

ESD Report

Cricket NSW Centre of Excellence Cricket NSW

Revision 01

31/10/2019

Melbourne

Level 2, 616 St Kilda Road
Melbourne, VIC 3004
P (03) 9230 5600

Sydney

Level 4, 73 Walker Street
North Sydney, NSW 2060
P (02) 9157 0570

Brisbane

Level 9, 490 Upper Edward Street
Spring Hill, QLD 4000
P (07) 3831 3300

Revision Information

Project Cricket NSW Centre of Excellence

Title ESD Report

Client Cricket NSW

Revision 01

Revision Date 31st October 2019

Prepared By LCI Consultants
Sydney Office
Level 4
73 Walker Street
North Sydney 2060

Author James von Dinklage

Revision Schedule

| Revision | Date | Issue Name | Author | Authorised |
|----------|------------|-------------|--------|------------|
| P1 | 09/09/2019 | Preliminary | JvD | DDC |
| P2 | 27/09/2019 | Preliminary | JvD | DDC |
| P3 | 18/10/2019 | Preliminary | JvD | DDC |
| 01 | 31/10/2019 | SSD | JvD | DDC |

Contents

| | | |
|-----------|--|-----------|
| 1 | Introduction | 5 |
| 2 | Background | 5 |
| 3 | Site Description | 5 |
| 4 | Overview of Proposed Development | 6 |
| 5 | Planning Approvals Strategy | 7 |
| 6 | Reference Design Documentation..... | 7 |
| 7 | Project SEARs Requirements..... | 7 |
| 7.1 | <i>SEAR 2 Building Form and Urban Design</i> | <i>7</i> |
| 7.2 | <i>SEAR 8 Ecologically Sustainable Development</i> | <i>8</i> |
| 7.3 | <i>Design Response to SEARs</i> | <i>9</i> |
| 8 | Environmental Guidelines by SOPA | 10 |
| 8.1 | <i>Water Conservation Objectives</i> | <i>10</i> |
| 8.2 | <i>Energy Conservation Objectives.....</i> | <i>10</i> |
| 8.3 | <i>Materials Selection Objectives</i> | <i>11</i> |
| 8.4 | <i>Waste Management Objectives</i> | <i>11</i> |
| 8.5 | <i>Transport Management Objectives.....</i> | <i>12</i> |
| 8.6 | <i>Pollution Control Objectives</i> | <i>12</i> |
| 8.7 | <i>Biodiversity Objectives</i> | <i>12</i> |
| 8.8 | <i>Public Open Space Objectives.....</i> | <i>13</i> |
| 8.9 | <i>Design Responses to SOPA Guidelines</i> | <i>13</i> |
| 9 | National Construction Code (NCC) 2019 Section J | 14 |
| 10 | Proposed ESD Strategies | 14 |
| 10.1 | <i>Building Envelope.....</i> | <i>14</i> |
| 10.2 | <i>Energy Efficiency</i> | <i>14</i> |
| 10.3 | <i>Water Efficiency.....</i> | <i>15</i> |
| 10.4 | <i>Materials</i> | <i>16</i> |
| 10.5 | <i>Waste Management.....</i> | <i>16</i> |

| | | |
|-----------|--|-----------|
| 10.6 | <i>Transport</i> | 16 |
| 10.7 | <i>Pollution Control</i> | 16 |
| 10.8 | <i>Biodiversity</i> | 17 |
| 10.9 | <i>Public Open Space</i> | 17 |
| 10.10 | <i>Construction and Operational Management</i> | 17 |
| 10.11 | <i>Indoor Environmental Quality</i> | 17 |
| 11 | Conclusion | 18 |

1 Introduction

This report supports a State Significant Development Application (SSDA) submitted to the Minister for Planning and Public Spaces, pursuant to Part 4.7 of the Environmental Planning and Assessment Act 1979 (EP&A Act). This SSDA seeks consent for the design, construction and operation of the New South Wales Cricket Centre (NSWCC) at Wilson Park, within Sydney Olympic Park.

The NSWCC will comprise a state-of-the-art, dedicated, year-round cricket, training and administration facility that services both regional and metropolitan cricketers, as well as providing facilities for aspiring junior cricketers to support sport, social, health and educational programs.

2 Background

Given the redevelopment and closure of Sydney Football Stadium and its associated cricket training facilities, Cricket NSW decided to relocate its facilities to Sydney Olympic Park. The Wilson Park site has therefore been selected as the appropriate location for the development.

Wilson Park is a former gasworks site, today being used predominantly as playing fields with mature trees generally located around the peripheries. The site has a landfill leachate treatment plant located to its north-east, sharing the same boundary with the site.

3 Site Description

The site is located at Wilson Park, in the suburb of Sydney Olympic Park, within the Cumberland Local Government Area (LGA) and is situated at the north western corner of the Sydney Olympic Park (SOP) precinct.

The site is located in proximity to a number of regionally significant facilities and amenities including the Olympic Park Railway Station, ANZ Stadium, Qudos Bank Arena and Sydney Showground, which are all approximately 2.5km south east of the site. Further to this, the site is located approximately 2km west of Wentworth Point. The site's locational context is shown in Figure 1 below.

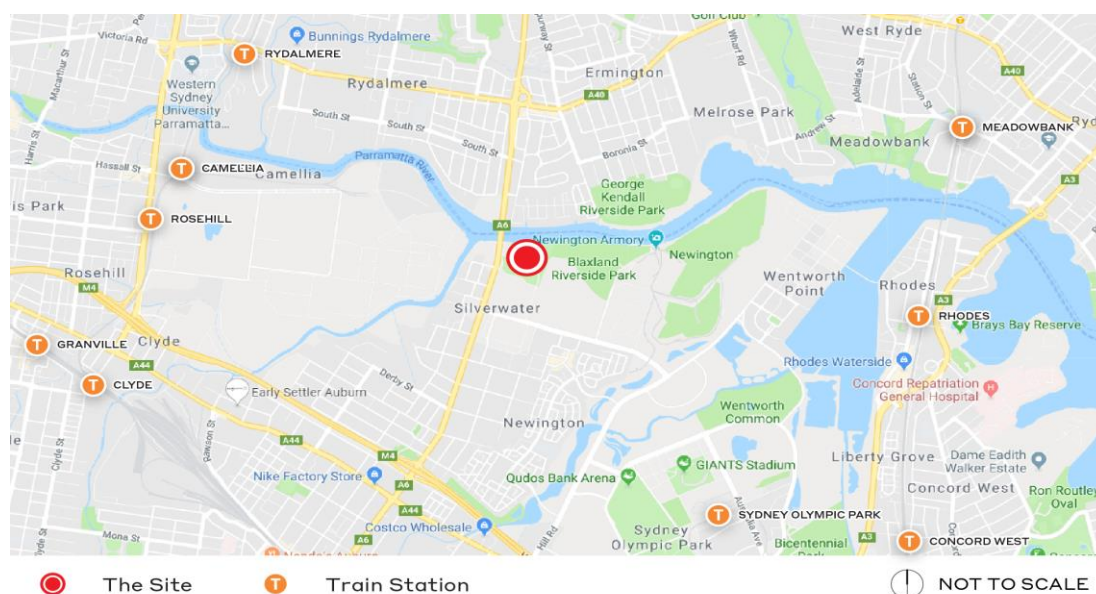


Figure 1: Locational context

The site is irregular in shape and comprises a single allotment of land with an area of 121,082m² and a leased area where development will occur with a site area of 65,767m². The leased area excludes the portion of the Wilson Park site that is used for remediation purposes, as shown in the aerial image of the site provided at Figure 2. The site is currently owned by the Sydney Olympic Park Authority (SOPA) and it is legally described as Lot C in DP 421320. The site is bounded by the Parramatta River to the north, Silverwater Correctional Complex to the east, a busway and industrial lands to the south and Silverwater Road to the west.



Figure 2: Site aerial

4 Overview of Proposed Development

The proposal relates to a State Significant Development Application (SSDA) to facilitate the development of a Cricket Centre for Cricket NSW at the Wilson Park site. Specifically, the works that are proposed for the SSDA include:

- A two storey cricket centre including an internal atrium, gymnasium, community facilities, sports science and sports medicine facilities and business offices;
- An International Cricket Council (ICC) compliant cricket oval 136m long x 144m wide (16,040m²)(Oval 1) and associated seating;
- A second oval (Oval 2) that complies with the Cricket Australia community guidelines for community club cricket (with a minimum diameter of 100m; area of 6,365m²)

- Outdoor practice nets, 71 wickets with a minimum of 30m run-ups;
- A double height (10.7m) indoor training facility with 15 wickets;
- A single storey shed for machinery and storage;
- Associated car parking, landscaping and public domain works; and
- Extension and augmentation of services and infrastructure as required.

5 Planning Approvals Strategy

The site is located within the Sydney Olympic Park precinct, which is identified as a State Significant site in Schedule 2 of State Environmental Planning Policy (State and Regional Development) 2011. As the proposed development has a capital investment value exceeding \$10 million, it is declared to be State Significant Development (SSD) for the purposes of the EP&A Act, with the Minister for Planning and Public Spaces the consent authority for the project.

This SSDA seeks approval for the detailed scope of development described in Section 4.0 above.

The Department of Planning, Industry and Environment provided the Secretary's Environmental Assessment Requirements (SEARs) to the applicant for the preparation of an Environmental Impact Statement for the proposed development on 23rd July 2019. This report has been prepared having regard to the SEARs as relevant.

6 Reference Design Documentation

The following statutory requirements are to be met by the proposed development. The proposed development should meet these requirements through implementation of the ESD strategies outlined in this report.

- > Clause 7(4) Schedule 2 of the Environmental Planning and Assessment Regulation 2000
- > Environmental Guidelines, Sydney Olympic Park (2008) issued by Sydney Olympic Park Authority (SOPA)
- > National Construction Code (NCC) 2019 Section J

7 Project SEARs Requirements

7.1 SEAR 2 | Building Form and Urban Design

The following items must be addressed in regards to Building Form and Urban Design for SEAR 2:

- > Address Ecologically Sustainable Development principles including sustainability targets and integration of these in design approach
- > Consider the incorporation of green infrastructure, including a Green Roof or Cool Roof, green walls and Water Sensitive Urban Design (WSUD)

7.2 SEAR 8 | Ecologically Sustainable Development

The following items must be addressed in regards to Building Form and Urban Design for SEAR 8:

7.2.1 *Clause 7(4) Schedule 2*

Clause 7(4) – Schedule 2 – Environmental Planning & Assessment Regulation (2000) identifies the Principles of ecological sustainable development as follows:

> **Precautionary Principle**

The precautionary principle, namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, public and private decisions should be guided by:

- (i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and
- (ii) an assessment of the risk-weighted consequences of various options,

> **Inter-Generational Equity**

Inter-generational equity, namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

> **Conservation of Biological Diversity and Ecological Integrity**

Conservation of biological diversity and ecological integrity should be a fundamental consideration

> **Improved Valuation**

Improved valuation, pricing and incentive mechanisms, namely, that environmental factors should be included in the valuation of assets and services, such as:

- (i) polluter pays, that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,
- (ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,
- (iii) environmental goals, having been established, should be pursued in the most cost-effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

7.2.2 *Resource, Energy and Water Efficiency Initiatives*

Outline resource, energy and water efficiency initiatives, including the use of sustainable technologies and/or renewable energy.

7.3 Design Response to SEARs

The ESD design initiatives to meet the requirements from SEARs 2 and 8 are shown in Table 1.

Table 1: Project ESD Initiatives to meet SEARs

| Environmental Objectives | Design Response |
|--|---|
| SEAR 2 ESD Principles | See Section 10 |
| SEAR 2 Green Infrastructure | Water Sensitive Urban Design (WSUD) features include swales as detailed within the report <i>State Significant SSDA Report</i> (06/09/19) by TTW. Green Roofs, cool roofs and green walls have been considered and will not be incorporated into the project. This is due to maintenance and load-bearing capacity requirements of roof and wall constructions to support such infrastructure. Additionally, roof area will need to be utilised for a proposed PV array. |
| SEAR 8 Clause 7(4) Schedule 2 | See Section 7.3.1 |
| SEAR 8 Resource, Energy and Water Efficiency Initiatives | See Sections 10.2, 10.3 and 10.4 |

7.3.1 ESD Principles Meeting Clause 7(4) Schedule 2

The Precautionary Principle

Proactive measures to prevent environmental degradation have been included within the construction and operational phases of the proposed development. See Section 10 for ESD strategies to be incorporated during all phases. During the design and construction phases the main contractor shall implement an Environmental Management System that follows NSW Environmental Management System Guidelines.

Inter-Generational Equity

To uphold inter-generational equity, the proposed development minimises the consumption of energy and water resources while reducing waste.

The ESD principles incorporated into the proposed development facilitates the conservation of energy and water resources through energy and water efficiency measures. Energy consumption will be less than a similar building as proven through exceeding NCC Section J requirements. The reduction in water use has been established through high WELS equivalent water fixtures and fittings.

Waste generated during the construction and operational phases shall be diverted from landfill to be recycled. An Environmental Management System (EMS) will be established and adhered to throughout construction. Operational waste streams will be separated to maximise recycled waste.

Reducing energy, water and waste ensures that the health, diversity and productivity of the environment is maintained for the benefit of future generations.

Conservation of Biological Diversity and Ecological Integrity

The site has been assessed to determine the ecological constraints for the proposed development. The assessment identified the presence of native vegetation and potential habitats for threatened species. In response the development will minimise the destruction to the existing ecology.

The project's ESD principles to reduce energy, water and waste consumption have an indirect impact to conserve biodiversity and ecological integrity to the surrounding area. By minimising demand on energy and water resources, the need for land-clearing and the pollution generated from new utility infrastructure to support the surrounding area will be minimised.

Improved Valuation

The valuation of the project's assets and services consider environmental factors through the implementation of various ESD initiatives. An Environmental Management System will be adhered to during construction to ensure that contractors are responsible for costs associated with generating excessive pollution and waste. The project team will bear the extra cost of providing recycling and landfill waste streams during construction and operational phases. This creates a system where the polluter pays and creates an incentive to reduce pollution and waste.

8 Environmental Guidelines by SOPA

The Environmental Guidelines outlined by SOPA, address the key issues of significance for Sydney Olympic Park and set particular objectives for each in the context of environmental sustainability and Sydney Olympic Park's future as a modern new township, a premier major events precinct, and a world class regional parklands with high biodiversity values. As SOPA are managing the site, Cricket NSW will need to ensure that the development includes environmentally sustainable initiatives that align with SOPA's environmental objectives.

8.1 Water Conservation Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Minimising overall public domain water use at Sydney Olympic Park (potable and non-potable water) using best practice environmental design principles, innovative technology, water sensitive urban design, water efficient landscaping and other demand management practices
- > Requiring all new developments to maximise opportunities for building and infrastructure design to incorporate water collection and recycling systems
- > Avoiding adverse impacts on water quality or quantity in local streams, wetlands and groundwater from operations, developments, and major event activities at Sydney Olympic Park
- > Working with lead agencies in the promotion of sustainable water resource management practices through integration of water infrastructure, sharing knowledge and experience, and supporting education and research programs.

8.2 Energy Conservation Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Minimising overall public domain energy and peak load demand levels at Sydney Olympic Park
- > Prioritising in developments the use of passive solar design, natural ventilation and selection of energy efficient materials to enhance thermal performance

- > Requiring energy-efficient: heating and cooling systems, building management systems, lighting, and energy consuming appliances to be incorporated in all new building projects at Sydney Olympic Park
- > Adapting and applying best available environmental design principles, technology, demand management, and procurement practices to progressively and significantly reduce greenhouse gas emissions

8.3 Materials Selection Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Considering whole-of-life impacts on the environment when selecting materials for development and operations
- > Prioritising the selection of natural non-toxic materials such as natural fibre insulation, and nontoxic paints, glues, varnishes, polishes, solvents and cleaning products
- > Maximising the use of recycled and recyclable materials in developments and operations, including for consumer packaging
- > Encouraging material re-use for major event overlay (design for disassembly and re-use)
- > Prioritising non-use of chlorine, fluorine and hydrogen-based carbon gases and promote as alternatives the use of non-ozone depleting, non-greenhouse warming gas refrigerants in construction, major events and other operations
- > Minimising the need for use of chemical control of weeds, pests and diseases -maximising opportunities for integrated control methods
- > Minimising the use of known environmentally damaging or unhealthy products such as chlorine-based products and chlorine bleached paper, and completely avoiding products that include toxic substances such as some treated timber products
- > Prioritising the use of low impact timber products including low emission composite timber in construction and major event overlay activities, and timber from managed sustainable sources (verifiable where possible via a chain of custody process) - ensuring no imported or local rainforest timber is used in developments or other activities

8.4 Waste Management Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Maximising appropriate opportunities to increase the proportion of recycling for waste produced in the public domain including green waste collection, re-use, and composting
- > Requiring waste management performance and recycling targets for all developments throughout design, construction and operational activities, with a minimum of 80 percent of construction and demolition waste to be recycled or re-used for each development
- > Encouraging public domain concessionaires and service providers to minimise where practical the packaging of foodstuffs for visitor consumption, and otherwise to use non-toxic, recyclable, and biodegradable packaging and materials for their products
- > Educating visitors, workers and residents regarding waste minimisation and management issues, and working in cooperation with venues and businesses to minimise waste generation and maximise recycling of materials
- > Maximising appropriate opportunities to improve the sustainability of leachate treatment and disposal methods

8.5 Transport Management Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Establishing Sydney Olympic Park as a destination where the option for travel by public transport is well supported for event patrons and commuters; and transport plans include strategies to reduce car dependency
- > Applying 'demand management' techniques (including integrated ticketing, car-parking controls, priority bus lanes, etc) that encourage public transport use and discourage excessive road based private transport accessing Sydney Olympic Park – particularly during peak commuter times and major events periods
- > Coordinating appropriate road traffic and public transport infrastructure improvements and refinements to reflect changes in the form and function of Sydney Olympic Park and evolving community attitudes to more sustainable transport options
- > Promoting and supporting innovative transport modes, sustainable transport technologies, and the use of alternative fuels
- > Designing new developments at Sydney Olympic Park to be as 'walkable' as possible, connecting transport nodes to walk-ways and cycle- ways, and ensure cycle- ways accommodate the needs of recreational cyclists, pedestrians and workplace commuters

8.6 Pollution Control Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Complying with all relevant statutes and regulatory requirements
- > Minimising light pollution by limiting use of lights at inappropriate times, locations, and intensities; and avoiding loss of habitat values or natural ambience for open spaces
- > Promoting the design and physical construction of new buildings so that they mitigate environmental impacts associated with major events
- > Managing remediated landfills and leachate systems to ensure their integrity is maintained, human health and the environment is protected, and statutory compliance is achieved
- > Ensuring development, operations, and event activities do not adversely impact on the water quality of wetlands and watercourses
- > Validating all soils and 'fill' materials proposed to be imported into Sydney Olympic Park, and reject those that are not free from contamination

8.7 Biodiversity Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Protecting and enhancing the natural heritage and ecological integrity of Sydney Olympic Park – targeting priority species and communities, places of high biodiversity value, and biodiversity generally
- > Applying an adaptive management approach to stewardship of Sydney Olympic Park's biodiversity assets
- > Ensuring conservation of biological diversity and ecological integrity is a fundamental consideration for new developments, activities, levels or types of use, or management practices that affect the ecosystems of Sydney Olympic Park
- > Promoting the ecological, aesthetic and educational value of an urban site with high species diversity and abundance

- > Conserving and enhancing the remnant woodland and wetland habitats of Newington Nature Reserve in accordance with the Newington Nature Reserve Plan of Management, and managing adjoining lands in sympathy with the Reserve
- > Maximising the habitat values of native plantings by promoting priority species and communities, providing structural complexity and plant species diversity, avoiding habitat fragmentation; promoting habitat linkages and large core areas; and prioritising the use of indigenous species in landscape planting schemes in the Parklands

8.8 Public Open Space Objectives

In pursuit of this objective, wherever possible Cricket NSW should be committed to:

- > Promoting and increasing the recreational, historical, scientific, educational and cultural values of the parklands, while recognising the intrinsic values of public open space in addition to its utility services values
- > Encouraging the appropriate use, benefit and enjoyment of the parklands by the public, facilitating opportunities to improve physical health and well-being, social cohesion, cultural expression, and a diversity of leisure experiences
- > Maintaining public access to the parklands whilst ensuring the protection, restoration, and improvement of the environmental features, heritage items, and ecological elements
- > Ensuring, wherever possible, that spaces are used and managed in such a way that both the land and its natural resources (including water, soil, flora, fauna and scenic quality) are sustained in perpetuity
- > Protecting and enhancing the natural and cultural (Aboriginal and non-Aboriginal) heritage of the Park, particularly the Parklands
- > Giving priority to multi-use of places and spaces, and avoiding where possible the occupation or disposal of public open space for purely private purposes

8.9 Design Responses to SOPA Guidelines

The ESD design initiatives that will address SOPA Environmental Guidelines are shown in Table 2. The final combination of ESD measures to be implemented will be determined during design and development.

Table 2: Project ESD Initiatives to meet SOPA Environmental Guidelines

| Environmental Objectives | Design Response |
|--------------------------|--|
| Energy | See Section 10.2, 10.10 and 10.11 |
| Water | See Section 10.3 and 10.10 |
| Materials Selection | See Sections 10.1, 10.4 and 10.10 |
| Waste Management | See Section 10.5 and 10.10 |
| Transport Management | Refer to project's Traffic Assessment that addressing SEAR 7, Transport, Traffic, Parking and Access |

| Environmental Objectives | Design Response |
|--------------------------|--|
| Pollution Control | See Section 10.7 and 10.11 For Lighting Pollution Control, refer to <i>External Lighting Strategy Report</i> (rev. P1) by LCI |
| Biodiversity | See Section 10.8 |
| Public Open Space | See Section 10.9 |

9 National Construction Code (NCC) 2019 Section J

The National Construction Code (NCC)/Building Code of Australia (BCA) 2019 includes Section J Energy Efficiency mandatory minimum energy efficiency performance requirements for building developments (Class 3, and Class 5 to 9). The objective is to reduce building greenhouse gas emissions through energy efficient operations. Section J is focused on establishing minimum acceptable practice in the building industry.

To meet the Performance Requirements JP1 and JP3 of Section J of the BCA, compliance of the design and function of the building can be demonstrated with the Deemed-To-Satisfy (DTS) provisions of Section J, Parts J1 to J7. To meet performance requirement JP2 of Section J, compliance can be demonstrated via the DTS provisions of Section J, Part J8.

Compliance with Section J will be determined during the Detailed Design phase of the project.

10 Proposed ESD Strategies

To meet the SEARs requirements and SOPA Environmental Guidelines, the proposed development will incorporate several ESD strategies that will minimise energy, water and materials consumption and help achieve sustainability targets. The proposed ESD strategies are outlined in the following sections.

10.1 Building Envelope

The following Building Envelope ESD design initiatives will be incorporated:

- > The thermal performance of the building envelope will meet at minimum the requirements of BCA 2019 Section J.
- > Passive Solar Design:
 - Building thermal mass and insulation combinations, avoiding thermal bridging
 - High performance glazed façade that balances daylight ingress and thermal performance
 - Materials selected for the façade will be part of a modular system based on panel efficiencies thus minimising waste

10.2 Energy Efficiency

In order to meet the energy efficiency objectives the following measures will be implemented:

- > Spatial and electrical provisions for power factor correction equipment if required
- > High-efficiency LED lighting with an average power density of not more the lighting power densities outlined in NCC Section Part J6

- > Use of motion sensors, where appropriate, to automatically switch luminaires off after a period of inactivity
- > Provision of digital power meters for lighting, power and mechanical equipment to meet NCC Section J requirements. All digital power meters will interface with BMS to cater for energy consumption monitoring within the building
- > Daylight sensor lighting control to external areas
- > A roof mounted photovoltaic (PV) array
- > Natural ventilation to indoor training area
- > Variable Air Volume air conditioning
- > Dedicated air handling systems serving different thermal zones on the north and south elevations, and central zones
- > Air-cooled multifunction heat pump[s] to provide heating and cooling
- > Low pressure air handling systems incorporating low face velocity coils and filters; total supply and return air handling unit static pressures (including AHU coils and filters) will not exceed 800 Pa
- > High-performance glazing systems that optimises daylight access, visual comfort and thermal comfort performance
- > Optimal building fabric insulation
- > Dedicated DX (direct expansion) air conditioning systems serving 24/7 operational spaces
- > Energy meeting of building services to facilitate energy management
- > Natural ventilation of plantrooms, where practicable

10.3 Water Efficiency

In order to meet the water efficiency objectives the following measures will be implemented:

- > Roof and sub-soil drainage rainwater capture into a rainwater tank for reuse in landscape irrigation (excluding the main pitches)
- > Low-flow water sanitary fittings and fixtures
- > Time flow Showers
- > Waterless urinals
- > Water metering and monitoring for rainwater and to water consumption
- > Water sub-meters which will be connected to a Building Management System

10.4 Materials

In order to minimise the environmental impact of materials used throughout the development, the following measures will be implemented:

- > Reduced indoor pollutants such as volatile organic compounds and formaldehyde emissions
- > During operational, the site will minimise the use of chemicals for weed and pest control in favour of integrated control measures
- > Redevelopment of previously developed urban project site will have minimised impact on the local ecology and ecosystem
- > Procurement of materials from regional suppliers to reduce travel and carbon footprint

Where feasible, the following measures will be considered:

- > Construction and fit-out materials with low embodied energy
- > Responsible building materials – best practice PVC products, steel sourced from sustainable supply chains
- > Timber to be sustainably sourced with FSC or PEFC certification
- > Use of onsite refrigerants that have zero ODP and low GWP

10.5 Waste Management

The following initiatives will be implemented to reduce waste during the life- time of the building:

- > 91% of construction and demolition waste to be diverted to landfill
- > Refer to the Operational Waste Management Plan developed by Elephant's Foot
- > During event days, food vendors will be encouraged to reduce food packaging or use non-toxic, recyclable and biodegradable packaging
- > During event days, enough recycling bins will be located throughout the venue with adequate signage to encourage patrons to recycle waste

10.6 Transport

Please refer to the project's Traffic Assessment that addresses green travel provisions for the site.

10.7 Pollution Control

The following initiatives will be implemented to reduce pollution throughout the life- time of the development.

- > During construction the Main Contractor will implement a Construction Environmental Management Plan to eliminate pollutant run-off into nearby water- ways and Parramatta river
- > Ensure that all soils and 'fill' materials brought onsite are free from contamination
- > Leachate is currently treated with onsite infrastructure. Any changes to the current infrastructure will be resolved during later stages of the project's development
- > During event days, an adequate number of general and recycling waste bins will be located throughout the venue to encourage patrons to properly dispose of rubbish

10.8 Biodiversity

To maintain biodiversity onsite throughout the life of the development, the following initiatives will be implemented:

- > Minimise the removal of present native vegetation. Any clearing of native vegetation may need to be offset by ecosystem credits under the Biodiversity Offsets Scheme
- > Maintain the habitat of native animal species identified at the site through minimising clearing of native vegetation
- > New landscaping will include endemic plant species that can co-exist with existing vegetation and support local wildlife

10.9 Public Open Space

The following features of the development will designate the development as a public open space:

- > The site will host cricket matches that add to the recreational and sporting values of the parklands
- > Public access will be available to use the community cricket oval and community facilities
- > The protection and maintenance of environmental and ecological features will be addressed by Facilities Management

10.10 Construction and Operational Management

The proposed development will ensure that construction and operational management systems are in place to meet its sustainability targets throughout the lifespan of the project. This will be achieved by the following:

- > Best practice building commissioning and building tuning processes to maintain operational efficiency of building services
- > A formal environmental management plan is developed and adhered to reduce environmental impact throughout the construction phase
- > Energy and water consumption will be metered to monitor performance of building services
- > Operational waste management that diverts landfill waste through maximising recycled waste

10.11 Indoor Environmental Quality

In order to provide an optimal indoor environment for occupants, the following IEQ design features will be provided:

- > Provide quality views and good daylight access
- > Use of low or no VOC (volatile organic compounds) emitting and formaldehyde containing materials
- > Provide high levels of thermal and acoustic comfort

11 Conclusion

This ESD Report provides a framework to meet the sustainability objectives of the development. Through the ESD strategies outlined in this report, the project is able to achieve its SEARs requirements while addressing the SOPA environmental guidelines. Several ESD strategies and benchmarks have been identified, which will be explored and implemented into the later stages of design development and building operation.