SYDNEY FOOTBALL STADIUM REDEVELOPMENT

STATE SIGNIFICANT DEVELOPMENT APPLICATION

Concept Proposal and Stage 1 Demolition

SSDA 9249

APPENDIX R:

Security Principles Report

NSW GOVERNMENT

SECURITY-IN-CONFIDENCE

Sydney Football Stadium Redevelopment

Security Principles for Stage 1 SSDA

Prepared for

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V1.0

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Document revision history

VERSION	DATE	AUTHOR	SUMMARY OF CHANGES
1.0	07 May 2018	Intelligent Risks (JR)	Initial draft
1.1	09 May 2018	Intelligent Risks (GA)	QA

1. Introduction

1.1 Overview

Intelligent Risks (IR) has developed security principles in support of SSDA 9249, Sydney Football Stadium (SFS) Redevelopment.

This report documents the general principles for security to be considered in the final design of the stadium which will be undertaken through a separate Stage 2 SSDA process.

1.2 Security Design Intent

The intent of this document is to provide security design advice for the SFS Redevelopment process. It describes potential physical security treatment measures that are to be 'designed in' to the SFS architecture to treat security risks. Incorporating security risk treatments at this early phase will support achievement of security objectives and minimise security expenditure across subsequent detailed design and operational stages.

This report addresses the Secretary's Environmental Assessment Requirements for SSDA 9249 as follows:

6. Transport and Accessibility

- Strategies to segregate hostile vehicles from public transport users (including paths between the stadium and public transport) and areas of people congregation.

10. Environmental Risk

Include preliminary consideration of the management of environmental risks to all persons utilising the future facility including but not limited to:

- Terror attacks

1.3 Security Concepts and Practical Solutions for the SFS

As a general principle, the passive and active security design of the SFS and the precinct must be able to expand, contract, and to accommodate (to the extent this is possible) changing requirements of the venue and the precinct, inclusive of the Sydney Cricket Ground (SCG) – i.e. for non-event and event modes, including major events, 'championship mode' and double-headers involving simultaneous use of the SFS and SCG.

1.3.1 Layered Security

The concept of layered security is founded on integration and complementary deployment of security controls and is fundamental to enable 'defence in depth'. Security layering achieves the following outcomes:

- Delivers a higher level of security, through integration of complementary measures, than a non-integrated system would be able to provide;
- Providing redundancy in the security overlay by reducing single points of failure; and

- Helping prevent over-engineering of each security element (physical, technological, procedural or personnel) through a systems approach to meeting performance requirements.

1.3.2 Island Site

An 'island site' is created by developing a robust site perimeter that allows the SFS facility to stand alone as a secure venue. This relies on applying robust access controls, screening measures, and establishing an effective barrier to unauthorised or uncontrolled entry to the secure line of the building, and pedestrian and vehicle access points. The concept design proposes for the venue's secure line to be the stadium façade for the majority of events.

Additional internal layers are to provide separation and protection between public and restricted spaces leading to implementation of multiple islands (or zones) within the site, such as front and back of house areas.

As ticket control points (TCPs) are intended to be built into the façade, expandable fencing at the sides of the TCPs should be considered to prevent leakage around the screening point. Expandable fencing is preferable to temporary fencing (e.g. ATF fencing) on an aesthetic basis, and acts as a greater deterrent and a more resilient control measure than other crowd control barriers (e.g. tensa-barriers, half height fencing).

1.3.3 Zoning

Zoning of the venue is critical to the security integrity of the SFS, particularly as some areas of stadium structure may be open to the public (e.g. retail opportunities) and members on non-event days. The location and design of these spaces must ensure that uncontrolled access into the wider Stadium cannot be achieved. Separation between accessible areas (public, members and stadium internals) must be achieved.

Back of House (BOH) areas are to be strictly reserved for authorised and accredited personnel and no public or unauthorised access shall be permitted. The design shall provide a layered security solution for the BOH to deter, deny and detect any unauthorised access to areas regarded as critical or sensitive to the venue's operations.

1.3.4 Critical Infrastructure Protection

The venue's critical infrastructure must be appropriately protected through application of robust perimeter barriers and access controls.

Substations, server rooms and other critical plant infrastructure should be placed away from publicly accessible areas so as to reduce the likelihood of malicious or accidental unauthorised access. The design should seek to maximise the distance from areas conceivably attractive to a major explosive incident (e.g. screening plazas, vehicle access points).

Utilities infrastructure servicing the stadium should, to the extent possible, be incorporated into the primary stadium structure.

1.3.5 Vehicle Security

Optimal vehicle access arrangements include the use of a single point of entry (although a different exit point may be used).

A single vehicle entry is preferred for the following reasons:

- Consistent checking / screening arrangements are implemented;

- Eliminate attempts by any rejected vehicle to enter via another point;
- More efficient use of personnel at one rather than multiple entries;
- Minimise pedestrian and vehicle conflicts (e.g. on Paddington Lane in both event and non-event mode if publicly accessible)

Emergency services vehicles may require access to the venue from road level rather than via a service road. Specific points of access from Moore Park Road (e.g. opposite Oatley Road or at Paddington Lane) should be confirmed in discussion with NSW Fire & Rescue. Where access requirements coincide with vehicle mitigation requirements, a retractable bollard should be considered.

1.3.6 Hostile Vehicle Mitigation (HVM)

The areas assessed to be exposed to vehicle ramming or intrusion are:

- North-east plaza and Paddington Lane (from Moore Park Road)
    - This area includes two pedestrian plazas and gates and is on a slope that would enable any entering vehicle to attain significant speed.
- External concourse between stadium structure and Moore Park Road
    - The external concourse at the north will be aligned with the road level. increasing the likelihood vehicles may intrude into pedestrian areas. Hostile vehicle mitigation measures should be installed along the extent of the site from Paddington Lane to the Rugby Australia / UTS building.
- Base of main stairs on the western side at Driver Avenue.
    - Current arrangements during events to enact closure of Driver Avenue (e.g. police vehicles, jersey barriers) are effective, although a permanent solution (e.g. retractable/removable bollards of sufficient resilience north and south of areas in use for stadium access) should be considered.

The concept design indicates the stadium will have a podium level (at RL47), which elevates the external concourse by approx. 7 metres from the Driver Avenue road level. This concourse – the major circulation area for patrons – is therefore not exposed to vehicle hazards on the western side.

The HVM strategy shall be informed by a detailed analysis of the vulnerability to vehicle ramming (including direction of vehicle movement, vehicle mass, velocity) as per the method described in PAS 68:2013 (UK). A preliminary judgment of vehicle security requirements is that for areas adjacent to Moore Park Road, an element would need to be able to withstand an impact of at least 550kJ.

The HVM strategy should consider alternative solutions to bollards such as street furniture, hardscaping and landscaping (e.g. use of mature trees such as the heritage fig) to minimise the ‘hard’ appearance of security and positively contribute to the welcoming nature of the site. However, alternative solutions to bollards or other rated and tested elements should be able to achieve an equivalent level of performance.

Example of use of aesthetic signage as vehicle intrusion barrier

1.3.7 Environmental Security

The design intent is for the stadium structure's external environment to be publicly accessible on non-event days, including activating Paddington Lane and the SCG Plaza.

There is a need to incorporate the following Crime Prevention Through Environmental Design principles for these areas (as per Section 79C of the *Environmental Planning and Assessment Act 1979* (NSW), particularly to take account of the relative lack of observation from surrounding activity areas:

- Natural surveillance
- Natural access control
- Territorial reinforcement
- Maintenance and management

Examples of practical applications of these principles are discussed below:

DESIGN STRATEGY	KEY FEATURE
Allow for clear sight lines	• Sight line is defined as the desired line of vision in terms of breadth and depth. Wherever possible, sharp corners, walls, earth berms, fences, bushes or pillars on or near pedestrian routes in the Precinct should be minimised. The inability to see ahead and along a route can be a serious impediment to natural surveillance and deterrence of security incidents. • Walls or barriers above 400mm should have permeable panels or fencing to enable sight lines.

DESIGN STRATEGY	KEY FEATURE
Supportive landscaping	• The use of plants in landscape design is encouraged to soften boundary treatments and introduce visual interest, but care must be taken to ensure that there is plenty of opportunity for surveillance of buildings from within and beyond the site. • Plant growth between 600mm and below 2.4m should be limited or carefully selected to provide a window of surveillance, but this does not preclude the use of hedging plants and feature shrubs and trees, providing surveillance opportunities are maintained. • Placement of trees should be considered in relation to: o The impact on CCTV surveillance opportunities; o Any reduction in illumination provided by surrounding lighting; o The ability to use trees as a climbing aid over boundaries or onto buildings. Species selection of trees and shrubs should take account of their future maintenance, as poor maintenance can impact on site security.
Provide adequate lighting	• A basic level of lighting should allow the identification of a face from a distance of about 10 metres for a person with normal vision. • Lighting should ensure a realistic chance that there will be witnesses to an intrusion. Intruders should be made to feel vulnerable to detection and at an increased risk of being challenged. Conversely, installing lighting which cannot achieve this effect, such as the lighting of an elevation that cannot be observed by potential witnesses or CCTV, may actually assist an intruder. • Bicycle and pedestrian pathways are to be provided with illumination levels sufficient to ensure a sense of personal security is maintained throughout the Precinct at all hours of the day.
Minimise concealed and isolated routes	• Concealed or isolated routes are often predictable routes that do not offer an alternative for pedestrians. An attacker can predict the routes pedestrians will take once they are on the path.
Avoid entrapment	• Entrapment areas are small, confined areas near or adjacent to well-travelled routes that are shielded on three sides by some barriers, such as walls or bushes. Examples are lifts, tunnels or bridges, enclosed and isolated stairwells, dark recessed entrances that may be locked at night, gaps in tall vegetation, a vacant area closed from three sides by barriers or walls, or narrow deep recessed areas for fire escapes.
Reduce isolation	• People (precinct users and staff) are at greater risk in isolated areas especially if signs of distress will not be seen or heard. Natural surveillance within the local environment, adjoining rooms and buildings helps mitigate isolation and reduces the likelihood that malicious activity will go unnoticed. • Areas of staff and public interface should be placed in view of entrances and general circulation areas to deter anti-social or aggressive behaviour.
Create a sense of ownership through maintenance and management	• Sense of ownership, or territoriality, is an important factor since it encourages people to take responsibility for their environment, resulting in them being more likely to report suspicious activity. • Scheduled maintenance of fixtures and landscaping is essential for a well-maintained Precinct, along with rapid remediation of graffiti and other damage caused by vandalism to deter further degradation.
Reduce undesirable activity	• Design of the precinct activity areas should promote multiple and complementary use, but measures should be taken to minimise activity, such as skateboarding on installed seating and handrails, that is undesirable or contrary to the intended purpose.
Provide signs and information	• Well designed, strategically located signs and maps contribute to a feeling of security. All users must be able to understand which routes they use. Signs should be standardised to give clear, consistent, concise and readable messages. Signs must be visible, easily understood and well maintained.
Building orientation	• The orientation of a building can have a significant impact on its performance to protect its occupants. The proximity of a vulnerable façade to a parking area or unscreened area outside a secure perimeter can greatly contribute to its vulnerability.

DESIGN STRATEGY	KEY FEATURE
	• Building façades (including the Stadium) should have no publicly accessible voids or alcoves that are not visible through natural surveillance.
Reduce opportunities for unauthorised access	• In concert with optimising natural surveillance and lighting of vulnerable points, Stadium and precinct design must seek to reduce opportunities to gain unauthorised access through use of climbing aids: o Fencing with close aperture mesh or minimal, well-spaced horizontal rails should be used; o Trees, bins, vehicles or other enablers should be placed away from fencing and structures.
Good housekeeping	• Avoid placing rubbish bins around critical/vulnerable areas i.e. near glazing, support structures, or where they can be used to assist climbing and the contents used to start a fire. • Use of clear waste bags, not contained within a solid enclosure, improves visual examination of waste contents for suspicious items. Review the use of compactors, wheelie bins and metal bins to store rubbish within service areas, goods areas and near crowded entrances. • Where a solid, non-permeable enclosure is selected, the bin opening should provide cleaners and security guards with the ability to view inside the bin to visually detect any item or device placed within the bin. • Horizontal flat surfaces should be avoided in publicly accessible areas to reduce opportunities to place items such as rubbish or malicious devices. Sloping surfaces visible to users, including vending machines (if used), are highly preferred.

1.3.8 Blast Resilience

The requirement to conduct blast analysis should only be based on the outcome of a security risk assessment, consistent with the methodology and guidance in the International Standard Risk Management – Principles and Guidelines (ISO 31000:2018) and Handbook167:2006 Security Risk Management, in order to calculate the Likelihood (informed by an assessment of threat and vulnerability) and consequence to determine the credible risks and their manifestations (type of device, size and type of explosive pay load, attack location).

Developing risk-based blast analysis means blast resilience treatments are proportionate, targeted in the right areas and locations, and reflect the credible assessed risk.

If the threat environment is such that blast resilience is necessary, all supporting active and passive mitigation measures such as vehicle security barriers, traffic calming measures, vehicle stand-off, vehicle searches including underbody, use of explosive detection dogs and security agency patrols and active CCTV monitoring must be in place and enforced as a Business-As-Usual requirement.