

ENVIRONMENTAL ASSESSMENT REPORT Section 96(2) Modification

Western Sydney Stadium – Stage 1 Demolition (SSD 7534 MOD 1)

1. INTRODUCTION

This report is an assessment of a request to modify the approved Western Sydney Stadium Concept Proposal and Stage 1 demolition State significant development (SSD) application (SSD 7534 MOD 1), Parramatta, in the City of Parramatta local government area (LGA). The request has been lodged by Venues NSW (the Applicant) pursuant to section 96(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act).

The Applicant seeks approval to modify the Stage 1 demolition component of the approved project to include site remediation and stadium piling works. Site remediation works are proposed in association with site levelling and bulk earthworks, in conjunction with the demolition of existing buildings and structures, while stadium piling works are proposed to establish construction foundations for the future stadium building.

2. SUBJECT SITE

The site is located at 11-13 O'Connell Street, Parramatta and is sited at the north-western edge of the Parramatta central business district (CBD), approximately 900 m from the city centre, and approximately 25 km west of the Sydney CBD.

The site is bound by O'Connell Street to the east (its only street frontage, approximately 330 metres (m) in length), the existing four/five storey Parramatta Leagues Club to the north, Old Kings Oval to the west and Parramatta River beyond that, and the Parramatta Park Trust (the Trust) surface car park to the south (see **Figures 1 and 2**).

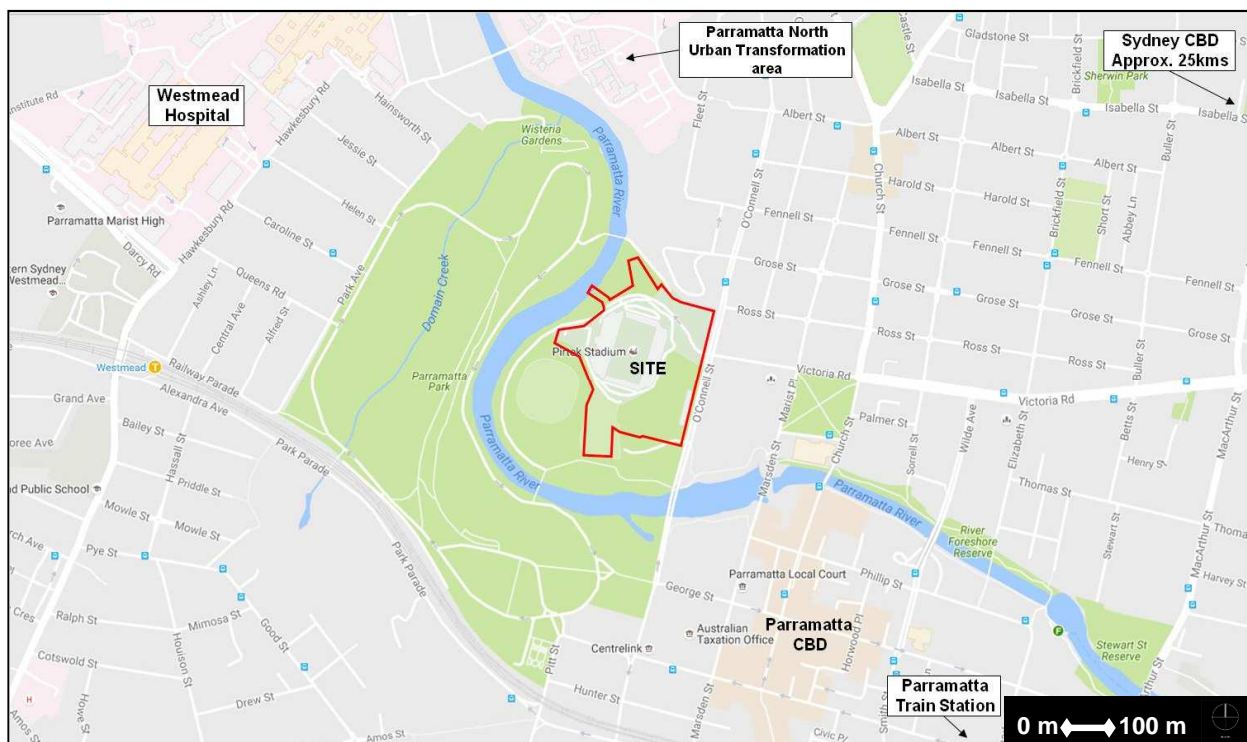


Figure 1: Site location (source: www.nearmap.com)



Figure 2: Existing site layout (source: www.nearmap.com)

3. APPROVAL HISTORY

Concept Proposal and Stage 1 (SSD 7534)

On 6 December 2016, a Concept Proposal and Stage 1 demolition SSD application for the Western Sydney Stadium was approved by the Minister for Planning under section 89E of the EP&A Act. The approval provided for:

Concept Proposal including:

- Western Sydney Stadium and future development building envelopes;
- stadium capacity of up to 30,000 patrons;
- a maximum total GFA of 80,000 sqm comprised of:
 - a maximum of 60,000 sqm stadium GFA; and
 - a maximum of 20,000 sqm future development GFA, within the northern corner of the site.
- land uses across the site including stadium and ancillary uses and ancillary/complementary uses within the future development building envelope;
- a maximum of 500 surface car parking spaces;
- vehicular and pedestrian entry/exit points, ring road and pedestrian circulation zone;
- Design Guidelines to guide future development and the public domain; and
- public domain works including urban parks, plazas, landscaping, function zone, public domain improvements and associated works (see **Figure 3**); and

Stage 1 demolition works including:

- site establishment works;
- staged decommissioning and demolition of the existing Parramatta Stadium and Parramatta Swimming Centre (PSC) and related structures and hard and soft landscaping; and
- waste management and site works to return all areas to ground level.

Demolition of Parramatta Stadium and PSC has substantially commenced.

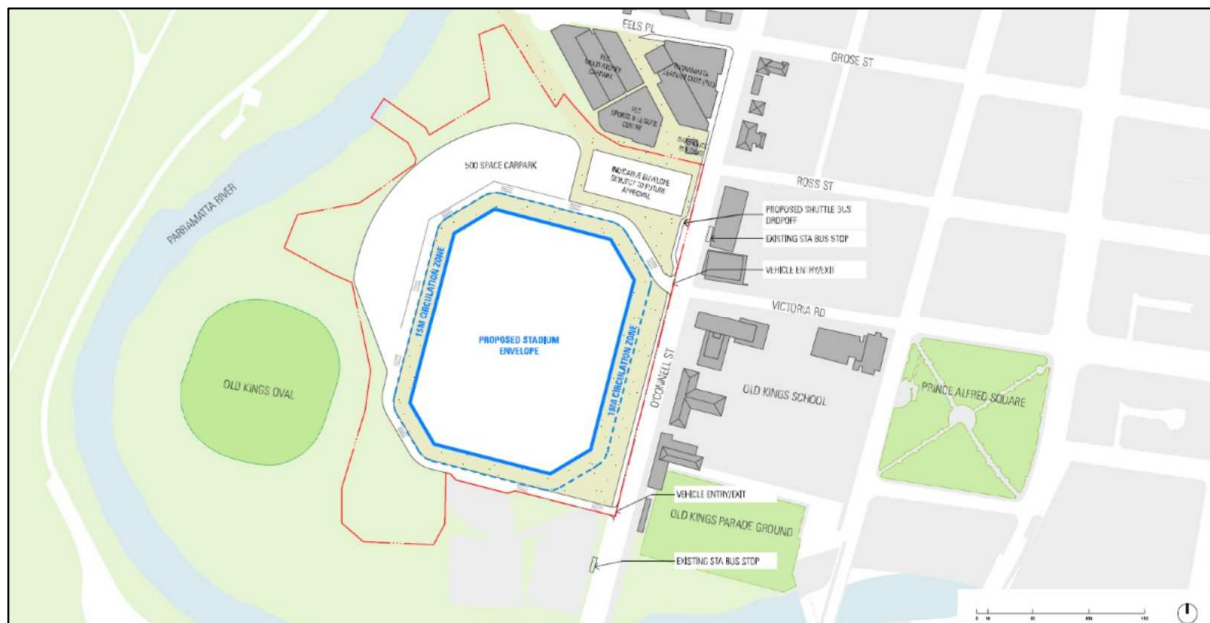


Figure 3: Approved Western Sydney Stadium Concept Proposal layout (source: SSD 7534 Response to Submissions)

Stage 1 Modification Application (SSD 7534 MOD 2)

On 10 April 2017, the Director, Social and Other Infrastructure Assessments, as delegate of the Minister for Planning, approved a section 96(1A) modification application to modify SSD 7534 as follows:

- correct the development site land description described in Schedule 1 of the development consent to include reference to an inadvertently omitted lot number Lot 964 in DP 42643; and
- make a minor amendment to the development site boundary to include an area of the southern commuter car park to facilitate its reconfiguration and resurfacing as part of the detailed Stage 2 (SSD 8175) proposal for the Western Sydney Stadium (see **Figure 4**).

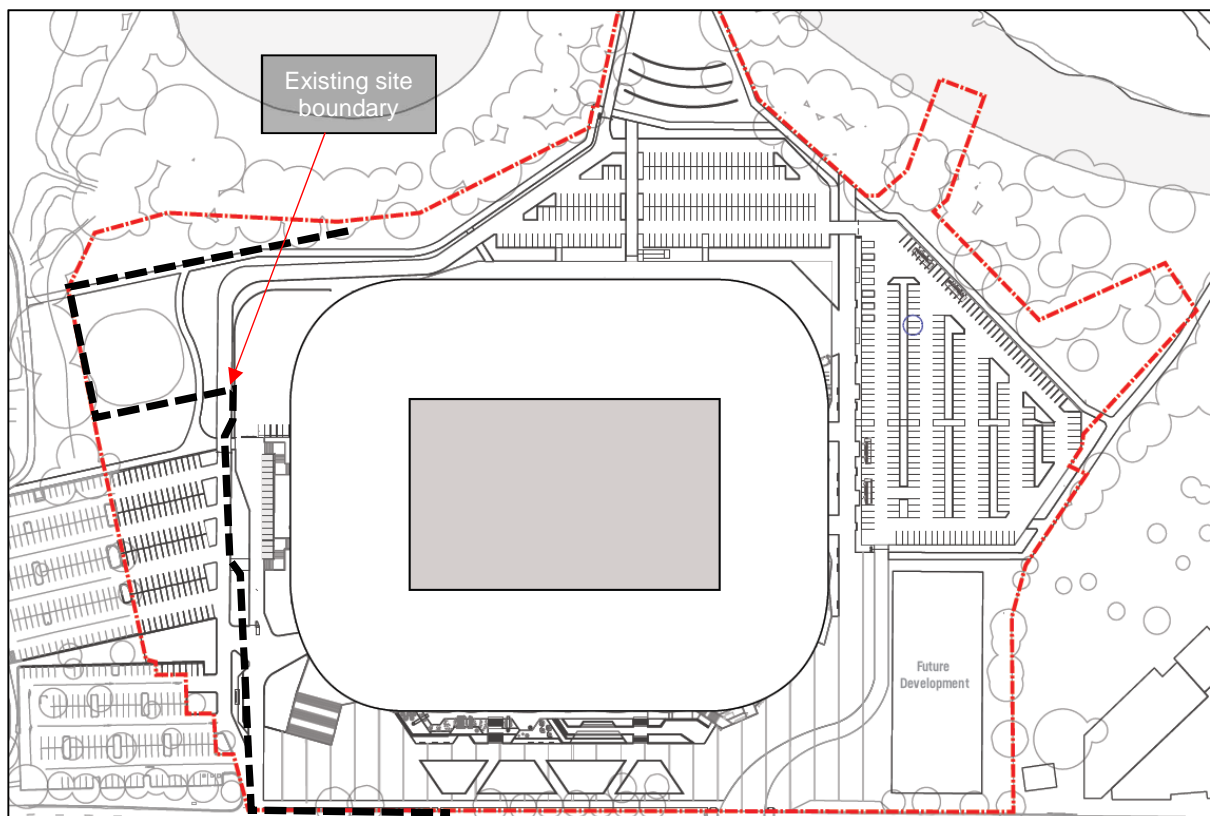


Figure 4: Approved revised site boundary (red dotted line) (source: Applicant, SSD 7534 MOD 2)

4. PROPOSED MODIFICATION

On 6 February 2017, the Applicant submitted a section 96(2) modification application seeking to modify the Stage 1 demolition works component of SSD 7534 to include the following:

- site remediation works and associated site levelling and bulk earthworks in accordance with recommendations outlined in the Remedial Action Plan (RAP); and
- stadium piling works, comprising driving and drilling of concrete piles to establish construction foundations.

Site Remediation

Additional works are proposed as part of the approved Stage 1 works to ensure identified contaminated fill material is appropriately remediated and the site is made suitable for the future stadium development. Areas of impacted soil proposed to be remediated are detailed in **Figure 5**.



Figure 5: Location of proposed remediation works (source: Applicant's RAP)

Remedial works will comprise the excavation and remediation of approximately 25,000 cubic metres of contaminated material. The methodology outlined in the Applicant's RAP proposes on-site capping of contaminated material.

No excavated soil is proposed to be removed from site. The balance of cut and fill on-site is visually represented in **Figure 6**.



Figure 6: Proposed bulk earthworks cut and fill balance plan (source: Applicant's RAP)

Stadium Piling

The stadium piling works are proposed to be included in Stage 1 and will comprise of driving and drilling concrete piles to establish foundations for the future construction of the stadium. The piling works are proposed within the footprint of the approved stadium building envelope.

5. STATUTORY CONSIDERATION

5.1 Modification of Approval

Section 96(2) of the EP&A Act requires the consent authority to be satisfied that the matters in **Table 1** are addressed in respect of all applications that seek modification approvals:

Table 1: Section 96(2) matters for consideration

Section 96(2) matters for consideration	Comment
(a) that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all).	<p>The Department is satisfied the proposal is substantially the same development for which consent was originally granted as;</p> <ul style="list-style-type: none"> in the context of the overall concept proposal and Stage 1 works, the proposed changes are not significant; the proposed modifications will expand the approved physical site establishment works; the proposed modifications do not impact on the approved stadium building envelope, layout, or its use as a recreational facility; the proposed modifications are not anticipated to generate any additional significant adverse amenity impacts on surrounding properties or the locality to that which was originally assessed.
(b) it has consulted with the relevant Minister, public authority or approval body (within the meaning of Division 5) in respect	The modification application does not require concurrence of any Minister, public authority or approval body.

of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent.	
(c) it has notified the application in accordance with the regulations, if the regulations so require.	The modification application has been notified in accordance with the regulations. Details of the notification are provided in Section 6 of this report.
(d) it has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.	The Department received six submissions from public authorities (inclusive of City of Parramatta). Three public submissions were also received that objected to the modification application. Details of the notification are provided in Section 5 of this report. The Department has considered the issues raised in the submissions in Section 6 of this report.

5.2 Environmental Planning Instruments

The following environmental planning instruments (EPIs) apply to the site:

- *State Environmental Planning Policy (State and Regional Development) 2011*;
- *State Environmental Planning Policy (Infrastructure)*;
- *State Environmental Planning Policy No 55 - Remediation of Land (SEPP 55)*; and
- *Parramatta Local Environmental Plan 2011*.

Further to the Department's comprehensive assessment of SSD 7534 against the above EPIs in its original assessment, additional detailed consideration of SEPP 55 is provided below in **Section 6** of this report. Notwithstanding, the Department is satisfied the proposed modifications do not change the approved development's consistency with the EPIs.

5.3 Approval Authority

The Minister for Planning is the approval authority for the application. However, under delegation dated 16 February 2015, the Executive Director, Priority Projects Assessments may determine the application as:

- the local council has not made an objection;
- a political disclosure statement has not been made; and
- there are less than ten public submissions in the nature of objections.

5.4 Consultation

The Department publicly exhibited the modification application for 14 days between 9 February 2017 and 22 February 2017. The modification application was also exhibited on the Department's website, at the Department's Information Centre and at the Offices of the City of Parramatta.

The Department also placed a public exhibition notice in the Sydney Morning Herald, The Daily Telegraph and Parramatta Advertiser on 8 February 2017, and notified adjoining landholders, relevant State and local government authorities, and previous submitters in writing.

The Department received a total of 10 submissions, comprising seven submissions from Council and government authorities, and three submissions of objection from the general public. A summary of the issues raised in the submissions is provided in **Table 2** below.

Table 2: Summary of government authority and public submissions

GOVERNMENT AUTHORITY
City of Parramatta (Council) Council raised no objections or concerns to the proposed modification application. It commented that the Site Audit Statement comments should be observed.

NSW Environment Protection Authority (EPA)

The EPA raised no objections to the modification application, but recommended the Applicant:

Noise Impacts

- prepare a noise and vibration impact assessment for the modified Stage 1 project;
- identify and adopt alternative less noisy piling methods (e.g. vibro-piling in those areas where pile boring represents an unacceptable safety risk) other than driven piling;
- adopt intra-day respite periods in close consultation with nearby schools, residences and places of public worship;

Site Contamination

- ensure all services and service trenches lie above the proposed marker layer to minimise any risks to workers undertaking future repair and maintenance of those services;
- ensure all clean material to be used for the capping layer comprises virgin excavated natural material (VENM);
- undertake a hazardous materials audit of existing structures prior to demolition and to remove all hazardous materials at the direction of an appropriately qualified occupational hygienist;
- prepare and implement an appropriate procedure for identifying and dealing with unexpected finds of site contamination prior to works commencing;
- satisfy the requirements of the *Protection of the Environment Operations (Waste) Regulation 2014*;
- consult with Safework NSW concerning the handling of any asbestos waste that may be encountered during the course of the project;
- implement the site auditor's recommendations; and
- ensure management plans for the construction works and waste management are reviewed by the site auditor.

NSW Heritage Council

The NSW Heritage Council raised no objections to the modification application and provided the following comments:

- details are to be provided demonstrating how the archaeological testing program is to occur within the overall remediation works program safely and efficiently; and
- an archaeological research design (ARD) is a standard document to guide the management of archaeological resources during excavation and should be provided.

The Heritage Council also recommended a number of additional conditions of consent to ensure historical archaeology and heritage is protected.

Office of Environment and Heritage (OEH)

OEH raised no objections to the modification application, but provided the following comments and recommendations:

Grey-headed Flying-fox (GHFF)

- clarify the construction hours that are proposed to be extended from 1 pm to 5 pm in the submitted Demolition, Excavation and Construction Noise and Vibration Management Plan (DEVNVMP), but not described in the Applicant's modification application;
- the DEVNVMP did not estimate predicted noise levels at the same locations as the original EIS, which makes it difficult to assess the noise impacts of the modification application and impacts on the GHFF camp;
- the Biodiversity Assessment (BA) does not address the possible changes to the nature of noise as a result of the additional activities and different plant and equipment requirement;
- the noise mitigation measures recommended in the submitted DEVNVMP on their own do not adequately address potential impacts on the GHFF camp and recommends the mitigation measures required by *Condition B2 Demolition Environmental Management Plan* of Schedule 3 of the original approval also apply to the modification application;

Aboriginal Cultural Heritage

- delete and replace condition *C27 Discovery of Aboriginal Heritage* of Schedule 3 of the original with additional recommended conditions of consent requiring:
 - the preparation of an ARD and Aboriginal Archaeological Management Plan (AAMP) to provide the methodology for test and salvage excavation and to guide the ongoing management of Aboriginal heritage;
 - ongoing consultation with Registered Aboriginal Parties (RAP) and the opportunity to provide input and comment on the AAMP before implantation; and
 - Aboriginal archaeological test and salvage excavation must be undertaken prior to any bulk excavation, piling or redevelopment works on site.

Roads and Maritime Services (RMS)

RMS noted that the proposed remediation works and piling would not increase the volume of traffic entering or exiting the site and therefore raises no objection to the modification application.

Transport for NSW (TNSW)
TNSW raised no objections to the modification application.
Sydney Water
Sydney Water raised no objections to the modification application.
PUBLIC SUBMISSIONS
<u>Site Contamination</u>
<ul style="list-style-type: none"> would like a guarantee that during remediation works no asbestos will be spilled into Parramatta River or generate any off-site dust emissions;
<u>Noise and Vibration</u>
<ul style="list-style-type: none"> piling activities will be noisy and no works should be undertaken during school hours; testing should be carried out for the Hendra virus and/or new mutant viruses carried by the GHFF which will be dispersed over the surrounding neighbourhood and Parramatta Park from noisy works; noise and vibration impacts will impact on teaching and learning, particularly at Our Lady of Mercy College School; noise and vibration impacts will affect heritage buildings in the Fleet Street Heritage Precinct; vibration will disturb reptiles that live in the vicinity of the development site;
<u>Stadium</u>
<ul style="list-style-type: none"> the existing Parramatta Stadium has been at capacity on very few occasions and therefore a new bigger stadium should not be built and the existing stadium should be retained; there appears to be no justification for the extensive site area compared to the actual development site for the stadium, ancillary works and construction; several basement car parking levels should be provided underneath the playing field and the playing field should be lowered so the stadium roof is not visible from Old Government House;
<u>Heritage</u>
<ul style="list-style-type: none"> the new stadium will result in the incremental assault and threat to Parramatta Park, the Governor's Domain and on the basic passive public uses;
<u>Parramatta Swimming Centre</u>
<ul style="list-style-type: none"> the new stadium will result in the demolition of the existing PSC, which is a vital community facility; a minor reorientation of the stadium can retain PSC and save it from demolition; and
<u>Crown Land</u>
<ul style="list-style-type: none"> the proposal has not taken the necessary steps to develop the PSC part of the site under the <i>Crown Lands Act 1989</i>.

5.5 Response to Submissions

On 13 April 2017, the Applicant provided a Response to Submissions (RtS), including updated technical reports, to address the matters raised during the modification application public exhibition.

In addition, the Applicant's RtS proposes to amended the modification application to expand the extent of remediation/earthworks to align with the amended development site boundary (approved under SSD 7534 MOD 2). The Applicant also proposes to remove approximately 15 trees within the new site area accommodated by the amended development site boundary.

The Department referred the Applicant's RtS to the EPA, OEH and Heritage Council for further review and comment. Comments received in response to the review of the RtS are provided in **Table 3** below.

Table 3: Summary of government authority RtS comments

GOVERNMENT AUTHORITY
NSW Environment Protection Authority (EPA)
<u>Noise Impacts</u>
<ul style="list-style-type: none"> pile driving/hammering be only undertaken as a last resort; noise impacts be minimised on surrounding noise sensitive receivers in the event pile driving/hammering is unavoidable; noise generating activities with particularly annoying or intrusive characteristics (such as pile driving/hammering) be subject to a regime of intra-day respite periods; the Applicant must consult and liaise closely with the occupants/management of surrounding noise sensitive land uses to ensure adoption of the most appropriate scheduling of respite periods;

Site Contamination

- the Applicant be required to implement the site auditor's recommendations by ensure any asbestos management plan prepared for and implemented during the construction period is certified as adequate by the site auditor and clearly specifies the requirements for dust control/management and for dealing with unexpected finds;
- the Applicant be required to prepare a long-term post-construction management plan for any re-buried asbestos impacted material; and
- the Applicant be required to confirm all existing structures have been surveyed as part of the hazardous material audit.

NSW Heritage Council

The NSW Heritage Council has recommended conditions of approval to ensure the archaeological program occurs in a timely manner with the results clearly incorporated into the construction and operation for the development prior to the commencement of Stage 2 works.

Office of Environment and Heritage (OEH)

OEH commented that it considers the RtS has addressed its concerns raised previously.

6. ASSESSMENT

The Department has considered the Applicant's modification application report, the issues raised in submissions and the Applicant's response to these issues in its assessment of the project. The Department considers the key issues to be:

- site contamination and remediation;
- environmental and residential impacts;
- archaeological heritage impacts; and
- ecological impacts.

6.1 Site Contamination and Remediation

SEPP 55 is the primary EPI guiding the remediation of contaminated land and aims to:

- provide a state wide approach to the remediation of contaminated land; and
- promote the remediation of contaminated land to reduce the risk of harm to human health and the environment by specifying under what circumstances consent is required, specifying certain considerations for consent to carry out remediation work and requiring that remediation works undertaken meet certain standards.

SEPP 55 also requires a consent authority to consider whether the land is contaminated, and if so, whether the land will be remediated before the land is used for the intended purpose.

The environmental site assessment (ESA) submitted with SSD 7534 was prepared having regard to a number of historical site contamination assessments (undertaken in 1984, 2007, 2014 – 2016) that collectively investigated 58 sample locations, primarily focused centrally in the north and south of the development site. The ESA undertook further site investigations, including an additional 57 samples, to assess areas not previously investigated and to address the sampling data gaps. The ESA noted potential areas of environmental concern from the previous importation of fill and soil to the site and identified asbestos, copper and nickel, and polycyclic aromatic hydrocarbons (PAH's) as potential contaminants. The ESA concluded that:

- asbestos containing material (ACM) in friable or non-friable (bonded) form was visibly observed in fill materials below the ground surface;
- laboratory analysis of soil samples identified the presence of asbestos in locations across the development site consistent with the presence of fill material, some of which exceeded the health screening level, and therefore represent a potentially unacceptable risk to future site receptors;
- chemical contaminants of potential concern (COPCs) were identified to be less than the adopted health based site assessment criteria (SAC), and in most instances, less than the adopted ecological assessment criteria, and therefore COPCs were not considered to pose an unacceptable risk to future site receptors; and
- groundwater was not considered to represent an unacceptable risk to human and/or ecological receptors within or off-site.

It was also concluded that the development site can be made suitable for the proposed land use, subject to the preparation and implementation of an asbestos management plan and RAP. The ESA also noted access was not available to the PSC site area and that intrusive soil sampling was not undertaken. It concluded it was highly likely site contamination issues within this area of the development site would be consistent with the rest of the development site investigated.

A RAP (updated as part of this modification's RtS) and Section B Site Audit Statement and Site Audit Report were submitted with the modification application in accordance with the recommendations of the SSD 7534 ESA. Included in the submitted RAP were details of additional site investigations undertaken within the PSC site, which concluded:

- fill material was identified in many areas that was observed to contain bonded and friable ACM;
- copper and PAH chemical contaminants above the adopted health based criteria were identified in the north-east and south-east portions of the PSC site;
- laboratory analysis of soil samples identified the presence of asbestos in locations across the PSC site and therefore represent a potentially unacceptable risk to future site receptors; and
- groundwater was not considered to represent an unacceptable risk to human and/or ecological receptors within or off-site.

The Applicant's RAP proposes the staged excavation and on-site containment of contaminated fill materials, with partial encapsulation under a constructed soil capping layer beneath more physical structures (e.g. future playing surface, stadium, concourse areas and car parking), to be the most effective remediation strategy for ACMs and COPCs. It also advises a long-term Environmental Management Plan (LTEMP) will be required to document any residual impacts and works that have the potential to disturb the managed material and that a 'marker layer' be placed above the capping layer to ensure any future workers are made aware of the potential underlying asbestos impacted materials.

The Applicant's Site Auditor reviewed the ESA and supporting documentation and was satisfied that the investigations undertaken and data presented was sufficient and accurate. The Applicant's Site Audit Report concluded that the site can be made suitable for the proposal if remediated in accordance with the RAP, subject to the inclusion of the following undertakings in the RAP:

- a sampling and analysis quality plan detailing the additional investigation works is to be prepared for review by the Site Auditor;
- a works plan and validation sampling and analysis quality plan detailing the remediation and validation is to be prepared for review by the Site Auditor prior to the commencement of remediation works;
- an asbestos management plan is to be prepared for review by the Site Auditor prior to the commencement of remediation works;
- a LTEMP is to be prepared for the ongoing management of the site; and
- a Section A Site Audit Statement and Site Audit Report be prepared following the completion of remediation works.

Council raised no objections to the proposed introduction of remediation works into Stage 1 of the proposal, commenting that the conclusions of the Site Audit Statement should be followed. The EPA also raised no objections to the proposed remediation works and provided recommendations to ensure remediation works are undertaken in accordance with the relevant guidelines and the Site Auditor's recommendations and that the necessary management plans are in place prior to the commencement of works.

In response to the EPA's comments and its recommendations, the Applicant's RtS states:

- where practical, all services and associated trenches will be constructed above the proposed marker layer;
- the capping layer is proposed to be VENM, where possible, but also proposes the use of other materials subject to the approval of the Site Auditor;

- the Applicant has completed a hazardous materials audit and an unexpected finds protocol forms part of the RAP submitted with the modification application;
- works to minimise waste generation will be undertaken by the Applicant in accordance with the *Protection of the Environment Operations (Waste) Regulation 2014*;
- works will be undertaken in accordance with SafeWork NSW requirements; and
- the Site Auditor's recommendations will be implemented in full, including the preparation of a Work Plan, long-term management plan, construction environment management plan and asbestos management plan prior to remedial works commencing.

No further concerns were raised by the EPA following its review of the Applicant's RtS, only reaffirming that the Site Auditor's recommendations be implemented.

The Department is satisfied the Applicant has adequately assessed the site contamination issues of the site in accordance with SEPP 55 and that its proposal to remediate the identified contaminants will reduce the risk of harm. The recommended remedial method of excavation and on-site capping of contaminated material and associated site management and unexpected finds protocol implementation will ensure the site can be made suitable for the development.

The Department is also satisfied the preparation of the management plans outlined above will ensure off-site impacts from remedial works are appropriately managed so as not to generate any adverse environmental impacts.

Consistent with the recommendations of the EPA, the Department is also of the opinion that the Site Auditor's recommendations be implemented in full, which will ensure the site is appropriately remediated and validated for the proposed use.

The Department is satisfied the investigations undertaken and proposed remediation strategy demonstrate the site can be made, or is, suitable for the proposed recreational use. The Department has recommended conditions requiring a site validation report and site audit statement be prepared by an accredited site auditor upon completion of the remediation works and that the Applicant prepare and implement an unexpected finds protocol.

6.2 Environmental and Residential Amenity Impacts

The proposed piling and earthworks have the potential to generate additional noise and vibration impacts above the approved Stage 1 demolition works, particularly for nearby sensitive residential, education and place of public worship receivers (see **Figure 7**). The Applicant submitted a *Demolition, Excavation and Construction Noise and Vibration Management Plan* (DECNVMP) with the modification application that provides an assessment and recommends mitigation measures for Stage 1, including the new proposed works.

Following exhibition, the EPA recommended the Applicant:

- prepare a noise and vibration impact assessment for the works proposed in the modification application;
- identify and adopt alternative less noisy piling methods other than driven piling; and
- adopt intra-day respite periods in consultation with nearby sensitive receivers.

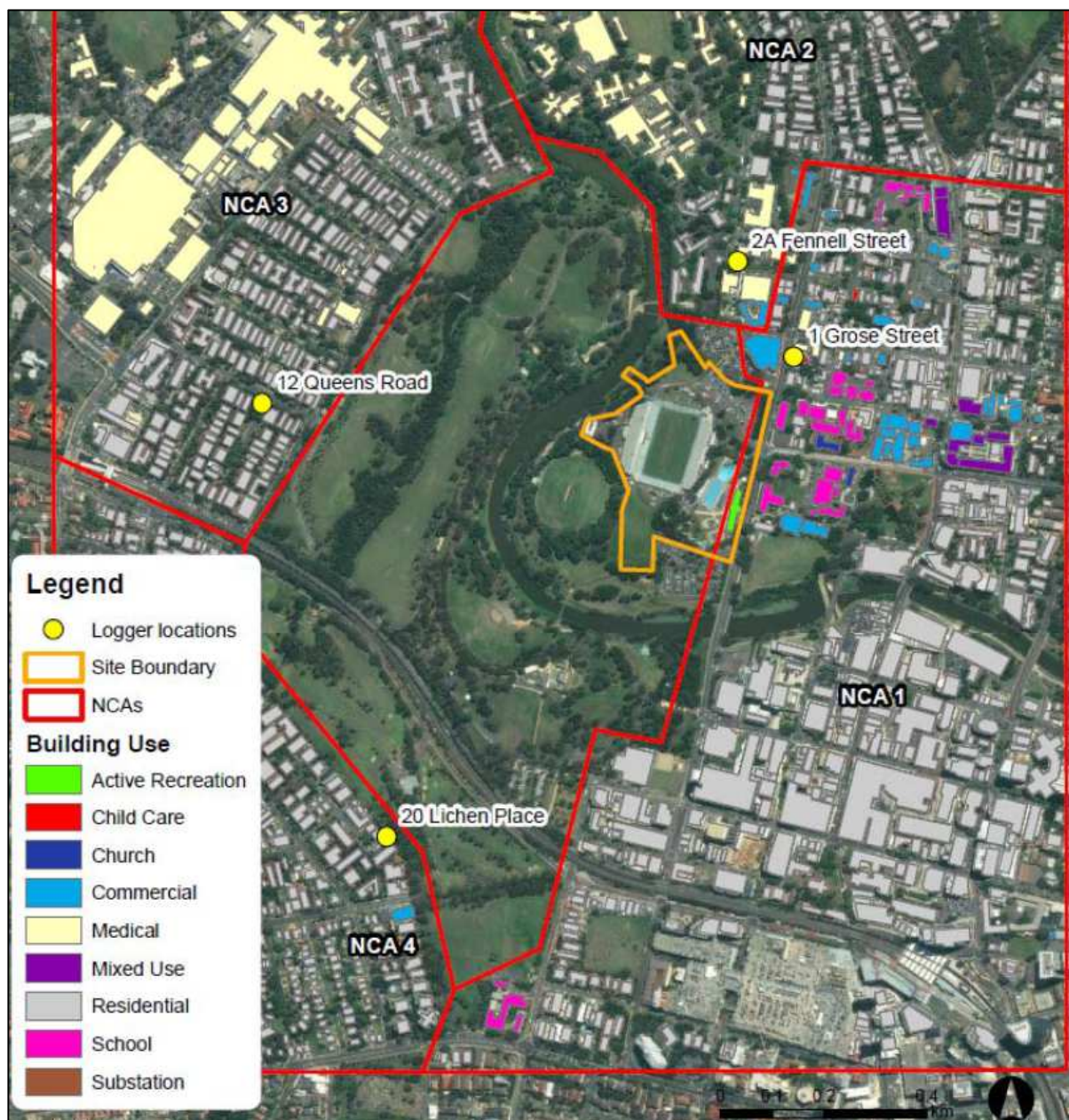


Figure 7: Sensitive receivers (source: SSD 7534 Technical Working Paper: Noise and Vibration)

In its RtS, the Applicant stated that the DECNVMP was prepared in accordance with Schedule 3, condition of consent *B2 Demolition Environmental Management Plan*, though included consideration of the proposed earthworks and piling. It also advises piling methods may comprise a combination of precast, bored and continuous flight auger (CFA) piling, of which the latter two are less intrusive. Where precast piling is also proposed, works near the eastern property boundary (i.e. the closest sensitive receivers) would be avoided where possible.

It also stated that the inclusion of construction work respite periods only need to be applied if noise levels result in sensitive receivers being “highly noise affected” (defined in the Interim Construction Noise Guideline as noise levels above 75 dB(A)). It also confirmed that an extension to the approved hours of work, i.e. 7 am to 6 pm Monday to Fridays and 8 am to 1 pm Saturdays, was not proposed by this modification application.

The Applicant’s DECNVMP also outlines that the project noise management levels presented in the Plan were developed based on the existing background noise levels (RBL’s) established in the *Technical Working Paper: Noise and Vibration* submitted with SSD 7534. However, the Department notes the RBL data relied upon in the DECNVMP are the less stringent RBL’s for

event hours (i.e. between 2 pm and 12 am), rather than the RBL's established for a typical 24-hour period in accordance with the Industrial Noise Policy.

In this respect, the Department recommends that the RBL's established for demolition works and operational activities under SSD 7534, and reproduced in **Table 4** below, be relied upon for the establishment and assessment of the relevant noise management levels (RBL + 10 dB(A)) for the modification application. Further, the Department also recommends condition of consent *B2 Demolition Environmental Management Plan* be amended to ensure the DECNVMP is updated to reflect the correct RBL's and associated noise management levels.

Table 4: Summary of RBL's and construction noise management levels

Location	Background Noise Level (dB(A) L ₉₀)	Noise Management Levels (dB(A) L _{Aeq} (15 min))	Predicted Noise Level (dB(A) L _{eq})
O'Connell Street Residential Properties	54	64	65-70 – hammering and hydraulic hammer on excavator
Queens Road and Park Avenue Residential Properties	39	49	50-60 – remediation plant, hammering, piling rig and hydraulic hammer on excavator
Lichen Place and Parkside Lane Residential Properties	39	49	54 – hydraulic hammer on excavator
Parramatta Leagues Club	N/A (commercial)	70	75-80 – hammering and hydraulic hammer on excavator
Parramatta Park	N/A (recreational area)	65	68 – hydraulic hammer on excavator
St Patrick's Cathedral	N/A (place of worship)	55*	57-72 – excavator, concrete crusher, remediation plant, electric and masonry saws, angle grinders, concrete truck/pump, hammering, drilling and piling rigs and hydraulic hammer on excavator
Our Lady of Mercy College (OLMC)	N/A (school)	55* (65 at the external façade of OLMC Ailsa Mackinnon Centre)	59-79 – excavator, concrete crusher, remediation plant, electric and masonry saws, angle grinders, concrete truck/pump, hammering, drilling and piling rigs and hydraulic hammer on excavator

*management levels based on a 10 dB(A) noise level reduction through an open window

As presented in **Table 4**, noise levels generated by the proposed works are predicted to exceed the noise management levels at surrounding sensitive receivers, and in some instances, are likely to result in sensitive receivers being “highly noise affected”. These exceedances can be attributed to the noise levels predicted to be generated by the proposed piling and earthworks activities, notably the operation of hydraulic hammers and large plant and excavation equipment.

The Applicant's RtS commented that the predicted noise levels were based on a worst-case scenario with no screening and located adjacent to site boundaries. It estimates noise levels would be less than the presented worst-case scenario as mitigation measures would be implemented during the period of works. The DECNVMP also proposes the following site specific treatments to appropriately manage construction noise levels:

- remediation works to be undertaken within enclosures;
- use of 2.4 m high solid perimeter hoardings intermittently around the site and barriers to shield sensitive receivers;
- selection of alternative appliance and/or process, i.e. use of “low-noise” hydraulic hammers, and treatment of devices and equipment;

- positioning major mobile temporary plant (e.g. concrete crushers/pumps/trucks) as far as possible from sensitive receivers;
- maintaining buffer/separation zones between key noise generating activities and receivers;
- hammering only undertaken where non-percussive extraction methods are not feasible or reasonable; and
- where hammering is undertaken, it should be undertaken as follows:
 - utilising the smallest equipment as is practical;
 - use of low-noise hammer heads to minimise radiated noise;
 - use of temporary barriers consisting of heavy carpet lined 1.8 m barricades where practical and effective;
 - vary the location of equipment and activities that generate “highly noise affected” noise emissions to minimise the impact on one receiver; and
 - consultation with the local community as to the nature, period and times.

The DECNVMP also notes that ground vibration would primarily be generated from the excavation of rock using hydraulic hammers, though given the distance between site activities and surrounding sensitive receivers, vibration impacts were unlikely.

A monitoring programme (consisting of attended and unattended noise monitoring and vibration loggers) is also proposed to be implemented that will: allow noise and vibration predictions to be confirmed; provide a historical record of emissions; provide vibration alarms if vibration levels are exceeded; and provide the ability for exceedances to be identified where complaints are made. The Department considers this management measure will be key to identifying exceedances and managing construction noise and vibration levels that will assist in minimising adverse amenity impacts on surrounding sensitive receivers.

In response to the Applicant’s RtS, the EPA reiterated its recommendation that respite periods should be applied where sensitive receivers are “highly noise affected” and where construction activities are identified as being particularly annoying, such as piling and hammering works. It also noted that this was proven to be an effective mitigation measure in dealing with noise and vibration impacts.

The Department considers restricting piling works to outside of school hours, as suggested in a public submission, is unreasonable under the circumstances and would unduly delay the construction period and prolong the exposure to construction noise and vibration impacts. However, the Department concurs with the EPA that respite periods should be implemented to provide relief from piling and associated hammering works. It is also noted that existing condition of consent *C2 Construction Noise Management* already requires the implementation of respite periods for the approved demolition activities as follows:

- respite periods shall be scheduled at the same time each day unless otherwise negotiated with the most affected noise sensitive receivers; and
- respite periods shall involve a regime of not more than three hours on, followed by an uninterrupted one hour respite period from high noise (annoying characteristics and/or noise levels).

Accordingly, the Department recommends condition C2 be amended to also reflect the proposed piling and earthworks. The Department also proposes a new condition of consent that requires an environmental management plan be prepared for the proposed remediation, piling and earthworks, inclusive of a noise and vibration management plan that includes the recommendations.

The Department is satisfied that the appropriate management of construction noise levels and the implementation of respite periods (e.g. approximately two to three one hour periods during a typical school day) will provide relief to sensitive receivers, including the nearby GHFF camp and Our Lady of Mercy College School students. The implementation of the submitted DECNVMP, subject to the Department’s recommended amendments, will ensure that

construction noise and vibration is appropriately managed during Stage 1 works. The Department has considered the proposed additional noise impacts likely to be generated by the modification application and the EPA's comments and considers the potential impacts are acceptable given the unavoidable nature of the works.

6.3 Archaeological Heritage Impacts

The proposed remedial works and associated earthworks have the potential to discover and/or damage sub-surface archaeological items. This is particularly the case within the south of the site (location of the former Government Farm) and the north of the site (location of the Government Mill). There is a high potential for Aboriginal archaeological materials to be present within areas that have not previously been significantly disturbed by the existing Parramatta Stadium and PSC.

Condition *B20 Archaeology* of Schedule 2 requires future development applications to include an updated archaeological assessment to assist in the detailed design of the future stadium and associated development and to ensure relics of State and National heritage significance are conserved *in situ* and not impacted.

Aboriginal heritage

The modification application was supported by an Aboriginal Archaeological Assessment (AAA), prepared in consultation with a number of Registered Aboriginal Parties, which outlines the development site's high importance to the local and broader Aboriginal community. The AAA identified the site area contained culturally sensitive landforms such as the Parramatta Terrace Sand, and Parramatta River floodplain areas that may contain evidence of Aboriginal archaeological deposits, including:

- open camp sites or artefact scatters;
- isolated finds;
- rock engravings and axe grinding grooves; and
- scarred trees.

The AAA outlines the introduction of topsoil and fill may have covered and protected the original ground surface, and with it, evidence of Aboriginal occupation and undisturbed sites and that archaeological salvage is proposed in areas that will be impacted by remediation and earthworks. The AAA recommended the following mitigation measures:

- Aboriginal archaeological testing and salvage be undertaken prior to any excavation or redevelopment of the site and in consultation with the Registered Aboriginal Parties; and
- a Research Design and Aboriginal Archaeological Management Plan should be developed to provide the methodology for the testing and to guide the site's ongoing management.

A two-stage testing and salvage program is proposed, with small test excavations undertaken first to determine if Aboriginal archaeological evidence is present. If present, further investigations will be progressed via a trench excavation, in association with the Registered Aboriginal Parties, to determine the nature and extent of the archaeological deposit. The AAA states the Registered Aboriginal Parties have indicated the preferred management options of archaeological deposits recovered included: on-site interpretation display; depositing artefacts with the Parramatta Heritage/Discovery Centre; or depositing artefacts with the Australian Museum.

The Department and OEH both concur that it is essential that the presence of any Aboriginal archaeological deposits is established prior to major ground disturbance works commencing (i.e. piling and earthworks). OEH commented that appropriate Aboriginal heritage management is required prior to the commencement of intrusive ground works now proposed under Stage 1, and advised it supported the recommended mitigation measures presented in the modification application and AAA. It recommended condition of consent *C27 Discovery of Aboriginal Heritage* be deleted and replaced with alternative conditions consistent with the recommended mitigation measures. The Applicant raised no objections to OEH's recommendations in its RtS.

The Applicant presented an updated AAA in its RtS that provided further assessment and consideration of potential Aboriginal heritage within the expanded site area (approved by SSD 7534 MOD 2). It concluded that the original recommended management and mitigation measures would be sufficient to account for the site area.

The Department is satisfied the proposed mitigation measures outlined in the Applicant's AAA and OEH's recommended conditions of consent will ensure appropriate archaeological testing and salvage is undertaken prior to the commencement of any major ground disturbance works. The Department, however, recommends condition of consent *C27 Discovery of Aboriginal Heritage* remain to ensure any unexpected find uncovered during works are appropriately management and protected.

Historical heritage

The site contains and adjoins a number of existing heritage items of world/national, state and local significance and is considered to be an archaeological site that could potentially contain relics of local and state significance. The Department notes the primary areas of archaeological sensitivity, the Government Farm and Dam areas (see **Figure 8**), are located in areas subject to both remediation and associated earthworks that have the potential to expose and impact on items of significance.

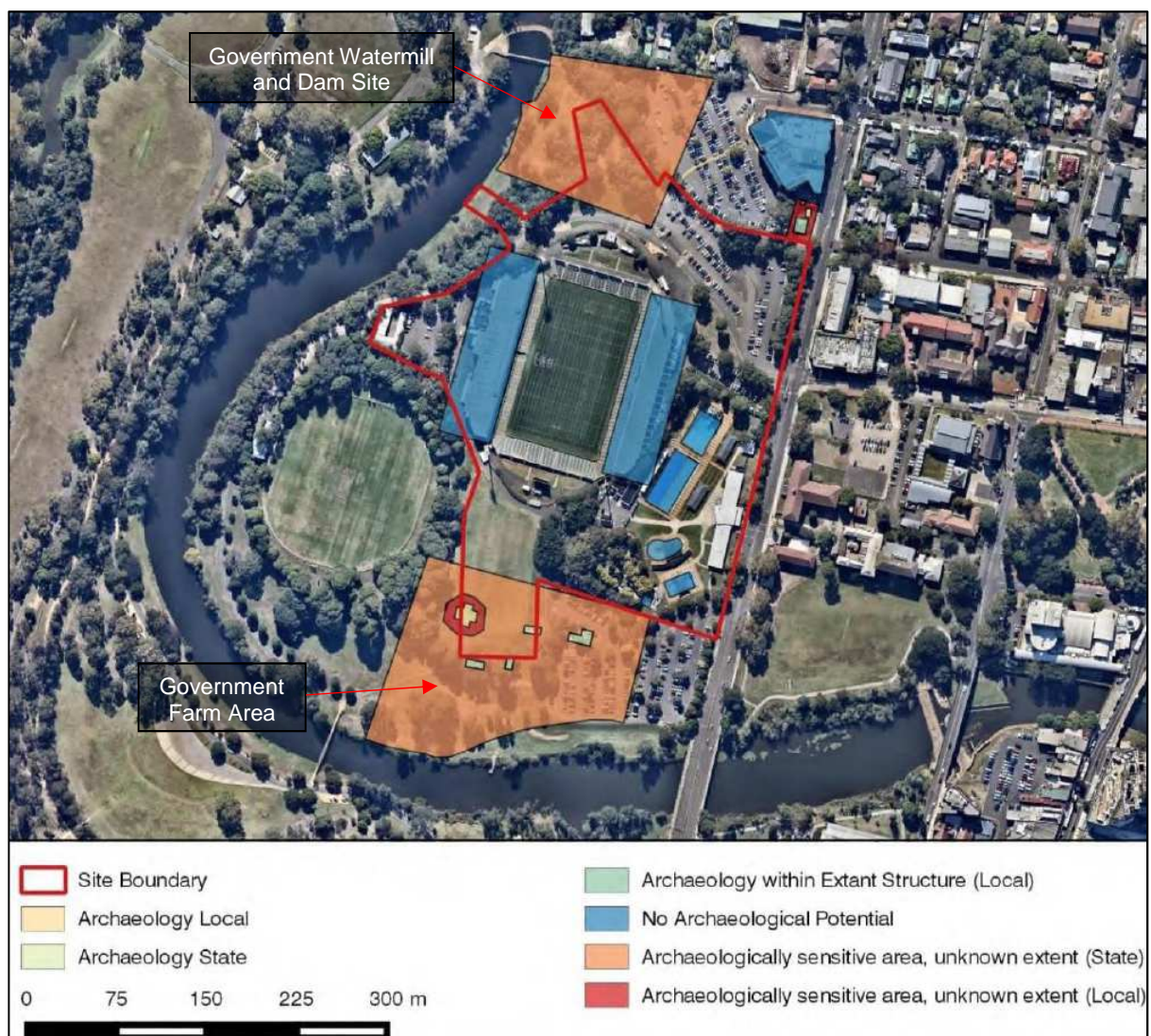


Figure 8: Areas of potential archaeological significance (source: Applicant's Heritage Impact Statement)

The modification application was supported by a *Historical Archaeological Assessment and S96 Modification Heritage Impact Statement* (HIS) to assess the potential impacts of the new proposed Stage 1 works. The Applicant's HIS recommended a number of mitigation measures and concluded the following:

- the removal and introduction of fill associated with the proposed remedial action works and associated earthworks has potential to impact on existing areas of archaeological potential;
- areas of recognised archaeological potential associated with the former Government Farm and Government Watermill are proposed to have up to 3.4 m and 4 m of contaminated fill removed, respectively;
- archaeological testing should be undertaken and remediation methods should be used that have no impact on the significance of the Government Farm area archaeological and cultural landscape;
- the proposed works in the former Government Farm area should be subject to archaeological testing due to the proposed finished ground level being lower than at the time of British colonisation in 1788;
- the proposed works in the former Government Watermill and Dam area were unlikely (low to moderate) as only removal of the existing 1980's earth mound was proposed;
- where additional material is proposed to be removed in the former Government Watermill and Dam area beyond the 1980's earth mound, those works should be subject to archaeological testing; and
- the proposed stadium piling works should have no impact on known archaeological remains, noting the existing Parramatta Stadium reduced the finished level by 4 m during its original construction that would have removed archaeology within this area.

The NSW Heritage Council acknowledged the archaeological recommendations contained in the HIS were appropriate, though noted an archaeological research design (ARD) was not present and was essential to guide the proposed works. In response, the Applicant provided an updated HIS with its RtS, which included an ARD to address and manage the proposed process of archaeological test excavations. Its RtS also raised no objections to the NSW Heritage Council's recommended conditions of consent.

Following the review of the Applicant's RtS, the NSW Heritage Council commented that the project timing was not clear across the works proposed under Stage 1, Stage 2 and modification works, and how the results of the archaeological testing program would be incorporated into other proposed works to ensure archaeology is protected throughout the stadium's future development. Accordingly, it provided new recommended conditions to ensure the archaeology program occurs in a timely manner with the results incorporated into the construction and operation programs for the future stadium development.

The Applicant provided further clarification regarding the management of archaeology throughout remedial works, advising that a testing and monitoring program has been developed for the identified areas of significance (i.e. the Government Farm and Dam areas) to prevent any impact on significant archaeology and allow for the retention *in situ* of archaeology. Proposed remedial works, earthworks and piling works within the footprint of the approved stadium building envelope are located outside the main northern and southern areas of archaeological potential. Given the pre-existing site disturbances beneath the footprints of the former Parramatta Stadium and PSC attributed to their original construction, it is concluded that further impacts from these works are unlikely. Notwithstanding, proposed monitoring and the implementation of an unexpected finds policy will ensure appropriate procedures are followed in the event that items of significance are uncovered during works.

The Department is satisfied with the Applicant's proposed measures to ensure that potential items of archaeological significance in the Government Farm and Dam areas are appropriately investigated and protected throughout the Stage 1 works. The Department also recommends the NSW Heritage Council's new recommended conditions of consent be imposed to ensure

appropriate archaeological investigations are undertaken in a timely manner to better inform the future stadium development and protect items of significance.

6.4 Ecological Impacts

The proposed piling and earthworks have the potential to generate additional noise and vibration impacts on fauna surrounding the development site, particularly the existing GHFF camp adjoining the north-western boundary of the site, a species that is listed as 'Vulnerable' in New South Wales under the *Environment Protection and Biodiversity Conservation Act 1999*.

The Applicant's modification application Biodiversity Assessment (BA) advises the proposed works are likely to result in marginal increases to the noise levels predicated nearby the existing GHFF camp than that originally predicted under SSD 7534. In addition to the mitigation measures outlined in the DECNVMP, the Applicant's BA recommended one or more noise monitors be installed in the vicinity of the GHFF camp and regularly monitored to ensure noise levels did not exceed 57 dB(A), originally predicted under SSD 7534 as the construction and demolition noise levels that were likely to reach the camp.

During exhibition, OEH raised concerns about additional noise and vibration impacts from the proposed amended Stage 1 works on the GHFF camp. It advised it could not conclude there would be no additional impacts to that originally assessed under SSD 7534 as the estimated noise levels presented in the DECNVMP were not predicted from the same noise monitoring locations presented in the original SSD 7534 Noise and Vibration Assessment (i.e. 1 Fleet Street, Parramatta). It also recommended the mitigation measures imposed under SSD condition of consent *B2 Demolition Environmental Management Plan*, be incorporated into the modification application.

In its RtS, the Applicant provided revised noise level estimates for 1 Fleet Street, Parramatta, the closest noise monitoring location to the GHFF camp. It concluded the proposed piling and earthworks were not expected to result in a substantial increase of construction related noise levels and therefore, the original Biodiversity Assessment mitigation measures imposed under condition of consent B2 would also apply to the works proposed under the modification application.

The Department notes noise levels predicted for demolition activities under SSD 7534 at 1 Fleet Street, Parramatta, representative of the GHFF camp, ranged between 52 dB(A) and 57 dB(A). Works proposed under the modification application are predicted to generate noise levels up to 64 dB(A) (e.g. hammering and hydraulic hammer on excavator) under a worst-case scenario with no mitigation.

The Applicant's DECNVMP outlines proposed mitigation measures that would be implemented would have the effect of a noise reduction performance of approximately 10 dB(A), effectively lowering the predicted noise levels to below the BA recommended maximum 57 dB(A) noise level.

OEH subsequently advised after its review of the RtS, that the Applicant had addressed its concerns.

The Department notes that demolition works have commenced on-site and therefore recommends a new environmental management plan condition, be inserted, similar to condition B2, which deals specifically with the new Stage 1 Works (i.e. remediation, piling and earthworks). This will ensure that the potential additional noise levels generated by the revised scope of Stage 1 Works are appropriately mitigated and managed, including implantation of the GHFF camp noise monitoring recommendations.

6.5 Other Matters

Western Sydney Stadium Concept Proposal

A number of concerns raised in public submissions reiterated those raised during the previous assessment of SSD 7534, relating to: a new stadium was not required; the justification for the

stadium development site and design; the requirement to demolish Parramatta Swimming Centre; heritage impacts on Parramatta Park and Governor's Domain; and use of Crown Land.

The Department accepts these matters may still be a concern to members of the public. However, these matters were thoroughly assessed by the Department in its original environmental assessment of SSD 7534 and Minister for Planning's subsequent determination of the proposal.

Further, the modification application does not seek to amend aspects of the approved proposal that would warrant further consideration of these matters (i.e. it does not seek to amend the approved stadium building envelope or footprint).

Construction Traffic Impacts

The proposed piling works are estimated to generate 30 truck movements per day for concrete deliveries in addition to the estimated eight truck and 45 light vehicle movements per day associated with the approved demolition activities. Truck movements associated with the proposed earthworks would be contained on-site at all times, with no fill material proposed to leave the site.

The modification application Traffic Impact Assessment statement outlines 20 per cent of the estimated 30 additional truck movements would occur during the peak hour, with piling works contributing an additional three truck movements in and out of the site. It concludes therefore that the 30 additional daily concrete truck movements are not anticipated to significantly impact on the existing road network.

The Department previously concluded in its assessment of SSD 7534 that the surrounding road network could satisfactorily accommodate traffic generated by the proposed Stage 1 demolition works, as:

- all key intersections would continue to operate at an acceptable level of service; and
- the demolition traffic volume would be less than existing levels as the main car park would not be available for casual/commuter parking.

It is further noted that there would be limited overlap between traffic generated during demolition activities and the proposed remediation, piling and earthworks activities, as the majority of major demolition works are nearing completion.

Both Council and RMS did not raise any objections to the modification application on traffic impact grounds. The Department also notes the original approval includes the requirement for the preparation of a Demolition Traffic and Pedestrian Management Plan (DTPMP). The Applicant has indicated the DTPMP will be updated to include the proposed remediation works, bulk earthworks and stadium piling works.

The Department is satisfied that the additional concrete truck movements generated by the proposed piling works can be accommodated within the existing road network without adversely impacting on its existing operational performance, noting O'Connell Street carries in excess of 30,000 vehicles daily. Subject to the revision of the DTPMP to include the proposed modified Stage 1 works, the Department concludes that potential site preparation construction traffic impacts can be effectively mitigated and managed.

7. CONCLUSION

The Department has assessed the section 96(2) modification application and supporting information in accordance with the relevant requirements of the EP&A Act. The Department's assessment concludes that the proposed modification is acceptable as it:

- will bring forward site remedial works that will remove identified site contaminants of potential human harm from existing and future planned public domain areas;

- allows for the project timing and delivery of the Western Sydney Stadium to be better streamlined;
- is subject to suitable conditions of approval that will appropriately manage and mitigate the noise and vibration impacts associated with the proposal.

Consequently, it is recommended that the modification be approved subject to the recommended conditions.

8. RECOMMENDATION

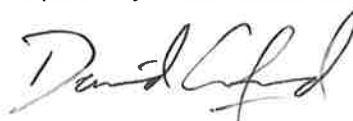
It is RECOMMENDED that the Executive Director, Priority Projects Assessments, as delegate of the Minister for Planning:

- considers the findings and recommendations of this report;
- approves the application under section 96(2) of the EP&A Act; and
- signs the notice of modification (**Appendix A**).

Prepared by: Peter McManus, Specialist Planning Officer

 25/5/17

David Gibson
A/Director
Social and Other Infrastructure
Assessments



David Gainsford 25/5/17
Executive Director
Priority Projects Assessments

APPENDIX A: NOTICE OF MODIFICATION

The Notice of Modification can be found on the Department of Planning and Environment's website at:

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8233

APPENDIX B: SUPPORTING INFORMATION

The following supporting documents and supporting information to this assessment report can be found on the Department of Planning and Environment's website as follows:

1. Modification Request

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8233

2. Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8233

3. Response to Submissions

http://majorprojects.planning.nsw.gov.au/index.pl?action=view_job&job_id=8233