EF13/5547, DOC16/481142.01
SSD 7518

Ms Megan Fu
Department of Planning and Environment
GPO BOX 39
SYDNEY NSW 2001

Dear Ms Fu

SSD 7518 – UNSW SCIENCE AND ENGINEEERING BUILDING EIS

I am writing to you in reply to your invitation to the EPA to provide a submission in respect of the project EIS.

The EPA requests that the following advice be considered together with its letter dated 7 March 2016 concerning the draft SEARs for the project.

The EPA understands that the proposal involves site preparation, bulk earthworks, and subsequent construction of a 9 storey high building (including rooftop plant rooms). And, notes the proximity of residences in Doncaster Avenue, Day Avenue and High Street.

The EPA notes with concern that the proponent appears to suggest in EIS Table 4 (p.39) that the Protection of the Environment Operations (POEO) Act 1997 has no application to the project.

The EPA is similarly concerned that the proponent appears to be unaware of detailed EPA input to the project SEARs (and EPA advice concerning other recent projects on the campus):

(a) Appendix Y *Hazmat Inputs* does not appear to be cognisant of the respective regulatory roles of SafeWork NSW and the EPA concerning the handling, storage, removal, transport and disposal of asbestos containing materials on the development site, including IO Myers studio;

(b) by erroneously suggesting in EIS section 3.6.2 that it will remove asbestos "... *in accordance with the requirements of the NSW Office of Environment and Heritage at a NSW Office of Environment and Heritage licensed waste facility*" ; and

(c) by not addressing whether activities in the proposed building are likely to warrant a variation of the University's radiation management licence issued by the EPA under the Radiation Control Act.

The EPA further understands that demolition of existing structures is to be undertaken pursuant to State Environmental Planning Policy (Infrastructure) 2007. The EPA regulates all public authorities, including the university, for the purposes of environment protection legislation, including the POEO Act.

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The EPA strongly recommends that the proponent take into account the EPA's comments concerning the project (especially as they relate to hours of work, dust control and management, erosion and sediment control, asbestos and waste management) and apply those comments to the demolition work.

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

The EPA has identified the following site specific concerns based on the information available on the Department of Planning and Environment web site:

(a) the need for further assessment of potential site contamination and engagement of an accredited site auditor;

(b) handling, transport and disposal of any asbestos waste encountered during site preparation;

(c) site preparation, bulk earthworks and construction-related noise impacts (including recommended standard construction hours and intra-day respite periods for highly intrusive noise generating work) on noise sensitive receivers such as surrounding residences;

(d) site preparation, bulk earthworks and construction phase dust control and management;

(e) site preparation, bulk earthworks and construction phase erosion and sediment control and management;

(f) operational noise impacts on noise sensitive receivers (especially surrounding residences) arising from operational activities such as mechanical services (especially air conditioning plant);

(g) practical opportunities to implement water sensitive urban design principles, including water conservation;

(h) practical opportunities to minimise consumption of energy generated from non-renewable sources and to implement effective energy efficiency measures; and

(i) a potential requirement to vary the existing University radiation management licence and obtain user licences under the Radiation Control Act and Regulation.

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

Yours sincerely

M. Sharpi 5-12-16

MIKE SHARPIN
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ATTACHMENT A

- ENVIRONMENT PROTECTION AUTHORITY COMMENTS –

UNSW SCIENCE AND ENGINEERING BUILDING

1. General

The EPA considers that the project comprises distinct phases of construction and operation and has set out its comments on that basis.

The EPA notes the proximity of surrounding residences.

2. Construction phase

The EPA anticipates that demolition, bulk earthworks, construction and construction-related activities will be undertaken in an environmentally responsible manner with particular emphasis on –

- site investigation and remediation,
- compliance with recommended standard construction hours,
- intra-day respite periods from highly intrusive noise generating construction activities (including jack hammering, rock breaking, pile boring or driving, saw cutting),
- construction vehicle idling and queuing in surrounding residential area,
- feasible and reasonable noise and vibration minimisation and mitigation,
- effective dust control and management,
- runoff, erosion and sediment control and management, and
- waste handling and management, particularly concrete waste and rinse water.

2.1 Site investigation and remediation

The EPA has reviewed EIS Appendix F1 - Detailed Site Investigation (Coffey, 22 June 2016), EIS Appendix F1 - Stage 1 Preliminary Site Investigation (Coffey, 29 July 2016) and EIS Appendix AA – Remedial Action Plan (Coffey, 26 August 2016).

The EPA notes that -

1. The EIS presents preliminary and detailed site investigation documents, including remedial options, which consider contaminated sites issues in detail.
2. Analysis of groundwater samples collected from the site did not identify concentrations of contaminants above the assessment criteria (NEPM, 2013), with the exception of copper, iron and zinc. The source of the contaminants in groundwater was considered to be attributable to diffuse sources from the surrounding urban environment, rather than a specific source encountered within the site.
3. Analysis of soil samples collected from the site did not identify concentrations of contaminants above the assessment criteria (NEPM, 2013). Asbestos containing soils have not been identified at the site.
4. The Conceptual Site Model that was developed as part of the assessment has identified exposure pathways that require further consideration during site redevelopment.

5. The 'EIS Remedial Action Plan Section 3.3' identifies data gaps that need to be properly addressed by way of further investigation, including:

   - Fill materials beneath building footprints;
   - Trade waste pipeline infrastructure;
   - an underground petroleum storage system;
   - aboveground storage tanks; and
   - an electrical substation.

Recommendation

The proponent be required to engage a site auditor accredited under the *Contaminated Land Management Act* 1997 to oversee remediation and validation, and that a Part B Site Audit Statement and Site Audit Report be prepared and issued by the site auditor, to certify that the site is suitable for the proposed use.

Recommendation

The proponent be required to ensure proposed management plans for construction works and waste management are reviewed by the site auditor

The EPA recognises the potential that during demolition of existing structures and infrastructure, lead-based paint and asbestos (friable and cement matrix) may be encountered. And, notes the potential for –

(a) PCB contamination associated with the defunct electrical substation; and

(b) site contamination related to the underground petroleum storage system and above ground storage tanks slated for removal from the site.

The proponent should inform itself of the requirements of the 'Polychlorinated Biphenyl Chemical Control Order 1997' (made under the Environmentally Hazardous Chemicals Act 1985), including the requirements in regard to keeping, conveying and disposing of any PCB material or PCB waste.

Note: a copy of the Polychlorinated Biphenyl Chemical Control Order is available on the EPA web site via the following link –

http://www.epa.nsw.gov.au/resources/pesticides/pcbcco1997.pdf

The proponent should note that amongst other things –

- The movement of PCB containing waste to its disposal site will require tracking via the Online Waste Tracking (OWT) under the code M100 (http://www.epa.nsw.gov.au/owt/wclist.htm), and
- (with respect to safe removal and handling of PCB material and PCB waste) section 6.3.2 of the Chemical Control Order requires *" The occupier of any premises where, or in or on which, PCB material or PCB waste are kept must ensure that any person handling PCB material or PCB waste is trained in handling PCBs and methods of containing PCB spills, and wears appropriate personal protective equipment"*, and
- if the PCB containing material found on the development site does not satisfy the criteria for disposal at a landfill licensed to accept that waste, high temperature incineration is the only available method that can be used to destroy PCBs in Australia.

Recommendation

The proponent be required to undertake a detailed investigation following removal of the underground storage tank infrastructure and obtain a validation report in accordance with the requirements of the Protection of the Environment Operations (Underground Petroleum Storage Systems) Regulation 2014.

Recommendation

The proponent be required to satisfy the requirements of the Protection of the Environment Operations (Waste) Regulation 2014 with particular reference to Part 7 'asbestos wastes'.

Note: The EPA provides additional guidance material at its web-site

http://www.environment.nsw.gov.au/waste/asbestos/index.htm.

Recommendation

The proponent be required to consult with SafeWork NSW concerning the handling of any asbestos waste that may be encountered during the course of the project.

Recommendation

The proponent be required to ensure that it only keeps, conveys and disposes of any PCB material and any PCB waste encountered during the course of the project in accordance with the requirements of the 'Polychlorinated Biphenyl Chemical Control Order 1997' (made under the Environmentally Hazardous Chemicals Act 1985)

Recommendation

The proponent be required prior to commencing work –

(a) to prepare and implement an appropriate procedure for identifying and dealing with finds of site contamination, including –

  (i) asbestos containing materials,

  (ii) lead-based paint, and

  (iii) PCBs potentially associated with any old light fittings or de-commissioned electrical equipment.

(b) to develop and implement site clean up and remediation as necessary.

2.2 Noise and vibration

The EPA notes the proximity of noise sensitive receivers, including –

(a) surrounding residences in Doncaster Avenue, Day Avenue and High Street, and

(b) hospitals located east of the campus.

The EPA considers that the project is likely to generate significant noise impacts on surrounding residences during bulk earthworks, construction and construction-related activities.

The EPA provides guidance material available on its web site including downloadable copies of –

- the Interim Construction Noise Guideline (2009), and
- Assessing Vibration: a technical guideline (2006).

2.2.1 General construction hours

EIS section 3.8 (p.36) proposes construction hours on Saturdays between the hours of 8.00 and **5.00 pm** whereas the recommended standard construction hours on Saturdays are between the hours of 8.00 and **1.00 pm**.

Recommendation

The proponent be required to ensure all site preparation, bulk earthworks, construction and construction-related activities during standard construction hours as recommended in Table 1 Chapter 2 of the Interim Construction Noise Guideline (ICNG), July 2009.

2.2.2 Intra-day respite periods

ICNG section 4.5 specifies construction activities proven to be particularly annoying and intrusive to nearby residents. The EPA anticipates that those site preparation, demolition, construction and construction-related activities generating noise with particularly annoying or intrusive characteristics 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 work referred to in ICNG section 4.5

Recommendation

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

2.2.3 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 concrete agitator trucks) involved in 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.

2.2.4 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, 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 preparation, bulk earth works, construction and construction-related 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.

2.3 Dust control and management

The EPA considers dust control and management to be an important air quality issue during, site clearance and preparation, bulk earthworks and subsequent construction. The EPA anticipates that the project will inevitably generate dust as a result of –

(a) the excavation, processing and handling of excavation spoil,

(b) wind action on spoil stock piles, and

(c) wind action on and plant movement across areas bare of vegetation or other cover.

Recommendation

The proponent be required to:

(a) minimise dust emissions on the site, and

(b) prevent dust emissions from the site.

2.4 Erosion and sediment control

Managing Urban Stormwater Soils and Construction, 4th Edition published by Landcom (the so-called 'Blue Book') provides guidance material for achieving effective erosion and sediment control on construction sites. However, 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 site preparation, earthmoving, construction and construction-related activities until appropriate and effective erosion and sediment controls are in place, and

(b) daily inspection of erosion and sediment controls which is fundamental to ensuring timely maintenance and repair of those controls.

2.5 Waste control and management (general)

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.

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.

The EIS should commit the proponent to ensuring that:

(1) all waste generated during the project is assessed, classified and managed in accordance with the "*Waste Classification Guidelines Part 1: Classifying Waste*" (Department of Environment Climate Change and Water, December 2009);

(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.

2.6 Waste control and management (concrete and concrete rinse water)

The EPA anticipates that during the course of the project concrete deliveries and pumping are likely to generate significant volumes of concrete waste and rinse water. The proponent should ensure that concrete waste and rinse water is not disposed of on the project site and instead that –

(a) waste concrete is either returned in the agitator trucks to the supplier or directed to a dedicated watertight skip protected from the entry of precipitation, and

(b) concrete rinse water is directed to a dedicated watertight skip protected from the entry of precipitation or a suitable water treatment plant.

The EIS should commit the proponent to ensuring that concrete waste and rinse water are not disposed of on the development site.

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 avoidance and minimisation.

(b) proper assessment, storage, handling, transport and disposal of wastes, especially clinical and cytotoxic waste;

(c) radiation control; and

(c) energy and water conservation.

3.1 Noise and vibration impacts

The EPA anticipates that operational noise impacts are likely to include noise from amongst other things -

- mechanical ventilation plant and equipment, and
- truck movements (incl. reversing beepers) associated with use of any loading dock and with waste collection services, and
- amplified sound systems used in conjunction with venues such as the IO Myers studio/theatre other than during day-time.

The EPA anticipates the proposed development may have significant operational noise impacts on nearby sensitive receivers, especially residences in Day Avenue, Doncaster Avenue and High Street.

The EPA further anticipates that the development may have operational noise impacts on nearby hospitals, including Sydney Children's Hospital and Royal Hospital for Women.

EIS Appendix G *'Noise and Vibration Impact Assessment'* does not include a quantitative assessment of the operational noise impacts of the proposed development against the relevant NSW Industrial Noise Policy (INP) criteria, including the results of background monitoring undertaken at the most affected residences or hospitals.

EIS Appendix G does not include a quantitative assessment of noise impacts arising from the use of amplified sound systems in the studio spaces relying instead on the

The EPA notes that the noise impact assessment applies a "nominal 15 dBA reduction for shielding from intervening buildings" to off-site receivers, rather than using a model to predict construction noise levels. The EPA further notes that intervening buildings do not form a continuous barrier and is thus concerned that the proponent has not adequately justified that the screening affects of surrounding buildings are likely to reduce noise levels by 15 dBA.

Rating background level

The EPA emphasises that –

- properly establishing background noise levels in accordance with guidance material in the New South Wales Industrial Noise Policy (INP) is fundamental to a consistent approach to the quantitative assessment of noise impacts of development, and
- such monitoring should be undertaken at the potentially most affected noise sensitive receivers, being in this instance nearby residences and hospitals.

The EPA notes that the assessment relies instead on "preliminary" criteria developed from two noise loggers at points L1 and L2 within the UNSW campus, and attended monitoring at two locations near sensitive receivers." Thus, the proponent did not undertake the background noise monitoring required to provide the equivalent of "... a week's worth of valid data ..." at the various potentially most affected noise sensitive receivers.

Nevertheless in this instance, the EPA accepts the proposed 'preliminary' criteria because background noise levels at nearest sensitive receivers are likely to be caused by road traffic noise from Anzac Parade.

Recommendation

The proponent be required to ensure that any noise emitted by mechanical plant or equipment installed and operated at the building –

(a) does not exceed the night time criteria of $L_{eq(night)}$ 37 dBA measured at the most affected residence or hospital, and

(a) does not exhibit tonal characteristics of the type defined in Chapter 4 of the Industrial Noise Policy.

Recommendation

The proponent be required to undertake a quantitative assessment of noise impacts associated with operation of the building together with design for feasible and reasonable noise impact avoidance and mitigation, including but not limited to:

(a) potential sleep disturbance impacts on surrounding residences and nearby hospitals;

(b) potential sleep disturbance impacts on surrounding residences and nearby hospitals from the use of amplified sound systems other than during 'day-time' hours, which are 7.00 am to 6.00 pm Monday to Saturday, and 8.00 am to 6.00 pm Sundays and public holidays);

(c) adequate design, selection and maintenance of amplified sound systems and noise generating mechanical services (especially air handling plant and equipment) and associated rooms and enclosures;

(d) noise compliance monitoring of mechanical services noise and amplified sound systems during commissioning so as to avoid unintended noise impacts;

(e) design of loading docks and waste collection areas to –

  (i) avoid or minimise the activation of vehicle reversing alarms during use of those facilities, or

  (ii) adequate noise shielding of surrounding noise sensitive receivers, especially residences from noise generated during activities associated with those facilities; and

(f) limiting the hours of operation of loading dock and waste collection activities to 'day-time' hours, being 7.00 am to 6.00 pm Monday to Saturday and 8.00 am to 6.00 pm Sundays and public holidays).

Recommendation

The proponent be required to undertake appropriate modelling to justify the nominated 15dBA reduction due to acoustic shielding offered by intervening buildings.

3.2 Clinical and related waste

EIS section 3.6.1 predicts that the development will generate biological waste. However, the EPA is unclear whether the 'biological waste' referred to in section 3.6.1 constitutes 'clinical and related waste' which is defined under the Protection of the Environment Operations Act 1997.

'Clinical and related waste' includes clinical waste; cytotoxic waste; pharmaceutical, drug or medicine waste; and sharps waste.

"Clinical waste means any waste resulting from medical, nursing, dental, pharmaceutical, skin penetration or other related clinical activity, being waste that has the potential to cause injury, infection or offence, and includes waste containing any of the following:

(a) human tissue (other than hair, teeth and nails),
(b) bulk body fluids or blood,
(c) visibly blood-stained body fluids, materials or equipment,
(d) laboratory specimens or cultures,
(e) animal tissue, carcasses or other waste from animals used for medical research,

but does not include any such waste that has been treated by a method approved in writing by the Director-General of the Department of Health."

3.3 Radiation Control Act and Regulation

The EPA administers the Radiation Control Act 1990 (and Radiation Control Regulation 2013) and anticipates that 'regulated material' may be stored and possessed in the building.

The EIS is unclear whether regulated material is proposed to be stored or possessed at the new facilities. And, thus whether the University needs to apply to vary its 'radiation management licence' issued by the EPA under the Radiation Control Act.

Recommendation

The proponent be required to clarify whether or not regulated material is proposed to be stored or possessed at the new facilities.

3.3 Water Conservation

The EPA notes that EIS section 3.9.1 and Appendix X commit the proponent to implementing Water Sensitive Urban Design principles in conjunction with the project.

3.4 Energy Efficiency

The EPA notes that EIS section 3.9 and Appendix J commit the proponent to implementing practical opportunities to achieve passive and active energy efficiencies throughout the new building.
