



DOC18/384563-02
SSD 9249

11 July 2018

Ms Aditi Coomar
Department of Planning and Environment
GPO BOX 39
SYDNEY NSW 2001

Dear Ms Coomar

**SSD 9249 – SYDNEY FOOTBALL STADIUM RE-DEVELOPMENT
(CONCEPT PLAN AND STAGE 1) – ENVIRONMENTAL IMPACT STATEMENT (EIS)**

I am writing to you in reply to your invitation to the EPA to make a submission concerning the above project EIS.

The EPA requests that this submission be read in conjunction with its letter dated 19 April 2018 in respect of the draft SEARs for the project.

The EPA notes that the overall project comprises: Stage 1 demolition of the existing stadium and ancillary buildings; Stage 2 demolition; and Stage 2 construction, commissioning and operation of the new stadium, and that Stage 2 is proposed to be the subject of a separate assessment.

The EPA understands that, although the development site is located within Sydney Cricket and Sports Ground Trust lands, the Trust is not the proponent. The EPA anticipates that on completion of the re-developed football stadium precinct, control and management of those facilities would revert to the Sydney Cricket and Sports Ground Trust.

The Sydney Cricket and Sports Ground Trust is subject to a statutory Notice of Prevention in respect of noise emissions from 'outdoor entertainment activities' held at the Sydney Football Stadium and the Sydney Cricket Ground (SCG). 'Outdoor entertainment activities' (including bump in, bump out, sound tests, and rehearsals) carried out during operation of the new stadium and associated facilities together with those activities at the SCG may not result in increased noise impacts experienced at surrounding noise sensitive receiver locations, especially residences.

The EIS (Appendix K '*Noise and Vibration Assessment*') proposes noise management levels and an alternative measurement system to manage noise emissions from sporting and concert events (i.e. outdoor entertainment activities) at the proposed stadium. However, the EIS does not provide sufficient information for the EPA to properly consider proposed alternatives to those encompassed by the current Notice of Prevention.

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The EPA recommends that any approved Concept Plan adopt design parameters that ensure reduced noise impacts from the carrying on of any 'outdoor entertainment activities' at the new stadium (compared to the impacts of similar activities at the existing stadium) through consideration of:

- contemporary acoustic design of the stadium to minimise noise emissions during 'outdoor entertainment activities',
- restricting vehicular access via 'Paddington Lane' to those times other than the 'night' (i.e. 10.00 pm to 7.00 am Monday to Saturday and 10.00 pm to 8.00 am Sundays and public holidays),
- selection, location, installation and operation of noise emitting plant and equipment to minimise noise impacts on surrounding noise sensitive receiver locations, especially residences, and
- contemporary noise monitoring/communication technologies to assure real time compliance with noise limits.

The EPA has identified a number of areas for which the EIS is considered insufficiently comprehensive and/or detailed to allow the EPA to determine the extent of the impact(s) of the proposal. This includes:

- (a) potential site contamination; and
- (b) the impacts, and proposed management of those impacts, of site preparation, demolition, and concrete crushing and loading/stockpiling operations including: noise and vibration impacts on noise sensitive receivers such as UTS Sport Sciences and surrounding residences, child care centres and public recreation areas; impacts on air quality; and impacts on water quality.

The EPA's detailed comments on the above concerns and other matters are detailed at Attachment A.

Should you require clarification of any of the above please contact John Goodwin on 9995 6838.

Yours sincerely



JACINTA HANEMANN
Regional Manager Operations, Metropolitan Infrastructure
NSW Environment Protection Authority

Attachment A

ATTACHMENT A

- ENVIRONMENT PROTECTION AUTHORITY COMMENTS -

SYDEY FOOTBALL STADIUM RE-DEVELOPMENT

STAGE 1 (CONCEPT PLAN AND DEMOLITION)

1. General

The EPA emphasises that it does not review or endorse environmental management plans or the like for reasons of maintaining regulatory 'arms length' and therefore has not reviewed the environmental management plans forming part of or referred to in the EIS.

The EPA considers that the project comprises distinct phases of demolition/construction and operation and has set out its comments on that basis. The EPA considers various environmental issues arising from the Stage 1 assessment process to be inextricably interconnected to environmental issues expected to arise from Stage 2 (construction and operation), albeit that Stage 2 is proposed to be the subject of a separate assessment process.

The EPA notes the proximity of surrounding educational establishments, residences and child care centres which may be adversely impacted during site preparation, construction and operation phases of the project.

2. Demolition/Construction phase

The EPA anticipates that site establishment, site remediation, demolition and demolition-related activities, and concrete crushing and related loading/stockpiling activities, will be undertaken in an environmentally responsible manner with particular emphasis on –

- the site contamination and remediation, including any removal and site validation of existing Underground Petroleum Storage Systems,
- compliance with recommended standard construction hours,
- intra-day respite periods from high noise generating construction activities (including concrete crushing and related loading/stockpiling, jack hammering, rock breaking, pile boring or driving, saw cutting),
- feasible and reasonable noise and vibration minimisation and mitigation
- effective dust control and management (including effective management of concrete crushing processes, and demolition waste and crushed concrete stockpiles)
- erosion and sediment control and water quality management to prevent pollution of local stormwater drainage systems and Kippax Lake by run off from the development site and crushed concrete stockpiles,
- demolition and contaminated soil waste handling and management, including on site and waste transport fleet surveillance, and
- chemical, fuel and lubricant storage and handling to prevent pollution of surface and underground waters.

2.1 Hazardous materials (incl. asbestos containing material)

The EPA understands that the Sydney Football Stadium was constructed in 1988 at which time asbestos containing materials are unlikely to have been used in construction. However, the EIS is not supported by a hazardous materials survey and thus it is possible that asbestos containing materials may be present onsite having been used in other structures on the development site, in conjunction

with installation of underground utilities (e.g. inspection boxes and conduits), or as a result of previous demolition activities or in fill materials.

Recommendation

The proponent be required (prior to commencing any work on the development site) to undertake a hazardous materials survey (including asbestos containing materials) of existing structures and fill material on the development site.

Recommendation

The proponent be required (prior to commencing any work on the development site) to prepare and implement a procedure for identifying and dealing with unexpected finds of site contamination (including asbestos containing materials). That procedure should include details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.

2.2 Site contamination

Demolition of the stadium bowl, the Sheridan and other ancillary buildings along with their associated underground utilities, as well as bitumen and other paved surfaces surrounding the stadium are proposed. The EPA also notes that EIS section 6.17 (1st para) indicates the presence of two "... USTs ..." [i.e. an Underground Petroleum Storage System (UPSS)] located on the eastern side of the development site but does not indicate whether that UPSS is proposed to be removed during Stage 1.

The EIS includes limited assessment of soil and groundwater contamination: a '*Preliminary Site Investigation*' report (Appendix S) limited to a desktop study and site inspection and a '*Groundwater Assessment*' report (Appendix T) which is limited to desktop studies on groundwater. Appendix T is not a groundwater contamination study consistent with the National Environment Protection (assessment of contamination) Measures 2013 as amended or the EPA's '*Guidelines for Consultants Reporting on Contaminated Sites*'.

This may be appropriate if, as the EIS indicates (Section 6.3 (and 6.17), the stadium can be demolished without ground disturbance. The EPA is seeking confirmation that Stage 1 site establishment and demolition (including operation of heavy demolition equipment, and demolition of ancillary structures, associated underground utilities and paving) works can be undertaken without disturbance of potentially contaminated soil and potentially contaminated fill material, and disturbance of the existing Underground Petroleum Storage System.

In the case where ground disturbance may occur, the EPA makes the following recommendations:

Recommendation

The proponent be required to:

- (a) engage a site auditor accredited under the Contaminated Land Management Act 1997 to review the adequacy of the investigations to date, the required unexpected finds protocol, any remedial works or management plan required and/or to confirm the suitability of the proposed land use;
- (b) ensure that any contamination identified as meeting the trigger in the EPA '*Guidelines for the Duty to Report Contamination*' is notified (or re-notified) in accordance with requirements of section 60 of the Contaminated Land Management Act';
- (c) ensure the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination;
- (d) follow the processes outlined in *State Environmental Planning Policy 55 - Remediation of Land (SEPP55)*, to assess the suitability of the land and any remediation required in relation to the proposed use; and

Recommendation

The proponent be required (for future works after the demolition stage) to consider engaging an accredited site auditor to provide a site audit statement (SAS) and accompanying site audit report (SAR) prepared following completion of remediation and validation (if applicable), certifying suitability of the development site for the proposed use prior to undertaking any Stage 2 demolition and construction.

Recommendation

The proponent be required to ensure site preparation and demolition activities do not compromise the integrity of the existing UPSS.

Recommendation

In the event that the existing UPSS is to be removed during Stage 1, the proponent be required to undertake a detailed site investigation after removal to fully characterise the site and validate removal.

Recommendation

The proponent be required to ensure that following relocation or demolition of any existing structures and in ground utilities further investigation be undertaken of soil contamination within the footprint of those structures and utilities prior to undertaking any construction.

2.3 Water quality

EIS section 6.14.3 indicates the site is subject to regular flooding and “[a]n area of high flood hazard is present to the south of the site.

The EPA expects the proponent to adopt all such measures as may be necessary to prevent pollution of waters, especially Kippax Lake and underlying groundwater resources.

Unprotected demolition waste and crushed concrete stockpiles have the potential to alter the physical characteristics of stormwater runoff by entrainment of fine particulates and resultant increased turbidity and pH.

Recommendation

The proponent be required to ensure that demolition and waste and crushed concrete stockpiles are covered or otherwise protected to prevent fine particulates being entrained in stormwater runoff and from the development site.

2.4 noise and vibration

The EPA notes that site establishment (including tree clearing and mulching) and demolition operations may have significant noise and vibration impacts on surrounding educational establishments, residences, child care centres and public recreation areas.

In order to fully assess feasible and reasonable (Stage 1) noise mitigation and management measures, clarification is required of the projected duration of proposed –

- (a) stadium and related demolition activities the subject of Stage 1, and
- (b) concrete crushing and associated loading/stockpiling activities.

The EIS (Figure 21 (p.43)) indicates that the ‘Stage 1 Demolition Site Compound’ is to be located between the NRL and ARDC buildings which adjoin the compound to the south and north respectively. The EPA understands that both the NRL and ARDC buildings would continue to operate throughout

Stage 1 demolition works and further that the University of Technology Sydney Sport Sciences faculty occupies part of the ARDC building.

The EPA notes that Appendix K: '*Noise and Vibration Assessment*' -

- does not identify the adjoining ARDC building as an 'educational institution' in Figure 3 (*Noise sensitive receiver locations and NCAs*),
- recommends in section 6.1.3 that the noisy concrete crusher be located "... to the south of the site as far from receivers as possible." which would be near the ARDC building,
- incorrectly identifies the University of Technology Sydney as a 'Commercial' usage in Table 3 instead of an 'educational institution',
- incorrectly assesses impacts against the management level for commercial premises rather than classrooms at an educational institution, and
- incorrectly suggests in section 7.1 the possibility that the NRL and ARDC buildings may not "... remain operational during demolition works."

The EIS does not appear to adequately assess available feasible and reasonable demolition and concrete crushing noise mitigation and management measures. Consideration should be given to:

- (a) using hydraulic shears instead of rock breakers in the demolition of some concrete structural components of the existing stadium, and
- (b) locating the concrete crushing and related loading/stockpiling operation and processed material stockpiles inside an acoustic enclosure/shed (with the added benefits of protecting those activities and stockpiles from wind action, rainfall and runoff and thus minimising air and water quality impacts as well as noise impacts).

Recommendation

The proponent be required to –

- (a) identify the adjoining University of Technology Sydney occupancy of the ARDC building as an 'educational institution' as referred to in Table 3 to the Interim Construction Noise Guideline,
- (b) re-assess the predicted noise impacts of demolition activities and the concurrent concrete crushing and related loading/stockpiling operation against the applicable 'management level' (i.e. internal noise level) for an educational institution,
- (c) identify when University of Technology Sydney classrooms would be in use, and
- (d) propose feasible and reasonable noise mitigation measures to ensure the applicable 'management level' (i.e. internal noise level) is not exceeded.

Recommendation

The proponent be required to assess the feasibility and reasonableness of available noise mitigation and management measures including the deployment of hydraulic shears instead of rock breakers during Stage 1 demolition activities.

2.4.1 general construction hours

The EPA notes that the EIS indicates that stage 1 demolition works are proposed to be undertaken during the recommended standard construction hours.

Recommendation

The proponent be required to ensure that as far as practicable all demolition, site preparation, bulk earthworks, construction and construction-related activities >5 dB above the rating background level (likely to be audible) at any noise sensitive receivers such as surrounding residences are only undertaken during the standard construction hours, being -

- (a) 7.00 am to 6.00 pm Monday to Friday,
- (b) 8.00 am to 1.00 pm Saturday, and

- (c) no work on Sundays or gazetted public holidays.

2.4.2 *intra-day respite periods*

The EPA anticipates that those demolition, site preparation, bulk earthworks, construction and construction-related activities generating noise with particularly annoying or intrusive characteristics (such as those identified as particularly annoying in section 4.5 of the Interim Construction Noise Guideline) would be subject to a regime of intra-day respite periods where –

- (a) they are only undertaken after 8.00 am,
- (b) they are only undertaken over continuous periods not exceeding 3 hours with at least a 1 hour respite every three hours, and,
- (c) 'continuous' means any period during which there is less than an uninterrupted 60 minute respite between temporarily halting and recommencing any of the intrusive and annoying work referred to in Interim Construction Noise Guideline section 4.5

Intra-day respite periods are not proposed to apply to those demolition, site preparation, bulk earthworks, construction and construction-related activities that do not generate noise with particularly annoying or intrusive characteristics.

Recommendation

The proponent be required to schedule intra-day 'respite periods' for construction activities identified in section 4.5 of the Interim Construction Noise Guideline as being particularly annoying to noise sensitive receivers, including surrounding residents.

2.4.3 *idling and queuing construction vehicles*

The EPA is aware from previous major infrastructure projects that community concerns are likely to arise from noise impacts associated with the early arrival and idling of construction vehicles (including concrete agitator trucks) at the development site and in the residential precincts surrounding that site.

Recommendation

The proponent be required to ensure construction vehicles (including tip trucks and concrete agitator trucks) involved in demolition, site preparation, bulk earthworks, construction and construction-related activities do not arrive at the project site or in surrounding residential precincts outside approved construction hours.

2.4.4 *reversing and movement alarms*

The EPA has identified the noise from 'beeper' type plant movement alarms to be particularly intrusive and is aware of feasible and reasonable alternatives. Transport for NSW (nee Transport Construction Authority), Barangaroo Delivery Authority/Lend Lease and Leighton Contractors (M2 Upgrade project) have undertaken safety risk assessments of alternatives to the traditional 'beeper' alarms. Each determined that adoption of 'quacker' type movement/reversing alarms instead of traditional beepers on all plant and vehicles would not only maintain a safe workplace but also deliver improved outcomes of reduced noise impacts on surrounding residents.

Interim Construction Noise Guideline Appendix C provides additional background material on this issue.

Recommendation

The proponent be required to consider undertaking a safety risk assessment of site establishment, demolition, and concrete crushing and related loading/stockpiling activities to determine whether it is

practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.

Recommendation

The Concept Plan design parameters require the proponent to consider undertaking a safety risk assessment of stadium precinct dedicated mobile plant and equipment operations to determine whether it is practicable to use audible movement alarms of a type that would minimise the noise impact on surrounding noise sensitive receivers, without compromising safety.

2.5 Dust control and management

The EPA considers dust control and management to be an important air quality issue during site establishment, demolition, and concrete crushing and related loading/stockpiling activities, bulk earthworks and subsequent construction.

Recommendation

The proponent be required to :

- (a) minimise dust emissions on the site, and
- (b) prevent dust emissions from the site.

Note: The provides additional comment and recommendations concerning air quality (dust) impacts associated with concrete crushing and related loading/stockpiling operation in section 2.8 to this Attachment.

2.6 Sediment and erosion control

The EPA notes that Kippax Lake is in close proximity to the site and the site is underlain by the Botany Sands Aquifer.

Managing Urban Stormwater Soils and Construction, 4th Edition published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective sediment control on construction sites. The proponent should implement all such feasible and reasonable measures as may be necessary to prevent water pollution in the course of developing the site.

The EPA emphasises the importance of –

- (a) not commencing demolition, site preparation, bulk earthworks, construction and construction-related activities until appropriate and effective sediment controls are in place, and
- (b) daily inspection of sediment controls which is fundamental to ensuring timely maintenance and repair of those controls.

Note: The provides additional comment and recommendations concerning water quality impacts associated with concrete crushing and related loading/stockpiling operation in section 2.8 to this Attachment

2.7 Waste control and management (general)

The EIS indicates that during Stage 1 -

- (a) an estimated 11,050 tonnes of steel, bitumen and glass together with an unknown volume of concrete demolition waste are to be removed for recycling, and
- (b) despite materials recycling and re-use an estimated 250 tonnes of demolition waste and an unknown volume of potentially contaminated soil would need to be classified and directed for disposal to landfill.

The proponent should manage waste in accordance with the waste management hierarchy. The waste hierarchy, established under the [Waste Avoidance and Resource Recovery Act 2001](#), is one that ensures that resource management options are considered against the following priorities:

- **Avoidance** including action to reduce the amount of waste generated by households, industry and all levels of government
- **Resource recovery** including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources
- **Disposal** including management of all disposal options in the most environmentally responsible manner.

The EPA notes the proponent's target of recycling or re-using 90 per cent of Stage 1 demolition waste (see also section 2.8 of this Attachment concerning processing and stockpiling concrete for re-use).

The EPA emphasises that all wastes generated during the project must be properly assessed, classified and managed in accordance with the EPA's Guidelines to ensure proper treatment, transport and disposal at a landfill legally able to accept those wastes.

The EPA further anticipates that, without proper site controls and management, mud and waste may be tracked off the site during the course of the project.

Recommendation

The proponent be required to ensure that :

- (1) all waste generated during the project is assessed, classified and managed in accordance with the EPA "*Waste Classification Guidelines Part 1: Classifying Waste*", November 2014 and the 2016 Addendum thereto;
- (2) the body of any vehicle or trailer, used to transport waste or excavation spoil from the premises, is covered before leaving the premises to prevent any spill or escape of any dust, waste, or spoil from the vehicle or trailer; and
- (3) mud, splatter, dust and other material likely to fall from or be cast off the wheels, underside or body of any vehicle, trailer or motorised plant leaving the site, is removed before the vehicle, trailer or motorised plant leaves the premises.

2.7.1 waste streams

Sections 10.8.5 and 13 of EIS Appendix E indicate that demolished material will be separated and stockpiled according to their waste streams prior to on site crushing and re-use or off site re-use, recycling or disposal.

Recommendation

The proponent be required to ensure that –

- (a) materials for re-use or recycling are stockpiled to avoid cross contamination by general and other waste such as hazardous materials and contaminated soil,
- (b) the location of the development site of stockpiles of waste materials for disposal and of materials for re-use or recycling is planned and mapped,
- (c) the movement materials from stockpiles of waste materials for disposal and of materials for re-use or recycling is recorded,
- (d) waste materials stockpiled for disposal and materials stockpiled for re-use or recycling are managed to ensure waste streams reach their intended final destinations, being premises legally able to accept those wastes and materials for re-use or recycling,
- (e) arrangements for the disposal of waste from the premises is organised with the waste facility legally able to accept that waste rather than through a third party.

2.7.2 waste generated outside the development site

The EIS does not identify any off site wastes which will be received at the premises for processing, storage, re-use or disposal as part of the Stage 1 early works. The EPA recommends a condition which prohibits the receipt of any wastes generated off site to mitigate any unlawful processing, storage, re-use or disposal of wastes. However, the receipt of any waste compliant with the conditions of a resource recovery order and exemption should be permitted.

Recommendation

The proponent be required to ensure that waste generated outside the development site is not imported to the development site unless the waste material meets all the conditions of an approved resource recovery order and exemption.

2.7.3 waste vehicle movements

All waste material leaving the development site for disposal must be disposed at a waste facility legally able to accept that waste. The proponent should be aware that it retains ownership of any waste leaving the development site until it is received at a facility legally able to accept that waste.

Given the size and nature of the development site and potentially large quantities of waste material generated during Stages 1 and 2, the EPA considers that it would be prudent for the proponent to take specific measures to track waste from the premises.

Recommendation

The proponent be required to install and operate a video monitoring system with number plate recognition (NPR) capabilities to record all movements onto and off the development site by vehicles involved in transporting waste and recyclable material.

Recommendation

The proponent be required to ensure –

- (a) each vehicle involved in the transport of waste and recyclable material onto or from the development site is fitted with a real time GPS tracking system, and
- (b) each vehicle involved in the transport of waste and recyclable material from the development site is tracked to ensure those material reach their intended destination.

2.8 Processing and stockpiling concrete for re-use

Table 2 to EIS Appendix E states –

- an estimated 100,000 tonnes of concrete waste would be generated during Stage 1 demolition.
- in column 3 “Concrete to be crushed on site and re-used where possible”, and
- in column 4 “un-used concrete to be transported off-site for sale/recycling by licenced contractor”.

Table 2 is unclear about what percentage of concrete demolition waste is to be processed for re-use on the development site and what percentage of the processed material is to be transported off site for sale/recycling. The EPA is concerned that the EIS has not adequately addressed the impacts of on-site processing of concrete wastes, including -

- (a) noise impacts on noise sensitive receiver locations, including UTS and residences,
- (b) air quality impacts (dust emissions) due to wind action on unprocessed material stockpiles,

- (c) water quality impacts arising from dust suppression and stormwater runoff from unprocessed material stockpiles,
- (d) air quality impacts (dust emissions) during transport, loading, processing and stockpiling,
- (e) air quality impacts (dust emissions) due to wind action on unprocessed material stockpiles, and
- (f) water quality impacts arising from dust suppression and stormwater runoff from unprocessed material stockpiles.

Section 6.1.3 to EIS Appendix K recommends that the concrete crusher be located "... to the south of the site as far from receivers as possible." However, EIS section 6.14.3 indicates the site is subject to regular flooding and "[a]n area of high flood hazard is present to the south of the site.

The EPA encourages materials re-use and recycling. However, in order to minimise environmental impacts of concrete crushing, loading and stockpiling on the development site, concrete demolition waste not likely to be re-used on the development should be processed for that re-use at a 'fit for purpose' premises in an industrial setting.

Recommendation

The proponent be required to only crush concrete demolition waste on the development site when a definitive requirement for on site re-use of the processed concrete material has been clearly identified.

Recommendation

The proponent be required to ensure that any demolition material to be re-used on the development site has been properly assessed as suitable for that re-use and that any concrete re-used on the development site does not exceed the chemical and physical contaminant concentrations in Table 1 of the Recovered Aggregate Order 2014.

Recommendation

The proponent be required to implement appropriate controls for concrete crushing and related loading/stockpiling activities and located processed material stockpiles to protect those activities from wind action, rainfall and runoff thus minimising air and water quality impacts and to protect noise sensitive receivers from noise impacts.

3. Operational phase

The EPA considers that environmental impacts that arise once the development is operational should be able to be largely averted by responsible environmental management practices, particularly with regard to:

- (a) feasible and reasonable noise mitigation measures;
- (b) waste management in accordance with the waste management hierarchy;
- (c) above ground storage of fuel required to serve any emergency back-up generator;
- (c) water sensitive urban design; and
- (d) energy conservation and efficiency.

3.1 Noise and vibration impacts

The EPA notes that that the SEARs only require a qualitative noise assessment in respect of operational noise impacts of the new stadium and the cumulative impact of its operation in conjunction with the Sydney Cricket Ground.

As outlined in the cover letter, a Notice of Prevention in respect to noise emissions from 'outdoor entertainment activities' applies to the Sydney Football Stadium and Sydney Cricket Ground.

Whilst the Notice of Prevention limits the nature and frequency of various types of outdoor entertainment activities held at the Sydney Cricket Ground, the EPA anticipates that noise impacts from those activities on surrounding residences may –

- increase as the existing stadium and associated buildings are progressively demolished (until the new stadium is built), and
- change significantly following construction of new stadium on the proposed new footprint.

3.1.1 background noise measurement

The EPA emphasises that properly establishing background noise levels in accordance with guidance material in the Noise Policy for Industry (NPI) is fundamental to a consistent approach to the quantitative assessment of noise impacts of development.

The NSW Noise Policy for Industry (NPI) specifies that at least a ‘week’s worth’ of monitoring data is required to establish background noise levels and that noise levels measured during rainfall and wind velocities greater than 5 metres per second (i.e. 18 kilometres per hour) should be excluded when deriving those background levels. However, EIS Appendix K ‘*Noise and Vibration Assessment*’ indicates that background noise measurements are affected by meteorological conditions.

Thus, the EPA considers that background noise has not been established in accordance with the Noise Policy for Industry, as required by the SEARs.

Recommendation

The proponent be required to undertake additional noise monitoring prior to the Response to Submissions report –

- (a) to properly establish background noise levels in accordance with the guidance material in the Fact Sheets to the Noise Policy for Industry, and
- (b) to inform Concept Plan design parameters for assessing operational noise impacts, including the impact of ‘outdoor entertainment activities’ at the new stadium.

3.1.2 mechanical plant and equipment

The EIS does not include details of mechanical services, plant and equipment required to serve the new stadium.

Recommendation

The Concept Plan design parameters require the proponent to:

- (a) provide a comprehensive quantitative assessment of operational noise impacts on surrounding noise sensitive receivers, especially surrounding residences; and
- (b) ensure mechanical plant and equipment installed on the development site does not generate -
 - (i) noise that exceeds 5 dBA above the rating background noise level (day, evening and night) measured at the northern boundary of the development site, and
 - (ii) noise that exhibits tonal or other annoying characteristics.

3.1.3 vehicular access via ‘Paddington Lane’

The EPA is aware that ‘bump in’ and ‘bump out’ activities and related vehicle movements associated with ‘outdoor entertainment activities’ typically occur at night.

The EPA understands that the proponent prefers that vehicular access to and from the stadium undercroft for the purpose of 'bump in' and 'bump out', goods deliveries, maintenance and waste collection services be obtained from Moore Park Road via the existing access known as "Paddington Lane".

However, the EPA notes that the 'Paddington Lane' access involves a steep ramp up from the stadium precinct level to road level and anticipates significant noise impacts as heavy vehicles negotiate access to Moore Park Road, particularly at night.

Recommendation

The Concept Plan design parameters consider alternatives to the 'Paddington Lane' access to Moore Park Road for waste collection vehicles, goods delivery vehicles and other heavy vehicles outside the hours of 7.00 am and 10.00 pm.

3.1.4 delivery of and goods and waste collection services

The EPA notes numerous reports of community concern arising from loading dock activities and waste collection services, especially when undertaken during evening and night times.

Recommendation

The proponent be required ensure waste collection services are not undertaken outside the hours of –

- (a) 7.00 am to 6.00 pm Monday to Saturday, and
- (b) 8.00 am to 6.00 pm on Sundays and public holidays.

Recommendation

The Concept Plan design parameters require the location of loading docks and waste storage and collection areas as far as possible from residences and preferably under or behind structures that would provide effective acoustic shielding of residences and the UTS Sport Sciences faculty from noise emissions from loading dock and waste collection activities.

3.1.5 grounds maintenance using powered equipment

The EPA notes numerous reports of community concern arising from grounds maintenance involving the use of powered equipment (example: leaf blowers, lawn mowers, brush cutters) during early morning and evening periods as well as on weekends and public holidays.

Recommendation

The proponent be required ensure grounds maintenance involving the use of powered equipment in the stadium precinct is not undertaken outside the hours of 7.00 am to 6.00 pm Monday to Friday.

3.2 Emergency back-up generator and UPSS

The EPA anticipates that the new stadium would be served by an emergency back-up generator. The EPA having regard to the presence of extensive groundwater resources under the development site, would not favour installation of a UPSS to serve any back-up generator.

Recommendation

The proponent be required to ensure that fuel for any back-up emergency generator is stored above ground and that all associated pipes, fittings and equipment are located above ground.

3.3 Waste management

The proponent should manage waste in accordance with the waste management hierarchy.

Recommendation

The proponent be required to identify and implement feasible and reasonable opportunities for the re-use and recycling of waste, including food waste.

3.4 Water sensitive urban design and energy conservation and efficiency

The EPA acknowledges that EIS section 6.14.1 indicates an existing stormwater detention capacity on Trust lands and that "... final size and location of ..." additional detention capacity would be determined as part of Stage 2.

The EPA further acknowledges EIS Appendix N provides commitments to Environmentally Sustainable Development practices which should be embodied in any Concept Plan development consent that may be forthcoming.

Recommendation

The proponent be required to implement water sensitive urban design and energy conservation and efficiency measures, including:

- (a) rainwater harvesting and re-use;
- (b) water efficient fixtures;
- (c) installation of rooftop solar photovoltaic arrays for on site electricity generation;
- (d) storage of surplus energy generated by rooftop solar photovoltaic arrays;
- (e) (where practicable) use of electric vehicles for dedicated on site transport tasks; and
- (f) energy efficient electrical equipment, fittings and fixtures.
