance; and
- Competitive pricing (one-off stage and back-of-house installation can cost a promoter in excess of \$100,000).

A five-month booking window also allows the Trust to manage availability, implement the Trust's heritage and environmental protection planning procedures and develop a balanced program of both free and commercial events.

These mechanisms help the Trust reach growing and diverse audiences, meet the needs of the community, protect the heritage and environmental assets of the Park and source the additional revenue essential to meet Trust targets.

2.1.5 Parramatta Park Trust Event Management Policy 2018

The Trust Events and Venue Hire Policy provides a strategic and risk-management focused framework for planning, approving and managing events on Trust lands and aims to:

- Encourage the safe use and enjoyment of the Park by visitors;
- Balance use of the Park as an event venue with the needs of other Park users;
- Promote the environmental and heritage significance of the Park;
- Manage and protect the heritage and environmental assets of the Park;
- Provide a fair and sustainable financial return for Parramatta Park Trust and the community;
- Maximise marketing and promotional benefits to the Trust – including increasing awareness, participation and audience engagement; and
- Manage and minimise risk resulting from event venue hire.

The following key areas are addressed in this document:

1. **Timelines and Digital Activity Calendar (DAC)** – The DAC gives stakeholders a snapshot of bookings and commitments taking place in the Park and allows the Trust to manage bookings to schedule major events avoiding conflicting dates for most activities.
2. **Capped events** - The number of major events is capped at 25 per financial year.
3. **Traffic conditions** – To facilitate shared Park usage, the number of events where changed traffic conditions will take place (full or partial pedestrian access only) will be capped at 25 per financial year. Any decision on changed traffic conditions will be based on risk analysis and appropriate mitigation measures.
4. **Noise** – High impact events requiring professional noise management are classified as ‘red’ events and are capped at 15 per year, with a maximum of 4 in any 4-week period.
5. **Genre** – to provide a balance of event styles and audiences there will be a window of 4 weeks between events of a similar musical genre. Specifically, Electronic Dance Music (EDM) events are capped at 2 per financial year.
6. **Community events for more than 5,000 patrons** – Major events organised by a community group require the services of a professional event management company approved by the Trust.
7. **Minor Charity Events for under 1,000 people** – The Trust has a model to accommodate and manage low impact type events.
8. **Strategic Risk Assessment** – All event applications are assessed on a case by case basis by the Business Development and Operations and Visitor Services team against requirements and procedures developed in association with the Parkland Development and Strategy team. The Strategic Risk Assessment process considers all aspects of an event application including the best mix of events for the Park and community, compliance with the Trust’s event heritage and environmental protection measures and events and activities in the Park already registered in the Digital Activity Calendar.

Event Specific management reports

The Trust has commissioned the following event-specific management guidelines to assist the Trust to define limitations and ensure compliance of hirers when holding an event in the Park:

- *The Crescent Summer Series – Heritage Impact Assessment 2018;*
- *Parramatta Park and Western Sydney Parkland’s Trust’s Event Risk Management Program and Risk Register;*
- *Parramatta Park Noise Management Plan;*
- *Traffic Management Plan – The Crescent Special Events*
- *Emergency Management Plan – The Crescent Summer Series Entertainment Venue;*
- *The Crescent Live in Summer – Security Crowd Management Plan;*
- *Ecological Assessment – The Crescent, Parramatta Park; and*
- *Noise Abatement Plan for Open Air Concerts and Events in Parramatta Park.*

The following sections provide a brief discussion on each event management document. Due to size restrictions only the most relevant documents are attached in the Appendices, the remainder of the documents are available on request.

2.1.6 The Crescent Summer Series – Heritage Impact Assessment

The Heritage Impact Assessment (HIA) for the 2018/2019 Crescent Summer Series was written by Dominic Steele and was commissioned by the Trust to assess the potential heritage impacts the CSS may have on the heritage values of the Park and to provide advice on mitigation measures.

The recommendations of the HIA are reproduced in the heritage section of this report. A complete copy of the HIA is available in **Appendix C**.

2.1.7 PPT and WSPT Event Risk Management Program and Risk Register

The Trust implements a Risk Management process in the PPT and WSPT Event Risk Management Program and Risk Register (derived from the overall Trust's WHS Risk Management System) and which is closely aligned with principles outlined in AS/NZS ISO 31000:2009. This standard provides a systemic approach to building risk management capabilities into events.

2.1.8 Traffic Management Plan (TMP) – The Crescent Special Events

This document produced by Assure Safety (Event Safety Services) was written to illustrate available traffic and transport options and realities for managing events. The TMP is aligned with RMS 'Guide to Traffic and Transport Management for Special Events' and is intended as a guideline document to assist the procurement of individual, event-specific TMPs by hirers.

2.1.9 Emergency Management Plan – The Crescent Summer Series Entertainment Venue

This plan applied to a three-month pop-up venue at The Crescent, Parramatta Park over the summer of 2014-15. This plan was for single use only however the content and structure of the plan supports its use as a reference and benchmarking tool when assessing a Hirer's Emergency Management Plan (EMP).

2.1.10 The Crescent Live in Summer – Security Crowd Management Plan

This plan provided a description of security operational activities for a 12,000 capacity, low energy rock concert at The Crescent, Parramatta Park. It is a single use plan however the structure and content of the plan supports its use by the Trust as a reference and benchmarking tool when assessing a Hirer's EMP.

2.1.11 Ecological Assessment – The Crescent, Parramatta Park

This report prepared by Ecological Australia makes recommendations for the planning and monitoring of events to avoid impacting on the existing significant flora and fauna. This will be discussed in detail in the environment section of this report.

2.1.12 Noise Abatement Plan for Open Air Concerts and Events in Parramatta Park

This noise abatement plan has been developed using data from past events, current industry practices for outdoor venues and revisions of previous plans. The plan categorises noise generating events into two categories; Red and Green. The plan addresses mitigation and management strategies to limit noise impacts to the surrounding neighbours and fauna.

Red events are defined as those which are likely to emit noise close to, or exceed, the noise limits of LAmax 75dB and LCmax 90dB at Noise Sensitive Locations if not controlled. There is a cap of no more than 15 Red events per financial year and no more than 4 red events in any calendar month.

Green events are lower noise risk events, with noise emission likely to be significantly below the noise limits of LA max 65dB and LCmax 80dB. All green events are subject to the Strategic Risk Assessment and approval process previously outlined in this document.

Risk Assessment and Management Procedures

The management of events involves collaboration between all Trust departments and personnel. In general, the Trust's departments operate events in a collaborative manner with ongoing review to inform the next program of events. The following diagram is a simplistic summary of the interface of Trust personnel from planning stages to field management on event day.



The Trust’s event management procedures for assessing and mitigating risk were developed in liaison with the Parklands Development and Strategy team, as were the mechanisms for ongoing feedback.

The following diagram (see **Figure 2**) documents the way in which the Trust’s teams work closely to identify, evaluate and implement management strategies to care for the Park during the CSS.

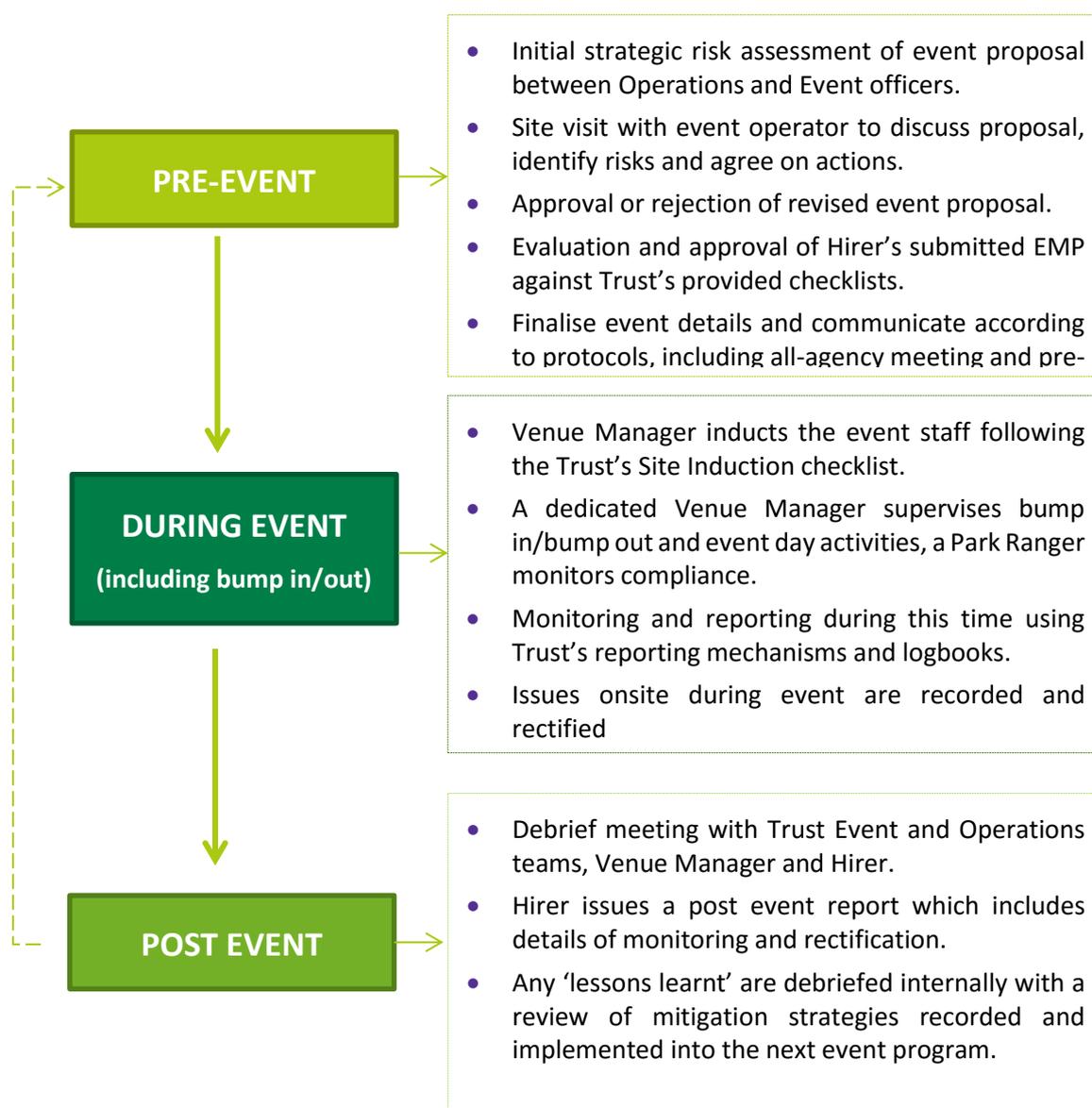


Figure 2 Diagram summary of Trust management procedures

3. Event Information

Event overview

The Trust has two broad definitions of events with varying degrees of management; a) minor events - under 1000 persons capacity and b) major events - over 1000 persons capacity. The subject of this EMF is major events which fall under the CSS program. These large-scale events vary in configuration, ticket types, and audience capacities and can be categorised as follows:

- Type A – Free Community Crescent Events;
- Type B – Ticketed Crescent Events;
- Type C – Ticketed Events with Cattle Paddock Overflow; and
- Type D – Free Community Events using Multiple Sites.

Maps setting out the use of the Park for these events are available in **Appendix A**.

2018-19 The Crescent temporary stage calendar

To support the Trust's objective of providing and developing a community event component in the Crescent Summer Series, a temporary stage is intended to be made available for Hirers in The Crescent for two months and two weeks out of the five-month CSS program.

The following calendar (see **Figure 3**) for the 2018-2019 program shows in grey the days on which a temporary stage is proposed to be erected in The Crescent, including bump in/bump out. This stage will serve a number of events during this two-month two-week period.

2018	November					
MON	TUE	WED	THU	FRI	SAT	SUN
29	30	31	01	02	03	04
05	06	07	08	09	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	01	02

2019	January					
MON	TUE	WED	THU	FRI	SAT	SUN
31	01	02	03	04	05	06
07	08	09	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	01	02	03

2019	March					
MON	TUE	WED	THU	FRI	SAT	SUN
25	26	27	28	01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

2018	December					
MON	TUE	WED	THU	FRI	SAT	SUN
26	27	28	29	30	01	02
03	04	05	06	07	08	09
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	01					

2019	February					
MON	TUE	WED	THU	FRI	SAT	SUN
28	29	30	31	01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	01	02	03

Figure 3 Stage calendar for CSS 2018/19

Any stage erected outside the period shown in grey above will be event specific (including any stage that may be required for the period shown in green and blue).

Type A – Free Community Crescent Events

Type A events are free community events funded or co-funded by the Trust which utilise The Crescent hardstand staging area and amphitheatre. Ancillary temporary event infrastructure such as amenities, skip bins, food and beverage functions will be located within the Crescent in areas of low or nil archaeological potential or on existing hardstand areas including designated sections of Long Avenue and Governor Macquarie Carriage Drive. Type A events do not require fences or ticketing facilities. However, small VIP areas may be fenced if required.

Type B – Ticketed Crescent Events

Type B events include concerts (various genres) and festivals. Type B events utilise The Crescent hardstand staging area, amphitheatre and Coronation Hill for ticketing booths. Ancillary temporary event infrastructure such as amenities, skip bins, food and beverage functions will be located in areas of low or nil archaeological potential or on existing hardstand areas including designated sections of Long Avenue and Governor Macquarie Carriage Drive. Temporary fencing runs along the Crescent boundaries.

Venue and stage hire fees plus ticket sales from these events contribute to the funding of free community events and other programs in the Park.

Type C – Ticketed Events with Cattle Paddock Overflow

These events may utilise The Crescent hardstand staging area and amphitheatre and require temporary fencing. Overflow event acts or stalls are located on the Cattle Paddock, in the South-Eastern section of the Park. Ancillary temporary event infrastructure such as amenities, skip bins, food and beverage functions are located within the Crescent in areas of low or nil archaeological potential or on existing hardstand areas including designated sections of Long Avenue and Governor Macquarie Carriage Drive. Type C events require ticketing booth zones on Coronation Hill and appropriate temporary fencing.

Type D – Free Community Events using Multiple Sites

These events may utilise The Crescent hardstand staging area and amphitheatre for stage setup with stalls and attractions located throughout the Park. These events are free and operated as a strategic partnership with stakeholders such as the City of Parramatta and include the Australia Day and New Year's Eve events.

4. Site Information

Introduction

The Crescent is a natural amphitheatre located in the centre of the Park, below Old Government House (see **Figures 4**). It sits on 42,000m² of clear, unobstructed turf on a gentle slope alongside the Parramatta River. It is popular for large community and commercial events such as the Sydney Symphony Orchestra Concert, Australia Day and more. Staircases connect the amphitheatre to the top of the Crescent ridgeline.



Figure 4 Image of the Crescent site

The Park is a valuable place with surfaces, sites and assets requiring care, protection and ongoing maintenance for the enjoyment of the public. The following site characteristics have been identified as highly significant and Hirers are required to recognise and protect them in the planning and execution of their event. These characteristics include:

- Heritage - features and mitigation strategies identified in Dominic Steele's Heritage Impact Assessment;
- Environmental - features and mitigation strategies identified by the Trust's Environment officer and Ecological Australia's Flora and Fauna report; and
- Site asset and infrastructure - existing site infrastructure as documented by the Trust's Operations Officer.

Heritage

The Trust engaged Dominic Steele Consulting Archaeology (dsca) to prepare a heritage impact assessment for the 2018-2019 Crescent Summer Series.

This report sets out in detail the environmental, Aboriginal and Non-Aboriginal Heritage context and areas of heritage sensitivity in the Park pertaining to the Crescent Summer Series. Key aspects of this are set out in the 'Area of Cultural, Heritage & Environmental Significance to be protected during Event Mode' map of the Park available in **Appendix A**.

Risks to the heritage significant assets and values of the Park potentially impacted by the Crescent Summer Series were identified in this report and appropriate mitigation strategies for each precinct in the Park were set out in a table, which has been reproduced below.

Precinct	Heritage sites & items	Potential heritage impact	CSS activity/use	Mitigation strategy
Crescent (Ridge)	<p>Built heritage Bathhouse Bathhouse brick drain(s) Boer War memorial Canons</p> <p>Archaeology AHIMS #45-5-0864/0762 Soils with potential for Aboriginal objects Soil with potential to contain 'relics'</p> <p>Environmental Original terrain & soils Semi-exposed shale slopes around rim of amphitheatre as core fabric of original 'billabong' river landscape element Existing trees & root systems</p>	<p>Built heritage Damage to standing structures</p> <p>Archaeology Soil erosion/trampling from concentrated use of ridge with potential to expose archaeology and environmental history evidence</p> <p>Environmental Damage to existing trees & root systems & soil compaction Destabilisation of shale slopes</p>	<i>Low-key 'table & chair' venue & infrastructure on Long Avenue</i>	<p>Built heritage Fencing of 'monuments'</p> <p>Archaeology Soils mapping (completed) Placement of heavy venue amenities on Long Avenue Track-mat over high traffic zones & erosion points</p> <p>'Do nothing' approach in the short term for AHIMS #45-5-0864/#45-5-0762</p>

Crescent (Amphre)	Built heritage -	Built heritage -	<i>Stage & fencing set-up during & left between events Large crowds & ('fork lifted' size) w' toilets & infrastructure placed in amphitheatre</i>	Built heritage - Screening of stage/fencing kept up between events Placement of toilets in low terrain with low or no arch sensitivity in nthn Crescent and on SEMP surfaces in southern Crescent
	Archaeology Soils with potential for Aboriginal objects/'relics' Environmental Original terrain & soils Tree root systems	Archaeology Subsurface soil exposure w' potential archaeology Environmental Pollen & soil evidence		Archaeology - Environmental Placement of infrastructure on SEMP cleared zones
Rivers Edge (Crescent)	Built heritage - Archaeology Soils with pot. for Aboriginal objects Soil with potential to contain 'relics'	Built heritage - Archaeology Subsurface soil exposure where in situ soils with archaeological potential are shallow	<i>Increased visitation & use during events</i>	Built heritage - Archaeology Soils mapping (completed)
Domain	Built heritage Observatory Archaeology Soils with potential for Aboriginal objects & 'relics'	Built heritage Damage to transit (standing) stones Archaeology Erosion and compaction and trampling from traffic and concentrated use of unsealed ground surfaces	<i>Car displays, stalls and small events on grassy slopes</i>	Built heritage - Archaeology Fencing of Observatory Use of hard stands
Paddocks	Built heritage -	Built heritage -	<i>Temporary stage and facilities for overflow events & ballooning with heavy infrastructure on Long Avenue</i>	Built heritage -

	<p>Archaeology Soils with potential for Aboriginal objects & 'relics'</p> <p>Environmental Damage to riparian veg of Domain Creek and exposure of original terrain & soils</p>	<p>Archaeology Impact to Aboriginal objects and 'relics'</p> <p>Environmental Damage to Creek veg & adjacent grass surfaces</p>		<p>Archaeology Soils mapping (completed)</p> <p>Environmental Dedicated areas with ground cover for event bump in/out</p>
Gardens	<p>Built heritage -</p> <p>Archaeology Soils with potential for Aboriginal objects & 'relics' GPR identified subsurface archaeology</p>	<p>Built heritage -</p> <p>Archaeology Compaction/disturbance of soils with potential for Aboriginal objects & 'relics'</p>	<i>Carnival rides on 'Pavilion Flats'</i>	<p>Built heritage -</p> <p>Archaeology Avoid grassed areas in wet weather Use of protective ground fabric for bump in and out Avoid use of pegs/spikes</p>

The mitigation strategies in this table directly inform the development and content of the plans for each large event type in the Crescent Summer Series.

The heritage impact assessment also recommended an ongoing event audit and review process, which aligns with the Trust's existing event review and post-review implementation procedures set out above.

The heritage impact assessment is available in full in **Appendix C** of this report.

Environment

4.1.1 Flora

The Park contains a mixture of local Australian, indigenous native and exotic species from all significant historical periods. Several vegetation communities are present within the Park, including Alluvial Woodland, Shale Sandstone Transition Forests and Shale Plains Woodland. This variety is emblematic of the two geological systems that exist in the Park; the Wianamatta Group of shales and the underlying Triassic sediments of Hawkesbury Sandstone. The higher areas of the Park are dominated by shale derived soils, typical of Cumberland Plain Woodland landscapes listed under the *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act)*. The creek and river drainage system of the Parramatta River catchment has carved through the shales, revealing sandstone outcrops and cliffs prevalent in the river valley.

The ridgeline above The Crescent contains remnant and reconstructed bushland of Shale Plain Woodland, Cumberland Plain Woodland and waterways along Domain Creek and Parramatta River (see **Figure 5**). These are home to Riverflat Eucalypt Forest on coastal floodplain in the Sydney basin. Both vegetation communities are listed as Endangered Ecological Communities (EEC) under the *Biodiversity Conservation Act 2016 (BC Act)*.



Figure 5 Images of Cumberland Plain Woodland area within fence line

4.1.2 Fauna

The Grey Headed Flying Fox (GHFF) is the only vulnerable species recorded within the Park (see **Figure 6**), under both the *BC Act* and *EPBC Act*. The GHFF camp is situated in the north of the Park on the Parramatta River, and is considered environmentally significant in the Sydney Basin.

GHFF are nocturnal and fly out collectively at sunset to forage. They return at sunrise to settle in the camp to sleep during the day. GHFF breeding season is generally late August / September for females in last trimester through to birthing and creching period ending early March where juveniles may creche in the camp overnight while adult animals fly out to forage.

GHFF are susceptible to noise and heat stress, the effects are especially prevalent during breeding seasons.

Grey-headed Flying Fox signs of stress:

- more than 30% of the camp takes flight and individuals are in flight for more than 20 minutes
- panting and / or saliva spreading
- located on or within 2 m of the ground
- aborting young

As the GHFF are an endangered species and protected under the EPBC Act, significant fines apply for actions which directly harm the GHFF colony. Monitoring protocols are required to assess signs for stress and prevent harm.



Figure 6: Grey-headed Flying-fox (Source: Parramatta Park Trust)

Other bat species recorded close to the Park, and likely to utilise habitats within and adjoining the Park include the Southern Myotis and Eastern Bent-wing Bat.



Figure 7: Eastern Long-necked turtle (left) and grey-headed flying fox (right)

The waterways are dominated by exotic Common Carp and Mosquito Fish, but also have native Long-finned Eel, Australian Bass, Cox's Gudgeon and Firetailed Gudgeon. Reptiles, typical of suburban waterways are often sighted in the quieter habitats in the Park including Eastern Long-necked Turtles, Red-bellied Black Snakes, Blue-tongue Lizards and particularly, Eastern Water Dragons (see **Figure 7**).

The Park is home to around 100 species of birds, including a variety of waterbirds and woodland species such as Dusky Moorhen, Red-rumped Parrots and Azure Kingfisher.

4.1.2.1 Ongoing monitoring

Event plans will consider environmentally sensitive areas, particularly the Grey-headed Flying Fox camp and include measures for mitigating risks to harm.

The Trust will instigate monitoring the response of Grey-headed Flying Foxes to scheduled events to determine a baseline for behaviour and impacts of events. This will include observations of the camp by a person experienced in GHFF behaviour. Monitoring will occur at non-event times as well as during events as per Ecological Australia's recommendations in The Crescent, Parramatta Ecological Assessment report dated 2015.

If the population appears stressed due to events, a review of the cause and impact will be carried out to adaptively manage future events.

All event de-briefs will include assessment of environmental issues and a similar adaptive management protocol will occur for other environmental aspects if issues arise.

Infrastructure & Services

4.1.3 The Crescent Area

The Crescent forms a natural amphitheatre along the Parramatta River and features a 42,000m², purpose-built and efficient space for major events including concerts, music festivals and stage performances. It includes a high-performance paved stage area that facilitates 160-degree viewing. The Crescent has a site capacity of 18,000 people.

4.1.4 Hardstand Area

The 2,000m² Crescent hardstand paved area (see **Figure 8**) located at the bottom of the Crescent amphitheatre along Byrnes Avenue has been designed to support the load of stage structures and other back of house ancillary infrastructure required for the staging of large events.



Figure 8: Images of Hardstand Area

4.1.5 Electrical Services

Electricity to the Crescent is supplied through a transformer and main substation located to the east of The Crescent. It has been designed with the capacity to provide three phase electric power for a large event stage as well as for ancillary event services such as potable amenities and catering facilities. The substation also provides electricity to Old Government House, the sewerage pump-out system installed in The Crescent as well as the outlets provided in a series of locations in The Crescent.

Prior to accessing the electrical services infrastructure of The Crescent, the event organiser (Hirer) must be familiar with the asset and provide a full Risk Assessment, site specific safety management plans and associated Safe Work Method Statements (SWMS) for the proposed event. These documents must be approved by Trust officers before access is allowed. The SWMS must address all requirements outlined in the checklists available in **Appendix B**.

4.1.6 Lighting

LED lighting is incorporated within the underside of the handrails of the seven access staircases, which illuminates stair treads. It has been designed and installed to generate minimal visual intrusion to the surrounding landscape.

Case metal light fittings, mounted to hardwood fencing, illuminate the upgraded pedestrian ramp between The Crescent event space and ridgeline. These light fittings are consistent with the light fittings featured in the Old Government House Precinct.

When required, additional temporary lighting is brought in to supplement the existing lighting for events, specifically for light access to and from the event site within the Park. These temporary light structures are small and have a low impact on the ground surface.

An approved safe ingress/egress lighting plan is required for all large events as set out in the Safety and Security section below.

4.1.7 Sewer

The Crescent sewer lines feed into a sewer pump station located in the southern edge of The Crescent, which has a holding capacity of 20,000L.

4.1.8 Water

The Crescent has both stormwater and potable water systems. The stormwater system was designed to channel, and collect stormwater from the naturally occurring low points in The Crescent, with reinforced turf in the drainage swale.

The potable water supply connection is located at the northern end of the site. The hose tap connection points and covers are not vehicle rated.

Traffic and Access

Various entry and exit points throughout Parramatta Park ensure accessibility for all visitors, Hirers and staff. There are two main vehicular entry and exit points to Parramatta Park, specifically:

- The Macquarie Street Gatehouse; and
- The Queens Road Gatehouse.

Unless varied by agreement with a Hirer, the vehicular entry and exit points are restricted to certain operating hours as indicated below. Parramatta Park features a one-way road system that has been designed to operate in a clockwise direction. Access routes into and through the Park for event vehicles is shown on the 'Traffic & Access in Event Mode' map available in **Appendix A**. Tonnage limits for roads in the Park and The Crescent hardstand paved area are set out in the Park's Operations Manual.

Vehicular Access Point	Day	Hours of Operation
Macquarie Street Gatehouse	Monday – Sunday	6am – 6pm (8pm during Daylight Savings)
	Monday – Friday	10am – 3pm
Queens Road Gatehouse	Weekends and Public Holidays	6am – 6pm (8pm during Daylight Savings)

5. External Authority Approvals for Events

This section discusses the following planning and approvals procedures relevant to the organisation and management of the CSS:

1. External Authority Approvals (Trust managed); and
2. External Authority Approvals (Hirer managed);

External Authority Approvals (Trust managed)

The Trust will submit a Section 60 approval application under the NSW Heritage Act for infrastructure provided by the Trust that supports more than one event. This includes The Crescent temporary stage referred to in the Event Information section above.

External Authority Approvals (Hirer managed)

The Hirer is required to obtain all necessary licences and approvals to operate their proposed event. In addition, records of consultation and/or notification with the following organisations are to be stored and to be provided for the Trust's perusal upon request:

- Police Area Command;
- Sydney Trains;
- Parramatta Fire and Rescue;
- Western Sydney Area Health; and
- Ambulance NSW.

6. Event Implementation, monitoring and post event evaluation

There are three main tools which the Trust uses to ensure that events held in the CSS are conducted in a safe, sustainable manner and respectful of site constraints and values within the Park. These tools are as follows:

- Event Management Plan;
- Site inductions and Event management; and
- Post Event Reporting.

The Trust's event management officers work with Hirers to review and approve these documents.

Event Management Plan (EMP)

The Trust requires Hirers to provide an Event Management Plan (EMP), which is specific to their event and encompasses key management plans and documents through which the Hirers can satisfy the Trust that the event will be conducted in a safe and compliant manner.

The EMP must address the following:

- Site Plan depicting all proposed temporary event infrastructure and equipment
- Heritage Protection Management
- Environmental Protection Management
- Ground Protection Management
- Waste Management
- Safety and Security Management
- Traffic Management
- Noise Management

6.1.1 Site Plan

The site plan is to demonstrate that the event infrastructure and equipment complies with the relevant large event type maps (A, B, C or D) and must also include as a minimum the following, with regard to the criteria set out in further detail in the following sections:

1. Heritage Protection Measures
2. Bushland Protection Zones (BPZs)
3. Tree Protection Zones (TPZs)
4. Grey-headed Flying-fox Camp Protection Measures
5. Ground Protection Plan
6. Event Lighting Plan
7. Waste Management and Amenities Plan

6.1.2 Heritage Protection Management

The Hirer must document compliance with the heritage protection measures set out on the relevant large event type maps (A, B, C or D). These heritage protection measures are to be shown on the Site Plan.

The Hirer must ensure that the Event Management Plan addresses all of the relevant heritage mitigation strategies set out in the risk identification and management table, reproduced in section 4 above, from the dsca Heritage Impact Assessment.

6.1.3 Environmental Protection Management

The Site Plan needs to demonstrate that the event proposed is compliant with flora and fauna protection measures as recommended in Ecological Australia's Flora and Fauna Assessment report dated 2015. In summary, the following recommendations need to be addressed:

Flora

BPZs - Various areas of bushland significance are prevalent throughout the Park. These areas must be preserved in accordance with relevant statutory obligations and controls developed by the Trust (as identified in the checklists available in **Appendix B**). The Site Plan must demonstrate compliance with the BPZs and show the Cumberland Plain Woodlands areas adequately protected with barriers in place to prevent breach.

TPZs – Unless otherwise approved, temporary infrastructure or use of area must not be located within 5m of the base of a tree trunk (small trees) or within the drip line of mature trees. If scale permits, the site plan must show that adequate barriers are in place to prevent breach of the TPZs. The Hirer must also ensure that TPZs are not used for storage of materials or equipment and vehicles are not permitted to drive or park within the TPZs.

Exclusion barriers are to be used in high volume traffic areas. Low volume traffic areas require tape barriers that can be removed for the duration of the event with the Trust's approval.

Fauna

1. Prior to events-

- a) Avoid or minimise scheduling of events with sudden loud noises through the day and until 1 hour after civil sunset, strobe lighting and pyrotechnics within 1 hour of sunset in October – January when female GHFF give birth and are lactating;
- b) Prepare an Event Lighting Plan that addresses the following
 - i) Utilising low pressure sodium lamps with UV filters for all lighting where available
 - ii) Minimising the time during which the lighting is used
 - iii) Using lowest possible brightness for all lighting
 - iv) Where possible, direct light below the horizontal plane towards the path and shield vegetation by fitting lights with hoods
 - v) Avoid illuminating bat roosts (hollows in trees) or the GHFF camp
 - vi) Ensuring that bat habitat / flyways are not cut-off by installation of light sources (i.e. minimal lighting on any bridges across the River / Creek because they are used as flyways

by bats, lighting to be set back 2 m from the canopy edge and facing away from lines of trees to provide a darkened flyway between the light source and the vegetation).

- b) All contractors and field event operators must be made aware of the presence of GHFF and WHS requirements surrounding the handling of GHFF.

2. During events –

- a) Commence noise generation at low levels during sound check and event, and work up to maximum volume gradually to allow GHFF and other fauna time to acclimatise to the noise.
- b) Consider monitoring the GHFF camp during sound check with the aid of a two-way radio, providing feedback as noise levels are gradually increased.

3. Post event –

- a) Review monitoring of GHFF camp. If monitoring suggests that GHFF behaviour is significantly impacted during events, the Trust must begin process of evaluating event scheduling and permissible events protocols.

6.1.4 Ground Protection Plan

The Hirer is to demonstrate compliance with the ‘General Ground Protection Arrangement’ map available in **Appendix A** and is to plan for the protection of surfaces from damage and compaction by preparing and submitting for approval a Ground Protection Plan.

This Plan is to clearly show the areas that are to be protected from vehicle and pedestrian impacts during bump in/out and during the event. The Ground Protection Plan can be shown on the Site Plan if scale permits, or alternatively, the Hirer needs to submit a separate Ground Protection Plan.

6.1.5 Waste Management

Hirers are required to submit a Waste Management Plan to ensure ecologically sustainable development (ESD) within The Crescent through appropriate waste mitigation measures. The Waste Management Plan must be in accordance with the checklists set out in **Appendix B** and address the following outcomes:

- Waste avoidance and minimisation;
- Resource recovery, reuse and recycling; and
- Site cleansing to 100% free of litter and rubbish by site handover.

The Site Plan must demonstrate that all waste management facilities (including skips) are located in identified suitable areas and are mindful of TPZs, BPZs and heritage sensitive areas and associated protection measures.

6.1.6 Traffic Management

The Trust requires a Traffic Management Plan (including bump-in and bump-out periods) to be submitted prior to site occupation for CSS. The aim of the Traffic Management Plan is to provide a safe environment for the public who use this busy Park both for general recreation as well as event patrons,

and to protect Park assets (both cultural and natural). The Trust's Regulation and the checklists provided in **Appendix B** apply to traffic management within the Park and Hirers must comply with this.

6.1.7 Safety and Security

Events that finish after sunset will require temporary lighting in addition to the existing stair and bollard lightings in the Crescent.

The Deed of Agreement outlines in detail the requirements for safety and security to be addressed by the Hirer. The Hirer is required to demonstrate in a Lighting Plan that suitable/adequate temporary lighting is available for all large events and provides safe ingress/egress after dark.

The Lighting Plan can be shown on the Site Plan if scale permits, or alternatively, the Hirer needs to submit a separate Event Lighting Plan for approval.

6.1.8 Noise Management

The Park is bordered by an R4 High Density Residential zone to the west, and a B4 Mixed Use zone to the east (Parramatta CBD). Other event facilities near The Crescent include Parramatta Stadium, Parramatta RSL Club and Parramatta Leagues Club. This indicates that The Crescent is not isolated in a quiet residential area; and that it interfaces other event and user facilities (see **Figure 9**).



Figure 9 Zoning Plan of Park and Surrounds

Noise limits are imposed on “Red” events to minimise the noise impact on neighbouring communities. All Red events are required to engage the services of a qualified acoustics consultant, ensuring noise management is implemented throughout the Park. Monitoring is also conducted by Park staff and penalties for breaches apply.

Site induction

The Trust has developed a series of checklists for event site inductions. The inductions are managed by the Trust's Park officers and the dedicated Crescent Summer Series Venue Manager prior to event bump in.

These site induction checklists are available in **Appendix B**.

Event Management and Non-compliance

The Trust's Crescent Summer Series Venue Manager, with the support of the Trust's Operations and Visitor's Service contractors, will be onsite during each event to manage compliance with the events Event Management Plan.

Penalties for non-compliance during the site occupation period are addressed through the Park's regulatory framework, such as PINs for parking and traffic offences.

Post event penalties arise from the bond review and refund process. These include:

- Remediation of damage through bond release;
- Noise infringements – penalty system;
- Recourse to Trust regulatory framework (including failing to comply with reasonable direction of an authorised officer); and
- On-site monitoring undertaken by relevant Trust staff to ensure compliance and mitigate any potential risks to the site. These staff members may require work to stop in warranted circumstances such as if damage is occurring to ground surfaces or Trust assets or if any Aboriginal or Non-Aboriginal artefacts are uncovered.

Post Event Reporting

A post-event debrief meeting with Trust officers, the Hirer and external stakeholders as appropriate (such as City of Parramatta and Local Area Police Command) enables the Trust to gather data and measure the ongoing effectiveness and mitigation of any new risks to the Park.

The condition of the Park's grounds and assets will be inspected prior to, and after each event. The Trust Post Event Checklist provides a mechanism within which any issues can be quantified, reviewed and managed



Appendices

Appendix A. Event Maps

AREA OF CULTURAL, HERITAGE & ENVIRONMENTAL SIGNIFICANCE TO BE PROTECTED DURING EVENT MODE

LEGEND

- 18,000-person event space, no pegging due to asbestos, no vehicular access
 - Use hard stand for placement of large / heavy infrastructure
 - Use ground protection for bump in bump out and heavy structure as required by the Trust
 - No pegging due to archaeology
 - No vehicular access or structures
 - Low noise bump in/bump out traffic buffer zone
- Features to be protected :
- Monuments (to be fenced during events)
 - Existing fenced Cumberland Plain Woodlands
 - Unfenced Cumberland Plain Woodlands area (to be fenced during events)
 - Grey-headed Flying fox colony



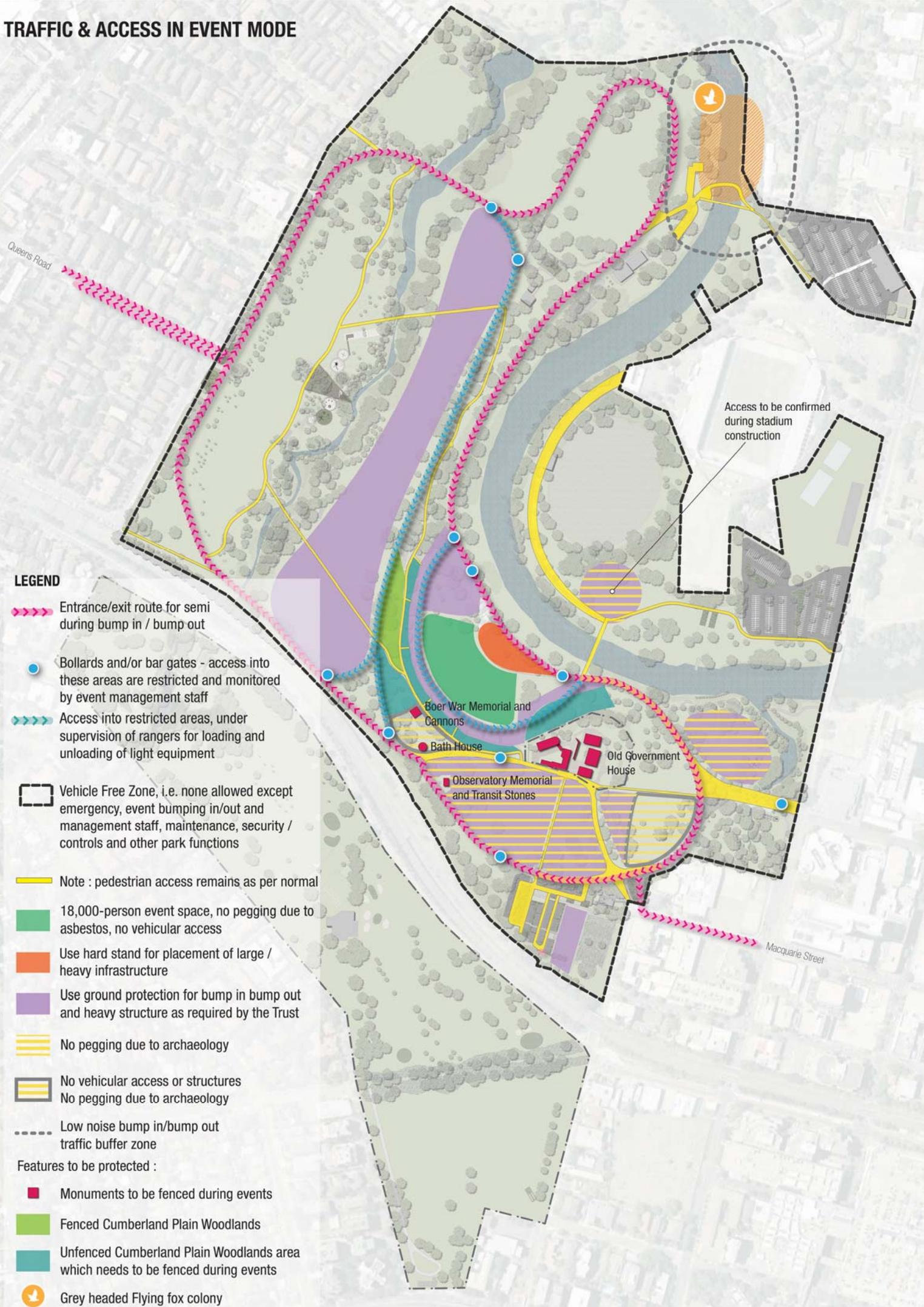
GENERAL GROUND PROTECTION ARRANGEMENT

LEGEND

-  Main heavy vehicle access
 -  Use ground protection for travel routes - only indicative travel routes shown
 -  18,000-person event space, no pegging due to asbestos, no vehicular access
 -  Use hard stand for placement of large / heavy infrastructure
 -  Use ground protection for bump in bump out and heavy structure as required by the Trust
 -  No pegging due to archaeology
 -  No vehicular access or structures
No pegging due to archaeology
 -  Low noise bump in/bump out traffic buffer zone
- Features to be protected :
-  Monuments to be fenced during events
 -  Fenced Cumberland Plain Woodlands
 -  Unfenced Cumberland Plain Woodlands area which needs to be fenced during events
 -  Grey headed Flying fox colony



TRAFFIC & ACCESS IN EVENT MODE



THE CRESCENT SUMMER SERIES - TYPE A EVENT AREA PLAN



LEGEND

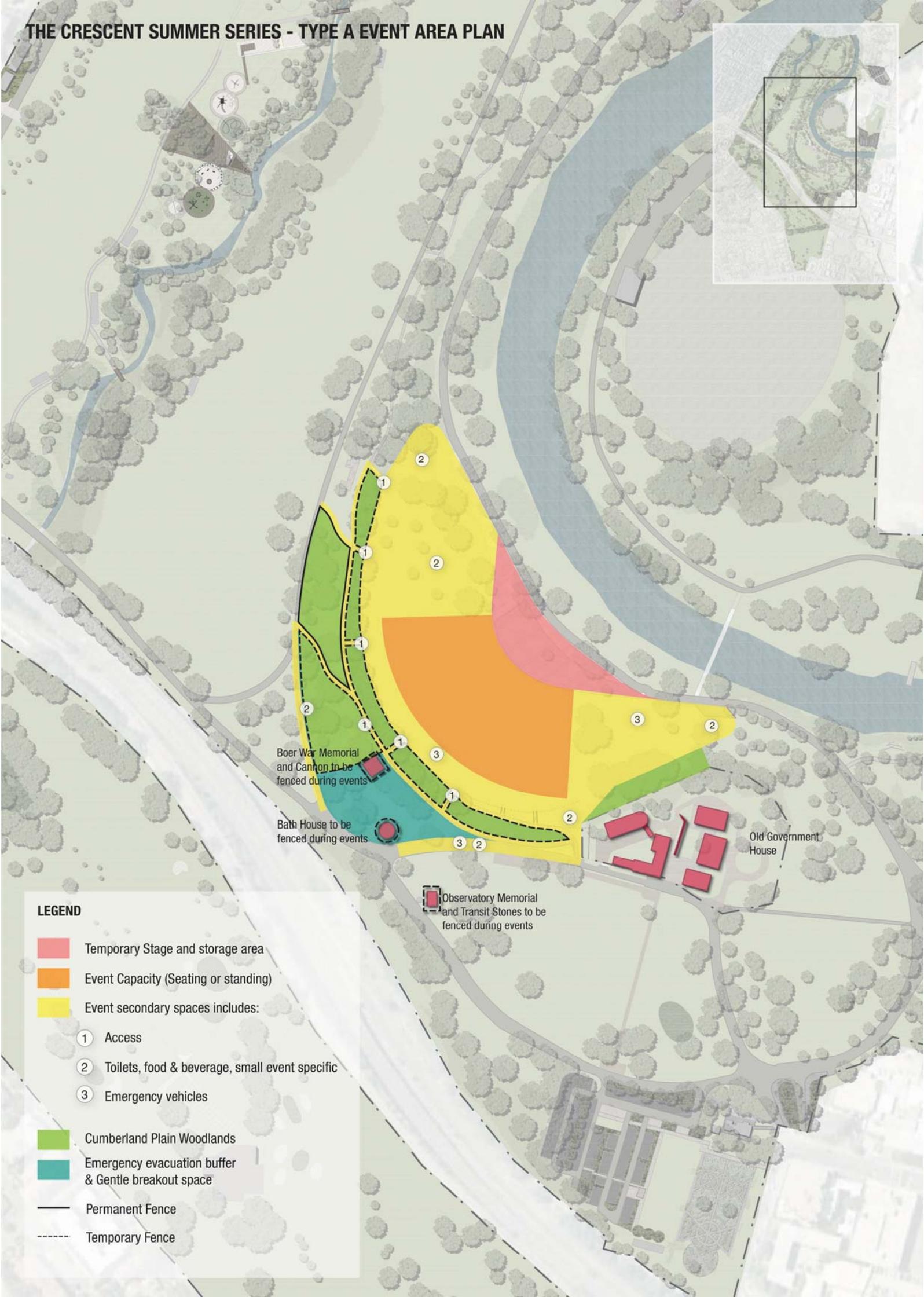
- Temporary Stage and storage area
- Event Capacity (Seating or standing)
- Event secondary spaces includes:
 - ① Access
 - ② Toilets, food & beverage, small event specific
 - ③ Emergency vehicles
- Cumberland Plain Woodlands
- Emergency evacuation buffer & Gentle breakout space
- Permanent Fence
- Temporary Fence

Boer War Memorial and Cannon to be fenced during events

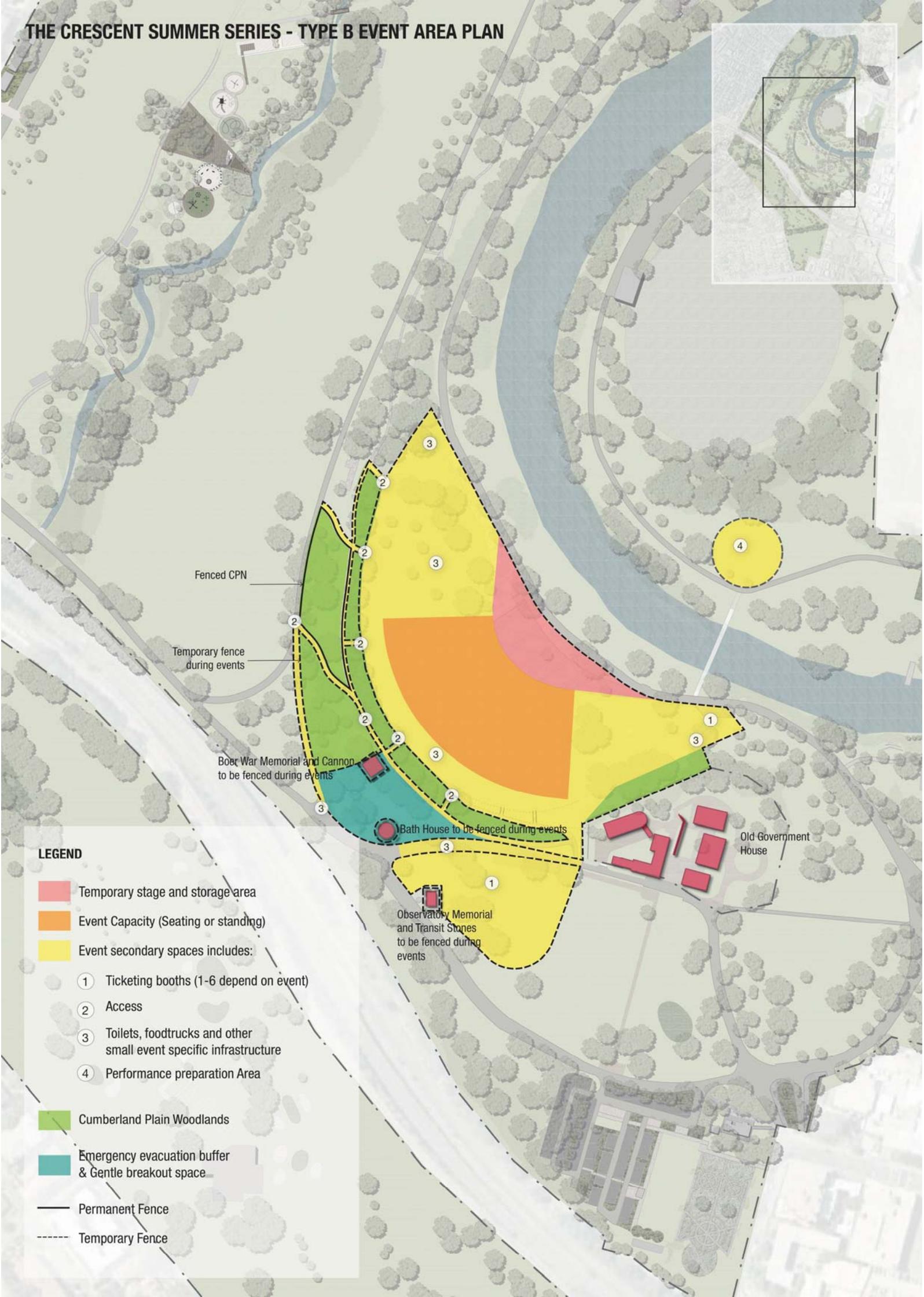
Bath House to be fenced during events

Observatory Memorial and Transit Stones to be fenced during events

Old Government House



THE CRESCENT SUMMER SERIES - TYPE B EVENT AREA PLAN



LEGEND

- Temporary stage and storage area
- Event Capacity (Seating or standing)
- Event secondary spaces includes:
 - ① Ticketing booths (1-6 depend on event)
 - ② Access
 - ③ Toilets, foodtrucks and other small event specific infrastructure
 - ④ Performance preparation Area
- Cumberland Plain Woodlands
- Emergency evacuation buffer & Gentle breakout space
- Permanent Fence
- Temporary Fence

THE CRESCENT SUMMER SERIES - TYPE C EVENT AREA PLAN



LEGEND

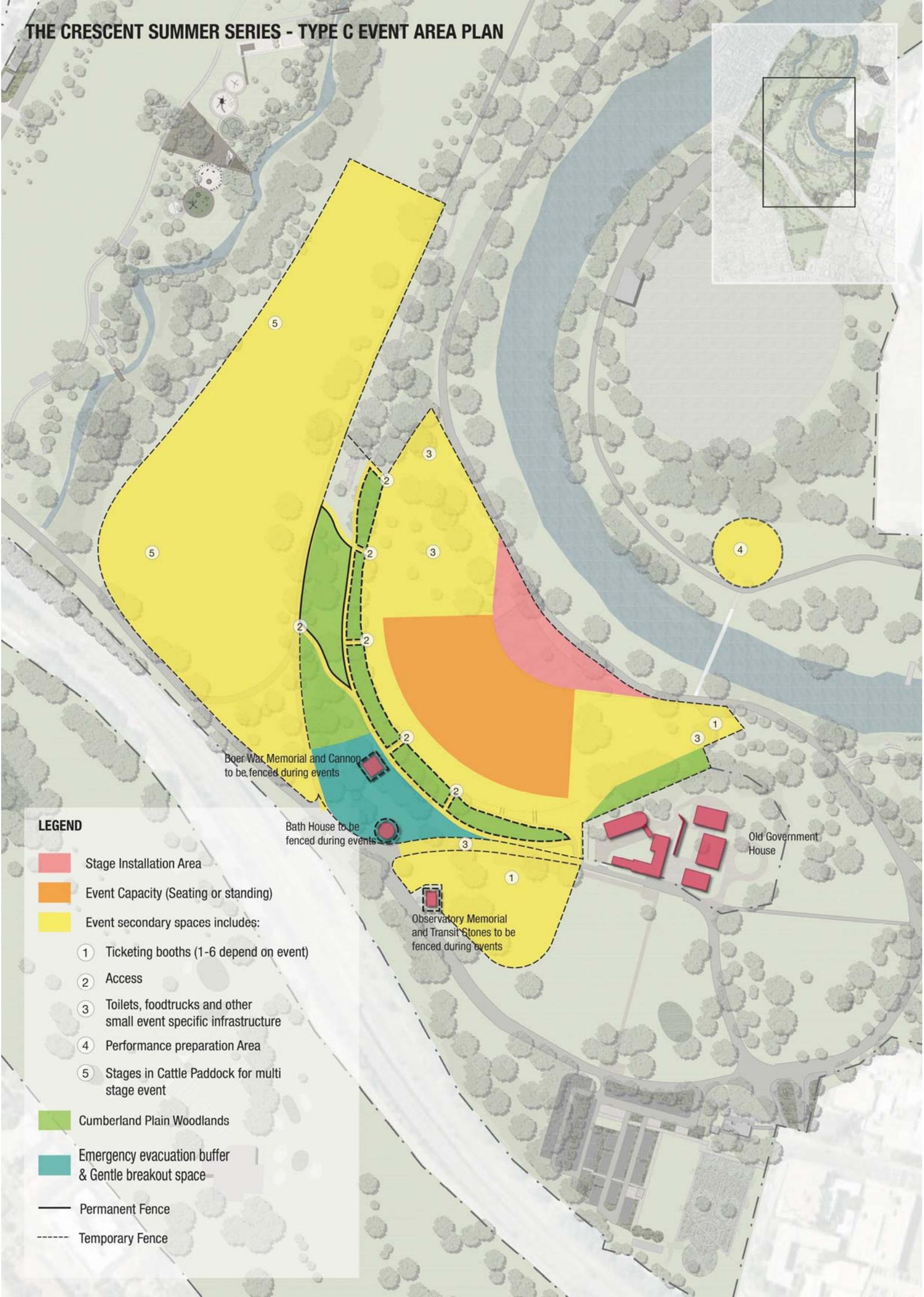
- Stage Installation Area
- Event Capacity (Seating or standing)
- Event secondary spaces includes:
 - ① Ticketing booths (1-6 depend on event)
 - ② Access
 - ③ Toilets, foodtrucks and other small event specific infrastructure
 - ④ Performance preparation Area
 - ⑤ Stages in Cattle Paddock for multi stage event
- Cumberland Plain Woodlands
- Emergency evacuation buffer & Gentle breakout space
- Permanent Fence
- Temporary Fence

Boer War Memorial and Cannon to be fenced during events

Bath House to be fenced during events

Observatory Memorial and Transit Stones to be fenced during events

Old Government House



THE CRESCENT SUMMER SERIES - TYPE D EVENT



LEGEND

- Stage Installation Area
- Event Capacity (Seating or standing)
- Event secondary spaces includes:
 - ① Access
 - ② Amenities, food & beverage
 - ③ Emergency vehicles
 - ④ Stages
 - ⑤ Carnival rides
 - ⑥ Events
 - ⑦ Displays (antique cars & dog shows)
- Cumberland Plain Woodlands
- Emergency evacuation buffer & Gentle breakout space
- Gentle breakout space only
- Temporary Fence
- Permanent Fence
- ↓ Grey-headed Flying fox colony
- Fireworks Zone

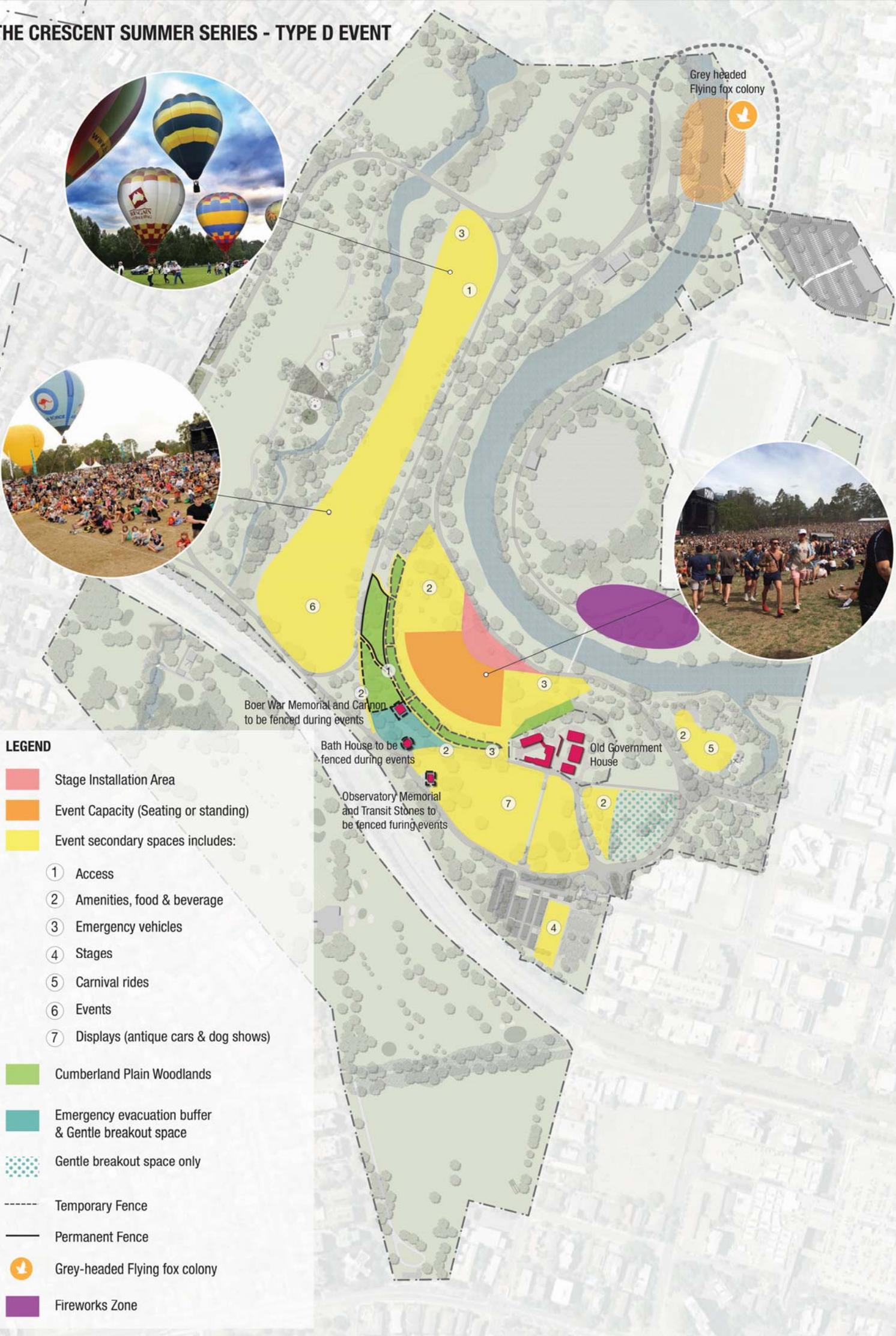
Boer War Memorial and Carillon to be fenced during events

Bath House to be fenced during events

Observatory Memorial and Transit Stones to be fenced during events

Old Government House

Grey headed Flying fox colony



Appendix B. Event Management Checklists

Hirer Site Induction Checklist

The Trust has established various checklists when preparing the Event Management Framework, which stipulates key components and controls to be addressed by the proponent (Hirer) throughout the Summer Series. The following aspects are addressed within the checklists:

- Event management;
- Noise management;
- Heritage and Environmental Protection;
- Waste Management Plan;
- Traffic and Access; and
- Safety and Security.

1. Event Management

1.1 Site Plan Checklist

Control	Addressed
1. Site Plan has been provided to the Trust a minimum of 2 months prior to site occupation.	<input type="checkbox"/>
2. Site Plan indicates the proposed location of all structures and activities, travel routes and heritage, environmental and ground protection measures (including all amenities and waste bin skip locations).	<input type="checkbox"/>
3. Site plan is to 1:500 scale for Type A and B events. Scale of Site Plan for Type C or D events is sufficient to demonstrate compliance with the Trust's The Crescent Summer Series – Type A, B, C or D Event, Traffic & Access in Event Mode and General Ground Protection Arrangement maps.	<input type="checkbox"/>
3. Site Plan complies with the relevant The Crescent Summer Series – Type A, B, C or D Event maps.	<input type="checkbox"/>
4. Site Plan has been approved by the Trust.	<input type="checkbox"/>
5. Approved Site Plan has been issued to all key bump in, bump out and event operational personnel (including all contractors, vendors and third parties).	<input type="checkbox"/>

1.2 Ground Protection Checklist

Control	Addressed
1. The event's Ground Protection Plan complies with the Trust's General Ground Protection Arrangement map.	<input type="checkbox"/>

Control	Addressed
2. Where the ground is saturated with surface water The Trust has confirmed that bump in can proceed.	<input type="checkbox"/>
3. Approved ground protection is available to hand for any wet soil conditions or turf stress, wear or damage encountered during bump in or bump out and/or during the event.	<input type="checkbox"/>
4. Approved ground protection is available to hand to mitigate high volume vehicle or pedestrian traffic as instructed by Trust staff during the event, bump in and bump out to prevent damage to the turf or soil compaction.	<input type="checkbox"/>

1.3 Signage Checklist

Control	Addressed
1. Signage Plan has been provided to the Trust, and the Trust has approved the plan.	<input type="checkbox"/>
2. Sign removal and disposal included in the production schedule.	<input type="checkbox"/>
3. Marketing and site signage are to be removed at the end of the event.	<input type="checkbox"/>

1.4 Food, Beverage and Merchandising Checklist

Control	Addressed
1. All liquor outlets have EFTPOS facilities.	<input type="checkbox"/>
2. Liquor Licence has been obtained (Caterers' Licences must not be used).	<input type="checkbox"/>
3. Food and beverage schedule has been provided to the Trust.	<input type="checkbox"/>

1.5 Communications Checklist

Control	Addressed
1. All published material and marketing benefits have been provided to the Trust.	<input type="checkbox"/>
2. Trust has been provided with a 24-hour number for the key event management person.	<input type="checkbox"/>

Control	Addressed
3. Detailed production schedule, run-sheet and communications plan has been submitted to the Trust.	<input type="checkbox"/>
4. The Hirer will encourage all participants to promote the Park via social media.	<input type="checkbox"/>
5. Trust has provided the Hirer with key Trust messaging, a website listing on the Park event page, shared social media posts and promotion and activation opportunities.	<input type="checkbox"/>
6. Attendance numbers, post codes and demographic information have been provided to the Trust.	<input type="checkbox"/>

1.6 Other Requirements Checklist

Control	Addressed
1. Amenities and Toilet Management Plan <i>(including cleaning/restocking schedule)</i> has been prepared.	<input type="checkbox"/>
2. Performance Copyright: <ul style="list-style-type: none"> • RPCA Licence obtained; and • APRA Licence obtained. 	<input type="checkbox"/>
3. The Trust has been advised of any VIP, politicians or special guest arrangements.	<input type="checkbox"/>
4. Evidence of all insurances including the following have been submitted to the Trust: <ul style="list-style-type: none"> • Certificate for events; • Public Liability Insurance (certificate of currency) (min. \$A20 M); and • Workers' Compensation Insurance. 	<input type="checkbox"/>
5. Details of any Amusements including the following have been submitted to the Trust: <ul style="list-style-type: none"> • Public Liability Insurances; • Workers Compensation Insurance; • Log Books; • Risk Management Plans; and • Maintenance and engineering certification records. 	<input type="checkbox"/>
6. Consultation/notification with the following organisations has occurred: <ul style="list-style-type: none"> • Police Area Command 	<input type="checkbox"/>

Control	Addressed
<ul style="list-style-type: none"> Sydney Trains 	<input type="checkbox"/>
<ul style="list-style-type: none"> Parramatta Fire Brigade 	<input type="checkbox"/>
<ul style="list-style-type: none"> Western Sydney Area Health 	<input type="checkbox"/>
<ul style="list-style-type: none"> Ambulance NSW 	<input type="checkbox"/>

2. Noise Management

2.1 Noise Management Plan Checklist

Control	Addressed
1. The events Noise Abatement Plan complies with the Trust's Noise Abatement Plan for Open Air Concerts and Events in Parramatta Park.	<input type="checkbox"/>
2. An event hot-line number will operate during the event and a complaints log supplied to the Trust.	<input type="checkbox"/>
3. Unless otherwise approved, amplified music is limited to: <ul style="list-style-type: none"> 9:00am – 10:00pm (Sunday to Thursday); 9:00am – 11:00pm (Friday, Saturday or the day immediately before a public holiday); and 9.00am and 8.00pm (sound checks). 	<input type="checkbox"/>
4. Sources of loud noises prohibited within 500m of the grey-headed flying fox camp.	<input type="checkbox"/>
5. Details and specification of the sound amplification equipment have been submitted to and approved by the Trust and comply with all conditions and procedures specified by the Environment Protection Authority and any other statutory or regulatory authority which has any power in this respect.	<input type="checkbox"/>
6. Monitoring strategies have been clearly set out in the event's Noise Management Plan.	<input type="checkbox"/>

3. Heritage and Environmental Protection

3.1 Heritage Protection Checklist

Controls	Addressed
1. The location of all structures, objects and activities associated with the event and bump in/out comply with the relevant The Crescent Summer Series - A, B, C or D event plan and the dsca Crescent Summer Series risk mitigation table.	<input type="checkbox"/>
2. Pegging is not used to be used in any areas identified as such on the relevant The Crescent Summer Series - A, B, C or D event plan. Weighted structures must be used in these heritage sensitive areas. All methods of weighting structures are to be submitted to the Trust for approval.	<input type="checkbox"/>
3. All heritage monuments will be fenced as shown on the relevant The Crescent Summer Series - A, B, C or D event plan. Method of fencing to be submitted to the Trust for approval.	<input type="checkbox"/>
4. Grass tyres are provided on all wheels and for all event vehicles such as fork-lifts that drive on soft surfaces.	<input type="checkbox"/>
5. Water discharged from any fountains and or other water feature is contained in a reservoir and plumbed or pumped into sewer pit.	<input type="checkbox"/>

3.2 Event Lighting Plan Checklist

Controls	Addressed
1. An event Lighting Plan has been submitted to, and approved by the Trust for crowd egress.	<input type="checkbox"/>
2. The event Lighting Plan provides a lit pathway to the Queens Road and the George Street Park gates.	<input type="checkbox"/>
3. The Event Lighting plan has considered the effect on Park wildlife.	<input type="checkbox"/>
4. The egress/ingress pathways will only be lit when necessary.	<input type="checkbox"/>
5. Where possible	
<ul style="list-style-type: none"> light has been directed below the horizontal plane down towards the path 	<input type="checkbox"/>
<ul style="list-style-type: none"> vegetation has been shielded by fitting lights with hoods 	<input type="checkbox"/>

Controls	Addressed
<ul style="list-style-type: none"> Domain Creek and/or Parramatta River riparian zones, bats roosts (hollows in trees) and/or the Grey-headed Flying-fox camp have not been illuminated 	<input type="checkbox"/>
6. Lighting plan will ensure that bat habitat/flyways are not cut-off or interrupted by the installation of light sources.	<input type="checkbox"/>
7. All lighting will be set back 2m from the canopy edge and facing away from lines of trees.	<input type="checkbox"/>

3.3 Tree and Bushland Protection Zones Checklist

Controls	Addressed
1. TPZs are 5m from the base of the trunk of small trees or from the drip line of mature trees.	<input type="checkbox"/>
2. Adequate barriers will be placed to prevent breach of the TPZ or BPZ. <i>(Exclusion barriers are to be used in high traffic areas. Low traffic areas require tape barriers and these may be removed for the duration of the event.)</i>	<input type="checkbox"/>

3.4 Grey Headed Flying Fox Checklist

Controls	Addressed
1. WIRES contact details included in event operations emergency contacts and will be called if any stressed or injured animals require assistance.	<input type="checkbox"/>
2. Greatest noise generation areas will be positioned as far as possible away from the camp, especially pyrotechnics and other sudden noise generation.	<input type="checkbox"/>
3. Hirer will implement strategies to minimise noise generation.	<input type="checkbox"/>
4. Noise will be gradually increased to allow animals to habituate.	<input type="checkbox"/>
5. Pyrotechnics will be scheduled at least one hour after civil sunset.	<input type="checkbox"/>

4. Waste Management

4.1 Waste Management Plan Checklist

Controls	Addressed
1. A waste management schedule will be provided to the Trust outlining times and number of staff undertaking waste management components.	<input type="checkbox"/>
2. Waste management stations located on approved hardstand areas with good vehicle access. All skip bins must be clean and free of contaminants.	<input type="checkbox"/>
3. All event related rubbish and litter outside the event site is removed by the event Hirer by 6am on the day following the event.	<input type="checkbox"/>
4. All gross litter picking inside a fenced event site is completed by 8am on the day following the event.	<input type="checkbox"/>
5. All food-contaminated rubbish removed off park by 12pm the day following the event.	<input type="checkbox"/>
6. All event-related rubbish and fine litter removed by the event termination time.	<input type="checkbox"/>
7. Site is 100% free of litter and rubbish by site handover.	<input type="checkbox"/>
8. All cups, straws, plates, napkins, and cutlery are made from recycled, recyclable, biodegradable or compostable materials.	<input type="checkbox"/>
9. Reusable, recyclable cups for bar use should be considered.	<input type="checkbox"/>
10. Plastic bags are not used or distributed.	<input type="checkbox"/>
11. Helium filled balloons, and non-biodegradable glitter are not used.	<input type="checkbox"/>
12. Any confetti must be biodegradable and the site cleaned immediately post event.	<input type="checkbox"/>
13. "Billy-goat" vacuum cleaner or any other means is available to remove confetti.	<input type="checkbox"/>
14. Promotional flyers are only distributed from approved stalls.	<input type="checkbox"/>
15. Adequate water bottle/drinking refill stations are provided.	<input type="checkbox"/>
16. Adequate rubbish bins are provided.	<input type="checkbox"/>

Controls	Addressed
<i>(No more than each 100m along ingress/egress routes and outside of the immediate event site.)</i>	
17. Bin locations are adjusted to crowd behaviour.	<input type="checkbox"/>
18. Procedure is provided for litter picking and removal/replacement of full bins within the event site.	<input type="checkbox"/>
18. Clearly identified Smoking Areas are provided with sufficient butt disposable methods.	<input type="checkbox"/>
19. Skip bins are clean and free of contaminates.	<input type="checkbox"/>

5. Traffic and Access

5.1 Traffic Management Plan (TMP) Checklist

Controls	Addressed
1. Access point for all event vehicles is the Queens Road Gate.	<input type="checkbox"/>
2. TMP maintains the separation of pedestrian and vehicles.	<input type="checkbox"/>
3. Schedule of vehicle movements is provided at least 10 days prior to site occupation.	<input type="checkbox"/>
4. Outlines management of “vehicle free conditions”.	<input type="checkbox"/>
5. Minimises aesthetic impacts of vehicle parking and movement.	<input type="checkbox"/>
6. Complies with the RMS “Traffic Control at Worksites” manual.	<input type="checkbox"/>
7. TMP is implemented before bump in traffic commences and remains in place until the last event related vehicle leaves the site.	<input type="checkbox"/>
8. TMP is produced by a person with a current RMS approved Red Card.	<input type="checkbox"/>
9. RMS certified traffic controllers are employed for traffic works.	<input type="checkbox"/>
10. TMP details recommended routes, signage and proposed duration.	<input type="checkbox"/>

Controls	Addressed
11. TMP includes a system to manage onsite event related parking.	<input type="checkbox"/>
12. Traffic movements and parking is minimised and strictly controlled.	<input type="checkbox"/>
13. All vehicles comply with standard registration and safety requirements.	<input type="checkbox"/>
14. Parking will be in the parking areas provided unless otherwise specifically authorised via a Vehicle Access Pass.	<input type="checkbox"/>
15. Vehicle entry permits are displayed on designated car free days.	<input type="checkbox"/>

6. Safety and Security

6.1 Risk Management Plan Checklist

Controls	Addressed
1. Risk management plan must include the following components:	<input type="checkbox"/>
• Work health and safety;	<input type="checkbox"/>
• Public health and safety;	<input type="checkbox"/>
• Responsible Service of Alcohol (RSA) and Intoxication;	<input type="checkbox"/>
• Natural hazards;	<input type="checkbox"/>
• Environmental risks;	<input type="checkbox"/>
• Logistics and human resources;	<input type="checkbox"/>
• Traffic and access;	<input type="checkbox"/>
• Emergency management; and	<input type="checkbox"/>
• Security and crowd management.	<input type="checkbox"/>

6.2 Safe Work Method Statement (SWMS) Checklist

Controls	Addressed
1. The sewer and electrical service pit lids will be opened by two qualified technicians using suitable equipment.	<input type="checkbox"/>
3. The surrounding area must be appropriately barricaded to the satisfaction of the Trust with a minimum of 1m buffer around the open lid to minimise risks to the Public.	<input type="checkbox"/>
3. Barricades are approved by the Trust.	<input type="checkbox"/>
4. 1m buffer (min.) is provided around the open lid.	<input type="checkbox"/>
4. An open lid must never be left unattended.	<input type="checkbox"/>
5. Confined space certificate is required.	<input type="checkbox"/>

6.3 Safety, Security, Emergency and Risk Management Plan Checklist

Controls	Addressed
1. Complies with Risk Management Standard AS/NZS ISO 31000:2009.	<input type="checkbox"/>
2. Produced by an experienced and qualified operative.	<input type="checkbox"/>
3. Indicates operational capacity (ticket sales must not exceed this).	<input type="checkbox"/>
4. Ticket sales report provided to the Trust every Monday (12pm) and within the first 24 hours of an event.	<input type="checkbox"/>
5. Construction zone is clearly defined and appropriately fenced off.	<input type="checkbox"/>
6. Freestanding fencing or poles are used on all grassed areas. Stakes are not used in areas shown as not to be pegged on the relevant The Crescent Summer Series – Type A, B, C or D Event map.	<input type="checkbox"/>
7. Movement of Patrons will be supervised by the Hirer.	<input type="checkbox"/>
8. No damage or theft will occur.	<input type="checkbox"/>
9. Movement corridors are lit and staffed by the Hirer.	<input type="checkbox"/>

Controls	Addressed
10. After-hours access (6pm-6am (8pm EST)) is approved by the Trust.	<input type="checkbox"/>
11. The immediate area is fenced off during construction. No fencing will be erected outside the event zones shown in the Trust's The Crescent Summer Series – Type A, B, C or D Event maps.	<input type="checkbox"/>
12. All items are secure and safe to the public.	<input type="checkbox"/>
13. All amusements must be checked by a safety officer before operation.	<input type="checkbox"/>

6.4 Crowd Management Plan (CMP) Checklist

Controls	Addressed
1. Plan approved by all relevant key stakeholders (e.g. NSW Police and medical providers)	<input type="checkbox"/>
2. Hirer must complete the following assessments: <ul style="list-style-type: none"> • Crowded Places Self-Assessment Tool; and • Crowded Places Security Audit. 	<input type="checkbox"/>
3. Notice of Intention to hold a Public Assembly is lodged with NSW Police at least 90 days prior to site occupation.	<input type="checkbox"/>
4. CMP includes Patrol Walking, Accessibility, Access and Egress Plan, and way-finding signage.	<input type="checkbox"/>
5. Messaging directs pedestrian access to the Park from Parramatta CBD via Church Street and the George Street Gate.	<input type="checkbox"/>

6.5 First Aid and Medical Plan Checklist

Controls	Addressed
1. Medical staff and paramedic requirements determined by a risk assessment.	<input type="checkbox"/>
2. Facilities to insert an intravenous line are provided (if required).	<input type="checkbox"/>
3. Incident reports for all treated patients are provided.	<input type="checkbox"/>

Controls	Addressed
4. The Hirer complies with requirements of health and other relevant authorities.	<input type="checkbox"/>

6.6 Drug Management Plan (DMP) Checklist

Controls	Addressed
1. Includes stakeholder engagement.	<input type="checkbox"/>
2. Pre-event patron information is made available.	<input type="checkbox"/>
3. Provisions for Police drug operations.	<input type="checkbox"/>
4. Outlines security measures.	<input type="checkbox"/>
5. Outlines medical operations – including an Alcohol Management Plan.	<input type="checkbox"/>
6. Outlines safety operations.	<input type="checkbox"/>

6.7 Pyrotechnical Management Plan Checklist

Controls	Addressed
1. Pyrotechnical permits are provided.	<input type="checkbox"/>
2. Notification of the local fire brigade and WorkCover is provided.	<input type="checkbox"/>
3. Fire protection methods are included.	<input type="checkbox"/>
4. Pyrotechnical firing grounds are greater than 500m from the Grey-headed Flying Fox camp and preferentially located to minimise risks to foraging bats. Start time will not occur within 1 hour after civil sunset.	<input type="checkbox"/>
5. Pyrotechnics are not within 90m of wood based heritage items or heritage trees, or within 30m of stone or brick heritage items.	<input type="checkbox"/>

6.8 Site Fencing Checklist

Controls	Addressed
1. Adequate security is provided for the work/event site.	<input type="checkbox"/>
2. Signage prohibits unauthorised entry and indicates worksite requirements.	<input type="checkbox"/>
3. A visible and exclusive 'work zone' is provided.	<input type="checkbox"/>
4. Minimum height = 1800mm high.	<input type="checkbox"/>
5. Constructed with galvanised welded mesh secured to purpose designed posts, coupling clamps, bracing panels and above-ground concrete footing.	<input type="checkbox"/>
6. Capacity to withstand Category B wind.	<input type="checkbox"/>
7. "V" bracing must be used, (only alternative is "loop bracing").	<input type="checkbox"/>
6. Approval granted by a structural engineer.	<input type="checkbox"/>
7. Scrim requirements: <ul style="list-style-type: none"> • Scrim extends from the base to the top of the fence mesh; • Scrim secured at no more than 900 centres along the top; • Scrim secured by a method as specified by an Engineer; and • Scrim will be a loose weave material with a porosity of no less than 70%. 	<input type="checkbox"/>
8. Temporary fencing includes the following: <ul style="list-style-type: none"> • Engineering Design Certificate and an installation Certificate (including actions should wind load exceed the rated capacity of the fence) provided to the Trust. • The install certificate must also specify actions should wind load exceed the rated capacity of the fence. 	<input type="checkbox"/>
9. A lockable gate secured by a 1.8m fence is provided.	<input type="checkbox"/>
10. Consideration is given to the fence configuration and structural integrity.	<input type="checkbox"/>
11. Emergency egress points in fence are clearly identified and associated path/s of escape kept clear.	<input type="checkbox"/>



Draft



Trust Post Event Assessment

Event

Precinct

For the Month of:		Date	
Trust Representative Contact		Event Representative Contact	
Park		Precinct	

All works associated with this Event must be performed to Event Management Framework

The following site evaluation criteria and rating system will apply to this event. This system allocates scores to the evaluation criteria at completion of each assignments and setup and dismantle of each event within the park.

Rating System

Each assignment or project will be rated using points according to the contractor’s management of public safety and environmental issues, state of completeness, defects and maintenance. A completed performance report on the Contractor will include an assessment of each evaluation criteria and a performance score will be generated. The approach to this rating system is outlined below.

Trust Post Event Assessment

Grading		Rating
(1) Superior	Standard above the required standard of performance	9-10
(2) Good	Standard satisfactory and often exceeds the required standard of performance	7-8
(3) Acceptable	Meets the required standard of performance	5-6
(4) Unsatisfactory	Many weaknesses, has not met the required standard of performance and compliance	2-4
(5) Unacceptable	Severe underperformance resulting in major noncompliance of contract and may require termination of agreement	0-1

The table below outlines how the Seasonal Performance Score will be used to monitor the Hirer's performance and the corresponding outcomes

Seasonal Performance Score	Outcome
70-100%	Further event applications supported
56-69%	Allowed to apply for further events – focused additional site monitoring
51-55%	Warning will be issued
Below 50%	No further agreements will be entered into

Trust Post Event Assessment

The performance score for a report on the Contractor on an assignment or project allocated under this contract will be based on the weighted ratings from the report. An example of the report is outlined below.

Example 1: Weighted Performance from a report

Evaluation Criteria	Weight (a)	Grading	Rating (b)	Weighted Rating (a) x (b)	Max. possible weighted rating (a) x 10	Estimated Cost for Replacement/Repair/Clean-up	Bond \$20,000.00	Comments
<i>(Example) Litter cleaning</i>	5	Acceptable	5	25	50	\$1,000.00	\$19,00.00	6.1.5 Waste Management Site Cleansing must be 100% free
Governance - Event Hirer followed the Trust's Legislative governance requirements.	5	Good	7	35	50			
Strategic Risk Assessment –Event Hirer reviewed all event-relevant management guide lines, supplied the Trust with all appropriate documents and followed all guidelines	5	Good	7	35	50			
Event Management Plan – Hirers addressed all EMP requirements	5	Good	7	35	50			
Site Plan – Event Hirers provided full site plans	5	Good	8	40	50			

Trust Post Event Assessment

showing all event infrastructure and equipment							
Traffic Control – Hirer provided appropriate traffic controllers and traffic signage on site	5	Good	8	40	50		
Noise Controls – noise levels were within the Noise Abatement Management Plan for red events	5	Good	8	40	50		
Asset Protection							
Heritage – the Event Hirer addressed all the relevant heritage mitigation strategies set out in the risk identification and management table	5	Good	8	40	50		
Flora & Fauna Protection – The Event Hirer provided appropriate BPZs/TPZ protection around the Flora & Fauna areas	5	Good	8	40	50		
Hardstand Area – Pavers were protected from damage by equipment	5	Good	8	40	50		
Electrical Services – Wiring installation was safe and removal was complete	5	Good	7	35	50		
Ground protection -Turf areas were protected in accordance with the Trust's Ground Protection	5	Good	7	35	50		



Trust Post Event Assessment

Arrangement map and as instructed by Trust staff. This included ground and irrigation protection within the site.							
Temporary lighting - Temporary lighting was provided in accordance with the Trust's Lighting Plan criteria	5	Good	8	40	50		
Sewer/Water – Connections complete with no damage	5	Good	8	40	50		
Waste Management – Event Hirer's implemented the event Waste Management Plan approved by the Trust in full. Event site was 100% free of litter at site handover back to the Trust.	5	Acceptable	5	25	50		
Safety and Security – Hirer provided appropriate lighting for high traffic areas and in accordance with the events approved Lighting Plan.	5	Good	8	40	50		
Quality of Work Was the contract performed with the professional care, skill and diligence required. Were all work outputs fully satisfactory?	5	Good	7	35	50		

Trust Post Event Assessment

Time Was the event performed in accordance with the agreed dates and was all event infrastructure and equipment removed prior to handover back to the Trust?	5	Acceptable	5	25	50			
Communication Did the hirer respond promptly to requests for information and maintain cordial and cooperative communications with the Trust?	5	Good	7	35	50			
Resources Did the hirer provide the appropriate level of resources required for the contract?	5	Acceptable	5	25	50			
Work Health and Safety Did the Hirer comply with all applicable requirements of WHS in the performance of the contract?	5	Good	8	40	50			

Trust Post Event Assessment

Park Assets and Grounds Condition of all Park assets and grounds in the event area and event traffic and accessways were maintained during the event and bump in and out.	5	Good	8	40	50			
		Total			760	1050		

CPR score = $100 \times 760(c)/1050(d) = 72\%$

The final performance score for the Hirer in any one (1) event season will be based on the average of all performance reports for that event season.

Supporting Documents and attachments:

Picture	Comments	Site	Event Management Plan section
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Trust Post Event Assessment

	<p>Rubbish within the event site requiring extra cleaning</p>	<p>The Crescent Parramatta Park</p>	<p>6.1.3 Waste Management</p>
	<p>Rubbish bins require more frequent emptying</p>	<p>The Crescent Parramatta Park</p>	<p>6.1.3 Waste Management</p>

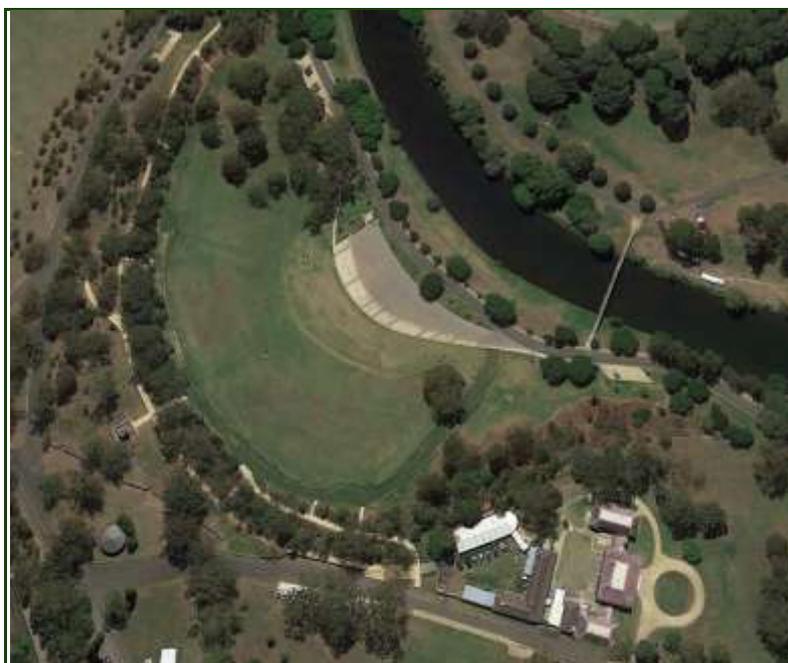
SAMPLE

Appendix C. Heritage Impact Assessment

Heritage Impact Assessment

Crescent Summer Series (2018-2019)

The Crescent, Parramatta Park, Parramatta, NSW



Report to:

Parramatta Park & Western Sydney Parklands Trust

Dominic Steele Consulting Archaeology

9 August 2018

Document control

Project Name	Heritage Impact Assessment. The Crescent Summer Series 2018-2019. The Crescent, Parramatta Park, Parramatta, New South Wales
Proponent	Parramatta Park & Western Sydney Parklands Trust
Recipient	Stephanie Licciardo
Status	Final (Draft 25 July, 4 August 2018)
Issue Date	9 August 2018
Prepared by	Dominic Steele
Approved by	Stephanie Licciardo

Terms and abbreviations

Aboriginal Cultural Heritage Consultation Requirements for Proponents 2010	Guidelines developed by OEH to guide formal Aboriginal community consultation undertaken as part of an Aboriginal Cultural Heritage Assessment (ACHA).
Aboriginal Heritage Impact Permit (AHIP)	Statutory instrument the Director General of the Office of Environment and Heritage (OEH) issues under Section 90 of the National Parks and Wildlife Act 1974 to allow the investigation (when not in accordance with certain guidelines), impact and/or destruction of Aboriginal objects.
Aboriginal object	A statutory term defined under the National Parks and Wildlife Act 1974 as, 'any deposit, object or material evidence (not being a handcraft made for sale) relating to the Aboriginal habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'.
AHIMS Aboriginal Heritage Information Management System (AHIMS)	The Office of Environment and Heritage (OEH) maintains the Aboriginal Heritage Information Management System (AHIMS) which includes: information about Aboriginal objects that have been reported to the Director General, Department of Premier and Cabinet; information about Aboriginal Places which have been declared by the Minister for the Environment to have special significance with respect to Aboriginal culture archaeological reports.
Alluvial	Referring to sediment deposited by channelled stream and creek flow or overbank (flood) flow.
Artefact	Any product made by human hands or caused to be made through human actions.
B.P.	Before Present. The 'Present' is defined as 1950.
Crest	A landform element that 'stands above all, or almost all points in the adjacent terrain' (Speight 2009:29).
Department of Environment, Climate Change and Water (DECCW)	Now known as the Office of Environment and Heritage (OEH).
Department of Planning and Infrastructure (DPI)	The Consent Authority for development applications made in accordance with Part 3A of the Environmental Planning and Assessment Act 1979.
Due Diligence Code of Practice for the Protection of Aboriginal Objects in NSW	OEH guidelines outlining the first stage of a two stage process in determining whether Aboriginal objects and/or areas of archaeological interest are present within a subject area. The findings of a due diligence assessment may lead to the development of a ACHA
Effective (survey) Coverage	Quantified estimate of the areas in which surface archaeological materials have been 'detectable' (exposed on the ground surface).
Environmental Assessment (EA)	Document summarising the assessment of environmental impacts of a development for approval under the Environmental Planning and Assessment Act 1979.
Environmental Planning and Assessment Act 1979	Statutory instrument that provides planning controls and requirements for environmental assessment in the development approval process.
Exposure	Areas of land where natural ground surfaces are exposed through processes such as soil erosion, sparse vegetation cover, and disturbance. The percentage of ground exposures recorded in different landforms contained within a study area are used to calculate effective archaeological survey coverage.
Flat (land form)	Planar landform element that is neither a crest nor a depression that is level or very gently inclined (Speight 2009:22).
Guide to Investigating, Assessing and Reporting on Aboriginal Cultural Heritage	Guidelines developed by OEH to inform the structure and content of an Aboriginal Cultural Heritage Assessment (ACHA).
Isolated Find	An isolated find is usually considered a single artefact or stone tool. The term "object" is used in the ACHA, to reflect the definitions of Aboriginal stone tools or other products in the National Parks and Wildlife Act 1974.
Lower Slope	Slope element not adjacent below a crest or flat but adjacent above a flat or depression (Speight 2009:21).
Mid Slope	Slope element not adjacent below a crest or flat and not adjacent above a flat or depression (Speight 2009:21).
National Parks and Wildlife Act 1974	Primary legislation for the protection of Aboriginal cultural heritage in NSW. Part 6 of this Act outlines the protection afforded to and offences relating to disturbance of Aboriginal objects.

Office of Environment and Heritage (OEH)	The OEH is responsible for managing the Aboriginal Heritage (and other) provisions of the National Parks and Wildlife Act 1974.
Potential Archaeological Deposit (PAD)	Areas assessed as having the potential to contain Aboriginal objects. PADs are commonly identified on the basis of landform types, surface expressions of Aboriginal objects, surrounding archaeological material, disturbance, and a range of other factors. While not defined in the National Parks and Wildlife Act 1974, PADs are generally considered to retain Aboriginal objects and are therefore protected and managed in accordance with that Act.
Proponent	A corporate entity, Government agency or an individual in the private sector which proposes to undertake a development project.
RAP	Registered Aboriginal Party.
Upper Slope	Slope element adjacent below a crest or flat and not adjacent above a flat or depression (Speight 2009:21).
Visibility	Refers to the degree to which the surface of the ground can be observed. This may be influenced by natural processes such as wind erosion or the character of the native vegetation, and by land use practices.

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Appendix 1: Main stage layout plans and perspectives

1. Main stage – overall front view
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3. Main stage – perspective view
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5. Main stage – decking plan layout
6. Main stage – roof-grid plan layout
7. Front of house – general arrangement

1.0 Introduction

1.1 Background

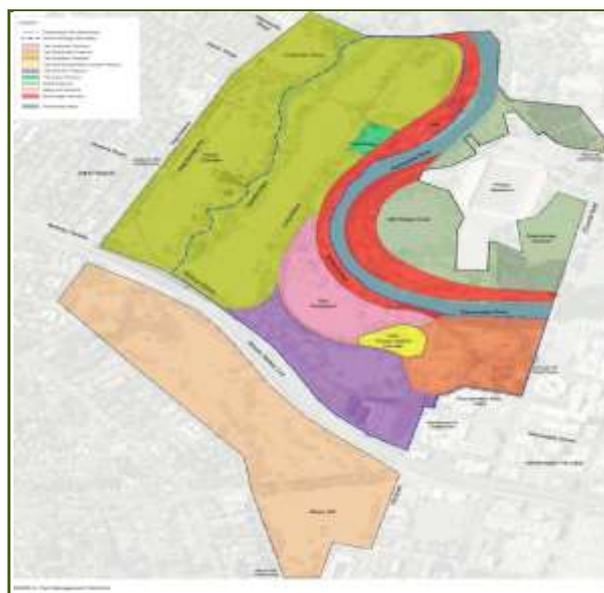
The *Parramatta Park & Western Sydney Parklands Trusts* (Trust) proposes to host a summer-series of outdoor public entertainment events ('The Crescent Summer Series' – CSS 2018-2019) within Parramatta Park. The majority of the events proposed are individual music festivals to be staged in The Crescent but a number of other entertainment activities and events including New Year's Eve and Australia Day celebrations will extend to include the use of other areas of the parkland.

This heritage impact assessment (HIA) identifies and evaluates potential heritage impacts the CSS 2018-2019 may have on individual and the collective heritage values of Parramatta Park and recommends planning and operational impact avoidance and mitigation measures to manage this risk.

Figure 1.1: Location of Parramatta Park (WSPT 2018)



Figure 1.2: Parramatta Park Precincts referred to in this report (WSPT Master Plan 2015)



1.2 Scope and objectives of this report

1.2.1 Report objectives

This report has been directed by four primary objectives. The first objective has been to provide the Trust with an internal due-diligence heritage impact assessment for the entire CSS of events that are proposed that is measured against compliance with the heritage exemptions for actions that are permissible in Parramatta Park according to the requirements of the *NSW Heritage Act 1977* (Heritage Act).

The second objective extends from the first, and has been to provide detailed documentation to support an application under s.60 of the Heritage Act for the CSS infrastructure that will be established and is proposed to remain set-up and be used for more than one event over the summer-series (see below).

The third objective of this assessment has been to establish whether there is risk of harm to Aboriginal archaeological sites and objects as a result of actions during future events, and if and where this is identified to be the case, to assess whether statutory approval is required under the *National Parks and Wildlife Act 1974* (NPW Act). A specific focus of this evaluation is the risk of harm to Aboriginal objects at archaeological site AHIMS #45-5-0762/#45-5-0864 that is located on The Crescent ridge and takes in an area proposed for use as a low-key dining/drinking space during future events.

The final objective has been to provide an effective CSS heritage impact mitigation and management strategy for incorporation into an overarching Event Management Plan (EMP) that the Trust is currently finalising.

1.2.2 Heritage values considered in this report

For the purposes of this report, heritage values that may be impacted upon as a result of the CSS are broken down into four categories that capture principal tangible heritage values potentially at risk.

- a) Impact to potential archaeology of all periods and types through possible harm to Aboriginal objects and non-Aboriginal 'relics' as a result of actions/activities undertaken during the operation of the CSS;
- b) impacts to known archaeological sites and built-heritage items;
- c) impacts to significant vegetation and disturbance of soils (with the potential to contain Aboriginal objects and 'relics'); and
- d) Disruption(s) to views and impact on settings.

1.2.3 Precincts in the Park considered in this report

The focus of this assessment is on The Crescent Precinct (that is divided into 'amphitheatre', river's edge and ridge), the adjoining Cattle Paddocks Precinct, the Domain Precinct and the western or 'Pavilion Flats' area of the Gardens Precinct (see **Figure 1.2**).

1.3 The Crescent Summer Series 2018-2019

1.3.1 Events scope and layout

The proposed CSS events will be staged primarily within The Crescent with overflow to other areas within the Park at times. Events include New Year Eve and Australia Day celebrations, concerts (‘Symphony under the Stars’), performances and festivals (‘Tropfest’). The plans below show the infrastructure and locations that will be set-up and used for more than one event. Plan and perspective views of the stage and associated ‘front-of house’ infrastructure are appended (**Appendix 1**).

Figure 1.3: Plan showing infrastructure serving more than one event for The Crescent – Temporary Stage-Out mode (WSPT 2018)

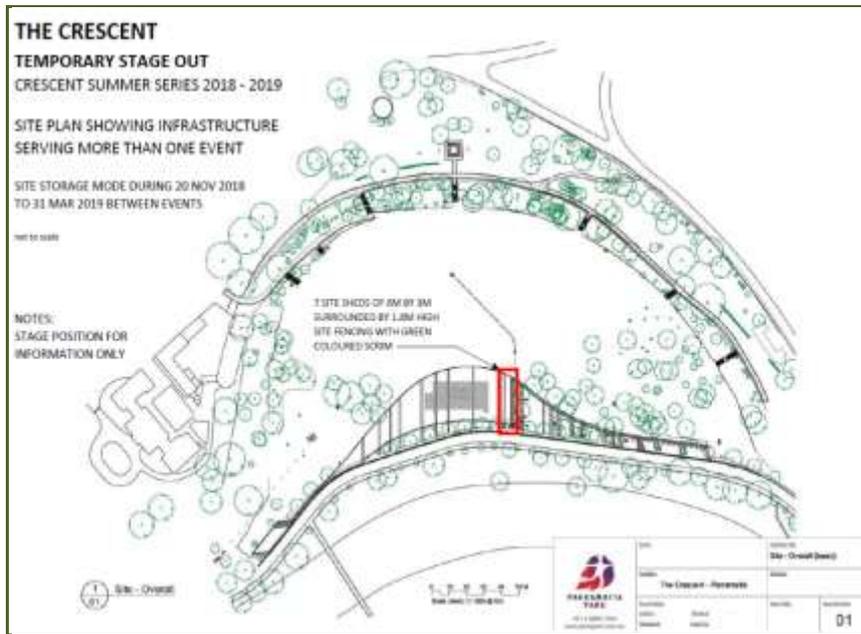
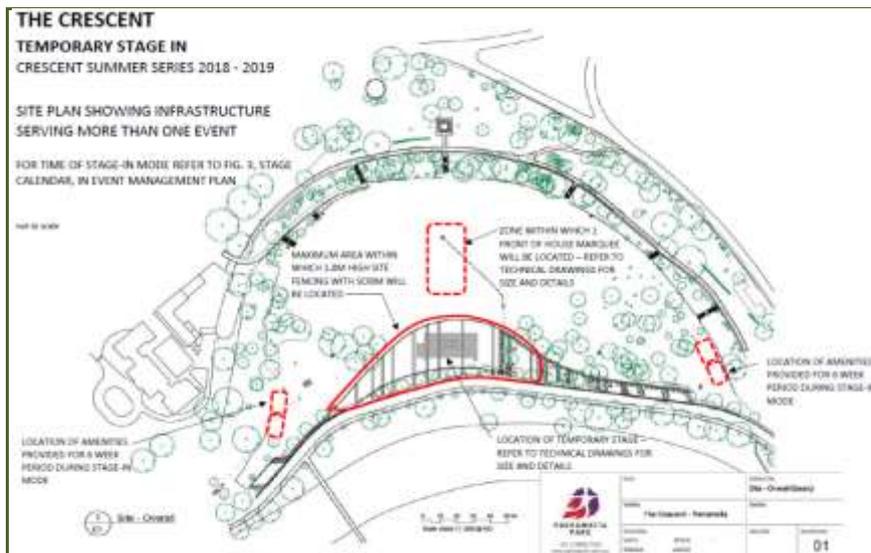


Figure 1.4: Plan showing infrastructure serving more than one event for The Crescent – Temporary Stage-In mode (WSPT 2018)



1.3.2 Event categories and proposed uses

The EMP breaks the CSS events into four categories (Event Type A-D) and what these comprise are summarised below. The accompanying images of how the various locations including The Crescent are proposed to be used at different points in time during the CSS are provided to help visualise the types of potential heritage impacts that may result from these uses such as temporary or longer-lasting disruptions to views and surface and subsurface disturbance that may affect sensitive vegetation or impact Aboriginal objects or ‘relics’.

Type A events (free to the community and funded by the Trust) utilise The Crescent hardstand staging area and amphitheatre. Temporary event infrastructure (amenities, skip bins, food and beverage stalls) are located in areas within The Crescent that are verified as containing low archaeological potential, and if required, may be located on designated (hardstand) sections of Long Avenue and Governor Macquarie Carriage Drive.

Type B events are ticketed concerts/festivals that use The Crescent staging area and amphitheatre and ‘Coronation Hill’ (Crescent ridge) for temporary ticket booths. Ancillary infrastructure is located within The Crescent in areas with low archaeological sensitivity and temporary structures are located if required to hardstand areas on Long Avenue and Macquarie Carriage Drive. The fencing associated with this use, some of which remains set-up along with the stage in-between events, is illustrated in the above plan.

Figure 1.5: Stage being set-up for use in The Crescent in 2017 (WSPT 2018)



Figure 1.6: The Crescent amphitheatre with stage and ‘front-of-house’ infrastructure (and sparse use) in 2017 (WSPT 2018)



Figure 1.7: The Crescent amphitheatre with large crowd in use in 2017 (WSPT 2018)



Figure 1.8: The Crescent amphitheatre in use 2017 showing temporary event facilities in the foreground and indicative crowd dispersal beyond the stage in the background (WSPT 2018)



These *Type C* ticketed events may utilise The Crescent hardstand staging area and amphitheatre and require temporary fencing. Overflow event acts and stalls are located in the Cattle Paddock Precinct. Ancillary temporary event infrastructure (amenities, skip bins, food and beverage stalls) are located within The Crescent in areas of low archaeological potential. When required, these temporary structures may be located on existing hardstand areas including designated sections of Long Avenue and Governor Macquarie Carriage Drive. *Type C* events require ticketing booth zones on ‘Coronation Hill’.

Type D events (such as New Years Eve and Australia day celebrations) may utilise The Crescent hardstand staging area and amphitheatre for stage setup with stalls and attractions located throughout the Park. These events are free and don’t require fencing.

Figure 1.9: Location and layout of activities and events across the Park for Australia Day 2017 (WSPT 2018)



Figure 1.10: The Cattle Paddocks Precinct has been used for ballooning in recent years because of its relative lack of spatial constraints. This involves the use of lightweight temporary stalls and equipment



Figure 1.11: Amusement rides on the 'Pavilion Flats' on Australia Day in 2017 (WSPT 2018)



1.3 Parramatta Park heritage context

1.3.1 Heritage listings

Parramatta Park is included on the following heritage lists and schedules. The significance of the place is detailed in the policy and planning documents identified below that have been developed over time to govern the management of the parklands.

Table 1.1: The heritage significance of Parramatta Park is recognised on the following statutory (s) and community (c) heritage listings (Registers marked [*] are closed and no longer in use but retained as historical references (PPT 2009 s.170 Register)

List or Register	Item Name	Year Inscribed
National Trust Register # 9237 (c)	Parramatta Park	1978
*Register of the National Estate #3072 (s)	Parramatta Park	1978, 1980
NSW State Heritage Register # 596 (s)	Parramatta Park & Old Government House	1989
City of Parramatta, Local Environment Plan, Schedule 'Heritage Items' #418 (s)	Parramatta Park Archaeological Management Unit	1997
*Sydney Regional Environmental Plan #28 Schedule 6 'Heritage Items'	Parramatta Regional Park	1999
Parramatta City Centre Local Environment Plan, Schedule 5 Environmental Heritage C6982, C9290, MS905Y	Parramatta Park	2007
National Heritage List # 105957 (s)	Old Government House and Government Domain	2007
World Heritage List (WHL)	Inscribed on the WHL as part of a listing of 11 convict sites forming the Australian Convict Sites World Heritage Property	2010

1.3.2 Parramatta Park Act 2001

Parramatta Park Trust is a statutory body established under the provisions of the Parramatta Park Act 2001 to manage and control the Trusts lands known as Parramatta Park. The objectives of the Act, and obligations of the Trust who administer the Act (PPT Act 2001 no.17 Part 3 (6) include:

- a) maintenance and improvement of the Trust lands;
- b) the encouragement of public use and enjoyment of the lands by promoting their recreational, historical, scientific and educational and cultural heritage values;
- c) ensuring the conservation of the natural and cultural heritage values of the lands and the protection of the environment within these lands; and
- d) Such other objects, consistent with the functions of the Trust in relation to the trust land, as the Trust considers appropriate.

Functions of the Trust include:

permit the use of the whole or any part of the trust lands for activities of a recreational, historical, scientific, educational and cultural heritage nature, and

The Trust may exercise such functions, in addition to those specified in this section, as are reasonably necessary to achieve its objects.

Preparation of plan of management:

- (1) The Trust must, in accordance with any directions of the Minister, cause a plan of management to be prepared for the trust lands.
- (2) The plan of management must contain a detailed written scheme of the operations proposed to be undertaken in or in relation to the trust lands.

Carrying out a plan of management

(1) A plan of management adopted by the Minister is to be carried out and given effect to by the Trust.

(2) Nothing in this Part affects the operation of the Local Government Act 1993 or Environmental Planning & Assessment Act 1979.

1.3.3 Parramatta Park planning and policy documents

Park Management Plan and Policy documents have been reviewed for this report include the following. Comments are in *italics*:

- Old Government House and Domain, Parramatta Park, Management Plan 2009 - *identifies recreational activities and entertainment should be managed to minimise impact on the heritage significance of the Park and that new works should follow design guidelines in the Landscape Master Plan 2002.*
- Parramatta Park Master Plan (October 2015) – *provides key management frameworks and was prepared taking into consideration the CMP 2008 guiding policies especially with regard to enhancing the parks landscape and facilities and provision of recreational open space and entertainment. The Trust has divided the Park into nine management precincts to assist in managing in planning and delivery of capital works.*
- Parramatta Park Conservation & Management Plan 2008 – *provides guidelines for all activities in the Park through guiding policies and reinforces that a major use of the Park will continue to see it used as a place for recreation, sport and entertainment.*
- Parramatta Park Landscape Master Plan 2002 – *provides along with the OGH and Domain Management Plan 2009 and Parramatta Park CMP 2008 the key planning and policy frameworks for managing the Park (Domain) and informing any works and improvements to be done.*
- Parramatta Park Trust s170 Heritage and Conservation Register 2009 – *identifies key heritage assets in the Park (but focuses predominantly on built-heritage item), but is not complete and requires update.*

*1.3.4 Statutory management and approval pathways**Environmental Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) provides a legal framework for the protection and management of places of national environmental significance. The heritage lists addressed by the EPBC Act include the United Nations Educational, Scientific and Cultural Organization (UNESCO) World Heritage List (WHL) and the National Heritage List (NHL).

The Crescent is located within the NHL curtilage of Old Government House & Government Domain (OGHGD) that was included on the NHL in 2007 as part of a serial listing of convict sites. The OGHGD also forms part of the WHL as one of eleven Australian Convict Sites inscribed on the UNESCO WHL in 2010.

WHL lands and properties in Australia are matters of national environmental significance that are protected and managed under the EPBC Act. The Act defines ‘environment’ as natural and cultural environments, and includes consideration of Aboriginal and historic cultural heritage sites and items. Part 3, Division 1, of the Act identifies requirements relating to matters of national environmental significance. The NHL protects places

that have outstanding value to the nation and the CHL protects items and places owned or managed by Commonwealth agencies.

Under Part 9 of the Act, any action likely to have a significant impact on a matter of National Environmental Significance may only progress with approval of the Commonwealth Minister. Part 4 of the EPBC Act has provision for Conservation Agreements between parties that when in place reinforce the need for compliance with the approval process under Part 4 of the EPBC Act, and such an agreement between the Commonwealth Minister and State of NSW exists for Parramatta Park.

NSW Heritage Act 1977

The *NSW Heritage Act 1977* (as amended) is the principal legislation that provides statutory protection for non Indigenous heritage and the requirements for its management in NSW. The administration of the Act is overseen by the *Heritage Division* of the *Office of Environment and Heritage* (OEH) and is guided by the *NSW Heritage Council*. The primary purpose of the Act is to protect, conserve and manage the environmental heritage of the State. Environmental heritage is broadly defined under Section 4 of the Act as *'those places, buildings, works, relics, moveable objects, and precincts, of State or Local heritage significance'*. While the entire Act protects heritage, historical archaeological remains are additionally protected through the operation of the 'relics' provisions of the Act (Division 9, Part 6, Sections 138-146 of the Act). Amendments to the Act made in 2009 have changed the definition of an archaeological 'relic' whereby a relic is now referred as an archaeological deposit, artefact, object or material evidence that:

- a) *Relates to the settlement of the area that comprises NSW, not being Aboriginal settlement; and*
- b) *Is of State or Local heritage significance.*

The new definition is no longer based primarily on age. Previously, a 'relic' was described as comprising any item older than 50 years of age. This significance based approach to identifying 'relics' is consistent with the way other heritage items such as buildings, works, precincts and landscapes are identified and managed in NSW. While a number of the archaeological provisions of the Act have been streamlined, the Act nevertheless retains the core principals and objectives that require anyone proposing to disturb land to obtain a permit from the *Heritage Council of NSW* (under Section 140 or Section 60 of the Act) if it is known or suspected that 'relics' of significance may be disturbed, moved, or destroyed by future land alterations and/or use. Section 139 of the Act stipulates that:

- a) *'A person must not disturb or excavate any land knowing or having reasonable cause to suspect that the disturbance or excavation will or is likely to result in a relic being discovered, exposed, moved, damaged or destroyed unless the disturbance or excavation is carried out in accordance with an excavation permit.*
- b) *A person must not disturb or excavate any land on which the person has discovered or exposed a relic except in accordance with an excavation permit'.*

If the site is listed on the State Heritage Register (SHR), approval for an Excavation Permit is required under Section 60 of the Act. Excavation Permit exceptions under Section 139(4) of the Act include that an archaeological assessment has been prepared which indicates that any relics on the land are unlikely to have State or Local heritage significance (1A), the excavation or disturbance of land will have a minor impact on archaeological relics (1B), and where the proposed excavation demonstrates that evidence relating to the history or nature of the site, such as its level of disturbance, indicates that the site has little or no archaeological research potential (1C).

Section 146 of the Act requires that the accidental discovery of relics should be reported to the *'Heritage Council of NSW (in any circumstances, and whether or not the person has been issued with an excavation permit), and within a reasonable time'*.

Under Section 57(2) of the *NSW Heritage Act 1977 – Site Specific Exemptions part (7)*, the Trust is exempted for *'erection and dismantling of temporary structures, signs, crowd control barriers, banners, stages, lighting and sound and public address equipment associated with special events and functions held in the Park'*. The applicability of this Exemption is balanced against the heritage impact assessment findings of this assessment that is presented in later sections of this report.

NPW Act 1974 and NPW Regulation 2009

Two primary pieces of legislation provide statutory protection for Aboriginal heritage and the requirements for its management in NSW. These are the *National Parks and Wildlife Act 1974* (as amended) and the *National Parks and Wildlife Regulation 2009*.

The NPW Act protects Aboriginal heritage (places, sites and objects) and the Regulation provides a framework for undertaking activities and exercising due diligence. The *Office of Environment and Heritage* (OEH) has the responsibility for the protection of Aboriginal sites, objects, places and cultural heritage values in NSW that are managed through the provisions of the NPW Act which was amended through the *NPW Act Amendment Act 2010*. Key points of the amended Act are as follows:

- Part 6 of the NPW Act provides protection for Aboriginal objects and places by establishing offences of harm which is defined to mean destroying, defacing, damaging or moving an Aboriginal object. Aboriginal objects are defined by the NPW Act as *'any deposit, object or material evidence (not being a handicraft for sale) relating to Indigenous and non-European habitation of the area that comprises New South Wales, being habitation before or concurrent with (or both) the occupation of that area by persons of non-Aboriginal extraction, and includes Aboriginal remains'*.
- A declared Aboriginal Place this is of special significance to Aboriginal people and culture is a statutory concept (and may or may not contain Aboriginal objects as physical/tangible evidence) and protection provided to Aboriginal objects and places applies irrespective of the level of their significance or issues of land tenure.
- It is an offence (under s.86) of the NPW Act to knowingly, or cause or permit harm to an Aboriginal object (or place) without prior written consent from the DG of the OEH. Defences against offence of harm under the NPW Act include that harm is

carried out under the terms and conditions of an approved Aboriginal Heritage Impact Permit (AHIP) or that the proponent has exercised due diligence in respect to Aboriginal heritage. The ‘due diligence’ defence (s.87[2]), states that if due diligence has been exercised to ascertain that no Aboriginal objects are likely to be harmed as a result of the activities proposed, then liability from prosecution under the NPW Act will be removed or mitigated if it later transpires that an Aboriginal object was harmed.

1.4 Heritage assessment methodology

The Aboriginal heritage assessment and management components of this report have followed the methods required by the *Office of Environments & Heritage’s* (OEH) *Due Diligence Code of Practice for the Protection of Aboriginal Objects* (2010).

The objectives of this assessment using this method have been to identify potential Aboriginal archaeological constraints that may exist for the uses of the Park during the CSS, both immediate, short and longer-term, and if and where constraints are identified, to recommend appropriate archaeological impact avoidance and mitigation measures that can be implemented prior to and during and following this summer according to the objectives and requirements of the NPW Act.

The *Due Diligence Code of Practice* is a step by step method that encourages a precautionary approach when carrying out activities (such as land redevelopment) that may harm Aboriginal objects by ‘*taking reasonable and practical measures to determine whether your actions will harm an Aboriginal object and, if so, what measures can be taken to avoid that harm*’ (ibid:4). The steps in the processes to identify whether or not Aboriginal objects are present, or are likely to be present in an area, and to determine whether or not future activities are likely to cause harm to Aboriginal objects and if an AHIP application is required are:

1. *Step 1 - Determining if the activity will disturb the ground surface or any culturally modified trees*
2. *Step 2a - Database search of the Aboriginal Heritage Information Management System (AHIMS) and other known information sources to identify if there are previously recorded Aboriginal objects or places in a study area*
3. *Step 2b - Landscape assessment through identification of landscape features including, land within 200 metres of water, dune systems, ridge tops, headlands, land immediately above or below cliff faces and/or rock shelters/caves*
4. *Step 3 - Impact avoidance assessment*
5. *Step 4 - Desktop assessment and visual inspection to identify if Aboriginal objects present (and whether an AHIP is required)*

The Code specifies that if the initial assessment identifies that Aboriginal objects will or are likely to be harmed by a proposed activity, then further investigation and impact assessment is required. Where an Aboriginal Heritage Impact Permit (AHIP) is sought from the OEH, it will require the completion of a full program of Aboriginal community consultation according to the OEH (2010) *Consultation Requirements* to be completed to prepare a comprehensive archaeological and cultural heritage assessment to support the AHIP. In general terms, following a due diligence assessment where an AHIP application is not required, an activity should proceed with caution. If Aboriginal objects are identified during the activity, then works should cease in that area and OEH notified (DECCW 2010:13). The due diligence defence does not authorise continuing harm.

The historical archaeological assessment and management components of this report have followed a broadly similar due diligence approach to that above for Aboriginal objects, but as applied to ‘relics’ and archaeological sites that are protected under the *NSW Heritage Act 1977*. This report has also been prepared in accordance with the following heritage assessment and reporting standards and guidelines outlined below.

- Australia ICOMOS. 1999. The Burra Charter. The Australia ICOMOS Charter for Places of Cultural Significance. Australia ICOMOS Inc.
- NSW Heritage Office. 1996. NSW Heritage Manual. NSW Heritage Office and the Department of Urban Affairs and Planning. Sydney (revised 2002 – SoHI).
- NSW Heritage Office. 2006. Historical Archaeology Code of Practice. NSW Heritage Office, NSW Department of Planning. Sydney.
- NSW Heritage Office. 2008. Levels of Heritage Significance. NSW Heritage Office, NSW Department of Planning. Sydney.
- NSW Heritage Branch. 2009. Assessing Significance for Historical Archaeological Sites and ‘Relics’. NSW Heritage Branch, NSW Department of Planning. Sydney.
- NSW Heritage Branch. 2009 (Revised). Heritage Information Series. Standard Exemptions for Works Requiring Heritage Council Approval. NSW Heritage Branch, NSW Department of Planning. Sydney.
- NSW Department of Environment, Climate Change & Water. (DECCW) 2010a (September). Due Diligence Code of Practice for the Protection of Aboriginal Objects in New South Wales. DECCW. Sydney.

1.5 Report outline

This report presents the following:

- An introduction to this heritage assessment of the CSS (**Section 1.0**).
- A review of the environmental heritage values of the Park (**Section 2.0**).
- An Aboriginal heritage overview of the Park with a focus on The Crescent (amphitheatre, river and ridge) and Cattle Paddock Precincts (**Section 3.0**).
- An historical and archaeological assessment of The Crescent, River’s Edge, Cattle Paddocks, Domain and north-western (‘Pavilion Flats’) portion of the Garden Precincts (**Section 4.0**).
- An identification of issues and heritage management risks for consideration (**Section 5.0**).
- An overview of the results of a recently completed program of hand augur soil mapping undertaken in The Crescent (amphitheatre, river edge and ridge) and Cattle Paddocks Precincts to assist in current and future archaeological management of these areas (**Section 6.0**).
- Conclusions and heritage impact statement for the CSS by Precinct (**Section 7.0**).
- Management recommendations (**Section 8.0**).
- References (**Section 9.0**).
- Supporting documentation (**Appendices**).

1.6 Authorship and acknowledgements

This report had been written by Dominic Steele and Jakub Czastka. Valuable support and assistance has been provided by Stephanie Licciardo and Rose Ung.

2.0 Environmental heritage context

2.1 The Crescent, Cattle Paddocks and Domain Precincts

2.1.1 *Landscape position and landforms*

Three principal topographic features dominate the eastern half of Parramatta Park. The first of these is Parramatta River which bisects the park landscape in a loop that originates in the southeast and exits further to the north. The second topographic feature comprises the shale ridge and its escarpment that is located within the centre of the Park and overlooks The Crescent. Domain Creek is the third principal landscape feature and is situated in the western half of the parklands and runs through a broad but shallow basin.

The Crescent Precinct is about 3.0 ha in size and comprises a small crescent-shaped topographic feature (river anabranch with ridge) in Parramatta Park on the right bank of Parramatta River. Elevation ranges from 10m (stage area) to 20m (amphitheatre) AHD (URS Australia Pty Ltd 2015:11). The wider portion of the locality is level-flat terrain but abruptly slopes to the crest at its western edge. Historically, this location contained a natural freshwater billabong formed as a semi-circular encroachment into the shale hillside caused by scouring from the flow of the river to create an ox-bow. This term describes a horse-shoe shaped length of river or stream channel which is an abandoned and almost closed meander loop and may be occupied by an ox-bow lake (Goudie 2014:54). The *'tranquil freshwater makes an oxbow a valuable aquatic habitat. Meander scars are oxbows completed filled up with mineral and organic matter. They remain discernible in the landscape for a long time'* (Goudie 2004:740). Elevations range from 10m (stage area) to 20m AHD (amphitheatre) (URS Australia Pty Ltd 2015:11). The Crescent ridge is an important landscape element that once separated the river from former possibly brackish or freshwater wetlands within The Crescent from the freshwater of Domain Creek and the relatively open grass land of the slopes above Domain Creek (ibid:20).

The Paddocks Precinct occupies an area of level to very gently sloping lightly wooded open grass land on the right bank of Parramatta River. Domain Creek bisects the length of the precinct, draining to the north east before debouching into the river (Player 2016). East of the creek there is an increased slope that rises to the ridgeline that forms the eastern boundary of the Paddocks Precinct and the western boundary of The Crescent.

The Domain Precinct takes in the elevated land on which OGH is located, that forms part of The Crescent ridge and extends to take in the area around Observatory, before sloping gentle away to the south and east over two to three river terraces before reaching the river. This sloping land situated at lower elevation on the immediate southern side of OGH was originally drained by a watercourse that is now interpreted by as 'ornamental pond' situated in close proximity to the archaeologically verified (and conserved) and above-ground interpretation of the alignment of 'Phillip's Drive' (c.1792).

The River's Edge Precinct comprises a sloping strip of the western bank of the river that is enclosed between Byrnes Avenue and the sandstone river retaining wall. The northwest portion of the Gardens Precinct ('Pavilion Flats') is grassed river bank flats to the west of Murray Garden's Creek.

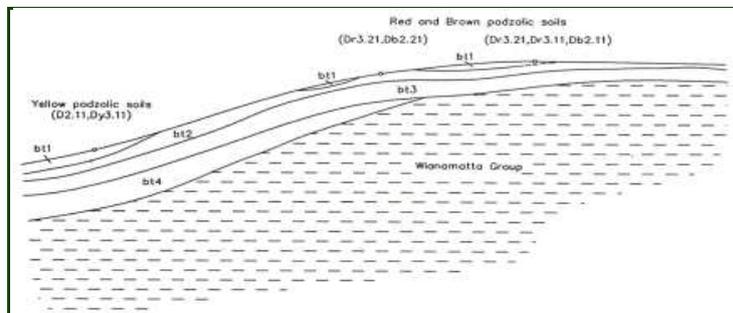
2.1.2 Geology and soils

The Crescent and Paddocks Precincts are located predominantly within the flood plain of Parramatta River excluding their western boundaries that intersect the foot-slopes of two separate ridges (Player 2016:1). The geological substrate is largely of the Wianamatta Group Ashfield Shale which is described ‘as dark grey to black claystone-siltstone and fine sandstone-siltstone laminite’ (Clark and Jones 1991). In broad terms, soils on The Crescent ridge and slopes comprise those of the Blacktown Soil Landscape, and alluvial deposits predominate subsurface within the interior of The Crescent as discussed in further detail in following sections.

Figure 2.1: Soil Landscapes of the Penrith 1:100,000 Soil Landscape Map (GML 2018: Figure 5.5 after Bannerman and Hazelton 1990)



Figure 2.2: Soil relationships of the Blacktown Soil Landscape (Bannerman and Hazelton 1990: pp38)

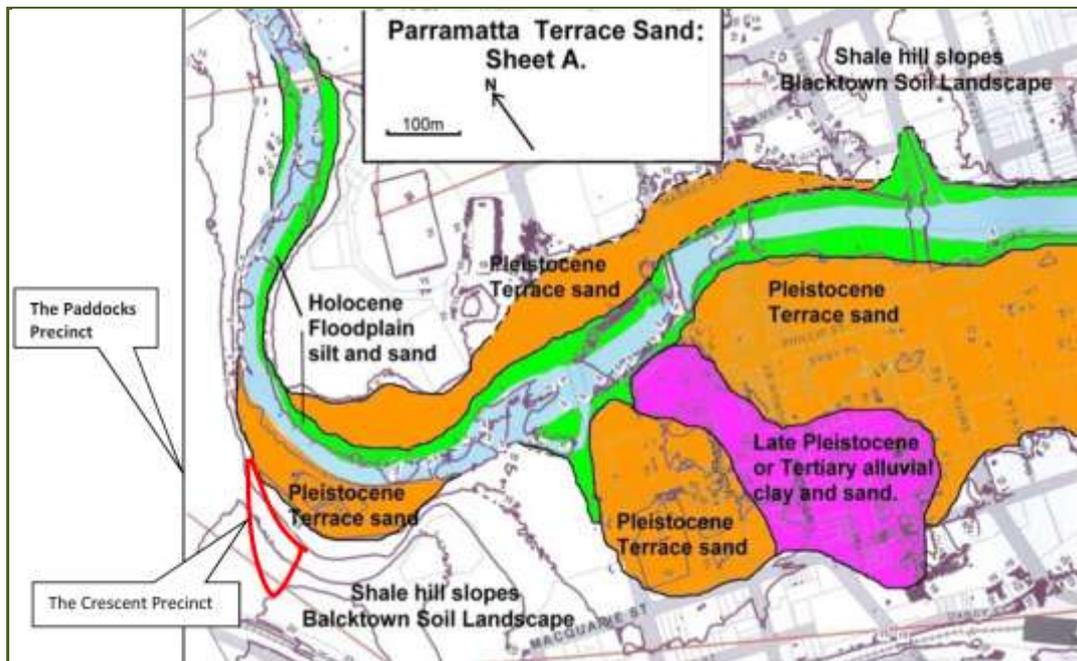


2.1.3 Parramatta Sand Sheet

The Crescent is likely to preserve subsurface soil deposits that form part of the *Parramatta Sand Body* or *Sand Sheet* (PSS) with the potential for these deposits to contain Aboriginal objects. The PSS is listed on the SHR for the combination of historical, archaeological and environmental values it embodies under the title - '*ancient Aboriginal and early colonial landscape*'.

The SHR listing of the PSS describes the sand body was deposited by the Parramatta River on a terrace about 4-6m above normal water level, on either side of the river between Charles and Alfred Streets and in the eastern margin of Parramatta Park (see below). The sand body was deposited as a terrace (on an abandoned floodplain) over time during repeated floods. The bulk of the sand body forms a levee located on the south side (right bank) of Parramatta River just above the 1:100 average recurrence interval flood level.

Figure 2.3: Indicative distribution of the different soil parent materials and landscapes along the Parramatta River (Comber Consultants 2016: Figure 7 after Mitchell 2011)



Thermoluminescence (TL) dates for the main body of sand (140 Macquarie Street - Comber Consultants 2010) show the top of the undisturbed sand (below the level of Aboriginal occupation discussed below) is between 50,000 to 58,000 years old. Deeper sand may relate to a period of higher sea level when the river channel was higher in the landscape, but may not be as old as c.120,000 BP as previously thought given the archaeology near the 'bottom' of the dated RTA-G1 sequence is dated to c.30,000 BP.

Mitchell (2008:11) has mapped the main part of the original sand body (terrace) on the southern side of the river where a 'typical' soil sequence would comprise from top to bottom disturbed, missing or recently redeveloped topsoil over yellow-orange or yellow to red-brown sandy clay that becomes paler and slightly mottled with depth.

Most recently, GML (2016:1-2) have reported from Aboriginal archaeological and geomorphological heritage investigations into the PSS profiles contained in the Gardens Precinct (near the Gatehouse cafe) that:

The geomorphology results were surprising and present significant new information on how and when the sand sheet formed. We used the optically-stimulated luminescence dating technique, which dates the last time the quartz in the sands were exposed to light. We understand that now that between 56,000 and 40,000 years ago a large flood event brought massive quantities of sandy clay down the Parramatta River valley. Sandy clay was deposited on the northern and southern banks of the river. Our date for this event corresponds with previous investigation, which had indicated the sandy clay was deposited between 58,000 and 50,000 years ago.

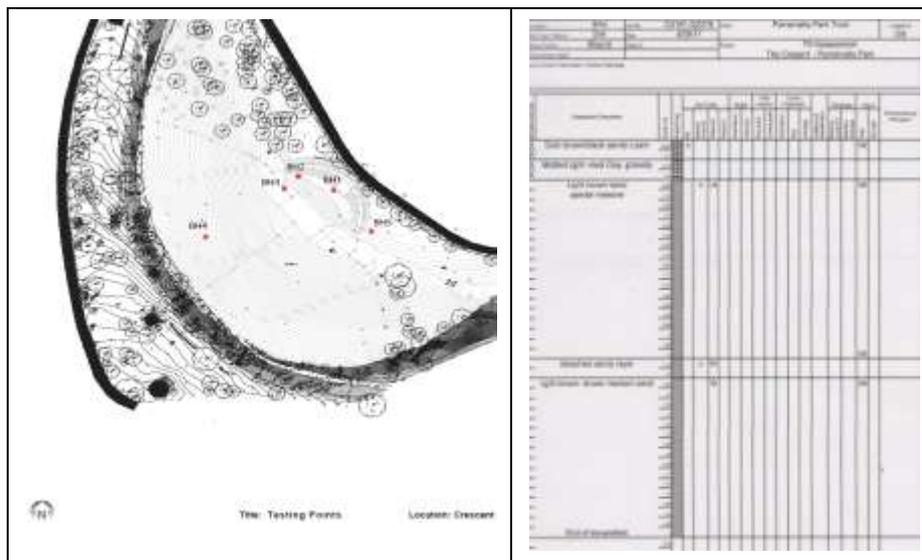
Our research provides direct evidence that Aboriginal people starting living adjacent to the river, on the Parramatta sand body, around 40,000 to 35,000 years ago. When they started to live on the sandy clay, the wind slowly eroded the sand (it became windblown or Aeolian sand). The sand was then through time redeposited over the sites and places inhabited by Aboriginal people, gradually burying the material items they had created. The outcome of this process is the buried Aboriginal sites and finds across Parramatta on the sand today.

2.1.4 Geotechnical data (The Crescent)

A preliminary soil contamination assessment undertaken in 2011 (Sydney Environmental and Soil Laboratory 2011) recorded a series of bore-logs in The Crescent. Four of the five boreholes were located around the edges of the staged area and generally revealed relatively thick depths of fill deposits over in situ natural subsurface profiles. One bore hole in the centre of the space revealed far shallower deposits of fill over natural sands.

In BH1 and BH2 a depth of between 90cm and 125cm of fill deposits were recorded over natural sands, about 60cm of fill over natural was reported in BH5, while in BH3 the fill was found throughout the entire profile and directly over shale bedrock.

Figure 2.3: Geotechnical bore logs recorded in The Crescent in 2011 (Sydney Environmental and Soil Laboratory 2011)



BH4 was located about two-thirds up the slope of the stage area in the centre of The Crescent and recorded a far shallower occurrence of fill (about 20-25cm) over what are described as massive apedal light brown medium sands with a thin bleached sandy layer occurring at about 115cm, after which light brown medium sands continue down to a further depth of over 2.0m (end of bore-log excavation). The term apedal refers to the naturally occurring aggregation process of soil particles from that form peds and their structure where soils with specific characteristics are called pedal soils (such loams and clays) and soils which do not are called apedal (sands).

2.1.5 Pollen evidence

Although no pollen data, either related to the prehistoric or for the post 1788 history of The Crescent is presently available, Player (2106:4) notes that the shape of the landform is characteristic of an ox-bow lake, or in this case an abandoned meander bend of the adjacent river. After the initial cut-off of the meander bend, flow velocity would have been reduced but the former channel would have remained wet, and in this light it is important to emphasise that the filled meander bend may preserve a stratigraphic pollen record that could be used to document the changing vegetation regime during the period the meander cut-off and sedimentation. The level flat area of The Crescent Precinct is therefore of high scientific value.

Macphail (2016) reports on pollen sampling of soils in the Paddocks Precinct yielded abundant pollen and fossil spores, but that micro-flora appear derived from present day grassy turf and soil imported onto site and with the possible exception of cereal pollen (from nineteenth century growing and grazing activity) evidence of what was growing in paddocks before European settlement of Parramatta was not preserved.

2.2 Modern disturbance and contamination

The area occupied by The Crescent has been significantly modified by the accumulated effects of activities that have occurred in modern historical times starting with land-filling by *Parramatta City Council* in the 1970s and continuing with more recent works in 2011 and 2014 that have been associated with the creation of the existing staging area. As a result, a Site Environmental Management Plan (SEMP) has been prepared for The Crescent (URS Australia Pty Ltd 2015). This document summarises the development of the stage area undertaken in 2011 and works carried out across the whole of The Crescent in 2014.

The need for the SEMP arose from the identification of asbestos containing materials (ACM) in the form of asbestos cement fragments. Complete removal of ACM impacted fill was not considered practical. As a result, the works described included the movement of ACM encountered to a contaminated area in the northeast of the site and proximal to the upgraded stage area.

The remaining portion of the containment area, as well as areas of The Crescent where ACM was identified, was capped with a geofabric membrane overlain by validated clean imported soil material. Surface soil from a dozen areas across the grassy slopes within The Crescent were analysed and found to be suitable for the use of the area (not covered by the stage) as public open space.

Figure 2.4: Works in progress in The Crescent in 2014 (URS Australia Pty Ltd 2015: Figure 1)



Figure 2.5: The Crescent SEMP (URS Australia Pty Ltd 2015: Figure 2)



The SEMP (ibid:7) concluded the capping provided to the ACM containment area and elsewhere where ACM was encountered was not expected to be affected by routine use of the site by the general public and that the SEMP did not apply to those activities but would for any activity requiring disturbance of the subsurface SEMP. The 2011 works (stage area) included the removal of a toilet and associated sewer connections, excavation and removal of surplus soil so a stage area could be capped by a layer of material with no ACM, and placement of a visual barrier of white non-woven geofabric on the ACM before introduction of capping material. These works documented ACM fragments '*broadly across the area, not isolated to any particular location*' and reported ACM was mainly present in clay fill underlying s topsoil surface which '*appeared to be in the most part free of ACM*' (ibid:13). The staged area was established with reinforced (250mm) pavers and compacted road base and a geofabric membrane across unpaved area, and overlain with 250mm of imported soil material. The Crescent SEMP provides 'cautious' management recommendations that are in principle commensurate with those that should be applied to the archaeological management of the place (as abridged):

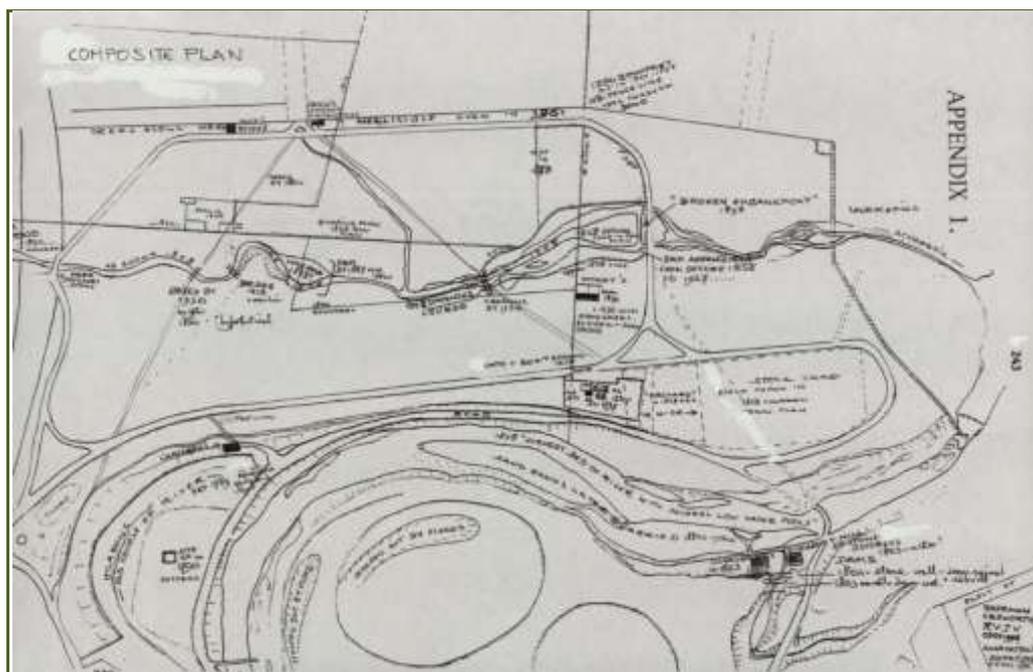
- Maintenance of capping layers in containment areas provided by paving, geofabric and top soil layers.
- Ensuring intrusive activities which might result in exposure to buried ACM are undertaken in appropriate manner.
- Any future performance activity is expected to involve intensive use of the Management Area and erection of temporary structures and require driving of steel spikes or posts into the ground to a depth which could penetrate the geofabric marker layer and must be retrieved by pulling back along back along the driving line.
- No other form of disturbance of the subsurface is permitted without prior approval of the DG of Parramatta Park
- On completion of each performance, the DG of Park shall inspect the Management Area to confirm that that no abnormal disturbance of that area has occurred and that no part of the geofabric marker layer is visible.
- Any future excavation is reasonably likely to encounter ACM and should be managed by suitably qualified specialists, and geofabric marker materials must be replaced in excavation to provide a continuous cover at the top of fill material potentially impacted by asbestos.

2.3 Summary

A number of uncertainties exist for the management of potential Aboriginal and historical archaeological resources that may exist below current grass and hard surfaces across Parramatta Park as a whole. These also extend to the management of The Crescent amphitheatre space and the ridge and in the River's Edge Precinct in particular, and both of these issues are introduced here to flag the problem and are pursued in further detail according to Precinct in following sections of this report.

In simple terms, Parramatta Park has mapped 'on-paper' a considerably large number of individual built and planted and natural heritage sites and items including 'monuments' and known archaeological sites along with an equally large number of reported Aboriginal heritage finds as illustrated in the second of two images below.

Figure 2.6: Composite historical map for key heritage items in Parramatta Park (Varman 1997: Appendix 1, p.243)



It is reasonable to conclude on the basis of available information, and excluding a small number of individual site locations, that for the majority of Aboriginal heritage find locations in the Park shown above that although some have been recorded in more detail than others there is a currently a general lack of understanding of the current nature, structure, contents, integrity, research potential and archaeological (and Aboriginal cultural heritage) significance of these archaeological resources in an individual or collective sense. Management is made difficult because conditions at most of the surface find locations have changed considerably over the last two decades and most if not all of these surface finds are currently unknown whereby the basis for a long-held perception that the Park contains an extensive Aboriginal archaeological resource by virtue of the number of surface finds marked on a map that is periodically updated when new ‘unexpected finds’ erode onto the ground surface is based on a limited understanding of the nature and significance of this resource.

A similar and as broad conclusion can also be made for the potential historical archaeological heritage of the parkland. Excluding built heritage items and their immediate curtilage, ‘monuments’ and heritage plantings, the Park has few ‘confirmed’ and analysed historical archaeological sites such as is the case with the former alignment of Phillip’s Drive, at the Observatory and in the Dairy although locations of a considerable number of potential archaeological sites are suspected on the basis of documentary records. Most of the smaller and lesser significant heritage finds in the Park comprise occasional brick or stone fabrics (minor footings, drainage features etc) and ‘artefact’ scatters that have been reported during heritage monitoring programs undertaken during periodical park maintenance programs. Time and resource constraints have usually precluded detailed evaluation of the potential archaeological resources that may also be associated with these surface finds.

Figure 2.8: Sandstock brick drain section exposed by wind and rain near the Bathhouse in 1999 (Steele 1999). The exposed brickwork appeared to show evidence for having been exposed to the elements in the past (and prior to 1999) and no original (otherwise) soils were found to survive in this location. The clay shown either side of the drain brickwork is basal B-horizon Blacktown Clay that is missing entirely its A¹ and A² soil components and this occurs directly below the leaf-litter/grass layer. There was no soil with potential archaeological sensitivity and possibility to contain ‘relics’ or Aboriginal objects or archaeological deposits in this location



This can be exemplified by an exposure through the grass layer in 1999 of a couple of metres long section of a sandstock brick ‘barrel’ drain extending from a short distance the southeast side of the Bathhouse towards The Crescent. On comparative fabric analysis grounds for rudimentary dating, and by location and historical

association, the drain was assumed to be associated with the Bathhouse and date to the c.1820s. The only excavation involved in this recording was brushing a loose cover of wash-in sediment over the brickwork in order to expose and clean and record the find.

The top of the exposed brickwork was eroded (rounded and flaked surfaces and edges) and had a ‘broken’ but integral appearance with old breakage lines suggesting the top of the brickwork had at some point(s) in the past been exposed above ground for enough time for the bricks to become worn and chipped from weather and animal and pedestrian traffic and trampling. The brickwork was also found exposed almost level with the top of the Blacktown clay subsoil into which a trench had been cut to lay the bricks. Inspection of the ground surface (clay) exposed on either side of the drain trench cut showed no topsoil remained buried below the (then) current grass surfaces.

The uncertainty existed at this time and in this case with whether the complete absence of soils in this location was isolated or was more generally characteristic of the whole location (The Crescent ridge). Another uncertainty was the possibility all subsurface ‘relics’ now surviving buried in the ‘monuments’ area were those deep cut and that extended into the basal clay because the soils above that would have contained the archaeological contextual information and relationships for these deep-cut items (such as drainage features) would be missing if the soils and their potential archaeological deposits and ‘relics’ were largely or entirely gone as a result of long and continuous processes of soil erosion and loss.

Figure 2.6: Visual timeline showing archaeological features within The Crescent landscape (GML 2018: Figure 3.3)



Using The Crescent to illustrate the point, an underlying uncertainty relates to the fact that although the broad historical processes that were involved in the transformation of The Crescent ‘billabong’ river landscape in 1788 into an ‘amphitheatre’ in the modern context are understood to a point, it is however not known with precision in a number of locations situated outside of areas where borehole data is available and for known historical filling events (around the stage area for example) where and to what depth introduced modern fill

deposits with no archaeological sensitivity may overlies original terrain and soil profiles with the potential to contain archaeology and environmental evidence of all periods and types.

There is more certainty for the current and future archaeological management of the Cattle Paddocks and Domain Precincts. This is partly because of data available from previous historical archaeological excavations in the Domain (Observatory, Phillips Drive & Macquarie Drive) and more recently from Aboriginal and historical archaeological investigations on the western side of Domain Creek in the Cattle Paddocks. In combination with additional data from recent soil mapping undertaken to inform this assessment via a program hand-held auger testing¹ to identify where and at what depth fill deposits and/or buried soils occur, it is possible to predict with a greater degree of certainty approximately where and the most probable 'type' of (primarily Aboriginal) archaeology that is likely to remain buried in specific locations in The Crescent and Cattle Paddocks Precincts. These locations comprise a) on the grassed slopes within the interior of the 'amphitheatre' at the northern end of The Crescent, b) on both sides and under Byrnes Avenue and extending down at the river's edge at the southern end of The Crescent, c) on The Crescent ridge, and d) on the southeastern side of Domain Creek in the Cattle Precinct.

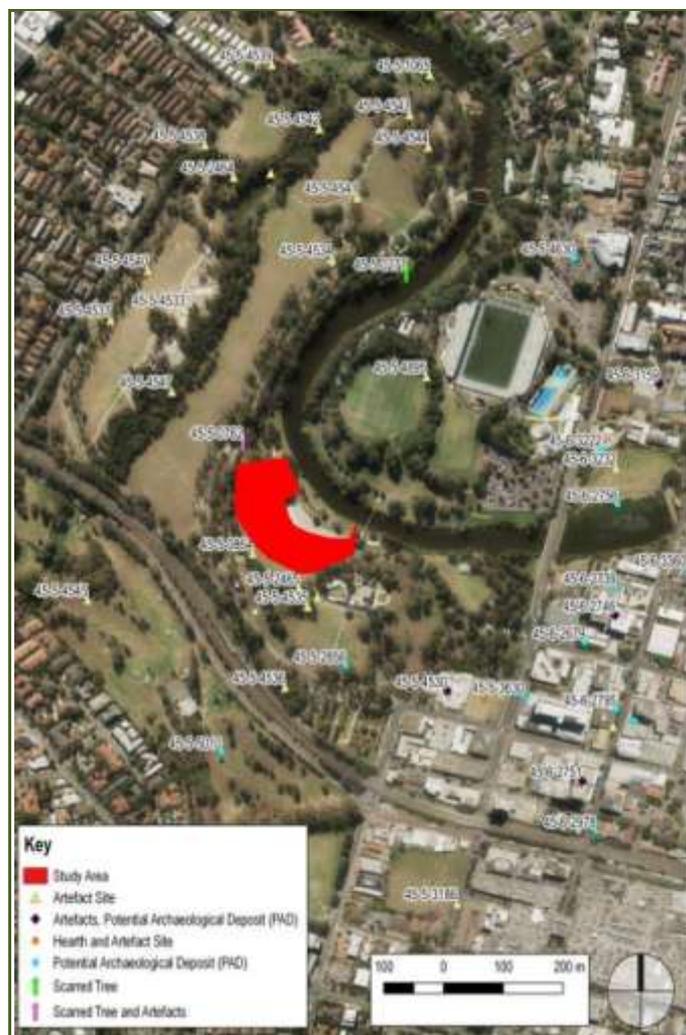
¹ Soil mapping was completed for an area on The Crescent ridge around the Bathhouse & Boar War memorial, along with similar testing in a contiguous section of The Cattle Paddocks Precinct situated on the southeastern side of Domain Creek specifically for this assessment. A concurrent and similar investigation was completed for separate but related drainage irrigation works proposed for the northern end of The Crescent amphitheatre and southern end including the River's Edge Precinct adjacent to Noller Bridge.

3.0 Aboriginal heritage finds and areas of sensitivity

3.1 Previous archaeological recordings in the Park

Aboriginal flaked stone artefacts have been located in over 20 different locations across Parramatta Park. Prior to recent Aboriginal archaeological test excavations on and along The Crescent ridge and on the western side of Domain Creek in the Paddocks Precinct (see below) there was one principal concentration of Aboriginal surface finds reported in the Park that was located on the south-west part of the elevated ridge of The Crescent as described below. The majority of the remainder of the isolated Aboriginal artefact finds had been located along the banks of Domain Creek.

Figure 3.1: Location of AHIMS recordings in the Park (GML 2018: Figure 5.2)



A tree in the Park was assessed in 1994 as having an age between 180 and 300 years indicating one of its scars could be attributed to Aboriginal origin. This tree is a Forest Red Gum that is located to the north of the Boer War Memorial. The shape of the scar is typical of those that are the result of bark removal for the construction of canoes, shields or containers (see AMBS [Attenbrow] 1996).

Archaeological monitoring of subsurface site works adjacent to the Domain Creek weir in 2002 (Steele 2002) recovered stone fragments from alluvial silt contexts including items of quartz, silcrete and indurated mudstone. None displayed unequivocal signs of having been modified in the process of stone tool production and all three raw materials occur naturally within the soil profiles of the locality (close to the boundary of the Shale and Sandstone). Therefore, whilst all three raw materials recovered are known to have been utilised for the production of stone tools by Aboriginal people in the Sydney Basin in the past, the material appeared in broad terms to represent natural stone, some of which has been transported by fluvial action, but with the possibility a number of the items may represent material of stone brought onto the site by Aboriginal people in the past that was discarded prior to working.

These ‘early’ investigations that have resulted in the identification and recording of Aboriginal heritage within Parramatta Park indicate that:

- The majority of stone artefacts have been located on exposed ground surfaces across the ridge overlooking the Crescent, and along the margins of Domain Creek.
- No finds have been reported to date associated with Murray Garden’s Creek, or along the immediate banks of Parramatta River. However, a number of investigations have exposed deep sandy soil profiles along different parts of the river and it is possible to mark an approximate boundary where these alluvial deposits will most likely meet shallower shale based soils that typify the ridgeline overlooking The Crescent.
- No Aboriginal archaeological evidence has been reported within The Crescent excluding a stone axe head surface find which is not surprising given the original landform was in-filled between 1975 and 1977. However, areas have been identified along the top and around the edges of The Crescent that still retain in situ soil profiles with the potential to include Aboriginal archaeological evidence. It is also probable that similar natural profiles exist (possibly down to the water-table) below the fills at the base of the now landscaped stage area.
- The majority of the Aboriginal archaeological finds in the Park comprise flakes (some clearly utilised) or flaked pieces of red (and to a lesser extent grey and pink) silcrete. This raw material dominates stone artefacts observed in most western Sydney Aboriginal archaeological sites. A small number of quartzite, chert/indurated mudstone, and fossilised wood items have also been reported. Where people sourced these different types of stone raw materials is unknown, however it is likely that some river pebbles and cobble available at different times in the bed of Parramatta River will have been used by people to manufacture or maintain tools and equipment. The artefacts also include a number of cores (including hand-held bipolar forms) and a few backed blades.
- A number of silcrete finds (in addition to some indurated mudstone fragments) have been recovered from subsurface silty-sand deposits along Domain Creek that may have been transported onto the site by Aboriginal people in the past but discarded before they were modified in the process of stone tool production.
- The single edge-ground axe/hatchet head appears to have been used (at least for a time) as a hand-held implement rather than as a hafted tool, and also to have served as a portable anvil. It is also possible this Aboriginal object was originally from inside Old Government House when interior restorations were carried out in

1908 and that it was discarded at the same time that a rubbish dump was created that spilled over the Crescent. This refuse dump was test excavated in 1995 (Higginbotham 1999). The remainder of this archaeological deposit may remain where it was initially created.

Figure 3.2: OGH rubbish dump excavation (left) in 1995 (Higginbotham 1999), the same location in 1996 (AMBS 1996) and undated view of same locality (bottom) from reverse view



- A small number of Aboriginal artefacts have been recovered within historical archaeological contexts at the Dairy Cottage that appears to have been incorporated within fill gathered from the riverbank. These artefacts were water-worn indicating they had been redeposited from the river up to the site (Bickford 1987).

On the basis of this information, AMBS (1996 Appendix 2:5) concluded that the general widespread distribution of the locations at which stone artefacts have been recorded in the Park, and the reasons for their visibility, suggested that the whole of the Park may have a sparse scatter of stone artefacts across its extent, with a relatively higher concentration along the Ridge overlooking Parramatta.

3.2 Previous archaeological recordings in The Crescent

No Aboriginal archaeological evidence has been reported within ‘amphitheatre’ of The Crescent excluding an edge-ground axe/hatchet head surface find recorded on the disabled ramp leading from the rear of OGH to The Crescent in 1999 (AHIMS #45-5-2465), or on the River’s Edge. The Crescent ridge has been archaeologically recoded a number of times. AMBS (1996:8-9) report in 1989 that AHIMS #45-5-0762 was recorded with 13 surface artefacts. In 1992, an amateur archaeologist (Guider) registered a site card for an artefact scatter (also with 13 artefacts) as AHIMS #45-5-0864. In 1993, a further six artefacts were recorded at AHIMS #45-5-0762. In 1994 further artefacts were recorded at AHIMS #45-5-0762 and AHIMS #45-5-0864 (five at each). The details of these recordings (1996 Appendix 2:9) still retain value that supports the findings and archaeological heritage management conclusions and recommendations that are presented for this area in later sections of this report.

AMBS (1996 Appendix 2:9) recommended management via covering the exposed areas at the site with a layer of soil, then re-grassing without disturbance to sub-surface deposits, and maintenance of grass cover to stop future ground exposure, loss of topsoil, and exposure of artefacts in the area above The Crescent, extending north from the Governor’s Bathhouse, and beyond the Boer War Memorial.

Figure 3.3: General views of the site recording of AHIMS #45-5-0864/AHIMS #45-5-0762 on The Crescent ridge (AMBS 1996: Appendix 2)



No. of artefacts: 43 (over 190m x 24m area)

Reason for artefact exposure: road and tramline construction exposing subsurface through to B horizon, erosion and exposure of ground over large areas through deflation and loss of grass cover through foot traffic

Dimension of exposure: 203m x 30m east of road, 10m x 9m west of road

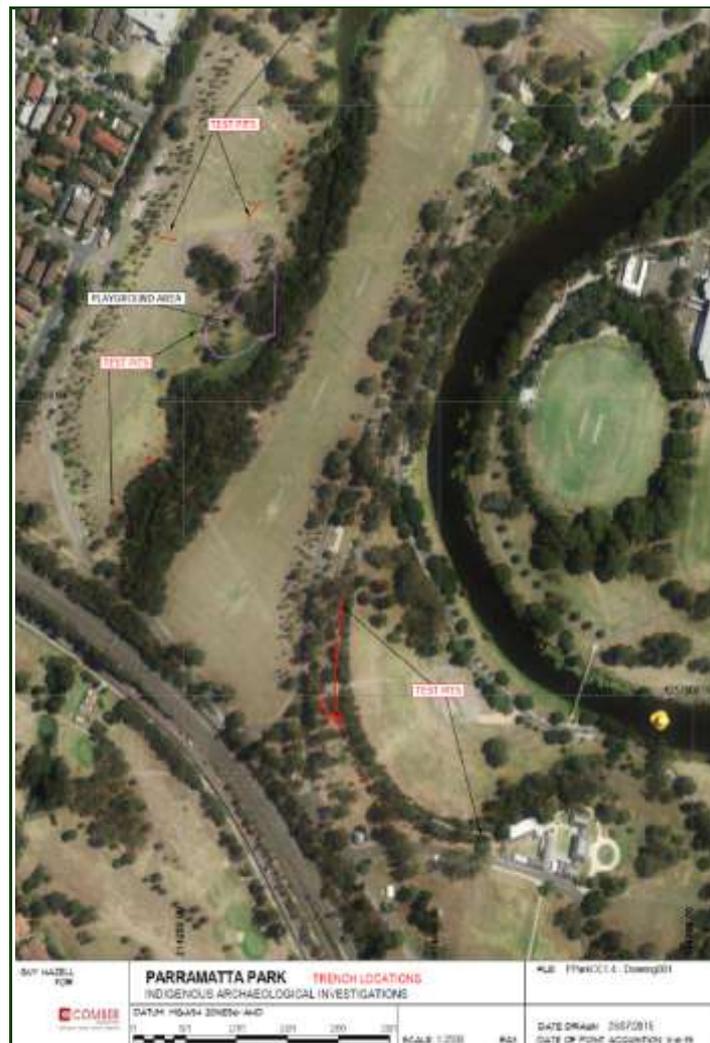
Degree of visibility in exposure- 45% of A horizon, 5% of B horizon

Reasons for less than 100% visibility in exposure: sparse grass, leaf litter, shale fragments and laterite nodules, some basalt from tramline along eastern side

Sediment type – A horizon of Podzolic soil derived from Wiannamatta shales with B horizon exposed on some parts, particularly along embankments to road and tramline

Aboriginal archaeological test excavations were completed in 2015 along the ridge above The Crescent and on the western side of Domain Creek in the Paddocks Precinct (Comber Consultants 2014, 2015 and 2016) as discussed below. The locations investigated are shown below.

Figure 3.4: Aboriginal archaeological test excavation on The Crescent ridge and western side of Domain Creek (Comber Consultants 2015)



Approximately 63, 1x1m trenches were excavated on The Crescent ridge. Initially they were spaced at 5m but were subsequently excavated in one contiguous line. The soils are dealt with in greater detail in later sections of this report, but were found to be heavily disturbed, and to range from red sandy loam (Munsell 2.5yr range) which was introduced, light brown (5yr range) to dark brown (7.5yr to 10yr range). One intact soil profile was located beneath a historic shale surface. A small sample of Aboriginal objects (15) were recovered but with a slightly greater number of finds reported to occur to the north of the Boer War memorial.

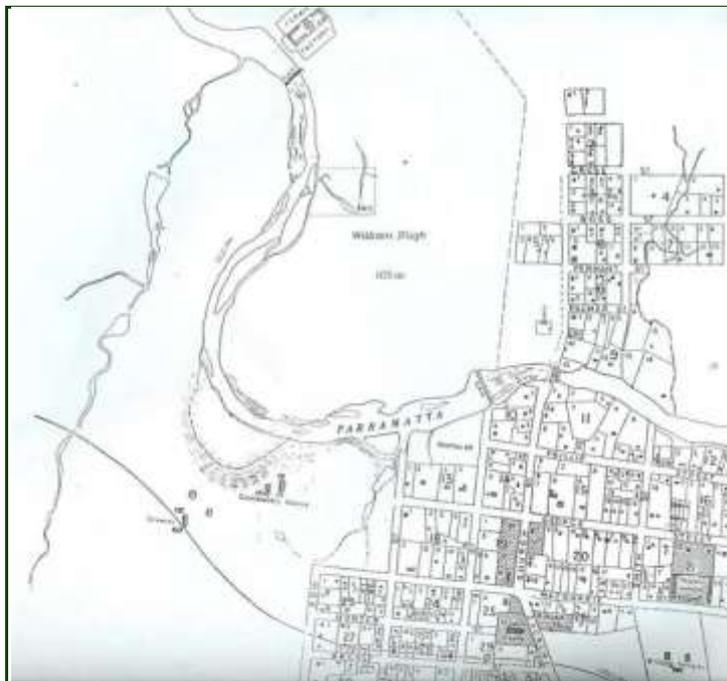
3.3 Previous archaeological recordings in the Cattle Paddocks Precinct

Prior to recent investigations on the western side of Domain Creek, about seven isolated finds and two artefact scatters were recorded in The Cattle Paddocks Precinct. The recent test excavations in the Precinct recorded a little under one hundred 1m x 1m test trenches that recovered approximately 450 flaked stone artefacts with those made of silcrete (65%) dominant followed by artefacts made of tuff (17%). A flaking floor was identified in the playground area and at the western end of the Paddocks Precinct that included 19 retouched flakes and six backed blades.

3.4 Previous archaeological recordings in the Domain Precinct

No Aboriginal objects have been recorded in the Domain Precinct. Outside of the river alluvial, and soils that may be associated with the former watercourse in this location, the remainder of the Blacktown soils have been seen to be disturbed, comparatively shallow and missing much of the original A1/A2 topsoil component.

Figure 3.5: Extract of Stewarts plan of Parramatta in 1822 (Redrawn by Campbell in 1926) showing watercourse to the south of OGH



4.0 Historical and archaeological heritage context

4.1 Introduction

The following sections present an illustrated historical and archaeological overview of the Park with an emphasis on The Crescent to reinforce a point that the place was an Aboriginal 'billabong' in January 1788 that was transformed into the site of the first British farm established in Australia by the end of the year, and that Parramatta Park as a whole represents the site of the '*first cattle station in Australia*' (CA, 3 August 1938) within a short time after that. The first two images below are the earliest British representations of the place, the third image places this important river landscape element in its historical context of the emerging Rose Hill Township, and the fourth and fifth images illustrate the condition of the early 1960s 'amphitheatre' prior to significant changes to the landform that occurred during ensuing years.

Figure 4.1: View at Rose Hill (Source: Drawing by E. Dayes from sketch by J. Hunter – MLSNSW)

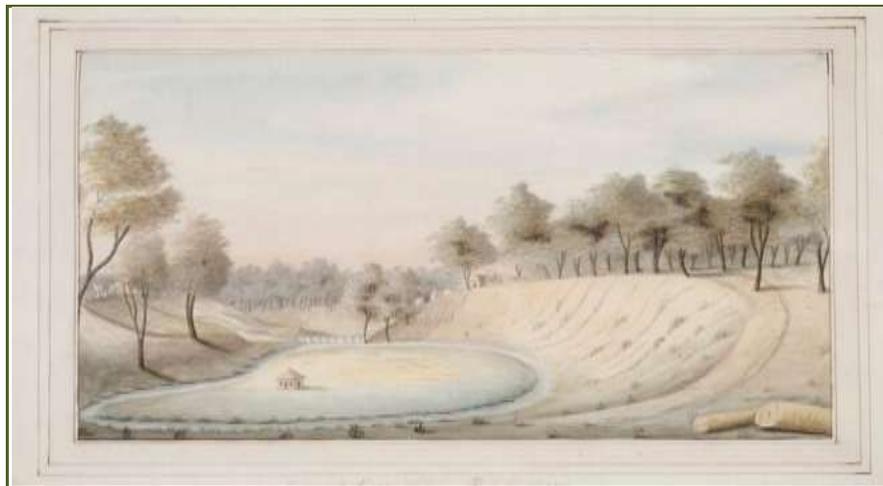


Figure 4.2: View of The Crescent c.1792 (Source: Drawing by E. Dayes from sketch by J. Hunter ML SLNSW)

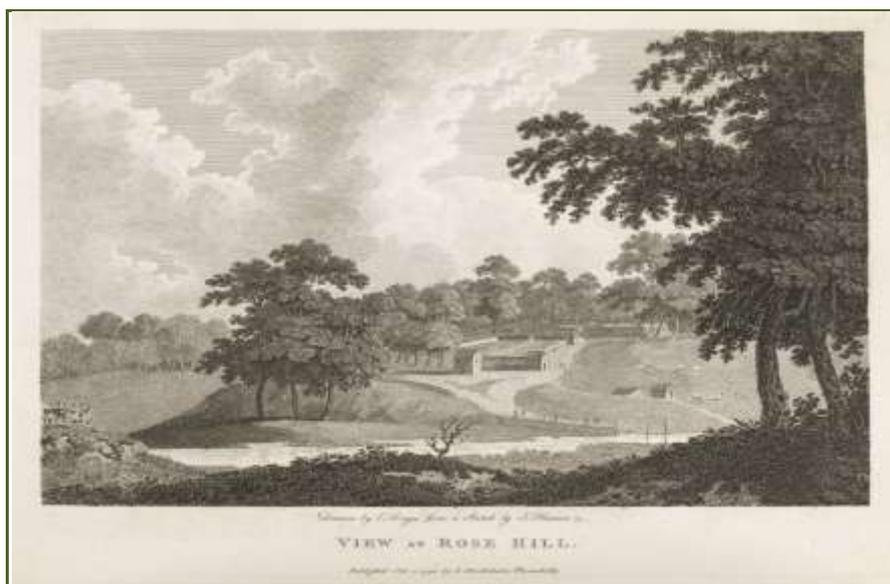


Figure 4.3: c.1794 Plan of Rose Hill (Source: GML 2018: Figure 3.4, SLNSW Bonwick Transcripts)

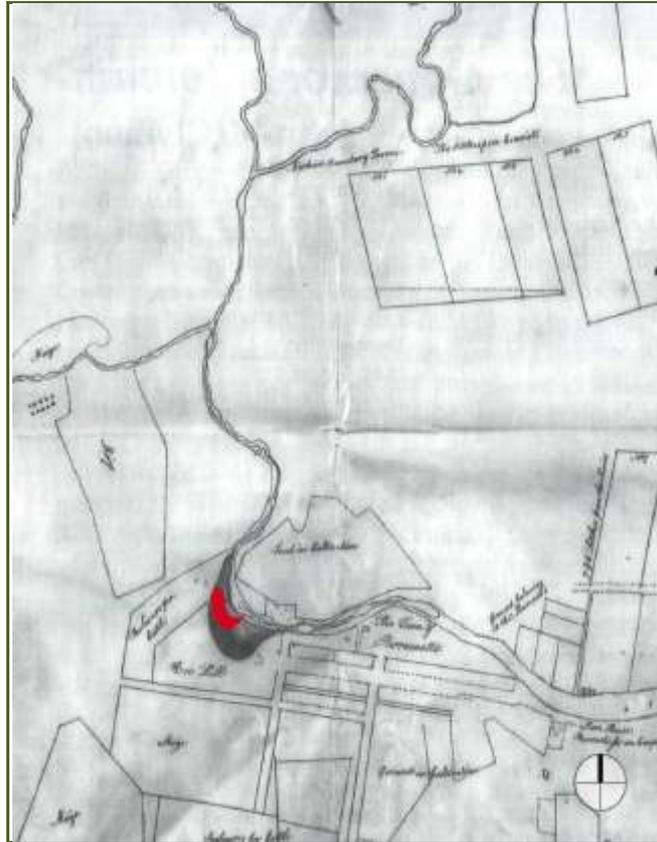


Figure 4.4: The Crescent in 1961 prior to Infilling to create the current 'amphitheatre' (Source: PPT Archives)



Figure 4.5: The Crescent being filled in 1961 (Source: Parramatta Argus, September 1977)



4.2 Discovery & first descriptions

Explorations by boat from Sydney Cove had extended by February 1788 to the upper limits of Duck River. An exploration party had followed the river from the Flats (Homebush) to where it divided and took the southern (Duck River) branch rather than the north-eastern branch (Parramatta River) before being stopped by fallen trees and forced to return to Sydney Cove. Surgeon John White's journal (1788) gives an eye witness account of the subsequent journey up the river beyond this point that was led by Phillip between the 22 and 29 April. White's descriptions are amongst the first and are probably environmentally reliable to a point, allowing for that they were made within western landscape frames of reference in mind.

White (1788:128ff) describes their approach to Rose Hill (23 April), having got around a wood or thicket which had '*harassed*' them the day before and forcing them to back-track and re-camp at the spot they had started out from that morning (around Rose Hill race course). They soon fell in with a '*hitherto unperceived branch of Port Jackson harbour*' where the banks were grassed with tolerably rich chest-high grass interspersed with a plant that closely resembled indigo. This may have been the Australian Indigo (*Indigofera australis*) or a similar leguminous flowering shrub found in mainly open woodland and eucalypt forest whose crushed leaves are recorded outside of the Sydney region according to the National Herbarium to have been used by Aboriginal people with water added to kill or stun fish and eels, and the leaves and stems produced yellow-fawn 'dye'. The men followed this branch westward for a few miles until they came to a small fresh-water stream that emptied itself into it and took up camp for the night. White notes their halts were always regulated by fresh water which was essential but was not very abundant or frequently found in this country. Their probable camping spot is depicted below.

Figure 4.6: 'Residence of John Macarthur Esq near Parramatta N.S.W. 1823.' Romanticised painting of Elizabeth Farm viewed from the northern bank of the river. The freshwater stream depicted in the middle as a tributary of Parramatta River is Clay Cliff Creek. Phillip's campsite above was probably in the vicinity of where today's River Road crosses Clay Cliff Creek (PCC website accessed July 2018)



On the 24th of April the group traced the river where the banks had immense trees at a considerable distance from each other. The land was flat and rather low but well covered with long grass and shrubs. White records here the tide stopped flowing and further progress for boats was stopped by a flat space of large broad stones over which a fresh-water stream ran. The party continued further upstream and past The Crescent before camping overnight probably at the northern end of Parramatta Park. Here the grass was not as good as previously passed according to White. Water was scarce but it tasted okay, and the country as a whole appeared as if it had been burnt at certain times of the year.

In the modern context, Benson & Howell (1990) reconstruct the river terraces before clearance as covered by woodlands dominated by immense grey box (*Eucalyptus moluccana*) and forest red gum (*Eucalyptus tereticornis*) with an open grassy understorey. Mangroves (*Avicennia marina*) may have colonised the river margins up to the tidal limit whilst reeds (*Phragmites australis*), paperbarks (*Melaleuca linariifolia*) and rough-barked native apple (*Angophora floribunda*) occupied wetter and drier areas on the river terraces respectively. Samphires (*Chenopodiaceae-Amaranthaceae*) may have been prevalent and saltmarsh communities were along the river (Jervis 1961:157). Archaeological, soil and pollen research is adding further detail to this environmental reconstruction, and especially the introduction of agricultural weeds.

Macphail (2005:4) reports from investigations at the eastern end of George Street early evidence for dandelion and crucifer pollen and liverwort spores and interprets the evidence as seemingly reflective of convict clearance between c.1789 and 1790 and subsequent tillage of the exposed soils that led to the rapid expansion of these 'opportunistic' taxa. At the other end of George Street to the west, pollen (from the Children's Court) reaffirms the dominant vegetation on the higher river terraces was eucalypt open woodland in which grasses, not shrubs, formed the groundcover and shrub-land may have been confined to the river banks and have

included stands of wattles (Casey & Lowe Pty Ltd 2006b). Agricultural weeds rapidly invaded cleared areas of Parramatta and Macphail (2006:17) also suggests tree clearance resulted in the rapid spread of these to the extent that areas along George Street stripped in the early 1790s, but not built upon, remained weed-infested wasteland throughout much of the nineteenth century. This imagery presents a very different view of the planned and ordered nature of the early development of the township in the early 1790s that is suggested by many of the historical accounts and plans.

4.3 Government farm at The Crescent

Government Farm (also known as ‘Dodd’s Farm’ and ‘Clark’s Farm’) was established in 1789 by Governor Phillip at the Crescent. The farm complex on the northern side of Parramatta River opposite Old Government House (initially comprising 2 hectares) was the first successful farm in the Colony, and included by February 1790 a granary, barn, huts, fences, entry gate, roads and cleared fields (Godden Mackay Logan 2000).

Edward Henry Dodd was one of the few experienced agriculturalists in the colony at this time and oversaw the creation and development of the farm, and in the spring and summer of 1789 had commenced the clearing of seventy-seven acres of land on the deep and fertile soils provided by the alluvial flats of the River and the planting with wheat and other cereal crops through the efforts of 100 assigned convict farm labourers.

While a government farm was opened in Castle Hill in c. 1801, Governor King’s progressive emphasis on a ‘self sufficiency’ policy reduced over time the role of a government farm at Parramatta as the subsistence needs of the expanding Colony were gradually taken over through the establishment of increasing numbers of private farms. During King’s administration, dairy farms were established in and around Parramatta, and between c1803-1804 a substantial stone mill, granary, and brewery had been constructed on the River within Parramatta Park. This policy has begun under the previous administrations of Governor’s Phillip, Grose, and Hunter (1795 to 1800).

Captain Watkin Tench who visited the Colony and recorded the state of affairs in the settlement during its formative first four years reported that by 1791 cultivation was underway as far as present day Westmead and Toongabbie. Elizabeth Farm was constructed by 1793, and George Salter had established a farm on a 30 acre land grant from Governor Hunter in 1796 on the western side of Domain Creek within the Park that is recorded to be have been thriving by 1800. Under Governor Macquarie, Salter’s and other farms (c.1813) were purchased by the Crown, public access to the Domain was barred, and fencing to enclose the Government Farm was undertaken during the period between c.1815-1817.

4.4 1789 and 1790 ‘tours’ of the ‘cultivated lands’ at Rose Hill

Tench (1979:195ff) provides the most detailed early account of the early agricultural activity at Rose Hill. He walked around the entire cleared and cultivated land over 16-17 November 1790. Varman (1997:257-260) provides an overview, and also of a second visit by Tench a year later (December 1791) that illustrated the progress in clearing and cultivation in a year, these are abridged below.

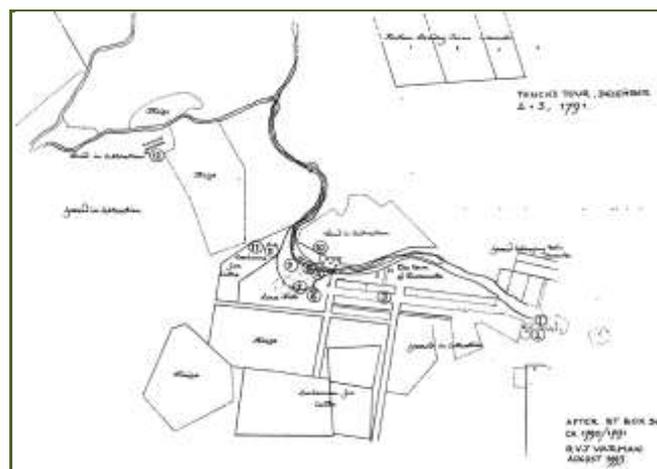
Figure 4.7 Map of Tench's November 1790 walking tour of the cultivated lands – compare the numbers with the map (Varman 1997:259)



1. Tench's survey began on the north side of the river where the barn and threshing floor etc are historically recorded, and then crossed the 'rivulet' to the south (OGH) side of the river.
2. He walked to the bottom of The Crescent and found a little patch of 'very bad' wheat growing.
3. From bottom of The Crescent he examined 'the large field on the ascent to the west ward' and found 25 acres in wheat.
4. The view from 'the top of the wheat field takes in, except for a narrow strip, the whole of the cleared land at Rose Hill' was most likely from the semi-circular hill above The Crescent.
5. The next patch from the wheat field was noted to be planted in maize.
6. From the 'Semicircular Hill', Tench crossed 'the old field, which is intended to form part of the main street of the projected town' (current George Street).
7. The next field was planted in maize, as was an acre 'at the bottom of the marine garden'.

Tench's second visit:

Figure 4.8: Map of Tench's December 1791 tour of the town and cultivated lands – compare numbers with map (Varman 1997:259)



1. Tench arrived at the Landing Place (Queens Wharf) in December 1791.
2. Walked to new barrack and storehouse etc.
3. Walked the length of the new 'great road' to OGH. Maize and wheat noted in convict hut gardens.
4. Reached the 'Semicircular Hill' 'which sweeps from the overseer of cattle's house to the government house'.
5. Saw the Overseer of Cattle house etc.
6. OGH.

7. The ‘Semicircular Hill’ was planted in maize. On the last visit it was planted with wheat.
8. Tench saw a ‘little patch of wheat in the governors garden’ and walked ‘round the crescent at the bottom of the garden’ which he thought unrivalled in beauty to anywhere in the colony.
9. Eight thousand grape vines were planted at the bottom of The Crescent.
10. Crossed over the rivulet northwards where corn grew.
11. Viewed the stock. [Small numbers, but there had been no stock in Parramatta the previous year].
12. Tench then visited the public settlements (Tench 1979:246-257).

4.5 Aboriginal reaction to the land taking

Many accounts of this period use the term ‘cordial’ or words to that effect to describe the tone of interracial encounters on the Sydney (and Parramatta) frontier in the early 1790s.² Pressures on food resources and restrictions on land access pushed Aboriginal people further away from the expanding edges of settled country that led to conflict. Collins (1798:46) implies there had been ‘*incidents*’ but ‘*very little molestation*’ and ‘*had they never been ill treated by our people, instead of hostility, it is more than probable that an intercourse of friendship would have subsisted*’.

Tench (1979:181) was told in September 1790 by two inhabitants of Rose Hill of their ‘*dissatisfaction at the number of white men who had settled in their former territories*’.

In consequence of this, the military detachment at the redoubt that had been built in 1788 below The Crescent was to be reinforced the following day. When the redoubt was disbanded later in 1790, Phillip wrote ‘*there was little to be apprehended from the natives*’ (HRA 1(1) 1914:143). To put this in context, Phillip had estimated there were about 1,500 Aboriginal people living in the area from ten miles north to ten miles south of Sydney Cove. Even if this number was an underestimate, the First Fleet brought almost the same number of ill equipped and unprepared prisoners and gaolers to the place and notionally doubled the population that increased dramatically with each subsequent arrival of transportations from England.

4.6 Historic plans, images and photographs

4.6.1 *The Crescent*

The images below illustrate a general historical overview of how The Crescent has been recorded to have changed over time from a natural river landscape element (ox-bow/billabong) to a farm, later to use as an orchard and cattle enclosure, before modern filling and landform shaping.

This provides an indication of the potential range of archaeological deposits that may notionally relate to each ‘phase’ of use from prehistory and through the first farm period and later agricultural uses from the mid nineteenth century that may survive intact, but which are more likely to if they survive to show high levels of individual archaeological truncation and stratigraphic mixing of deposits towards the surface of the existing subsurface profiles sealed below modern fill materials.

² This subsection is adapted from Steele (2018)

Figure 4.9: c.1791 depiction has distorted the course of the river and topography so that the bridge and Superintendent of cattle huts and Government House could be included (Varman 1997:178)

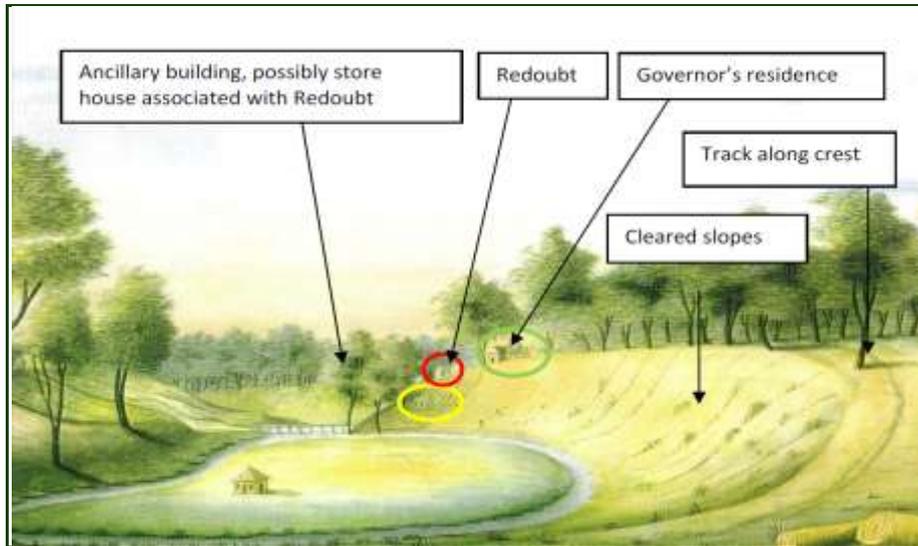


Figure 4.10: c.1792 depiction of buildings on the slopes of The Crescent (Source: Comber Consultants2016)

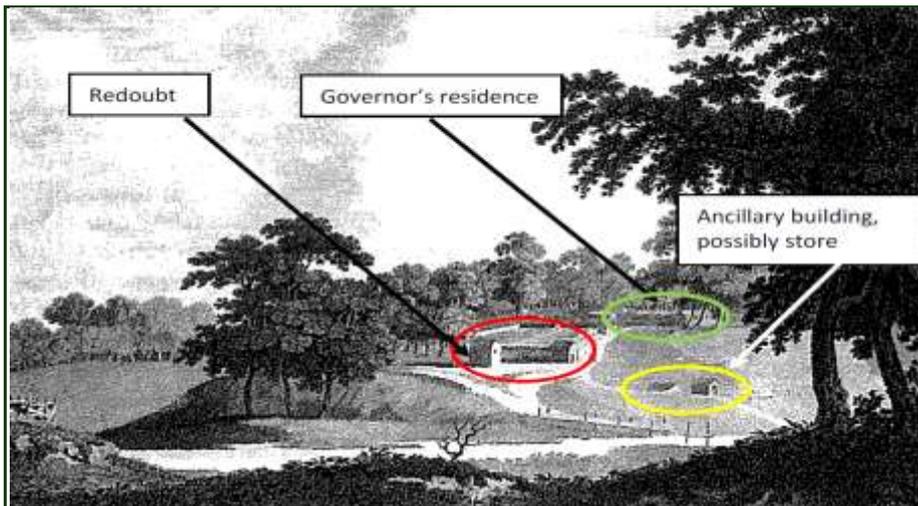


Figure 4.11: View of The Crescent by J. Lycett 1819 (Source: SLNSW V1B Parr/18)



Figure 4.12: View of the town showing The Crescent (marked by line of trees to the right of OGH) by J. Lycett 1824 (Source: Comber Consultants 2013)



Figure 4.13: View across The Crescent by Mrs Lowe in 1844 (Source: ML SLNSW MLZ PXD D390/38C) showing the Macquarie period (c.1813-1814) gardener's cottage in the foreground built on the shale hill slope at the northern end of The Crescent



Figure 4.14: Extract of Kirby's map of 1858 showing the 'old garden' in The Crescent (Source: Rosen 1999: Figure 3.2.5.3)



Figure 4.15: The Crescent in 1900 with neglected fencing, garden and cattle enclosure on the flats (Source: GML 2018: Figure 3.11). After the Macquarie era, the area fell into decline. There was a fenced stockyard by the 1870s but was described in 1887 as a garden. Varman (1997:178) reports that after the 1880s the billabong continued to silt up, and parts were actively filled



Figure 4.16: The Crescent c.1900-1927 (Source: Broadcast Post Card Publishers)



Figure 4.17: The Crescent in 1903 showing slope gradients and fruit trees (Source: CA, 19 December 1903)



Figure 4.18: The Crescent and Domain Creek landscape in 1943 (Source: PPT Archives)



Figure 4.19: The Crescent in 1975 (left) and 1979 (right) after substantial works (Source: GML 2018: Figure 3.15)



Figure 4.20: The Crescent in 1981 after works in 1978 - with person circled for scale right (Source: GML 2018: Figure 3.17)



4.6.2 The Crescent (ridge)

A considerably large number of historical photographs from about the c.1870s onwards show the changing appearance of the ground surfaces and vegetation regimes on The Crescent ridge. These generally illustrate low grass cover established over what appear to be shallow soil profiles that have been extensively deflated over time.³ This deflation has occurred as a result of soil loss and mobilisation of what have been continual processes of ground surface erosion and soil-wash that were initially triggered and rapidly accelerated by the first (c.1788-1789s) tree and under-storey vegetation clearance. These soil-loss processes have also been exacerbated by continual animal and pedestrian and vehicle traffic (including a steam tramway that traversed the rim of The Crescent from 1956 to the c.1980s) for over 200 years.

³ The process by which the wind removes fine materials from surface soil profiles (Goudie 2004:233) that will leave larger particles behind as deflation lag. In the case of Blacktown soil profiles such as those on The Crescent ridge, the deflation and/or complete loss soils has resulted in 'surface' Aboriginal objects being observed exposed on what are B-horizon clay and shale and ironstone gravel lag surfaces

Short-term aerial imagery (every few years) shows the distribution of grass cover vs ground exposure between Long Avenue and The Crescent edge, and particularly in and around the ‘monuments’ changes constantly and almost seasonally, and grass cover shrinks during prolonged dry periods. Longer-term aerial imagery (every decade or so) highlights a visual impression of how sparse in a general the tree (native and planted combined) and vegetation covers has been in the Park, especially in The Cattle Paddocks Precinct, since 1930.

Figure 4.21: Bathhouse in c.1870 (Source: SAG Houison Collection) showing a mix of plantings and immature native regrowth



Figure 4.22: Undated image (post 1903) by Hurley of the Boar War monument on The Crescent ridge (Source: SLNSW PIC FH/7431 LOC Cold store PIC HURL 231/10). This image appear to show in the foreground where soil has been stripped down (to most likely basal clay) when comparing levels with the grass surfaces around the monuments



Figure 4.23: Undated image (post 1903) showing a reverse view to the previous (Source: SL of Victoria Image H98.252/1833) with a glimpse of OGH and existence at the time of (tall) trees on The Crescent slopes or in the interior



One of the historic impacts that we can reconstruct and estimate the archaeological impact of to some extent is for the use of The Crescent ridge for about thirty years from 1956 by the Steam Tramway and Railway Preservation Society (Varman 1997:210). The Society constructed a 570m long track with rails and ballast that commenced from a tram and equipment storage and maintenance shed formerly located adjacent to the Dairy Precinct (the shed burnt down in 1993) and extended to the Bathhouse. A clip of the Parramatta Park steam tram in operation (1980s) is on YouTube (https://www.youtube.com/watch?v=_zIRd5nnFul).

Figure 4.24: Steam Tramway and Railway Preservation Society tram shed located adjacent to the Dairy Precinct in c.1976. The shed burnt down in 1993 and the engines and equipment were largely destroyed (Source: Trolley Wire 1993)



Figure 4.25: Undated image of the steam tram in operation (source: 'dunedoo' – Steam Tram, Parramatta Park, Parramatta)



Figure 4.26: Note widespread absence of soil cover and exposed B-horizon clay (Source: Australian Transport Discussion Board - Online)



Figure 4.27: Note the construction of the tracks and continued use of the ram for approximately 38 years has removed soil cover and exposed basal clay (Source: Australian Transport Discussion Board - Online)



4.6.3 River's edge (at The Crescent)

Varman (1997:176) describes Oak Avenue originally was a road that connected with early Bridge or Pitt Street that was in existence by about 1790. However, although probable, there is no direct evidence for this sourced by this study. In general terms, the history of road making and change to this road along The Crescent is not well understood, but the above author notes soil was dumped at both ends of The Crescent in 'later years' (post Macquarie) to improve the road that cut off the billabong from periodic flooding. Within this (uncertain) historical context, a number of references to the river's edge and road (Oak Avenue) at The Crescent are used below to provide background for the results of the soil mapping completed in this locality for this report that are detailed shortly.

Figure 4.28: Oak Avenue (Byrnes Avenue after 1915) looking south with the Crescent to the right in 1892. This section of roadway appears well constructed and surfaced by this time (Source: GML 2018)



Figure 4.29: Undated image of Oak Avenue at the northern end of the Crescent with the grassed surface of the landform to the left and exposed shale slopes in the background and river down the slope to the right



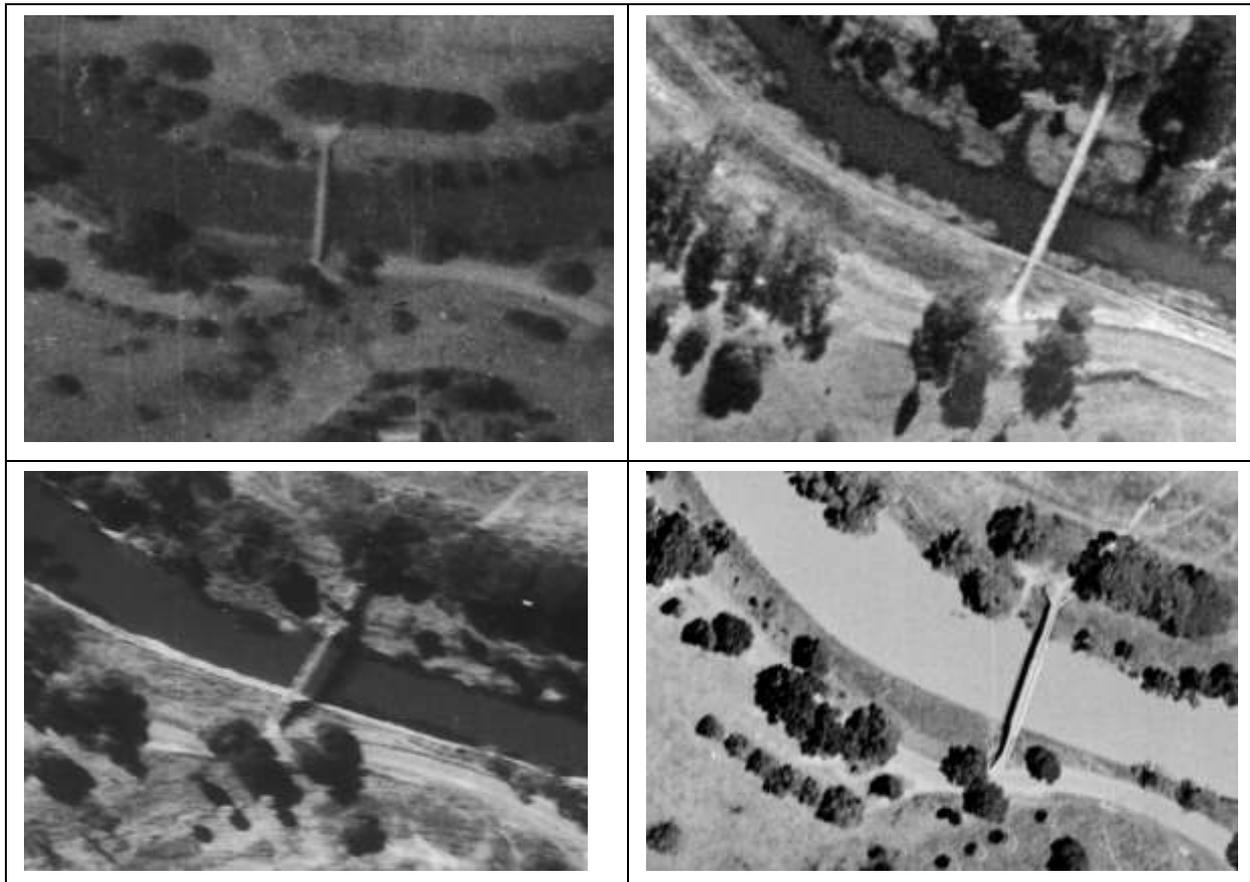
Figure 4.30: The river bank at Noller Bridge in c.1930 (Source: NLA PIC/15611/14613 LOC Cold store PIC/15611). Note that the section of stone wall evident on the southern side of the bridge has not extended to include the banks to the north and in front of The Crescent



Figure 4.31: Enlarged image of section of stone wall on the southern side of the bridge and unformed banks to the north



Figure 4.32: Evolution of the river retaining wall at The Crescent to the immediate north and south of Noller Bridge shown by aerial imagery in 1930 (top left), 1942 (top right), 1951 (bottom left) and 1956 (bottom right). The section of wall to the north of the bridge appears to have been constructed between 1938 and 1942



In late 1899 (Cumberland Argus, 5 August 1899) it was reported that the Park had been improved extensively of late where gradually *'unsightly underbrush that used to grow behind the Old Grand stand, and on the slope to the west of the Amphitheatre'* had been removed. The *'undulating lawns down by the river-bed, and immediately below the Avenue of Oaks'* had also been to some extent cleared of stumps and bramble *'and the drives have been widened and made generally decent'*. The following year good progress was reported for the construction of a retaining wall along the south bank of the river, where *'the scour has been threatening the oak avenue and main drive'* (Daily Telegraph, 18 September 1900). Details of this works described:

The bank has been excavated down to the bed rock, and a broad, solid wall, with four buttresses is being built up from below the lowest point to which the water falls when the outlets are open up to the highest flood level. The work will be gone on with as far as the Improvement committee's funds permit, and it is hoped the Government grant will enable the wall to be continued round, so as to protect the whole of the bank fronting the Crescent.

Although the precise location of these roadwork's are not specified in the newspaper account below, and may relate to locations to the north of the study area (Cumberland Argus, 13 August 1910), the descriptions provide an indication of the type and scale of impacts that could have taken place during the creation of the current river-side road along Oak Avenue.

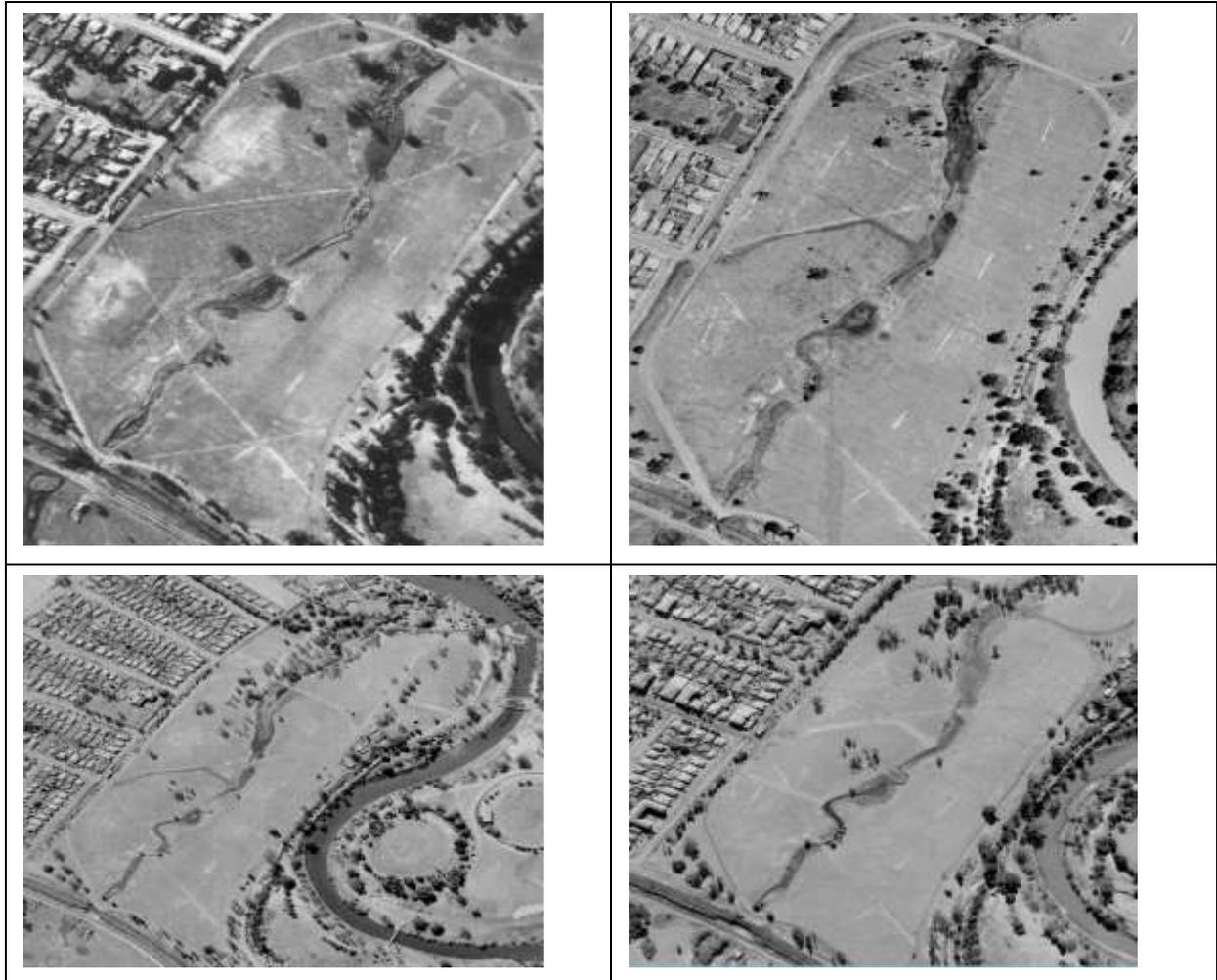
The banks of the river in the park have a neat and much-improved appearance. The work of forming the road through the park has been well advanced. The fencing is up, and it is expected that, though of course the road will not be properly finished by then, in about three weeks it will be available, should any members of the public desire to use it. The soil being removed from the surface of the ground along the line of the roadway is being put about and over the roots of the big trees in the park, and stored for garden purposes in the Doer Paddock.

4.6.4 Cattle Paddocks

Long Avenue defines on Aboriginal landscape archaeological grounds a boundary between the higher elevated land of the ridge at The Crescent and the flood plain on the eastern side of Domain Creek (at least to the south of the creek crossing to the railway crossing). Varman (1997:208) suggests this road probably started out as part of the upper route from OGH to the Superintendent of Cattle in c.1790. Kirby's 1858 map shows the road continued on past the Dairy Precinct in a straight line to the river and across from the 'female factory'. An 1844 sketch of Long Avenue from the Dairy Precinct southward shows a gate in the middle of the road just south of the Dairy Precinct, and the area to the west of The Crescent ridge (Long Avenue to the creek) would possibly have originally formed part of 'the big cattle paddock' of the earlier Superintendent of Cattle.

The eastern side of the road was fenced with post and rail (replaced in the 1870s with a dressed timber rail fence) and the western side of the road was an open paddock that was divided in an east-west direction by a fence line to the south of the Dairy (as mentioned above).

Figure 4.33: The Cattle Paddocks Precinct featuring Domain Creek in 1951 (top left), 1956 (top right), 1965 (bottom left) and 1970 (bottom right) showing a consistent paucity of trees and ground cover vegetation



None or little of this fencing or physical fabric of this spatial division of the land now survives above-ground and it is not likely that any archaeological evidence of any early former road survives along the alignment of Long Avenue. Aerial imagery shows Long Avenue has been modified/affected by activities such as tree-row plantings and removals in the post War period.

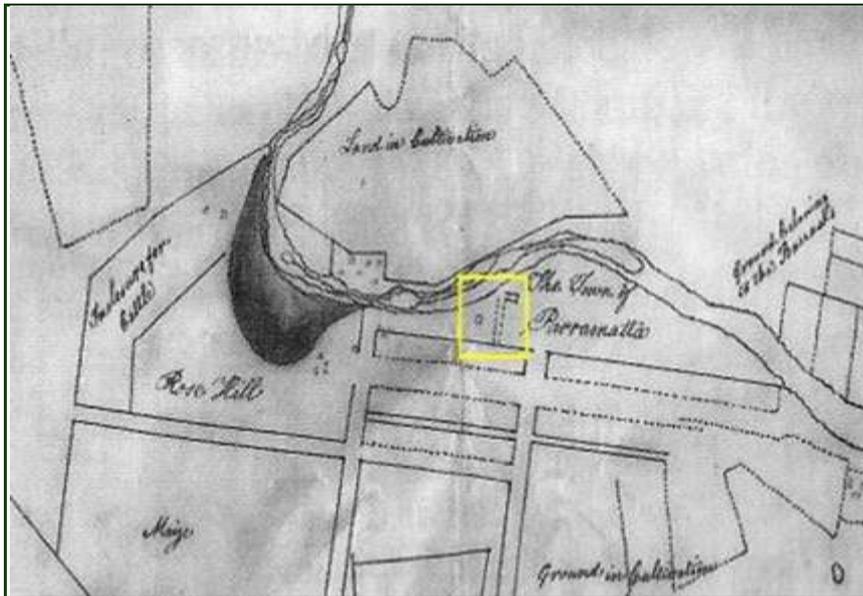
The Cattle Paddocks Precinct in general and the riparian corridor of Domain Creek in particular are shown to be almost completely devoid of trees and vegetation of all forms other than low-cover grass from 1930.

The 1930 image has not been reproduced (because it is very dark), but this general observation that the Park 'looks barren' can be most clearly illustrated during the post War period. Under these conditions, with the absence or a sparse and patchy distribution of tree and ground cover to keep soils in place (note large exposures and/or disturbances on the western side of Domain Creek evident in 1951), it can be expected in a broad sense that considerable soil loss will have occurred across the parklands over the decades.

4.6.5 The Domain

The same form of observations can be drawn or at least inferred for this Precinct. Excavation on the southern slopes below OGH to identify the presence of a c.1792 roadway in 2006 (Steele 2006) revealed sealed below c.10cm of redeveloped grassed loam construction fabric of the road. This was made of variable ‘fill’ deposits and materials of clay, shale and ironstone gravels, and broken sandstock bricks and roof tile fragments, used to provide a light road surface to improve the drainage and traction properties at the entrance to OGH. Only a very thin veneer of A¹/A² topsoil was found above the basal B-horizon (Blacktown) clay into which a shallow trench had been cut to lay the road surfacing materials into. It is possible the evidence recorded may have represented only the lower-most surviving fabric of the roadway, wherein more substantial remains had since been removed as a result of accumulated impacts associated with over 200 years of ongoing use of the Park. Nevertheless, this date provides some indication of the seemingly shallow nature of the soils on the southern slopes below OGH in the 1790s.

Figure 4.34: c.1792 Anon. Plan of the Township of Parramatta showing ‘Phillip’s Drive’ (Source: ML, Bonwick Transcripts 36)



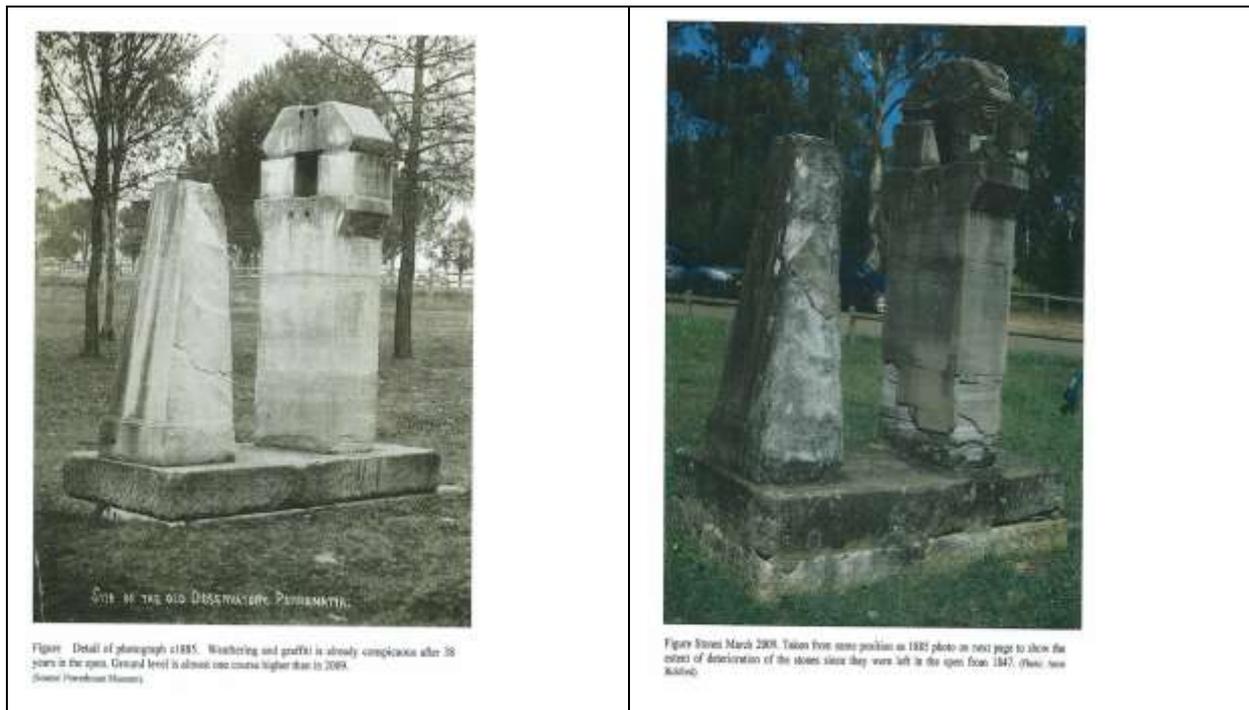
Two separate excavations at the Observatory site (Archaeology & Heritage Pty Ltd 2011 and Casey & Lowe Pty Ltd 2014), located on the higher ground to the west of OGH, have shown the upper A-unit components of the soils in this locality are shallow and in places entirely missing.

The likely deflation of soils can also be inferred by looking at the ground levels at the base of the stone work illustrated in the second image. Although possible, it is unlikely that the difference in the ground level is entirely the result of deposit ‘slumping’ because stiff and compact Blacktown clay is located just below the grassed surface.

Figure 4.35: Existing condition of the Observatory site



Figure 4.36: Comparison of ground level apparent at the base of the Observatory transit stones in c.1885 (left) and 2009 to the right (Archaeology & Heritage 2011:43-44)



4.6.6 The Gardens Precinct

GML (2016:62-63) report there is little evidence to indicate that the land on the ‘Pavilion Flats’ area has been substantially land-formed other than the possibility of reclamation along the northern boundary. GPR survey appears to have identified the remains of historical structures associated with mapped historical structures and others that are not mapped. Because the geomorphology of the river bank deposits and their relationship to suspected and potential archaeological features and deposits in this area is current not well understood, the use of ground-penetrating anchoring spikes/pegs is recommended to be avoided. The EMP maps those areas in the Park where no ground disturbance through pegging is to be permitted during future CSS events.

Figure 4.37: Overlay of the c.1792 and 1804 plans over 2016 aerial. The position of the river's 1792 embankment is shown as a red line (GML Pty Ltd 2016: Figure 4.2)



Figure 4.38: GPR results over c.1792 plan (GML Pty Ltd 2016: Figure 4.29)

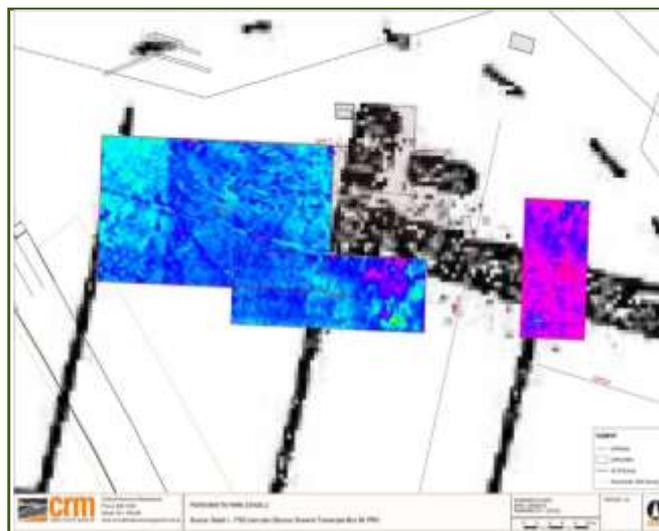
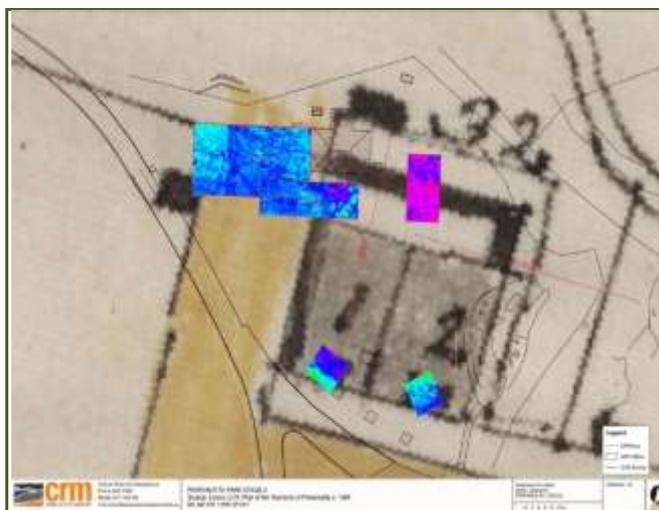


Figure 4.39: GPR results over c.1804 (GML Pty Ltd 2016: Figure 4.30)



5.0 Heritage risk identification & management options

5.1 Issues for management consideration

The table below summarises the type of risks of harm to three broad categories of heritage values that have been grouped and tabled according to Precinct, and harm mitigation measures that can be implemented prior to and during the CSS. This table should be read in conjunction with the map of significant cultural and environmental areas and items to be protected during events, the CSS Event maps (A to D), and general ground protection arrangement plan that are appended (**Appendix 2**).

Table 5.1: CSS heritage impact risk categories and mitigation actions and options

Precinct	Heritage sites & items	Potential heritage impact	CSS activity/use	Mitigation strategy
Crescent (Ridge)	<p>Built heritage Bathhouse Bathhouse brick drain(s) Boer War memorial Canons</p> <p>Archaeology AHIMS #45-5-0864/0762 Soils with potential for Aboriginal objects Soil with potential to contain 'relics'</p> <p>Environmental Original terrain & soils Semi-exposed shale slopes around rim of amphitheatre as core fabric of original 'billabong' river landscape element Existing trees & root systems</p>	<p>Built heritage Damage to standing structures</p> <p>Archaeology Soil erosion/trampling from concentrated use of ridge with potential to expose archaeology and environmental history evidence</p> <p>Environmental Damage to existing trees & root systems & soil compaction Destabilisation of shale slopes</p>	<i>Low-key 'table & chair' venue & infrastructure on Long Avenue</i>	<p>Built heritage Fencing of 'monuments'</p> <p>Archaeology Soils mapping (completed) Placement of heavy venue amenities on Long Avenue Track-mat over high traffic zones & erosion points</p> <p>'Do nothing' approach in the short term for AHIMS #45-5-0864/#45-5-0762</p>
Crescent (Amphre)	<p>Built heritage -</p> <p>Archaeology Soils with potential for</p>	<p>Built heritage -</p> <p>Archaeology Subsurface soil exposure</p>	<p><i>Stage & fencing set-up during & left between events</i></p> <p><i>Large crowds & ('fork lifted' size) w' toilets & infrastructure placed in amphitheatre</i></p>	<p>Built heritage - Screening of stage/fencing kept up between events Placement of toilets in low terrain with low or no arch sensitivity in nthn Crescent and on SEMP surfaces in southern Crescent</p> <p>Archaeology -</p>

	<p>Aboriginal objects/‘relics’</p> <p>Environmental Original terrain & soils Tree root systems</p>	<p>w’ potential archaeology</p> <p>Environmental Pollen & soil evidence</p>		<p>Environmental Placement of infrastructure on SEMP cleared zones</p>
<p>Rivers Edge (Crescent)</p>	<p>Built heritage -</p> <p>Archaeology Soils with pot. for Aboriginal objects Soil with potential to contain ‘relics’</p> <p>Environmental Original terrain & soils</p>	<p>Built heritage -</p> <p>Archaeology Subsurface soil exposure where in situ soils with archaeological potential are shallow</p> <p>Environmental As above for soils and pollen (environmental) history evidence</p>	<p><i>Increased visitation & use during events</i></p>	<p>Built heritage -</p> <p>Archaeology Soils mapping (completed)</p> <p>Environmental As above</p>
<p>Domain</p>	<p>Built heritage Observatory</p> <p>Archaeology Soils with potential for Aboriginal objects & ‘relics’ Phillips Drive (1792) Macquarie Drive (1813) (both sites buried)</p> <p>Environmental Original terrain & soils Drainage line & ‘pond’</p>	<p>Built heritage Damage to transit (standing) stones</p> <p>Archaeology Erosion and compaction and trampling from traffic and concentrated use of unsealed ground surfaces with soils of potential archaeological and environ. evidence</p> <p>Environmental Damage to Domain Creek vegetation and adjacent surfaces</p>	<p><i>Car displays, stalls and small events on grassy slopes</i></p>	<p>Built heritage -</p> <p>Archaeology Fencing of Observatory Use of hard stands Avoid grassed areas in wet weather Use of protective ground fabric for bump in and out</p> <p>Environmental Avoid grass slope areas in wet weather and allow recovery time between periods of use</p>
<p>Paddocks</p>	<p>Built heritage -</p> <p>Archaeology Soils with potential for</p>	<p>Built heritage -</p> <p>Archaeology Impact to Aboriginal</p>	<p><i>Temporary stage and facilities for overflow events & ballooning with heavy infrastructure on Long Avenue</i></p>	<p>Built heritage -</p> <p>Archaeology Soils mapping (completed)</p>

	<p>Aboriginal objects & 'relics'</p> <p>Environmental Damage to riparian veg of Domain Creek and exposure of original terrain & soils</p>	<p>objects and 'relics'</p> <p>Environmental Damage to Creek veg & adjacent grass surfaces</p>		<p>Environmental Dedicated areas with ground cover for event bump in/out</p>
Gardens	<p>Built heritage -</p> <p>Archaeology Soils with potential for Aboriginal objects & 'relics' GPR identified subsurface archaeology</p> <p>Environmental Compaction/disturbance of original terrain & soils</p>	<p>Built heritage -</p> <p>Archaeology Compaction/disturbance of soils with potential for Aboriginal objects & 'relics'</p> <p>Environmental Compaction/disturbance of original terrain & soils</p>	<p><i>Carnival rides on 'Pavilion Flats'</i></p>	<p>Built heritage -</p> <p>Archaeology Avoid grassed areas in wet weather Use of protective ground fabric for bump in and out Avoid use of pegs/spikes</p> <p>Environmental As above</p>

5.2 Views and settings

5.2.1 Precedent historical use considerations

There is sufficient historical evidence to support in general terms a position that the proposed use of the Park in the way it is intended to be used during the upcoming CSS is a broadly compatible use of the place from a long-term perspective. An historical example below is used to exemplify the point.

However, in the modern context and with the impacts of encroaching City CBD development on the World Heritage Listing values of OGH and Domain, and the recent stadium construction, the potentially negative but temporary impacts that may be considered to be associated with this proposed use of the Park (noise, large crowds, temporary loss of space/'amenity', rubbish, trampling of grassed surfaces etc) will be of comparatively short duration, will have no specifically identified heritage impact, and will have no lasting effect on the Park.

With regard to the issue of precedent historical use, the CSS are modern events using modern methods and materials that although dissimilar in scale and frequency to some extent from previous historical recreational use, nevertheless have the same purpose. A Trove example for the use of the Park during Empire Day at the turn of the twentieth century could have been written about a modern-day event in terms of the crowd numbers (and their management) and general dispersal and aggregation of people across the parklands throughout the day (Daily Telegraph, 3 October 1899):

The crowds which found their way to Parramatta Park yesterday probably established something like a record for an ordinary holiday. The trains arriving from Sydney and suburbs at shortly after 10 and 11 o'clock were crowded, and from each a large procession marched to the national pleasure ground. Sunday and day school scholars were conducted, through the town to the park gates, and off to some shady sheltered spot. Family parties, -and small social associations

of friends and neighbours, followed suit, all apparently from afar. It has often been noted that while the south side of the river is quite, inconveniently crowded every holiday, the area to the north remains unused, but this was not the case yesterday. The public from a distance have found out the charms of these 'grassy slopes, and how to reach them without a footbridge, and during the morning there were apparently more beyond the river than on its nearer bank. In the afternoon, however, it was a 'crowded and lively scene everywhere,' over 8,000 being estimated to have passed through the gates. The Salvation Army was early on the scene, and its music added to the indications of the presence of a great multitude of which most were young, and all bent on merry-making. The river, though its water was of a colour something between heliotrope and lemon, from recent storage, was lined on either side, and the unrestricted invasion and occupation of Parramatta's historic enclosure complete and satisfactory. No accidents occurred to detract from the general enjoyment.

Figure 5.1: A view past the pavilion towards Lennox Bridge in the background (GML Pty Ltd 2016: Figure 3.18)



5.2.2 Recognised views and protected settings

Planisphere (2012) have examined the relationship of future development in Parramatta City to the World and National Heritage listed Old Government House and Domain (OGHD) with one of the key objectives being to identify, document and describe important views and settings of, from and within the OGDH. Views are broadly defined by a '*sight or prospect of some landscape or scene*' (ibid:28) and '*view types*' comprise viewing location point to point views (or vista), point to area view (or panorama), area to point view (or vista) and area to area view (or panorama). Settings are defined as the immediate and extended environment that is part of, or contributes to, its significance and distinctive character. Settings are integral to understanding significance

of views, and the concept of views and settings are intrinsically linked whereby a ‘setting’ is often the termination of a focal point (or area) of view, and a view is often experienced within a ‘setting’ (ibid:29).

Five settings are described (OGH area, Dairy, The Crescent, Old Government Farm area and Bathhouse area) and sixteen ‘important views’ assessed by this study. A sample of those with relevance to the current HIA are shown below to focus later discussion of heritage impacts of the proposed uses of these spaces during the CSS.

Figure 5.2: View 1 – Looking northeast towards OGH (Planisphere 2012:45)



Figure 5.3: View 3 – Looking east directly down George Street alignment (Planisphere 2012:49)



Figure 5.4: View 4 – Looking north over the amphitheatre (Planisphere 2012:53)



Figure 5.5: View 5 – Bathhouse area to the City (Planisphere 2012:55)



Figure 5.6: View 6 – View from The Crescent to the City (Planisphere 2012:57)



Figure 5.7: View 7 – Bathhouse area to Westmead (Planisphere 2012:59)



A diversity of future views will be presented by the use of the Park during the CCS that will have on the whole a temporary and 'light' disruption to traditional (and 'official') views and sightlines, and the occupation of the five key Park settings described above will also have no lasting or detrimental impact. The events in many ways add to the cultural heritage diversity of leisure-use of the place by introducing modern visual and sound-scapes. Longer-lasting impacts that may result from the need to leave the stage standing, along with some fencing and temporary storage infrastructure in place for periods between events is discussed shortly.

5.3 Summary and conclusions

5.3.1 Heritage impact mitigation

The key heritage mitigation options tabled above are identified for implementation during the upcoming CSS. These measures can be improved and updated by post-event 'heritage impact audits' at the completion of individual events (such as New Years Eve and Australia Day that will attract the largest anticipated crowds) or at the end of the festival series. Pro-forma 'tick-box' heritage recording formats could be provided to Park staff to record evidence for disturbance or damage to standing heritage items or other built-form, landscape and vegetation damage or evidence of significant wear, and garbage distributions.

Key operational heritage impact measures include:

- Fencing of 'monuments' during events
- Fencing of archaeological sites (Observatory)
- Screening of stage and fencing left set-up in between events
- Use of hard stands for placement of large/heavy infrastructure
- Avoid grassed areas in wet weather (and use track-mat)
- Use of protective ground fabric for bump in and out in the Domain and Cattle paddocks
- Use of SEMP 'cleared zones' at northern end of Amphitheatre for placement of infrastructure

Soils mapping has been recently completed for a section of the River's Edge Precinct (at the southern end of The Crescent), the northern Amphitheatre area in The Crescent, on the Crescent ridge (the 'monuments' area) and across the southeast quarter of the Cattle Paddocks Precinct. The results of this work have helped clarify a number of persistent uncertainties in how to approach the management of the potential archaeological resources of all periods and types that may occur in these areas.

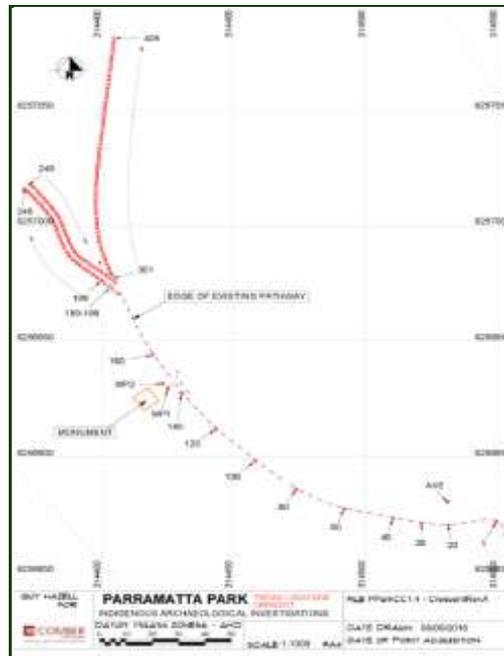
5.3.2 Statutory heritage issues

Two statutory management issues have been identified by this study relative to the potential impact the CSS may have on individual and the collective heritage values of the parkland. The first is general in terms, and concerns whether the use of Parramatta Park for the CSS will have an adverse impact upon the heritage values of the place and require approval under s.60 of the *NSW Heritage Act 1977*. This issue is addressed in the following section.

The second issue concerns the ongoing and long-term management of Aboriginal archaeological site AHIMS #45-5-0762/AHIMS #45-5-0864 which is located on The Crescent ridge and takes in an area that is proposed for use as a low-key dining/drinking space during the CSS of events, and whether this use will require an (AHIP) approval under s.90 of the *National Parks and Wildlife Act 1974*.

As a preamble to the following evaluation of the potential archaeological heritage impact of this proposed use on this archaeological site, and to help guide future conservation management decisions by the Trust for this site, the following overview is provided by Comber (2016:72) and can be compared with the 1990s site descriptions and images presented previously:

Figure 5.1: 2016 test excavation locations that recovered a small number of Aboriginal objects (15) forming part of previously recorded AHIMS #45-5-0762/AHIMS #45-5-0864 (Source: Comber Consultants 2016: Figure 19)



The small number of artefacts (15) recovered from seven of the trenches excavated along the Crescent is consistent with the descriptions of individual artefacts previously recorded at sites AHIMS 45-5-0762 and AHIMS 45-5-0864 that are provided by Dr Val Attenbrow who recorded these sites. The overall density of the artefacts recovered by the recent investigations is low and it is difficult to make accurate comparisons with the previously recorded material as this was located in areas of erosion where movement of material would affect the original spatial distribution.

The excavated trenches show that small numbers of artefacts are buried in the shallow sediments, with roughly half recovered from the first 10cm thick spit. Observations...demonstrate the widespread introduction of historic materials and building material/construction fill associated with the paths and tramline along the ridge crest...The geomorphological report (Player 2016:6) indicate some areas in The Crescent Precinct may have been subject to displacement of sediments.

....It is possible to conclude that flaked stone artefacts are buried in the shallow sediments sampled by the trenches and the small number recovered is consistent with previously recorded surface assemblages, in both contents and density. The presence of artefacts in widely spaced trenches indicates that these buried artefacts are part of an extensive background scatter and that the two sites AHIMS 45-5-0762 and AHIMS 45-5-0864 may represent exposed sections of this. This matches the conclusion by the assessment by Attenbrow (1996:11) that these two sites were surface exposures

of one large site along the ridgeline above The Crescent. Although it is clear that artefacts exist in the areas sampled it is not possible to demonstrate that vertical distribution has been affected by post-contact development on the ridgeline. However, the contamination of sediment with historic objects and imported fill, combined with the geomorphological assessment (Player 2016:6) does suggest a considerable degree of profile disturbance.

The soil mapping undertaken on The Crescent ridge for the current assessment and overviewed in following sections of this report compliment the geomorphological findings for the site reported above, and also refines our understanding of the (scientific) archaeological significance of the remaining archaeology in this location of the Park.

A widely used and effective method to conserve the archaeological site in its present condition would be to revegetate, stabilise the soils and inhibit further soil erosion as previously recommended by AMBS. However, the ridge-top soils are poor and vegetation may not take unless considerable amounts of top soil is introduced and appropriate measures taken to stop plantings dying and soil eroding. A similarly intended option would be to introduce wood bark materials onto ground exposures (it is used around the base of trees in this location and elsewhere in the Park) which would restrict further soil erosion in high traffic or at-risk locations in the short-term. Either course of action would change the existing condition of the site. Revegetation and the latter form of low-impact action (surfacing exposures with bark-chip) would be reversible, but both types of future conservation measures will require an AHIP.

The existing use of the ridge top has not seemingly changed the level of impact from that of recent decades through day-to-day pedestrian visitation and use of the location, nor is there an increased threat to the site apparent by for example recent exposure of artefacts. The expected use of the ridge for short-term events (with the space occupied by table & chairs and amenities on hardstands on Long Avenue) is not considered likely to result in the exposure and harm to Aboriginal objects. The results of the soil auger mapping in the following sections supports this position.

A 'doing nothing' approach in the short-term would not be detrimental to the longer term survival of this archaeological site, and will allow the Trust to establish longer term plans for the management of the ridge archaeology following the completion of the CSS.

5.3.3 *Statutory heritage compliance*

The nature, scope and duration of the CSS is outside of the usual frame of reference for evaluating what type of 'activity' may or may not be exempt from the provisions of the *NSW Heritage Act 1977*. This is not to say that the festival events proposed will have an adverse or detrimental or long-lasting impact on the heritage values of the parklands.

The CSS is not reasonably expected to cause harm to any Aboriginal archaeological sites or Aboriginal objects, and no specific activity is proposed to occur or is reasonably expected to occur that will require approval under the *National Parks and Wildlife Act 1974*.

6.0 Hand auger soil mapping program

6.1 The Crescent ('amphitheatre') and River Edge

6.1.1 Location and scope of works

A program of hand held auger sampling was recently completed for proposed (Stage 02) irrigation works in the northern and southern parts of The Crescent, with the latter extending down to the river seawall adjacent to Noller Bridge. The rationale and methods are explained further in the following section that offers a more illustrative example of its use.

The objectives of the work was to identify where and at what depth fill deposits and/or buried soils occurred, and hopefully to establish with a greater degree of certainty an ability to predict approximately where and the most probable 'type' of (primarily Aboriginal) archaeology that is likely to remain buried in specific locations in The Crescent and Cattle Paddocks Precincts

The Crescent auger probe locations were aligned on the basis of the proposed placement of subsurface pipes in the north and a proposed pump and pipe alignment near the river in the south. Recording was undertaken using the standard for recording landforms, deposits and terminology in Australia, (*Australian Soil and Land Survey Field Handbook* 2009).

The two auger transects were designated 'northern' (**Figure 6.1**) and 'southern' (**Figure 6.2**). The landforms identified were for the *northern study area*:

- Upper Mid slope: Auger Transect /Profile 1 (PPAP23-24);
- Lower Mid slope: Auger Transect 1 (PPAP25-26); and

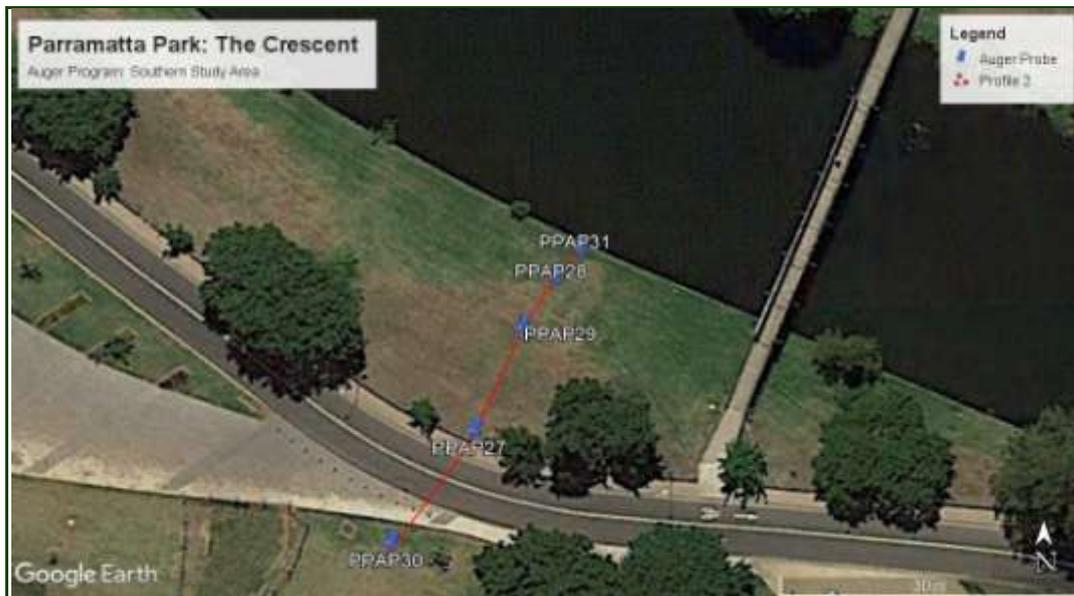
For the southern study area:

- Lower slope/embankment: Auger Transect/Profile 2 (PPAP27-31).

Figure 6.1: Auger Probe locations on the higher (PPAP23-24) and lower (PPAP25-26) mid slope in the 'Northern' study area



Figure 6.2: Auger Probe locations on the lower slope/possible embankment in the ‘Southern’ Section of the study area



6.1.2 Results

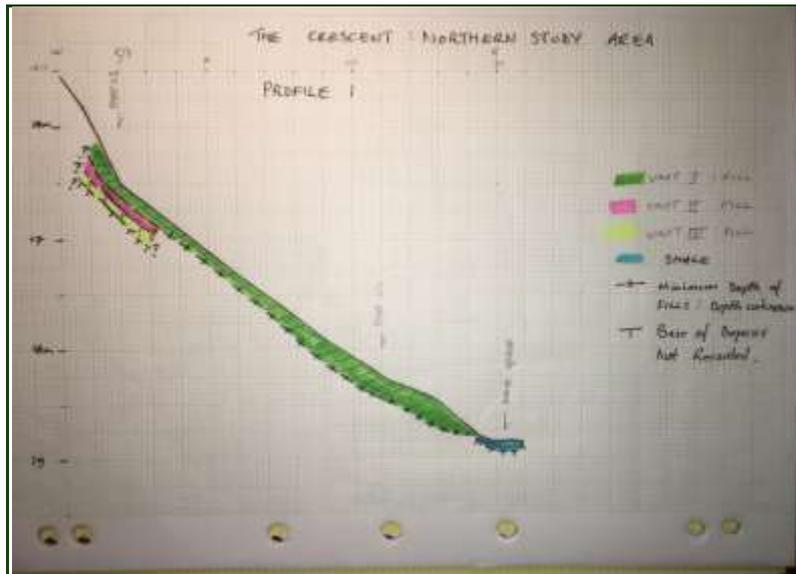
The northern study area consisted of the mid slope landform that starts at the base of the upper slope/break of slope and slopes down to the lower slope defined by the road and footpaths. A total of four auger probes – PPAP23-26 were undertaken across this area. Two auger probes were located on the upper-mid slope break of slope and two were located on the lower slope element of the mid slope landform.

Figure 6.3: Northwest view of the mid slope subject to investigation and identified as the ‘Northern’ study area. Scale is 2m.



In summary, the northern study area incorporating Auger Transect 1/Profile 1 was augered to a depth of between 80 and 600mm and revealed reworked deposits indicative of sand mining and earthworks from the 1970's (the silty sands of PPAP25-26) and general fills (sandy clays of PPAP23) probably associated with landscaping works by the Trust. The surface deposit noted across all the auger probes reflects top dressing and landscaping of The Crescent more recently.

Figure 6.4: Stratigraphic Profile 1 illustrating the fills and shale outcrop at the upper-mid slope boundary



Auger Transect 2 was located in the 'southern' activity area and correlates to the proposed works to install a pump and associated irrigation pipes to feed water across The Crescent. It was unclear whether the landform(s) associated with this area – a flat (floodplain?) west of the road (PPAP30) and a moderately steep slope from the road to the Parramatta River (PPAP27-29, 31) reflect relic natural features or man-made landscaped areas. Based on the results of the auger program it became clear that apart from a small truncated area adjacent to the river (PPAP31 and basal deposit of PPAP28), all the deposits encountered represented either reworked and redeposited alluvial sands, top dressing or mixed shale subsoils and alluvial sands, i.e. introduced fills.

Four auger probes were undertaken on the slope/embankment, with a single auger probe on the 'flat'. Auger probes PPAP27-28 and 30 retained sandy loam surface deposit that represents top dressing and landscaping works across this part of The Crescent. This fill contrasts with Unit II which is a coarser texture of silty sand: the presence of shale gravels indicates that this deposit is reworked and redeposited alluvial sands and therefore a fill. Unit III was a basal fill encountered in PPAP29 which consisted of mixed shale subsoils and gravels as well as alluvial sands and again, attesting to earthworks landscaping this location. Unit IV was a levelling or construction fill encountered directly below the topdressing (Unit I). This fill represents the landscaping works of the amphitheatre area in 2014. Unit V was reworked alluvial sand with abundant shale gravels indicating the deposit has been disturbed and redeposited and represents a fill.

Figure 6.5: Looking west northwest along the lower slope/embankment landform: the upslope 2m scale marks PPAP27 and the down-slope 2m scale marks PPAP28. The red and yellow arrows mark PPAP29 and 31 respectively



Units VI-VIII was only found in PPAP31, although a truncated Unit VII was also noted at the base of PPAP28 located 2m upslope. These three deposits are the only natural deposits identified across the southern study area at the base of the lower slope. Their survival with minimum disturbance in PPAP31 – particularly since this location is less than 2m away from the river wall – is fortuitous, particularly since PPAP28 only retains a truncated subsoil (Unit VII: a modern glass fragment was located in the basal auger probe which further confirms the disturbed nature of this deposit in this location) immediately upslope. Unit VI is brown silty sand and recorded increasing clay content with depth. This increasing clay content reflects either a change in alluvial sedimentation (i.e. a higher fine texture content and therefore gentler alluvial deposits in earlier sedimentation and increasing flows the closer one comes to the present) or, illuvial displacement (fine clay sized fractions displaced downwards through the action of water: a natural process in soil profiles that eventually leads to the forming of clay subsoils).

Figure 6.6: Looking east along the 'flat' landform: the 2m scale marks PPAP30



The exact interpretation of this process is not necessary to confirm the fact the deposit is natural. Unit VII is grey mottled strong brown light clay with a fine sand component. This deposit is a subsoil clay B horizon which has an alluvial component, as represented by the fine sands. The relatively shallow depth (some 160mm) of Unit VII means it is either truncated or relatively recent in age. The fact is lies directly on alluvial sand parent

material (Unit VIII) attests to a change in depositional environments from steady alluvial sedimentation (Unit VIII) to relatively stable conditions allowing for soil formation with some alluvial inputs (Unit VII). Unit VII is the only deposit encountered across Profile 2 that has the potential to retain Aboriginal archaeology: it's position adjacent to the river and the fact it is a surface deposit (with very little humic content or soil structure) means it has to be Late Holocene – and in all likelihood – post-Contact in age.

Figure 6.7: Stratigraphic Profile 2 illustrating the fills across the man-made embankment. The stratigraphic relationship between truncated natural soils and fills is illustrated in the insert



6.1.3 Discussion

In the northern part of The Crescent was found in the areas tested to have shallow fills present over shallow shale outcrops that were also identified on the surface in this area on the upper part of the mid-slope. It is possibly these shale deposits represent colluvial materials eroded and accumulated from upslope or up-cast and dispersed subsurface shale materials possibly associated with the demolition of the former 'pump-house' in this general locality. These fill deposits deepened towards the base of the mid slope.

No natural, undisturbed deposits were identified across this part of the study area. Consequently, there are no deposits in the northern study areas tested that have any potential for Aboriginal archaeology.

The southern study area revealed a comparable landscape history of earthworks and landscaping capping the location with fills. Although most of the fills components (see **Table 1**) were originally alluvial sands from The Crescent that formed part of the PSS, sand mining in the 1970's and landscaping works post-dating the mining managed to mix shale gravels (indicative of reworked and disturbed shale bedrock) and BSL subsoil clays (indicative of reworked and disturbed BSL subsoils) with these alluvial deposits.

It is important to highlight the fact that fills will include alluvial sands in addition to introduced shale gravels and/or BSL subsoils; undisturbed PSS are always composed of sands **without** shale inclusions – i.e. they have no natural gravel component.

All of these man-made fills have no Aboriginal archaeological potential. However, a small area at the base of the lower slope encompassing the complete stratigraphic profile of PPAP31 and the truncated basal deposit of PPAP28 represented natural soils (Unit VI and VII) and alluvial sediments (Unit VIII).

PPAP31 was the only complete soil profile and reflects a combination of alluvial sediment inputs (the sands and possibly the silt and clay components) and soil formation. The lack of soil structure and humic content, as well as the fact that the subsoil (Unit VII) is shallow indicates that the soil profile is relatively immature and dates to the Late Holocene. It is highly probable that this soil profile has formed post 1788.

Unit VI representing immature topsoil is the only deposit in the southern study area that retains potential for Aboriginal archaeology to be present, but this potential is assessed to be low.

6.1.4 Proposed soils management for the Stage 02 irrigation projects

The sensitivity of the auger probes and the locations they represent is listed by unit identifier below and this data supports the management recommendations to follow:

Table 6.1: Survey Unit designations with interpretation and recommended management requirements

Auger Probe I.D	Unit I.D	Depth (mm)	Interpretation	Management
PPAP23	117	0-120	Fill	No constraints
	118	120-180	Fill	No constraints
	119	180-260	Fill	No constraints
PPAP24	120	0-200	Fill	No constraints
PPAP25	121	0-20	Fill	No constraints
	122	20-80	Fill	No constraints
PPAP26	123	0-200	Fill	No constraints
	124	200-600	Fill	No constraints
PPAP27	125: Unit I	0-140	Fill	No constraints
	126: Unit V	140-400	Fill	No constraints
PPAP28	127: Unit I	0-30	Fill	No constraints
	128: Unit II	30-470	Fill	No constraints
	129: Unit VII	470-750	Subsoil with alluvial component and evidence of disturbance	No constraints
PPAP29	130: Unit I	0-130	Fill	No constraints
	131: Unit III	130-230	Fill	No constraints
PPAP30	132: Unit I	0-140	Fill	No constraints
	133: Unit IV	140-780	Fill	No constraints
PPAP31	134: Unit VI	0-570	Alluvial sediment/immature topsoil	PAD – Mngmt required
	135: Unit VII	570-730	Subsoil clay with alluvial component	No constraints
	136: Unit VIII	730-850	Buried alluvial sediment	No constraints

In summary, the results of the soil mapping program undertaken for the Stage 02 irrigation found:

1. There were no clear or obvious constraints to the irrigation works proceeding as planned on Aboriginal archaeological heritage grounds in the locations coded PPAP 23-30 and within the depths reached during the soils mapping program.
2. Unit VI (in PPAP 30) was considered to represent Aboriginal PAD. However, it nevertheless represents immature alluvial topsoil and has a limited potential to contain intact or substantial Aboriginal archaeology, although the presence of isolated Aboriginal objects in alluvial soils in close proximity to the river cannot be discounted.

6.1.5 Conclusions and management recommendations for the proposed Stage02 irrigation project

Soil mapping in the northern amphitheatre area identified no natural, undisturbed deposits, and there are no deposits in the northern study areas tested that have any potential for Aboriginal archaeology.

Soil mapping in the southern amphitheatre area identified one deposit (Unit VI) at the river's edge that appears to represent immature topsoil and is the only deposit in the southern study area that retains potential for Aboriginal archaeology to be present. However, this potential is assessed to be low.

Soil mapping confirmed there is only one location (PPAP31) with the potential to contain Aboriginal objects that may be harmed by the proposed Stage 02 irrigation works. While it is not considered likely that the works proposed will impact upon subsurface Aboriginal objects, the possibility that isolated Aboriginal objects with no associated archaeological deposit and insecure archaeological provenance other than to a specific soil deposit may occur in this location cannot be entirely discounted although again this probability is considered to be low.

In exercising due diligence in planning for the potential for what would in effect be 'unexpected finds', the only secure option is for the Trust to undertake the proposed irrigation works at the river's edge according to the terms and conditions of an AHIP issued for the project by the OEH.

No documented historical sites or 'relics' will be impacted by the proposed irrigation works. The potential for the works to impact upon historical archaeology is considered to be generally low, and the only location that is reasonably suspected where archaeological features and deposits could survive in the vicinity of the locations tested by the soil mapping program is under the existing line of Byrnes Avenue (former Oak Avenue).

There exists the possibility that earlier road fabrics are sealed beneath the current road surface. There is no direct historical evidence that the earliest followed the same line along the river front as today, but this is assumed. The survival of evidence a 'Phillip's period' or 'Macquarie period' roadway in this location is unlikely because of accumulated landuse impacts (farming, grazing, twentieth century road making, filling) and the geomorphologically active environment (flooding, erosion etc). In any case, it is likely that any early roads or tracks established in this location will have been unformed and unsealed, and repairs and improvements will only have been rudimentary and likely to have left only ephemeral archaeological traces.

Comparative data for the earliest phase of use of The Crescent is available for nearby 'Governor Phillip Entrance Drive' (c.1792) on the grassy shale slopes below the southern side of OGH. With the riverfront in mind at The Crescent, although historical archaeological evidence of c.1790s or early to mid-nineteenth century

road fabric is not reasonably expected to be present and/or survive under Byrnes Avenue, its presence would be a rare find. Recording this potential archaeology under controlled archaeological conditions and using methods guided by research designs designed to suit the salvage and recording of 'relics' and Aboriginal objects concurrently would potentially be of considerable historic and scientific significance. Recording the sub-road soils and fill profile would also help the reconstruction of the known and potential natural environmental stratigraphic sequence in this part of The Crescent and river's edge as mapped by the soils program on either side of Byrnes Avenue. This information would also be of value to any concurrent Aboriginal investigations undertaken under an AHIP, and more importantly, would provide a methodological and theoretical framework to receive and manage Aboriginal objects that may be exposed.

As for Aboriginal heritage, in this circumstance, in exercising due diligence and planning for what would in effect be an 'unlikely find', the Trust should undertake the proposed irrigation works that will affect Byrnes Avenue and at the river's edge according to the terms and conditions of an Excavation Permit issued for the project by the *NSW Heritage Council*. It was recommended that:

- An Excavation Permit under s.60 of the *NSW Heritage Act 1977* should be obtained from the *NSW Heritage Council* to allow a heritage mitigation and management strategy to be implemented including a program of historical archaeological test excavation and recording of works proposed at Byrnes Avenue that may impact upon historical archaeological 'relics' under the Act.
- The s.60 Application should be supported by an archaeological research design and excavation methodology (ARDEM) that is suited to the recovery/recording of both 'relics' under the Heritage Act and Aboriginal objects under the NPW Act, and that this mitigation method is compliant with both of these Acts.
- An Aboriginal Heritage Impact Permit under s.90 of the *National Parks and Wildlife Act 1974* should be obtained from the *NSW Office of Environment and Heritage* to allow an archaeological mitigation strategy to be implemented prior to the proposed works proceeding on the riverbank on the eastern side of Byrnes Avenue.
- The s.90 Application must follow current *Consultation Requirements* (OEH 2010) and be supported by an Aboriginal archaeological and cultural heritage assessment (AACHA) that includes an appropriate method to mitigate harm, and is in this circumstance, also commensurate and compliant with the proposed s.60 investigations archaeological recording approach.

6.1.6 *Implications of the results for the CSS*

No documented or potential Aboriginal archaeological sites or objects are expected to be harmed by the use of The Crescent amphitheatre or down at the river's edge that would in the case of the latter, unlikely exceed the accumulated traffic and use impacts during 'normal' periods of summer use but which may be spread out (in terms of numbers) over a longer time frame.

Likewise, outside of the above issues raised for future irrigation works under Byrnes Avenue and down to the sandstone river retaining wall, that is not affected by the operations of the CC, there is a very low probability that any 'relics' protected under the *NSW Heritage Act 1977* will be impacted by future uses in these spaces.

6.2 The Crescent (ridge) & Paddocks

6.2.1 Introduction

The following sections document the results of a soil testing program recently undertaken for this 'CSS HIA' that has mapped the nature and extent of subsurface deposits across the 'monuments' area on The Crescent ridge and the adjacent section of the Paddocks Precinct on the southeast side of Domain Creek. The interpretation of the stratigraphic profile across the various locations tested is based on whether deposits are indicative of the Blacktown Soil Landscape (BSL) or alluvial or early historical period - all with potential to contain Aboriginal objects and some with the potential to contain 'relics' - or comparatively modern soil deposits or introduced fills with no Aboriginal archaeological potential or sensitivity.

The 'monuments' area is proposed to be used during future events for events as a low-key ('table & chair') venue with food and beverage and other amenities located on Long Avenue. The soil mapping was completed to gain a better understanding of the nature and depth of the soils in this location, and the risk of Aboriginal objects or historical 'relics' being exposed by the expected use of this part of the ridge for short-term periods over the summer by possibly larger numbers of people than would be expected to use the location during normal use periods.

The same broad objectives also applied to the adjacent Paddocks area tested by this auger sampling program, whereby the new data could be interpreted in the light of the existing archaeological (Comber 2016) and geomorphological (Player 2015) knowledge base available for the western side of Domain Creek and be used to inform future uses for this part of the Park during the CSS. Some of these potential archaeological risks were initially framed around issues about soils compaction (from vehicle movement, stage(s) construction, concentrated crowds etc) and ground exposure that could expose and damage Aboriginal and historical archaeological objects and 'relics'. These risk assessment categories were refined as the auger testing proceeded as discussed below.

The findings of this soil mapping exercise, within the scope of reference of application for the localities assessed in this report, support the Aboriginal (and historical) archaeological management recommendations that are presented in the final sections of this document

6.2.2 Field recording & identification of issues for consideration

The proposed activity area takes in several landforms which have been subject to both natural and anthropogenic processes that have altered the topography of the pre-Contact landscape. Landforms include a ridgeline, upper, middle and lower slopes as one moves northwards from the area designated 'monuments' into the Paddocks Precinct. Domain Creek forms the drainage that these slopes supply with run-off and colluvial sediments.

The BSL topsoil – A, A¹ and A² horizons - profiles retain high Aboriginal archaeological significance and sensitivity, and the issue of landform is important in the assessment of whether there is a low, medium or high

probability of Aboriginal archaeological objects or deposits being present. There is in broad terms a relatively high chance of locating isolated Aboriginal objects in the BSL archaeological (i.e. topsoil) contexts, and to progress this assessment, two factors are considered relevant in terms of predicting the occurrence, nature, extent and possible significance of potential Aboriginal archaeological deposits that may exist within the activity area:

- Any fills encountered will have zero potential for Aboriginal archaeology and will not require any further consideration in terms of heritage; and
- The BSL – as a residual (i.e. weathered) soil formed *in situ* (in place) has the potential for a unimodal distribution of archaeological deposits confined to the topsoil horizon.

The study area has the potential for these sensitive archaeological deposits to be present to varying depths and horizontal extents. However, there is also the potential for these archaeological deposits to be truncated, completely eroded or removed, and/or capped with disturbed fills or historically modern colluvial deposits or windblown sand. The absence or presence *in situ* shale derived topsoils will determine the most appropriate management strategy for the two study areas.

6.2.3 Soil mapping rationale

The following sections present and discuss the results of a hand-held auger program that maps the nature, extent (and ranks the significance) of surface and buried deposits across the two locations of the study area.

The suitability of the method to identify the subsurface conditions in the current circumstance is in summary:

1. Hand-held soil augers (diameter of 100mm or less) are considered a low impact activity under the *National Parks and Wildlife Regulation 2009*.
2. The current investigations comprised a program of geological (soil geomorphology) mapping of surface and subsurface deposits rather than identify archaeology itself;
3. The method can produce a three-dimensional ‘mud-map’ of the study areas that illustrate the depth and horizontal extent of:
 - a. Modern or relatively modern fills with no archaeological potential and therefore no impediments to the proposed regeneration program;
 - b. Sediment blankets reflecting both natural and anthropogenically induced erosion of non-sensitive archaeological deposits with no archaeological potential and therefore no impediments to the proposed regeneration program;
 - c. Early historical deposits with the potential for both Aboriginal and historical archaeology and therefore areas to be avoided because of the potential to undertake archaeological test excavations;
 - d. BSL subsoils or parent geology with no archaeological potential and therefore no impediments to the proposed regeneration program; and
 - e. BSL topsoils with high archaeological potential and therefore areas to be avoided because of the necessity to undertake archaeological test excavations.

Locating surface soils, buried soils and palaeosols is paramount in geoarchaeological assessments since they are the most likely contexts to retain *in situ* archaeological features and deposits. Simply put, people live on landsurfaces and stable landsurfaces are represented by surface soils, buried soils and palaeosols.

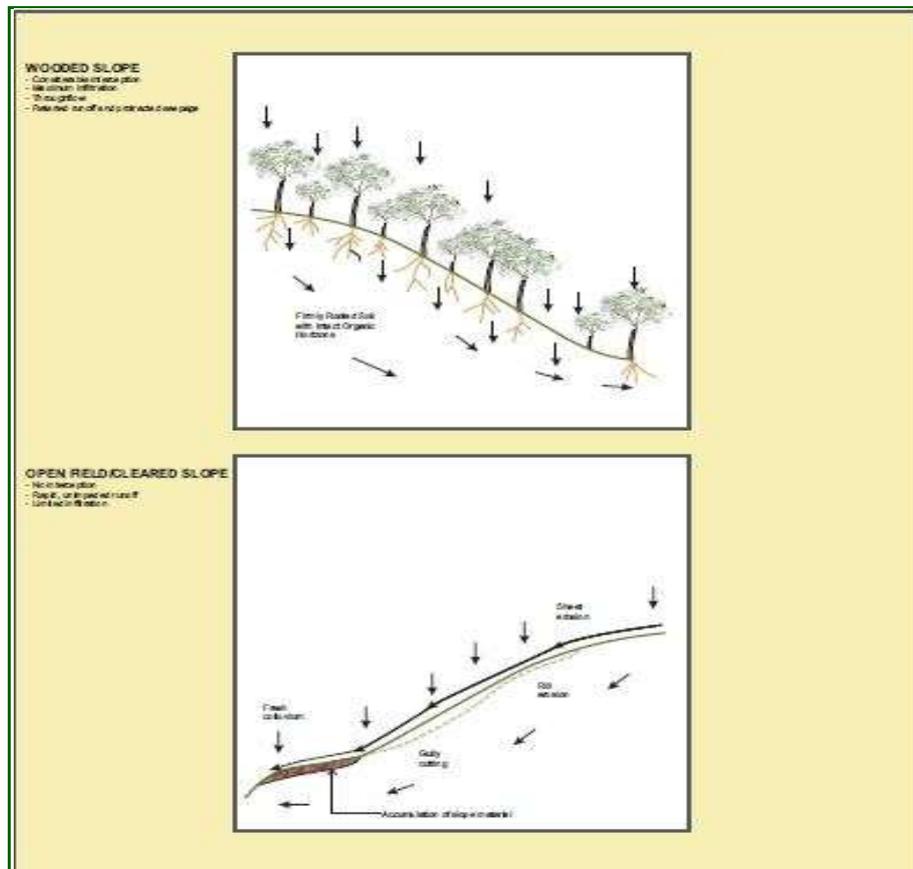
Geomorphic processes on slopes

Geomorphological analysis is an important part of geoarchaeology and hence archaeological interpretations. Topographic features are directly relevant to occupation and land use across landscapes by Aboriginal people.

It is assumed that Aboriginal groups will have used various landforms differently in the past: therefore, a background understanding of landforms within a study area is necessary for the development of predictive models detailing site location and site types.

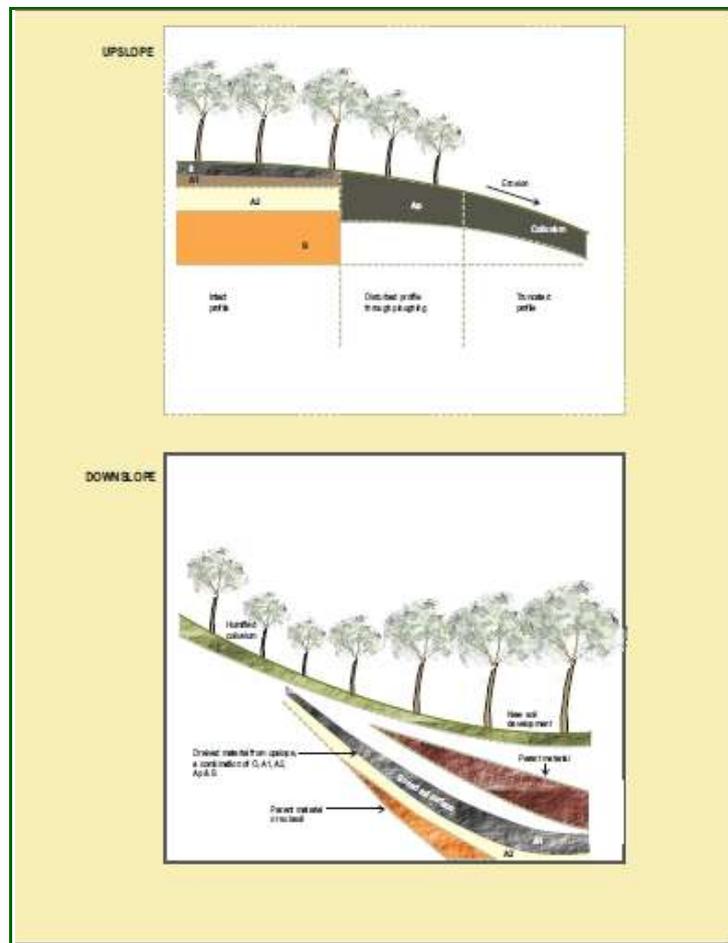
Equally, geomorphology provides the landscape context for understanding archaeological site formation processes, post-depositional changes and ultimately the likelihood of archaeological site preservation. In most open environments where artefact scatters occur they essentially act as part of the natural system: they are subject to the same forces of erosion and aggradation that affect soils and sediments.

Figure 6.8: Contrasting run-off and infiltration on wooded slopes and cultivated slopes (adapted from Butzer 1982)



A relatively simple illustration of the general suite of geomorphic processes that act on slopes under pre- and post-Contact land management conditions is given in **Figures 6.8** and **6.9**. Where slope forms are relatively stable under normal (i.e. vegetated) conditions, rainfall is intercepted by plant life (particularly trees), thus breaking raindrop impact and preventing direct rains-plash on mineral soils (Butzer 1982:123). The presence of organic leaf litter acts as a cushion to water impact as well as a ‘sponge’ soaking up excess water. These conditions divert surface water from rapid runoff to slow lateral “through-flow”, whilst roots serve to bind the soil mantle. The net result is that surface runoff is reduced in amount and velocity, soil moisture is enhanced, and groundwater seepage is maintained. This has a knock-on effect of mediating stream discharge, particularly after heavy storms, and regulating the hydrological cycle (*ibid*).

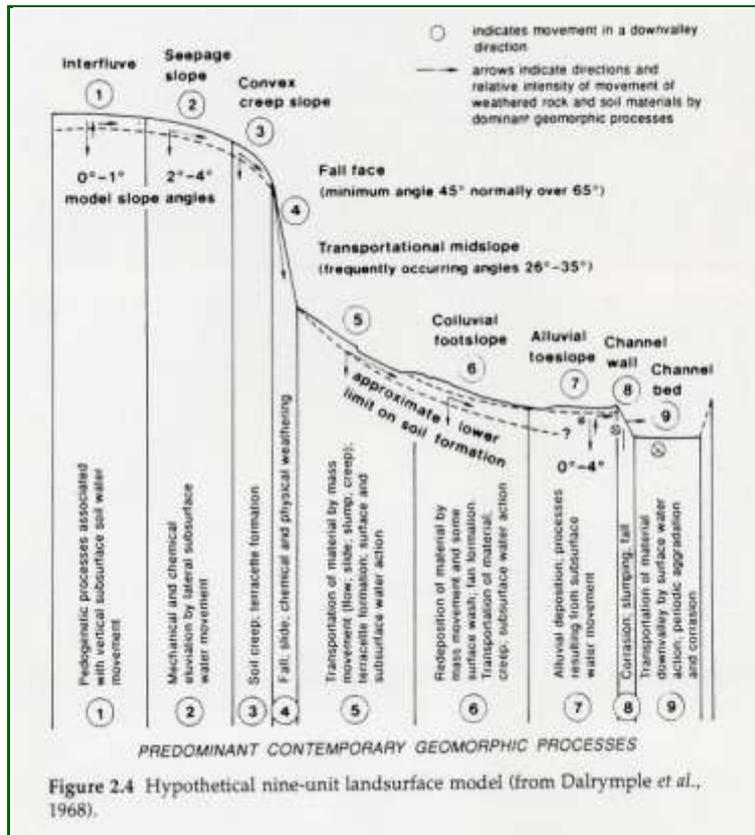
Figure 6.9: Upslope soil disturbance or truncation and down-slope colluvial deposition of soil (adapted from Butzer 1982)



Conversely, the effects of removing vegetation removes these natural controls, exposing mineral soils to the full effects of rain-splash and sheet erosion, causing fine grained material to become suspended and thereby flushed off slopes. Once begun, these processes are difficult to stabilise or reverse. The various geomorphic processes that are illustrated in the figures above occur on intact soils located on sloping landforms and are relevant to the study area.

By coupling an appreciation of potential geomorphic processes relevant to the ‘monuments area’ and Paddocks Precinct with a standard way of mapping them, management of soil landscapes and their heritage significance is better informed through an appreciation of landscape evolution. A nine-unit land-surface model has been developed by Dalrymple et al (1968) as a two-dimensional approach to modelling landscapes. The main components of the model include the form (or shape) of the landscape as well consideration of contemporary geomorphological and pedogenetic processes. Slope profiles are sub-divided but integrated by considering material and water flow across the profile. Gerrard (1992: Figure 3) has mapped this as below.

Figure 6.10: Hypothetical nine-unit land-surface model (adapted from Gerrard 1992)



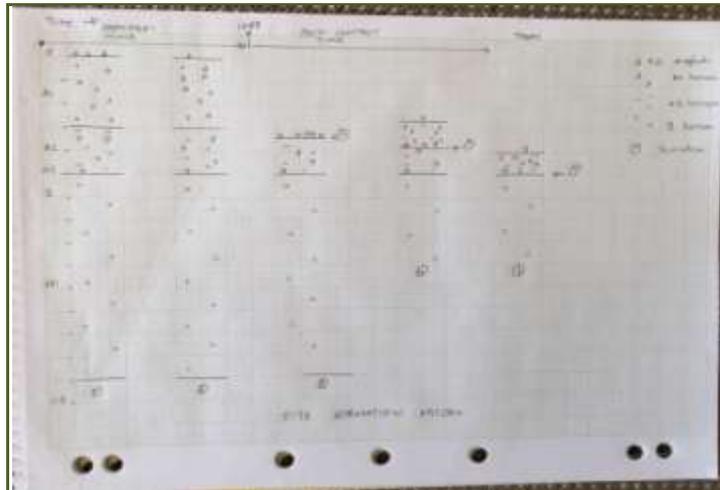
The Dalrymple et al (as mapped by Gerrard 1982) model is an efficient method of interpreting the processes which affect the complete landscape in all its forms, and correctly applied this nine-unit land-surface model provides a framework for understanding where archaeological sites are likely to be preserved in the landscape and what depositional and post-depositional processes are likely to have prevailed.

A simple site formation model

A simple site formation model is presented in **Figure 6.11** that is specific to Aboriginal stone artefacts and is applicable to the BSL. It helps conceptualise the nature of the archaeological record within (large) parts of Parramatta Park that are underlain by shale geology and have this type of soil.

Five stages are presented in a progressive chronology representing pre- to post-1788 landscape conditions. Stages 1 and 2 represent an intact BSL profile (Bannerman and Hazelton 1990) with a potential for half a metre of archaeological deposit. Stone artefacts are found on the surface, as well as a unimodal – i.e. mixed - distribution within the A¹ and A² horizons. The primary process responsible for artefact patterning in this context is bioturbation.⁴ These stages reflect the pre-Contact landscape with relatively stable soil mantles. Stage 3 reflects a truncated BSL profile where the A1 horizon has been completely removed and the upper part of the A² horizon is truncated. Stone artefacts previously contained within the A¹ and upper parts of the A² have been eroded and some remain on the surface. This is a very common situation in areas where erosion has ceased to dominate the landscape processes before the complete erosion of topsoils. Stages 4 and 5 are indicative of BSL profiles that have been eroded and subsequently buried beneath colluvial sediment blankets, a common feature on mid to lower slopes on shale geology. Here stone artefacts have been incorporated into redeposited A¹ and A² soils which have travelled down-slope. Stages 4 and 5 are well represented in the shale geology of Parramatta Park and the Cumberland Plain generally. To generally exemplify, yearly erosion rates of nearly seven tonnes per hectare have been recorded in urban catchments, up to 6.7 t/ha year in cropped settings, and up to 2.5 t/ha per year in grazed woodland (Erskine et al 2003).

Figure 6.11: A simple five stage site formation for the BSL



Considering the long use of Parramatta Park as a working agricultural landscape, following sections demonstrate that Stages 4 and 5 represent the stratigraphic reality of the ‘monuments area’ and the areas of the Paddocks Precinct tested. Namely, there were no intact BSL profiles identified in the areas investigated, and the potential for *in situ* Aboriginal archaeology within the two study areas is thereby zero. There is however a low probability that reworked stone artefacts may be found in the colluvial sediment blankets of reworked A and B horizon soils in the areas investigated. These issues are explained shortly.

Geology and soil geomorphology of the study area

⁴ However, there will always be examples of buried surfaces associated with *in situ* features such as hearths and these should not be discounted in archaeological testing programs.

The underlying bedrock geology of the study area is composed of Ashfield Shales (Clark and Jones 1991). These geological deposits are composed of sideritic (a type of iron carbonate) claystone and siltstone and provide the parent material for the BSL as well as material for the associated alluvial Birrong and Luddenham soil landscape north and east of the study area (Clark and Jones 1991; Smith and Clark 1991).

Figure 6.12: The Crescent c.1791. The trees lining the ridgeline on the right represent the current 'monument area' (Source: Mitchell Library DG SV1A-24 a1528525t).



Early historical paintings and later photographs depict the area of the Monument as a ridgeline sloping sharply eastwards towards the Parramatta River, with more subdued slope profiles to the north, west and south (**Figure 6.12**). Originally the area would have been vegetated, a factor that would have kept slopes stabilised and controlled sediment run-off.

The fact that the study areas represent Australia's first farm and an observatory was built adjacent to where today's Monument stands indicates that by the early 1820's, the shale ridgeline would have largely been cleared of trees. This would have exasperated erosion of soils from the high ground towards creeks.

The ridgeline and slope would have been mantled by BSL soils dominated by silt and clay components. Soils are mapped as the BSL across the entirety of the study area (Bannerman and Hazelton 1990: Figures 3 and 4), but the soil landscape mapping has been undertaken at a course resolution that is not applicable to fine scale landscape analyses.

Site specific studies such as the current data recovery will refine the known sequence. A relatively undisturbed soil profile would be expected to retain between 0.40m – 0.60m of topsoils divided into A¹ and A² horizons (*ibid*): the topsoils represent the only part of the BSL soil profile that are potential archaeological deposits. The subsoil clays were formed prior to occupation of Australia by Aboriginal people.

Figure 6.13: Soil Landscapes of the Penrith 1:100,000 Soil Landscape Map (Bannerman and Hazelton 1990)

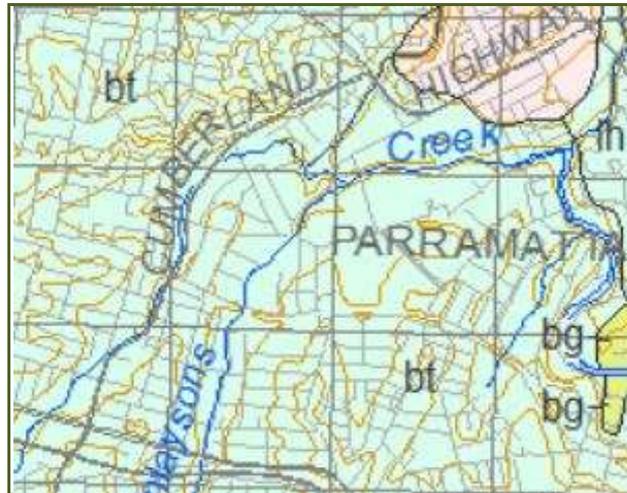
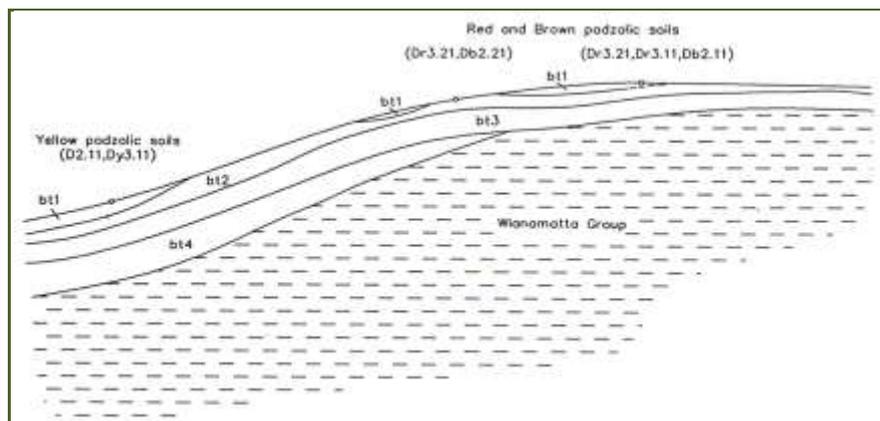


Figure 6.14: Soil relationships of the Blacktown Soil Landscape (Bannerman and Hazelton 1990: pp38)



The BSL soils are described as (Bannerman and Hazelton 1990; see **Figure 6.14**):

1. A brownish black loam found as an A horizon (identified as bt1);
2. A hardsetting brown clay loam found as an A2 horizon (identified as bt2);
3. A strongly pedal, mottled brown light clay usually found as a subsoil B horizon (identified as bt3); and
4. A light grey plastic mottled clay found as a deep subsoil above the shale bedrock, i.e. a B3 or C horizon (identified as bt4).

6.2.4 Previous work

The current auger program has followed an earlier geomorphological study conducted at the ‘monument area’ and in the Paddocks Precincts (Player 2015). This study investigated two main landforms; the ridgeline of The Crescent – part of which falls within the current ‘monuments’ study area – and a larger section of the Paddocks Precinct, albeit on the opposite bank (west) of Domain Creek to the area investigated for this study. The results of this study can be summarised as:

A soil profile recorded on the Crescent ridgeline identified a recent colluvial surface deposit overlying a thin charcoal horizon over truncated BSL subsoil clays. It identified the recent – or at least post-Contact – age of the surface deposits on the ridgeline landform.

Three further soil profiles were recorded by Player in areas on the north side of Domain Creek on landforms suggesting a floodplain origin: however, the stratigraphic profiles revealed a combination of in situ BSL topsoils as well as features indicative of ploughing and agriculture. The latter features can be identified on the surface as ‘ridge and furrow’ microtopography.

This earlier work demonstrated that both pre- and post-Contact deposits are resident in the context of the ridgeline of the Crescent and the flats associated with Domain Creek along the northern bank. The management of these deposits is directly related to whether they retain extant Aboriginal archaeology in primary versus secondary archaeological contexts.

6.2.5 Auger program

A series of soil auger transects was proposed across the ‘monuments’ and Paddock Precinct study areas. Auger probe locations were aligned on the basis of providing a soil profile from the ridgeline (PPAP31-32) northwards and taking in the upper-middle slope boundary (PPAP16), as well as the middle (PPAP17, 19-21) and lower (PPAP18, 22) slopes. The number of auger probes was dependent on the size of the study area and the nature of the landform(s), i.e. simple (single landform) or complex (associated suite of landforms). Spacing of between 40 – 60m was adequate along each individual auger transect was maintained in order to adequately assess the subsurface deposits of individual and transitional landforms.

Recording was undertaken using the standard for recording landforms, deposits and terminology in Australia, (*Australian Soil and Land Survey Field Handbook* 2009). The recording of each auger probe involved:

1. Hand-held GPS location of each soil auger location;
2. Hand-augering of deposits recording:
 - a. Depth;
 - b. Whether a boundary – i.e. new deposit – was identified;
 - c. Colour (for natural deposits only) using the Munsell soil colour chart, noting whether deposits were dry, moist or wet;
 - d. Field Texture;
 - e. Inclusions;
 - f. Where applicable, soil (ped) structure or sedimentary features; and
 - g. Interpretation of the deposit, e.g. soil horizon, sediment, feature or fill.

For the purposes of this study, a single type of soil auger tip was used. Because the expectation was that reworked, loose soils and/or fills would be encountered, a bucket head spiral tipped auger was used. This type of auger is the most common type of auger head used in soil sampling programs. However, relevant for most types of soils (except very gravelly/stony soils) and expedient for the current project, it nevertheless provides a ‘disturbed’ sample, meaning the exact nature of soil and sediment boundaries is blurred. This is not a major constraint as the primary purpose of the auger program has been to identify the nature and extent of soils and sediments rather than identify and record a detailed depositional history.

In the field each auger probe was given a unique identifier along with each deposit being provided an identification unit number. Samples of each soil/sediment were individually bagged and labelled accordingly,

care being taken to stay away from mixed boundaries. Whilst in the field, deposits were distinguished on the basis of colour, texture, structure and inclusions.

6.2.6 Results of the investigations

A total of nine (PPAP16-22 and PPAP32-33) auger probes were undertaken spread out across four landforms. The auger probes were located in order to understand the stratigraphic profiles in three areas:

- Soil Profile 1 represented the most complete profile covering the ridgeline (PPAP32), upper slope (PPAP33), upper-middle slope boundary (PPAP16), middle-lower slope boundary (PPAP17) and lower slope (PPAP18);
- Soil Profile 2 investigated the upper-middle slope boundary (PPAP17-19-20); and
- Soil Profile 3 investigated the middle and lower slope profile at the northern end and as a comparison to Soil Profile 1.

Descriptions of the deposits recorded during the auger program are presented in Table 1. Each auger transect is described individually. Distinct deposits and stratigraphy are apparent within each area and provide a stratigraphic (science) based framework for interpreting the archaeological potential of these deposits. Deposits are grouped into stratigraphic units reflecting distinct depositional histories and interpreted in terms of Aboriginal archaeological potential. Subsequently, these results are discussed in terms of management during the course of proposed land use(s) of the areas.

Figure 6.15: Auger probe locations in the 'monuments area' and Paddock Precinct illustrating soil profile locations

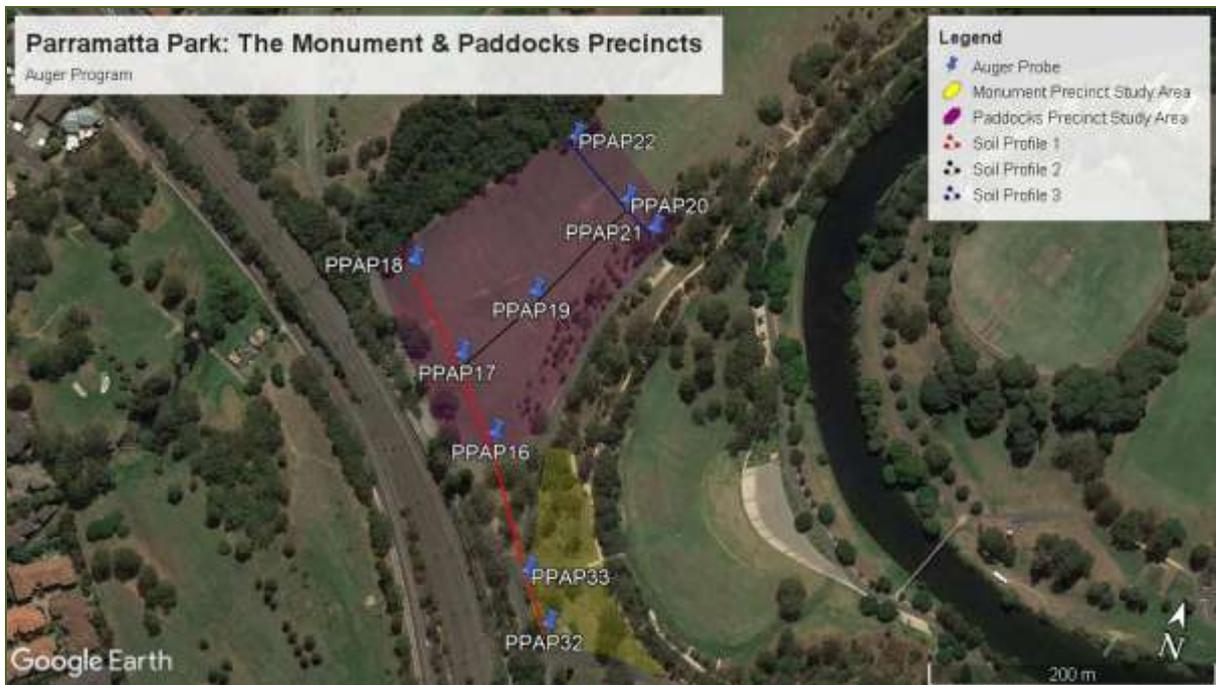


Table 6.2: Auger probe profile descriptions: *Change refers to a boundary between deposits when seen in the ‘auger’ column

Auger Probe I.D	Unit I.D	Depth (m)	Munsell Colour	Texture/Structure	Inclusions	Notes	Interpretation
PPAP 16	100 /Unit III	0-70	10YR 3/3 Dark Brown	Silty clay loam	Common fine roots; occasional fine gravel sized shale gravels	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	101 /Unit II	70-140	7.5 YR 4/3 Brown	Light clay, fine polyhedral peds	Occasional fine gravel sized shale gravels	Truncated subsoil. Firm	Truncated B horizon subsoil
Change	102 /Unit IV	140-300	7.5 YR 4/4 Brown	Light - medium clay fine polyhedral peds	Abundant fine to coarse gravel sized shale	Subsoil	In situ subsoil
PPAP 17	103 /Unit III	0-150	10YR 3/3 Dark Brown	Silty clay loam	Common fine roots; occasional fine gravel sized shale gravels	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	104 /Unit II	150-210	7.5 YR 3/2 Dark Brown	Light clay, fine polyhedral peds	Abundant fine to coarse gravel sized shale gravels	Truncated subsoil. Firm	Truncated B horizon subsoil
		Refusal					
PPAP 18	105 /Unit III	0-80	10 YR 3/2 Very Dark Greyish Brown	Clay loam	Abundant fine roots, occasional fine gravel sized shale	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	106 /Unit II	80-160	7.5 YR 4/3 Brown	Light clay, fine polyhedral peds	Occasional fine roots	Truncated subsoil. Firm	Truncated B horizon subsoil
Change	107 /Unit IV	160-320	7.5 YR 5/6 Strong Brown	Light - medium clay fine polyhedral peds	Abundant fine to coarse gravel sized shale	Subsoil	In situ subsoil
PPAP 19	108 /Unit III	0-20	10 YR 3/2 Very Dark Greyish Brown	Clay loam	Abundant fine roots, occasional fine gravel sized shale	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	109 /Unit II	20-160	7.5 YR 4/3 Brown	Light clay, fine polyhedral peds	Occasional fine roots	Truncated subsoil. Firm	Truncated B horizon subsoil
Change	110 /Unit IV	160-300	7.5 YR 5/6 Strong Brown	Light - medium clay fine polyhedral peds	Abundant fine to coarse gravel sized shale	Subsoil	In situ subsoil
PPAP 20	111 /Unit III	0-210	7.5 YR 3/2 Dark Brown	Silty clay loam	Common fine roots	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	112 /Unit II	210-300	7.5 YR 5/6 Strong Brown	Light - medium clay fine polyhedral peds	Abundant fine to coarse gravel sized shale	Subsoil	Truncated B horizon subsoil

PPAP 21	113 /Unit III	0-150	7.5 YR 2.5/2 Very Dark Brown	Silty clay loam	Common fine roots; ceramic fragment noted	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	114 /Unit V	150-280	7.5 YR 4/3 Brown	Silty clay loam and light clay	Abundant fine gravel sized shale	Mixed A2 topsoil and B horizon subsoil; very firm	Reworked A2 and B horizon
		Refusal					
PPAP 22	115 /Unit III	0-220	7.5 YR 3/2 Dark Brown	Silty clay loam	Abundant fine roots	Shallow colluvial deposit: mixed topsoil and top dressing	Reworked A2 horizon topsoil
Change	116 /Unit V	220-300	7.5 YR 4/3 Brown	Silty clay loam and light clay	Abundant fine to coarse gravel sized shale	Mixed A2 topsoil and B horizon subsoil; very firm	Reworked A2 and B horizon
PPAP 32	137 /Unit I	0-340	Brown (7.5 YR 4/2)	Light clay, silty: weak fine to medium sized polyhedral peds	Abundant fine roots and fine gravel sized shales and sandstone flecks	Increasing firmness with depth	Reworked and disturbed B horizon subsoil
Change	138 /Unit II	340-400	5 YR 3/3 Dark Reddish Brown	Heavy clay, fine to medium polyhedral peds	Abundant fine roots	Strong deposit	Truncated B horizon subsoil
PPAP 33	139 /Unit I	0-280	Brown (7.5 YR 4/2)	Light clay, silty: weak fine to medium sized polyhedral peds	Occasional fine roots and fine gravel sized shales	Increasing firmness with depth	Reworked and disturbed B horizon subsoil
Change	140 /Unit II	280-340	5 YR 3/3 Dark Reddish Brown	Heavy clay, fine to medium polyhedral peds	Abundant fine roots	Strong deposit	Truncated B horizon subsoil

Auger Transect 1/Soil Profile 1: Ridgeline-upper-mid-lower slope

A series of five auger probes (PPAP16-18, 32-33) were undertaken in a broadly north west to south east alignment, starting from the study area identified as the 'Monument' and crossing down-slope along the south eastern boundary of the Paddocks Precinct. This auger transect encapsulated the ridgeline, upper, middle and lower slope landforms overlooking Domain Creek.

In total four stratigraphic units were identified reflecting two stratigraphic scenarios which are specific to landforms. The ridgeline (PPAP32-33) revealed reworked and disturbed B horizon soils as the surface horizon (Unit I) overlying a truncated subsoil B clay horizon (Unit II). There is no evidence of any A-horizon topsoils: the 'monuments' study area is an eroding context demarcated by the ridgeline landform. The upper-mid slope boundary (PPAP16), mid slope (PPAP17) and lower slope (PPAP18) revealed colluvial soil mantle composed of reworked A² soils (Unit III) from upslope lying directly over a truncated B horizon subsoil clay horizon (Unit II).

Collectively, these slope landforms have been subject to erosion in the past removing the original A¹ and A² topsoil horizons and truncating subsoil B horizons, subsequently buried beneath eroded A² soils from the ridgeline. The slope landform elements indicate the dominant geomorphic process is colluvial deposition.

Auger Transect 2/Soil Profile 2: Mid slope

This transect consisted of three auger probes across the mid slope landform section of the Paddocks Precinct orientated north east to south west (PPAP17). Three stratigraphic units were identified (Units II-IV). The stratigraphic profile revealed a colluvial soil mantle composed of reworked A² soils (Unit III) from upslope lying directly over a truncated B horizon subsoil clay horizon (Unit II), which in turn lay directly on an *in situ* and undisturbed B subsoil horizon (B2 or B/C). This mid slope transect confirmed the results of Auger Transect 1, i.e. deposits have been subject to erosion in the past removing the original A¹ and A² topsoil horizons and truncating subsoil B horizons and subsequently burying these subsoils beneath eroded A² soils from the ridgeline. The dominant geomorphic process is again, colluvial deposition.

Auger Transect 3/Soil Profile 3: Mid-lower slope

Auger transect 3 traversed the mid to lower slope landforms along the northern boundary of the Paddocks area investigated and consisted of three auger probes (PPAP20-22). It represents the lowest part of the slope profile investigated across the study area, PPAP22 being the lowest auger probe topographically. Three stratigraphic units were identified (Units II-III and V) illustrating a series of two colluvial deposits, Unit II as previously identified on Auger Transects 2 and 3 (the truncated subsoil B horizon), Unit III – the surface colluvial mantle composed of reworked A² soils – overlying an earlier buried colluvial mantle consisting of mixed A² topsoils and subsoil B horizon clays (Unit V).

The truncated subsoil B horizon was only identified in PPAP20 on the mid slope: it suggests that Units III and V are time transgressive. This means that different landform elements -upper through to lower slope - retain colluvial deposits of different ages that were eroded and deposited progressively over time. This is a common feature of slopes in Australia, the most significant landscape changes occurring as land management practices changed in the post-Contact period. It reinforces the conclusions of Auger Transects 1 and 2 that the dominant geomorphic process today is colluvial deposition.

Figure 6.16: Northwest view along the ridgeline subject to investigation across the 'monuments' area



Figure 6.17: Typical ground conditions on the ridgeline: exposed reworked subsoils



Figure 6.18: South east view of PPAP32 located on the ridgeline near the Bathhouse



Figure 6.19: Soils from PPAP32: top is at 0m on the scale



Figure 6.20: Looking south east at PPAP33 on the ridgeline



Figure 6.21: Soils from PPAP33: top is at 0m on the scale



Figure 6.22: Looking south east and upslope from approximately PPAP17. Scale is 2m



Figure 6.23: Looking northwest and down-slope from approximately PPAP17: note the surface sediment blanket of Unit III



Figure 6.24: Looking northwest at PPAP16: note the introduced surface sandy fill



Figure 6.25: Deposits from PPAP16: the top of the sequence is at 0m on the scale



Figure 6.26: Location of PPAP17 looking down-slope



Figure 6.27: Deposits from PPAP17: 0m on the scale is the uppermost deposit



Figure 6.28: Looking upslope and south east from PPAP18: note the recent sandy fill on the surface



Figure 6.29: Deposits recovered from PPAP18: the uppermost layer is at 0m



Figure 6.30: Looking south east and down-slope at PPAP19: note introduced sandy fills visible on the surface



Figure 6.31: Deposits recovered from PPAP19: the uppermost layer is at 0m



Figure 6.32: Looking south east and down-slope at PPAP20



Figure 6.33: Deposits recovered from PPAP20: the uppermost layer is at 0m.



Figure 6.34: Looking southwest and upslope at PPAP21



Figure 6.35: Deposits recovered from PPAP21: the uppermost layer is at 0m



Figure 6.36: Looking south west and along the lower slope at PPAP21



Figure 6.37: Deposits recovered from PPAP22: the uppermost layer is at 0m.



Figure 6.38: Soil Profile 1

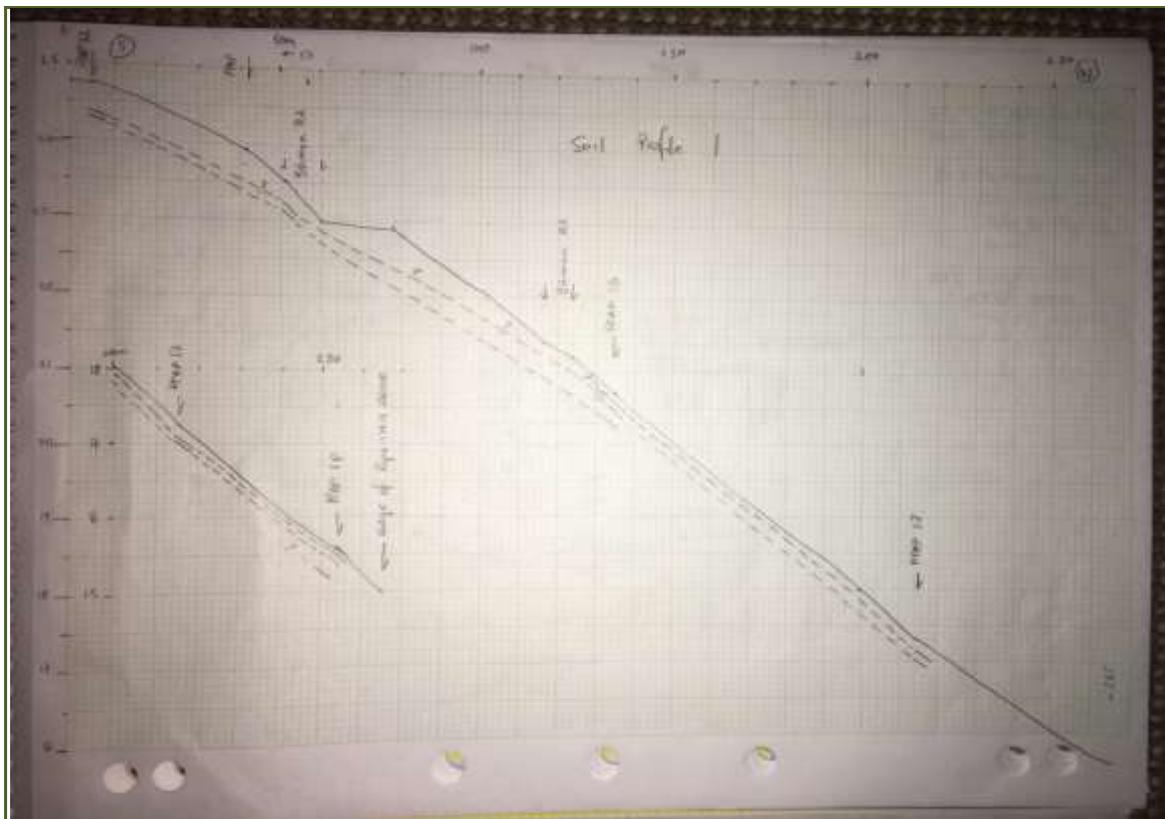


Figure 6.39: Soil Profile 2

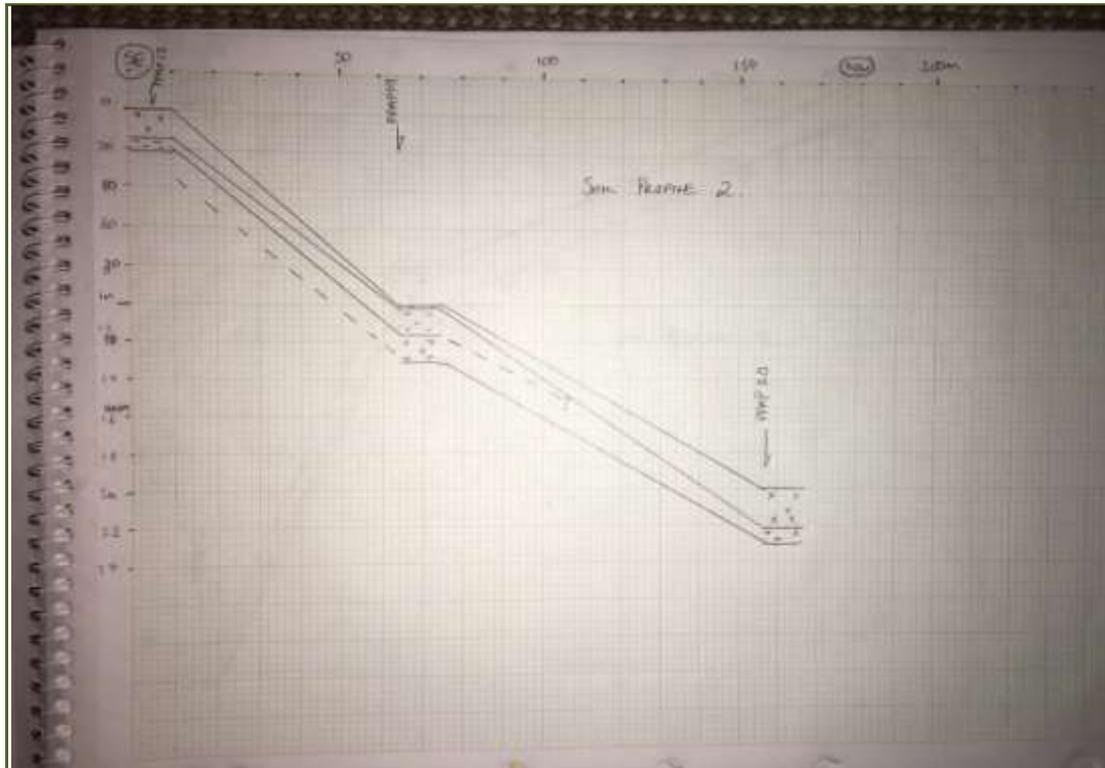
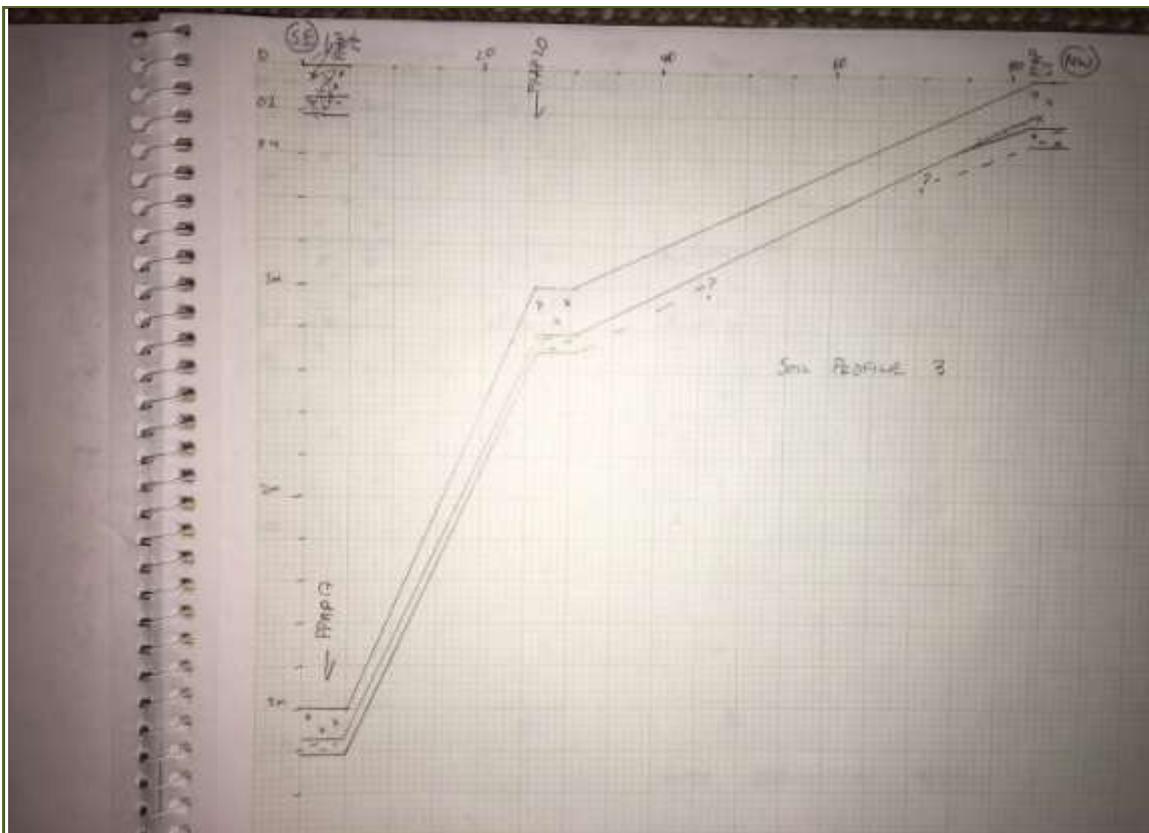


Figure 6.40: Soil Profile 3



6.2.7 Discussion

A series of five auger probes (PPAP16-18, 32-33) identified as Soil Profile 1 were undertaken in a broadly north west to south east alignment, starting from the study area identified as the ‘monuments’ and crossing down-slope along the south eastern boundary of the Paddocks Precinct. This transect covered the ridgeline, upper, middle and lower slope landforms overlooking Domain Creek. Soil Profile 2 consisted of three auger probes across the mid slope landform of the Paddocks Precinct and was orientated north east to south west (PPAP17, 19-20). Soil Profile 3 traversed the mid to lower slope landforms along the northern boundary of the Paddocks area investigated and consisted of three auger probes (PPAP20-22). It represents the lowest part of the slope profile investigated across the study area, PPAP22 being the topographically lowest auger probe location.

In total five stratigraphic units were identified:

- Unit I: a disturbed B horizon subsoil found as the surface horizon on the ridgeline;
- Unit II: a truncated subsoil B horizon found across all landform elements;
- Unit III: a reworked A² topsoil colluvial deposit found across all landform elements except the ridgeline;
- Unit IV: a buried subsoil B² or B/C horizon; and
- Unit V: a mixed deposit of A² and B horizon deposits reworked by colluvial processes.

Units II and IV represent relic subsoils derived from shales typical of the BSL. Whilst both stratigraphic units are *in situ*, as subsoils they are not archaeologically sensitive as they pre-date Aboriginal occupation of NSW. Stone artefacts may be found on a truncated subsoil surface (Unit II) or wedged into the top of the clay (Unit II and IV) as a result of shrink-swell factors: however, the potential of this occurring is low.

Unit I represent a disturbed land-surface that is limited to the area of the ‘monuments’ occupied by the ridgeline and highest topographic point. The fact that the deposit consists of clayey textures supports the conclusion that it represents reworked subsoils and historic fills: the necessary ancillary conclusion is that the original topsoils are no longer present. This deposit retains a mixture of disturbed and reworked pre-Contact deposits and both disturbed historic archaeology and potentially, *in situ* historic archaeology. The potential for disturbed Aboriginal archaeology is low.

Units III and V reflect colluvial sediments that have been mobilised in the post-Contact period and sourced from the higher ground of the ridgeline. Whilst deposits have been grouped together into units based on stratigraphic criteria, it is important to understand that they reflect a continuous cycle of erosion and deposition as local conditions have varied through time. Initial clearance in the immediate post-Contact period and historically long-term agricultural practices as well as built infrastructure – some of which has subsequently been removed – have left their mark on the landscape. Stratigraphic Units III and V have formed in the historic period and represent a relatively mobile sediment blanket if not vegetated. Ancillary activities in the modern parkland environment involving subsurface impacts provide the main modern process that mobilises colluvial sediments. The emphasis here is on the fact that the Paddocks Precinct represents a slope profile that is actively moving sediments down-slope, albeit at reduced rates in comparison to when it was a working farm.

Stone artefacts in this context would be expected to be part of lag gravels left behind when soil mantles were originally mobilised and eroded away and the potential for recovering stone artefacts within this contextual setting is low.

The results of the current auger program coincide with earlier geomorphological studies conducted at the Monument and Paddocks Precincts (Player 2015). A soil profile recorded on the Crescent ridgeline adjacent to the Monument identified a recent colluvial surface deposit overlying a thin charcoal horizon over truncated BSL subsoil clays (*ibid*). This confirms the recent – or at least post-Contact – age of the surface deposits on the ridgeline landform. Three further soil profiles were recorded by Player in areas on the north side of Domain Creek in association with an archaeological test excavation program (Comber Consultants 2015). One of these profiles recorded truncated relic topsoil indicative of the BSL: however, it was associated with a historic crushed sandstone deposit. The remaining two soil profiles targeted ridge and furrow microtopographic features respectively: the results confirmed that these were indicative of ploughing. The area of the Paddocks Precinct investigated in the current auger program was located up slope of Players (2015) sample locations and on the opposite slope and bank of Domain Creek. The fact that the side of the creek sampled by Player does not retain an active sediment blanket suggests the colluvial sediment blanket mantling the slopes below the Monument are entering the creek-line and becoming part of the river system rather than settling in the landscape. Historic evidence of disturbance such as the ridge and furrow features indicative of ploughing, as well as more generic historical cut-and-fill features observed during previous excavations (Comber Consultants 2015) reinforces the fact that post-Contact changes to the soil geomorphology of the study areas have impacted the integrity of potential Aboriginal archaeological deposits. However, in contrast to the current auger program, Player (2015) and Comber (2015) did identify BSL deposits with the potential for bioturbated Aboriginal objects to be located where residual topsoils were retained, albeit in different landform settings to that of the current program.

In summary, the current auger program of geological mapping identified truncated BSL subsoil deposits covered by historical and modern colluvial sediment blankets. The nature of the stratigraphic record here is indicative of cyclical erosion and deposition. These processes vary in tempo, intensity and time depending on factors such as land use, surface vegetation and available sediment supply. Importantly, there is a zero potential of finding *in situ* (primary) contexts in the areas investigated. There is a very low potential for stone artefacts to be present as lag gravels, i.e. within disturbed and reworked secondary contexts.

6.2.8 Management

The management of the auger probes and the locations they represent is listed by unit identifier in **Table 6.1.2**. In summary, the recommendations are:

1. There are no constraints based on Aboriginal heritage in the ‘Monument area’ and Paddocks Precinct since the deposits reflect historic and modern fills or colluvial sediment blankets.

2. There is nevertheless a low potential for stone artefacts to be found within disturbed secondary contexts. Whilst this potential is low, the disturbed nature of the deposits means that serendipity rather than archaeological testing will be responsible for finding Aboriginal objects. The risk is considered low, although it is acknowledged that it cannot be effectively managed by archaeological methods or techniques.

Table 6.3: Stratigraphic unit designations with interpretation and management requirements

Auger Probe I.D	Unit I.D	Depth (mm)	Interpretation	Management
PPAP16	100/Unit III	0-70	Reworked A2 horizon topsoil	No Constraints
	101/Unit II	70-140	Truncated B horizon subsoil	No Constraints
	102/Unit IV	140-300	In situ subsoil	No Constraints
PPAP17	103/Unit III	0-150	Reworked A2 horizon topsoil	No Constraints
	104/Unit II	150-210	Truncated B horizon subsoil	No Constraints
PPAP18	105/Unit III	0-80	Reworked A2 horizon topsoil	No Constraints
	106/Unit II	80-160	Truncated B horizon subsoil	No Constraints
	107/Unit IV	160-320	In situ subsoil	No Constraints
PPAP19	108/Unit III	0-20	Reworked A2 horizon topsoil	No Constraints
	109/Unit II	20-160	Truncated B horizon subsoil	No Constraints
	110/Unit IV	160-300	In situ subsoil	No Constraints
PPAP20	111/Unit III	0-210	Reworked A2 horizon topsoil	No Constraints
	112/Unit II	210-300	Truncated B horizon subsoil	No Constraints
PPAP21	113/Unit III	0-150	Reworked A2 horizon topsoil	No Constraints
	114/Unit V	150-280	Reworked A2 and B horizon	No Constraints
PPAP22	115/Unit III	0-220	Reworked A2 horizon topsoil	No Constraints
	116/Unit V	220-300	Reworked A2 and B horizon	No Constraints
PPAP32	137/Unit I	0-340	Reworked and disturbed B horizon subsoil	No Constraints
	138/Unit II	340-400	Truncated B horizon subsoil	No Constraints
PPAP33	139/Unit I	0-280	Reworked and disturbed B horizon subsoil	No Constraints
	140/Unit II	280-340	Truncated B horizon subsoil	No Constraints

6.2.9 *Implications of the results for the CSS*

There is a low risk that the proposed use of The Crescent ridge during the CSS will result in the exposure and harm to Aboriginal objects. The same applies to non-Aboriginal ‘relics’ for this location, and no Aboriginal or historical archaeological constraints or requirement for specific approval under the NPW Act or Heritage Act for this use or for the proposed use of the Cattle Paddocks Precinct during the CSS are apparent on the basis of the previously presented soil mapping data.

7.0 Conclusions and heritage impact statement

7.1 Identification of heritage impact risks

Potential risks of harm to heritage values that may occur as a result of staging the CSS in the Park have been identified and have been grouped according to Precinct into three broad categories (see **Table 5.1**). Potential impacts to views and settings are considered as a separate (intangible heritage value) evaluation. Also identified are harm mitigation and avoidance measures for each type of heritage impact that can be implemented to reduce the risk of impacts that may occur as a result of the CSS and can be considered for longer-term management purposes.

There is a low probability of harm with a risk that can be effectively managed to existing built-heritage items such as the Bathhouse, Boer War memorial and canons on The Crescent ridge. The same low-risk applies to known historical archaeological sites such as the Bathhouse drains and potential archaeology associated with the nearby Observatory archaeological site.

The short-term management for Aboriginal archaeological site(s) AHIMS #45-5-0864/0762 located on The Crescent ridge, and potential impacts to this heritage site that may occur as a result of the CSS, are summarised separately below.

Anticipated archaeological impacts of the CSS on potential archaeological resources of all periods and types across the Precincts are variable, but in each case, are nevertheless (very) low. In broad terms, there is a low risk of soil erosion and trampling from traffic and concentrated use of The Crescent amphitheatre and ridge, Cattle Paddocks, Domain and ‘Pavilion Flats’ in the Gardens precinct to result from the CSS that may expose Aboriginal objects and archaeological deposits that are protected under the NPW Act and ‘relics’ under the NSW Heritage Act.

Potential environmental heritage impacts that may occur as a result of the CSS include soil disturbance and compaction with the potential to expose original terrain and sediments which have natural heritage value, and may also contain Aboriginal objects and ‘relics’. However, the weights of proposed carnival rides in the Garden Precinct or equipment to support ballooning in the Paddocks is unlikely to be sufficient to depress or displace soil to result in any lasting damage.

7.2 Archaeological risks elsewhere in the Park

The CSS includes the proposed use of the area on the western side of Domain Creek in the Cattle Paddocks Precinct for ballooning and the grassy slopes to the south and east of OGH and extending down to the adjacent strip of river bank for activities including vintage car-showing and small-scale ‘carnival rides’. These areas have not been subject to soil mapping as part of the recent recording program. However, subsurface archaeological data is available for Phillips Drive and the Observatory and along with also geomorphology data for the recent (2016) archaeological excavation on west Domain Creek. This information and a general understanding of the nature of the largely (erosional) Blacktown soils that occur below current grassed areas can be used to guide an

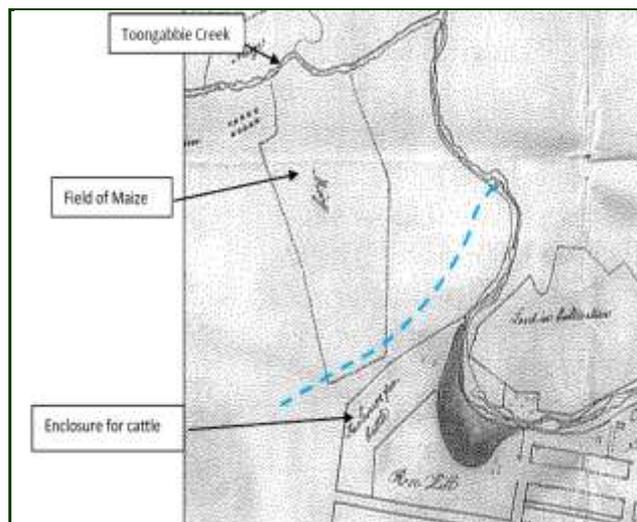
assessment of whether these proposed uses are likely to have a subsurface impact on soils (compaction) and harm to Aboriginal objects and ‘relics’ (via disturbance and damage etc).⁵

Short term compaction of soils by assembled crowds during use of the Paddocks for example is unlikely because it will not be of sufficient weight (people and infrastructure combined, mindful that heavy equipment will be placed on Long Avenue) or duration to cause sufficient soil compaction to potentially displace, damage or break subsurface Aboriginal objects or ‘relics’ in general terms.

It unlikely the accumulated effect would even be measurable compared to that caused by historical herding of cattle on these paddocks for significant periods of its history. They have also been ploughed. An observer in 1905 (CA, 25 April 1905) recalled:

In taking a drive around what used to be termed in olden times, the inner and outer domain, but now more fitly called Parramatta Park, I was surprised to find.....the number of cattle seen grazing over, treading up and disfiguring the face, of what should be beautiful lawns, it had the appearance more of a large dairy farm.

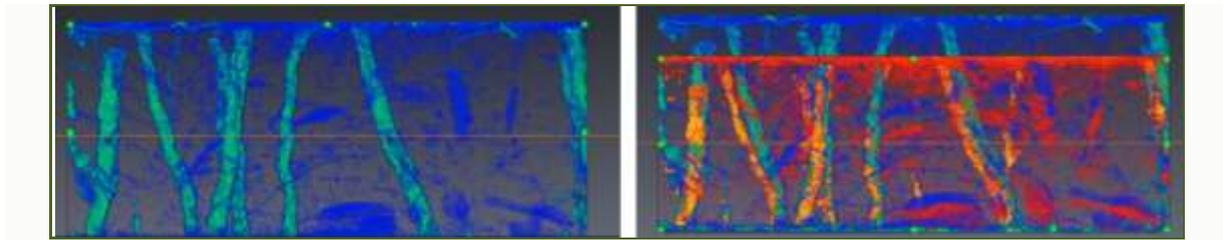
Figure 7.1: 1790 map showing the Domain under cultivation with the enclosure for cattle boldly marked. Domain Creek is not shown and is denoted by blue line (Source: Comber 2016)



The image below shows the unlikelihood that turf and underlying upper loam soils would be sufficiently depressed to caused significant compaction or distortion of soils to enable Aboriginal objects or ‘relics’ to be damaged. Artefacts at the immediate surface or nearby could be ‘scuffed-up’, which could happen at any time and place, but is more likely to occur if existing ground exposures are enlarged or new areas are created during events. However, this possible impact would be localised and not affect the subsurface integrity of the Paddocks or ‘Pavilion Flats’ area of the Gardens Precinct soils as a whole on the basis of what we know of their nature and integrity (and compaction).

⁵ Soil compaction increases soil density, reduces porosity and leads to increased penetration resistance and a degradation of soil structure. Essentially, soil compaction occurs when soil particles are pressed together, reducing pore space between them and heavily compacted soils contain few large pores and have a reduced rate of both water infiltration and drainage from the compacted layer.

Figure 7.2: 3D representation of sub-vertical rootlets before (left) and after 180 kN/m² loading Ngan-Tillard et al (2016)



7.3 Heritage impact mitigation measures

7.3.1 Archaeology and built-heritage

Soils mapping has been completed for the River's Edge Precinct (at the southern end of The Crescent), the northern 'amphitheatre' area in The Crescent, on the Crescent ridge and across the southeast quarter of the Cattle Paddock Precinct. The results of this work clarify a number of pre-existing uncertainties in how to approach management of the potential archaeological resources in these areas, and with these results in mind, future operational heritage impact measures proposed for the CSS include:

- Fencing of individually 'monuments' during events
- Fencing of archaeological sites (Observatory)
- Use of hard stands for placement of large/heavy infrastructure
- Avoid grassed areas in wet weather (or use track-mat)
- Use of protective ground fabric for bump in and out in the Domain and Cattle paddocks
- Use of SEMP 'cleared zones' at northern end of Amphitheatre for placement of infrastructure

7.3.2 Views and settings

The views that are to accompany the CSS may cause or have minor and temporary and short-lasting disruptions to traditional views and settings.

7.4 Statutory approvals

The CSS is not reasonably expected to cause harm to any Aboriginal sites or objects, and no specific activity is planned to occur or is reasonably expected to occur as a result of the CSS that will require approval under the *National Parks and Wildlife Act 1974*.

The CSS is also not reasonably expected to disturb any non-Aboriginal sites or 'relics' that are protected by the *NSW Heritage Act 1977*, and no specific activity is planned to occur or is reasonably expected to occur as a result of the CSS that will require approval for 'relics' under the this Act.

However, this study has raised the issue of the future management of Aboriginal archaeological site AHIMS #45-5-0762/0864 that is located on The Crescent ridge and amongst the 'monuments' area. This location is proposed for use as a dining/drinking space during the CSS, but the archaeological impacts of this use are

expected to be negligible. Little to no topsoil remains in places, and most of the subsurface Aboriginal finds will be lag items found in secondary contexts.

An effective method to conserve the archaeological site in its present condition would be to stabilise the soils and revegetate to stop soil erosion. This action would change the existing condition of the site and would require an AHIP.

For the purposes of this assessment, it is noted that the existing use of the ridge (and its impact) has not changed in recent years and there is no indication of increased threats to the site apparent by for example recent exposure of artefacts although the soils are continuing to erode. The expected use of the ridge for short-term events is not considered likely to result in the exposure and harm to Aboriginal objects.

A 'doing nothing' approach in the short-term would not be detrimental to the longer term survival of this archaeological site, and will allow the Trust to establish longer term plans for the management of the ridge archaeology following the completion of the CSS.

8.0 Recommendations

On the basis of the research and analysis presented in this report, it is recommended that:

- The WSPT seek approval under s.60 of the *NSW Heritage Act 1977* for the infrastructure that will remain set-up and be used for more than one event during the Crescent Summer-Series.
- The WSPT complete a post-event ‘heritage impact audits’ after individual events (New Years Eve or Australia Day) or at the end of the festival series.
- The WSPT prepare an updated AHIMS recording and Site Card for AHIMS #45-5-0762/0864 that is located on The Crescent ridge to inform future conservation and management plans for the site.

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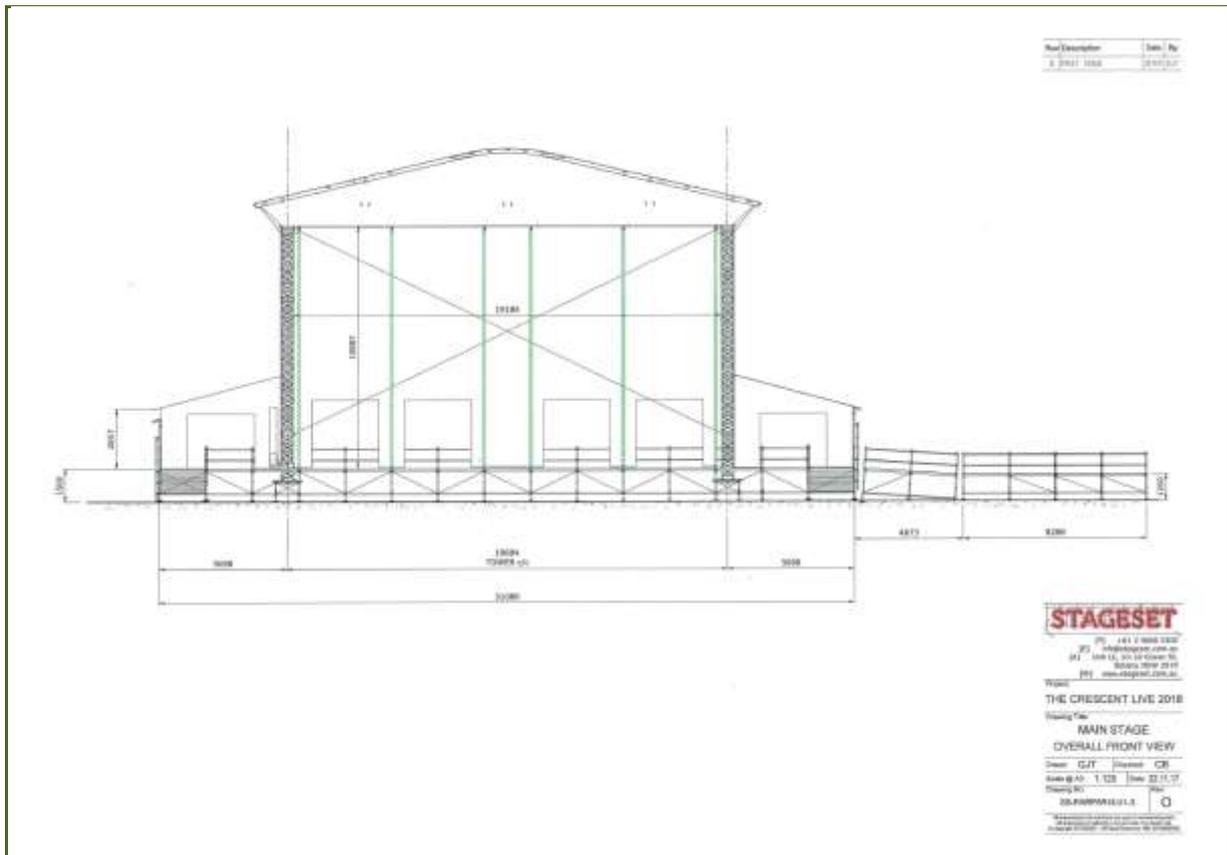
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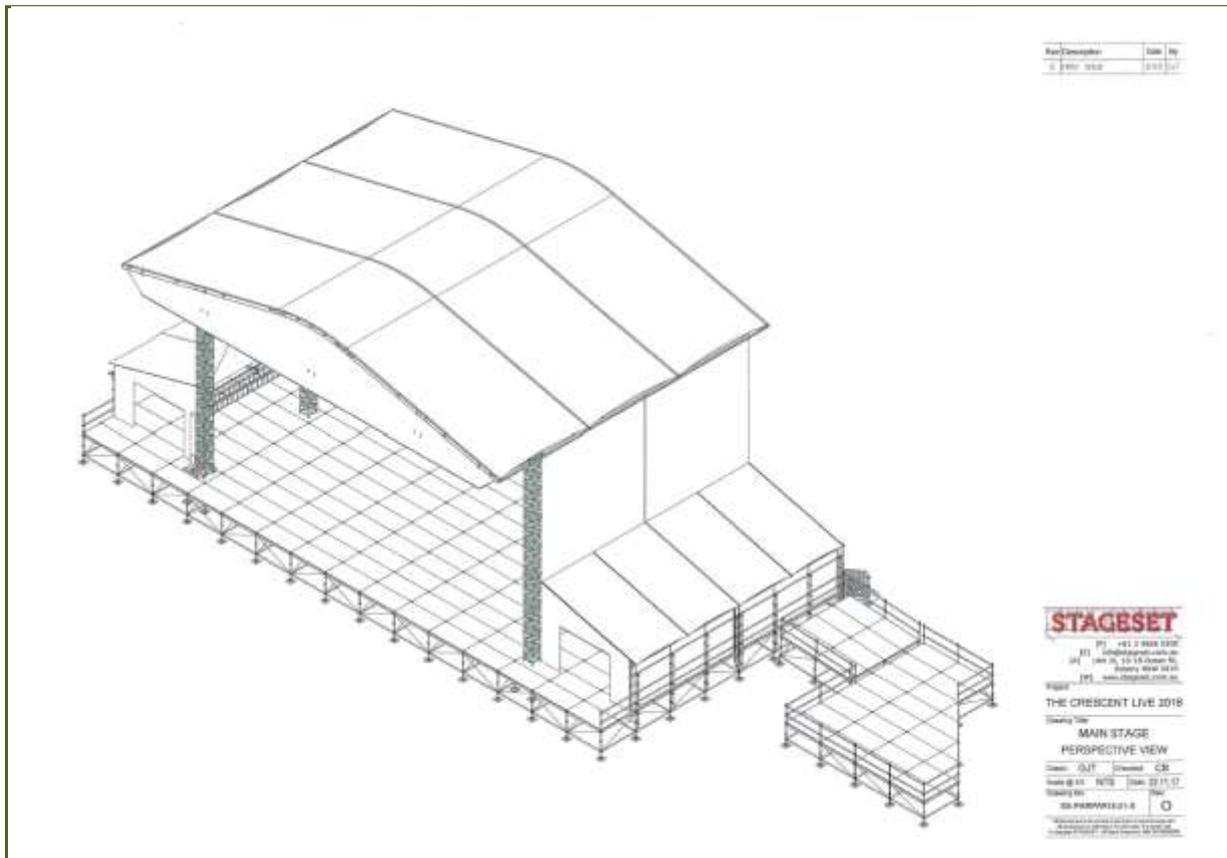
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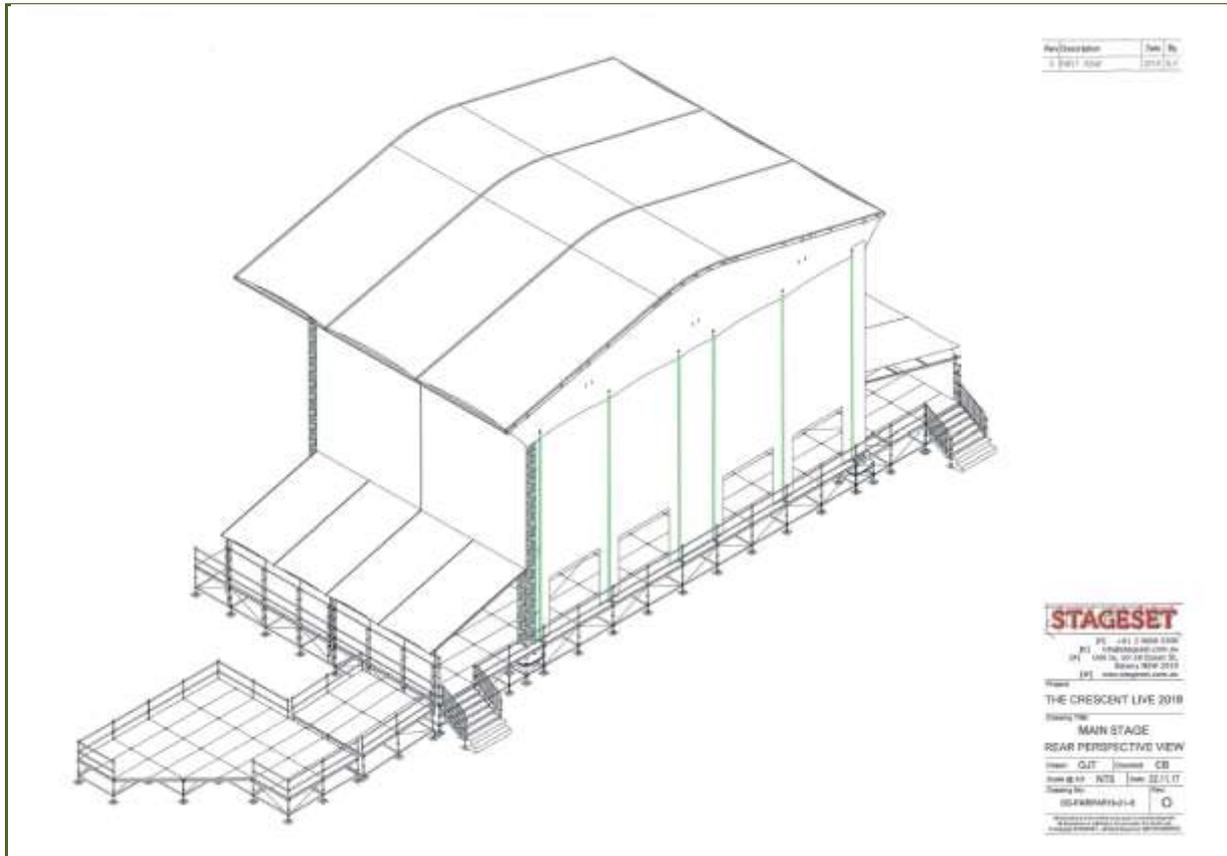
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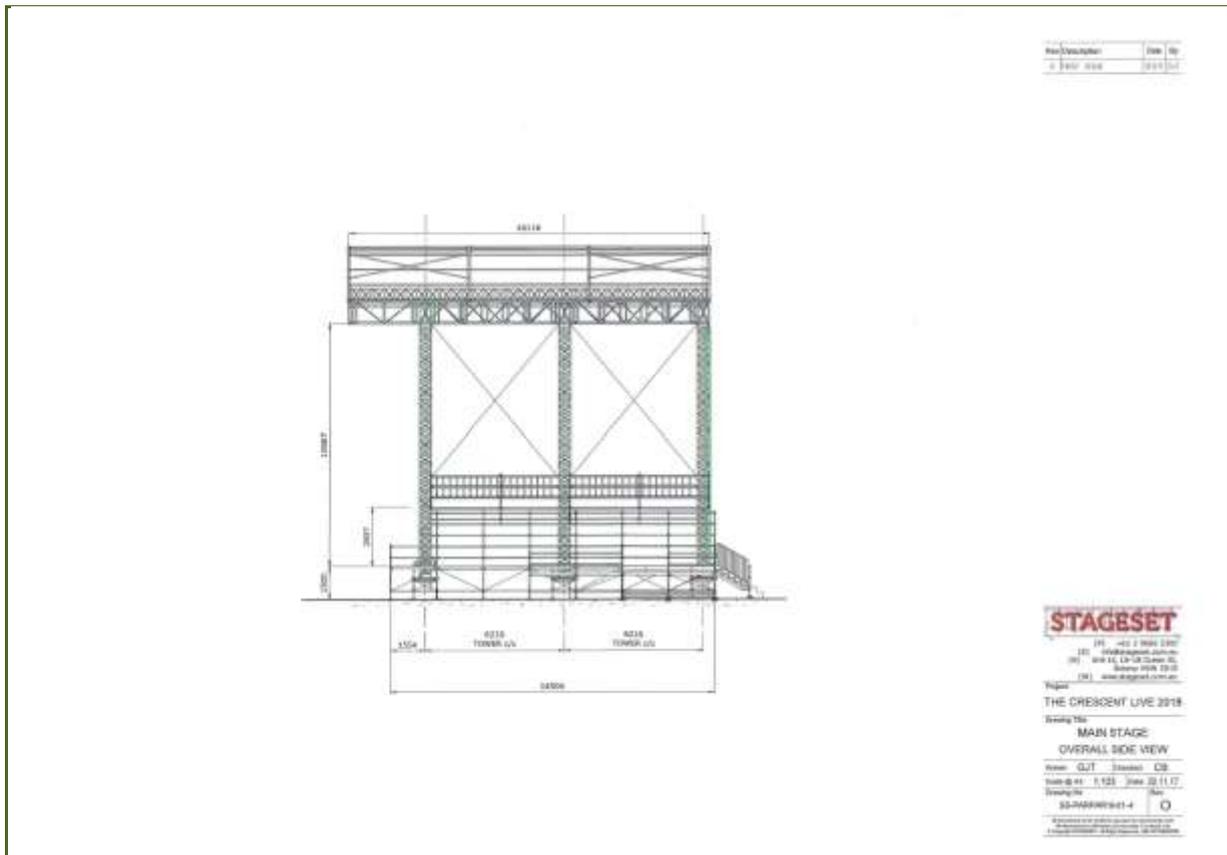
Appendix 1: Main stage layout plans and perspectives

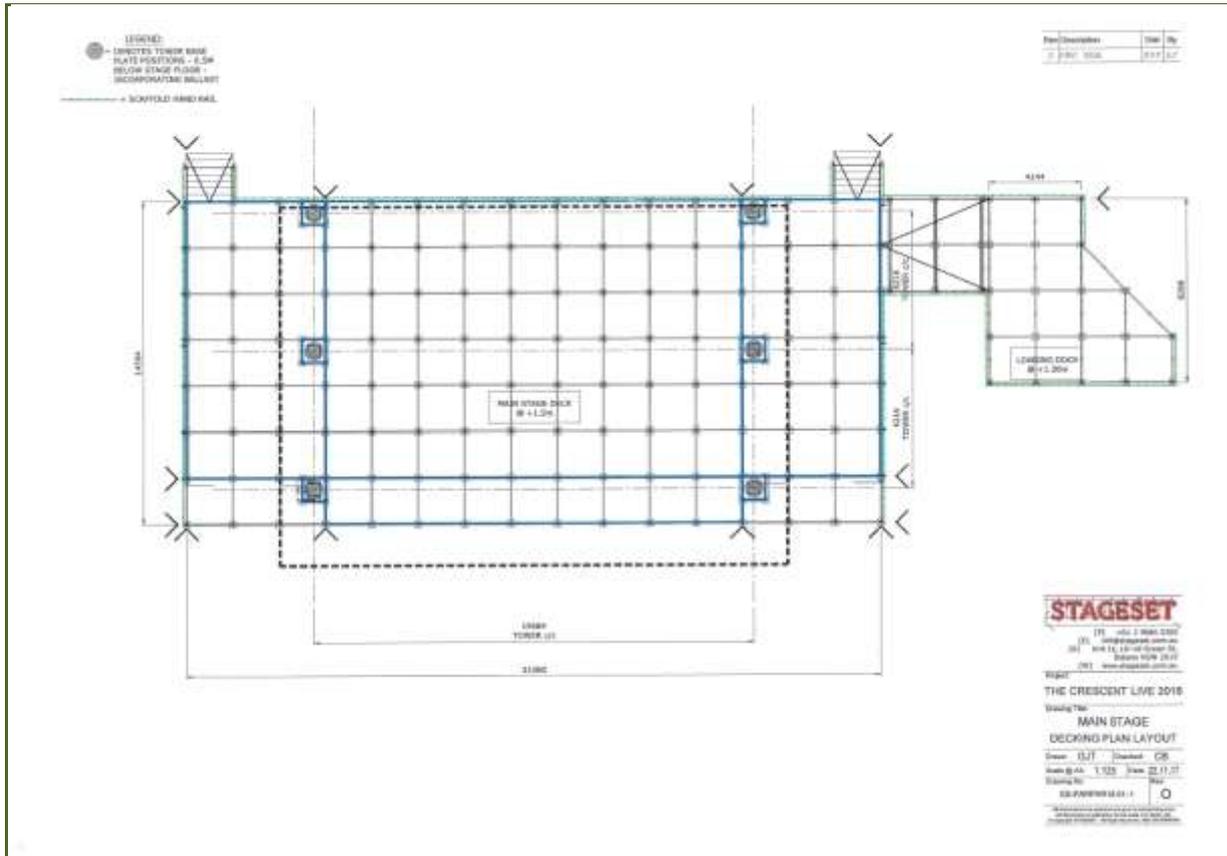
1. Main stage – overall front view
2. Main stage – overall side view
3. Main stage – perspective view
4. Main stage – rear perspective view
5. Main stage – decking plan layout
6. Main stage – roof-grid plan layout
7. Front of house – general arrangement

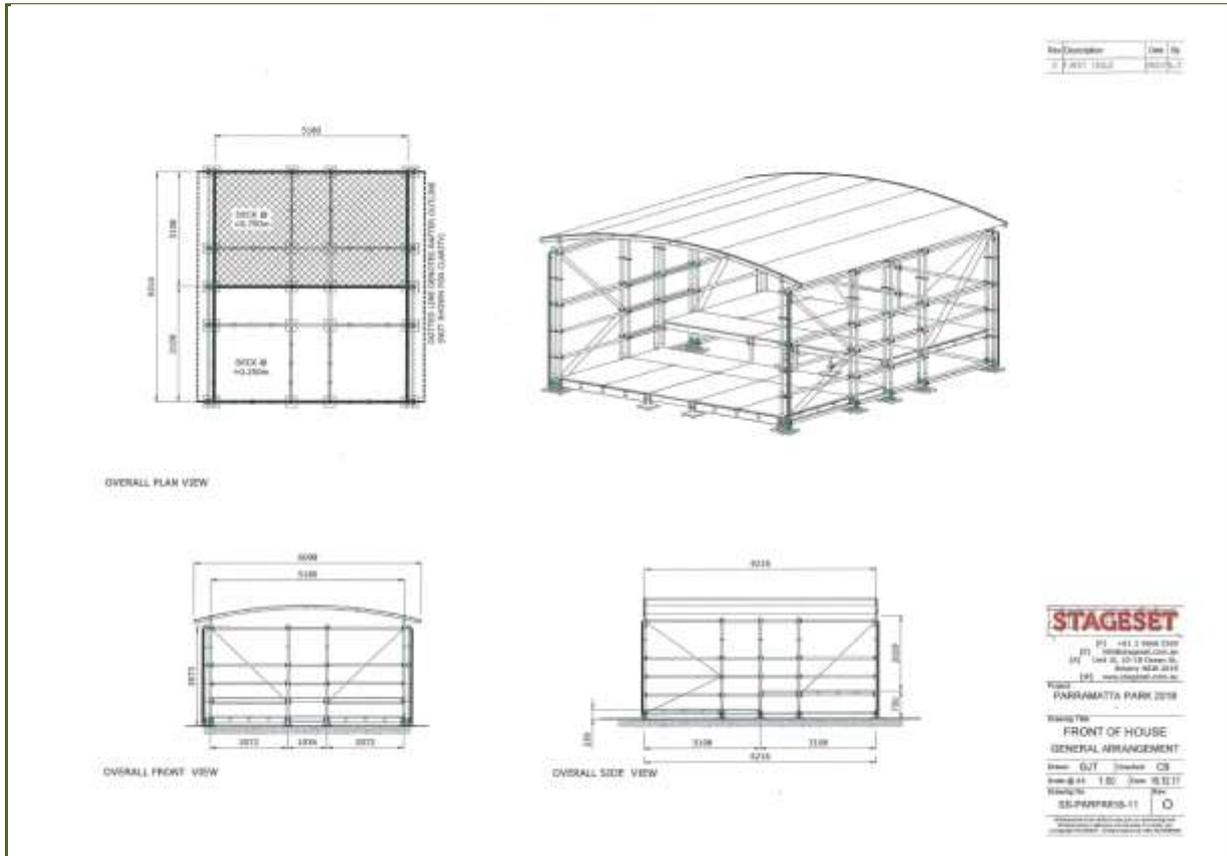












Appendix D. Abbreviation List and Glossary

1. Abbreviations

Table 1: List of Abbreviations

Abbreviation	Meaning
AHIP	Aboriginal Heritage Impact Permit
BC Act	Biodiversity Conservation Act 2016
BOH	Back of House
Council	City of Parramatta Council
CMP	Crowd Management Plan
Db	Decibels
DB	Distribution Boards
DMP	Drug Management Plan
DPE	Department of Planning and Environment
ENV	Existing Native Vegetation
EEC	Endangered Ecological Community
EPA	Environment Protection Authority
ESD	Ecologically Sustainable Development
FOH	Front of House
ha	Hectares
HDPE	High-density Polyethylene
IHO	Interim Heritage Order
kVA	Kilo-volt-ampere
LED	Light-emitting Diode
LEP	Local Environmental Plan

Abbreviation	Meaning
LGA	Local Government Area
OEH	Office of Environment and Heritage
PPT	Parramatta Park Trust
PPT Act	Parramatta Park Trust Act 2001
RAP	Reconciliation Action Plan
RSA	Responsible Service of Alcohol
REF	Review of Environmental Factors
RMS	NSW Roads and Maritime Services
RPz	Reduced Pressure Zone
SEPP	State Environmental Planning Policy
SHR	State Heritage Register
SOHI	Statement of Heritage Impact
SWMS	Safe Work Method Statement
TMP	Traffic Management Plan
TPZ	Tree Protection Zone
UNESCO	United Nations Educational, Scientific and Cultural Organisation
WIRES	NSW Wildlife Information, Rescue and Education Service Inc.

2. Glossary

Aboriginal Heritage – Includes all places that are part of Aboriginal peoples’ spiritual links to the land, or which tell the story of Aboriginal peoples from time immemorial to the present and can include sacred sites and ceremonial sites.

Accessibility – Refers to recognising the special needs of persons with disabilities for social and cultural inclusion; the ease of movement through a place; and the ability to reach the Parklands by public transport, private transport and active transport.

Act – The Act means the *Parramatta Park Trust Act 2001* and includes all amendments and regulations made pursuant to it from time to time.

All-Agency – Refers to all key stakeholders involved with the event.

Archaeology – Objects or relics buried subsurface and afforded statutory protection under one or more of the *National Parks and Wildlife Act 1974*, *Heritage Act 1977* and *Environmental Planning and Assessment Act 1979*.

Back of House – Important non-primary event functions that are critical to the operation of an event.

Benchmark – Comparing the quality of an organisation’s policies, products, programs, strategies etc. against standard measurements, or similar measurements, of its peers. For the purposes of this Framework, a benchmark is examined as an adaptive learning process rather than measuring against fixed standards.

Biodiversity – The variety of all life forms on earth including plants, animals and micro-organisms; and the ecosystems of which they are a part.

Bump-in - The process of the Hirer entering the site and setting up the event.

Bump-out - The process of the Hirer exiting the site and packing up after the event.

Caring for Country – The phrase used to describe management of traditional lands by Aboriginal people.

Creching – The period whereby the juvenile’s crèche in the camp overnight whilst adult animals fly out to forage.

Ecological Community – Refers to the assemblage of species occupying a particular area.

Event Management Framework – The framework defining the vision, objectives and responsibilities of the Trust, and the resources and methods required to achieve them.

Fine Litter – Includes litter such as cigarette butts, confetti, cable ties etc.

Front of House – Essential event functions that are visible to the public.

Gross Litter – Includes litter such as cans, cups and food scraps etc.

Habitat – An area periodically or occasionally occupied by a species or ecological community, an endangered ecological community or a vulnerable ecological community listed in Schedule 2 of the *Biodiversity Conservation Act 2016*.

High wear areas - Refers to higher foot traffic areas and may include “mosh pits”, areas in front of toilets, bars and any other areas as determined by the Trust.

Potable Water – Water suitable for drinking, cooking and personal bathing.

Proponent – The party to the Deed of Agreement referred to as the Hirer and includes the staff, agents and representatives of the Hirer.

Red Event – Higher noise risk events, whereby noise emissions if not controlled, would be close to or exceed the noise limits at Noise Sensitive Locations.

Riparian – Areas relating to, or situated on, the bed and banks of a river or watercourse.

Scrim – A specific mesh visual barrier, generally attached to temporary fencing as specified by the Trust.

Service Infrastructure – Physical structures and supply lines to provide service utilities including roads, electricity, gas, telecommunications, water and sewerage.

Site Occupation Period – The period during the Term in which the Hirer is permitted to use the Site as set out in Schedule 1, Part C of the Deed of Agreement.

Sustainability – Development that meets the needs of the present, without compromising the ability of future generations to meet their own needs [*Brundtland Report 1987*].

Trust – Means the Parramatta Park Trust, and includes its successors and assigns and, where contextually appropriate, the employees and agents of the Trust.

Vision – In the context of this Framework, the vision describes the desired future position of the Park with respect to events.

Water Quality – Refers to the chemical, physical, biological and radiological characteristics of water. It is a measure of the condition of water relative to the requirements of one or more biotic species and/or any human need or purpose.



Contact us

Business Hours: Monday-Friday, 9am-5pm

Phone: 9895 7500 Fax: 9895 7580

Email: info@ppt.nsw.gov.au

Mail: PO Box 3064, Parramatta 2124