



Appendix A: Summary of Submissions and Responses to Issues Raised in Submissions

Issue no.	Key Issues Summary	Lend Lease Response
NSW Environment Protection Authority (EPA)		
<i>Health Impact Assessment</i>		
1	Offsite treatment has the potential to result in adverse offsite impacts where emission sources are not adequately managed, but the EIS does not consider in detail or properly assess offsite health impacts or risks associated with offsite treatment (or even just offsite disposal). Further advice should be provided regarding potential offsite health risks resulting from the transport, treatment and disposal of waste. Additional information required of the proponent may not necessarily need to be quantitative in nature - if a qualitative assessment can address each of the above issues.	Potential health impacts from off-site transport of materials are discussed in the updated Health Impact Assessment (HIA)(Appendix D). The updated HIA concludes that risks to off-site receptors associated with the offsite transportation of materials was assessed to be low due to the environmental control measures which will be adopted for the duration of the remediation works, which are documented in the <i>Addendum to the Remedial Action Plan, NSW EPA Declared Remediation Site 21122 and Block 4 (Stage 1b) Development Works, Barangaroo, Millers Point, NSW - Offsite Treatment/Transport of Contaminated Material</i>. AECOM, October 2015 (Appendix E). Potential impacts from treatment and disposal of waste are considered and assessed as part of, and regulated by, the development consent and environmental protection licensing processes in place for EPA-licenced treatment facilities and licenced waste disposal facilities. Hence impact assessment is not required or appropriate as part of this assessment. Importantly the Remedial Action Plan, Waste Management Plan and EIS all specify that any treatment and disposal facility needs to hold an appropriate licence from the EPA.

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<i>Air Quality Impact Assessment</i>		
2	No detail on the contemporaneous assessment has been included for both particulates and nitrogen dioxide. The proponent must provide additional information on the contemporaneous assessment including an analysis of predicted additional exceedances as per the Approved Methods.	The AQIA has been updated to include contemporaneous assessment (refer to Section 6.2 in Appendix C). The contemporaneous results show that for the combined sources involved with the excavation and remediation of Blocks 4 and 5, there are not expected to be any additional PM₁₀ or NO₂ exceedances beyond those expected from the background. When Stage 1C works are included the contemporaneous results predict that there may be one additional PM₁₀ exceedance and potentially four additional NO₂ exceedances. The updated AQIA considers that the additional exceedances arise as a cumulative result of the Stage 1C works, as the contribution from the Block 4 and Block 5 remediation works is very low. The AQIA particularly notes that contemporaneous assessment of the Block 4 and Block 5 remediation works without the Stage 1C works indicates that the Block 4 and Block 5 remediation works would not result in any additional exceedances Air quality mitigation measures and monitoring would be implemented in conjunction with the Stage 1C project to manage cumulative construction air quality issues.

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3	EPA advises that the predicted exceedances are not considered acceptable. Where exceedances are predicted and are influenced by concurrent activities at Barangaroo additional mitigation measure must be proposed.	The air quality modelling indicates that the Blocks 4 and 5 remediation projects together have a maximum PM₁₀ (24 hour) level of 7µg/m³ at the nearest receiver, which is very low. This indicates that there would be very little additional mitigation possible for the Block 5 remediation project, beyond the extensive mitigation measures already assumed. The updated AQIA demonstrates that the Block 4 and Block 5 remediation works will make a negligible impact to surrounding sensitive receptors. It is therefore not necessary to implement additional mitigation measures to address this contribution. The assumed mitigation measures as outlined in the AQIA will be incorporated into the Air Quality and Odour Management Sub-Plan, prior to commencement of works.
4	The sensitivity analysis, as outlined in the RTS has not been included within the AQIA. This information must be provided.	The AQIA has been updated to include a sensitivity analysis – refer Sections 6.4 and 6.5 in Appendix C .
5	It is not clear that the quantitative assessment has considered emission rates from generators against the Protection of the Environment (Clean Air) Regulation 2010.	The AQIA has been updated to consider appropriate generator emission rates – refer Section 5.4 in Appendix C .
6	The methods of dust and odour control during off-site transport are not considered best practice. The RTS proposes the use of foam suppressant and covers during off site transport. The response outlines that foam agents have previously been used on other remediation sites as a method of suppressing odour, the example of the hunter remediation project is given. EPA notes instances of variability in foam performance (including the hunter remediation project) and hence question their viability. EPA considers that sealed containers would constitute best practice.	Lendlease re-confirms that detailed management methods for dust and odour control will be implemented as detailed in the AQIA, in accordance with appropriate industry standards. Subsequent to the EPAs submission, the EPA has confirmed to the BDA that they consider the proposed approach is standard industry practice and is acceptable.
7	No justification for the nominated trigger levels for reactive management has been included. Trigger levels for PM₁₀ are noted to be higher than the predicted maximum TSP concentration. Reactive Management Procedure for total volatile organic compounds (VOCs) should be provided in the final Air Quality Monitoring Program.	The AQIA has been updated to provide the basis for the trigger levels – refer Section 7.2 in Appendix C. The purpose of the trigger levels is to assist in complying with the 24 hour PM₁₀ guideline level across the site, regardless of the modelled concentrations for each project or cumulative scenario.

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<i>Noise and Vibration (EPA)</i>		
8	EPA notes that that the Construction Noise and Vibration Assessment appears to have mislabelled Appendix E (as discussed in Appendix A of the RTS Report) as Appendix D.	We confirm there was a typographical error in Appendix A of the first RTS.
Transport for NSW		
9	TfNSW recommends the following conditions of approval: Prepare a Construction Pedestrian and Traffic Management Plan (CPTMP) prior to commencement of construction, which takes into account cumulative works at and around Barangaroo, including Wynyard Walk and Barangaroo Ferry Wharf. The CPTMP should demonstrate that the construction impacts on the road network, bus operation and pedestrian and cyclist safety can be managed. Footpath and separated cycleway should be maintained throughout the construction period with safe crossing points of Hickson Rd. The CPTMP should be prepared in consultation with TfNSW, Roads and Maritime Services and City of Sydney. The final CPTMP should be endorsed by the CBD Coordination Office within TfNSW. A Road Occupancy Licence will be required for works that will impact on traffic movements on Hickson Road.	Lendlease does not object to the proposed conditions.
NSW Health		
10	No further issues raised	NA
Fire and Rescue NSW		
11	No further comments.	NA

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Department of Primary Industries (NSW Office of Water)		
12	Dewatering Licence Prior to intercepting and dewatering groundwater and dewatering licence under the Water Act 1912 will need to be obtained. This will require an assessment of the site's hydrogeology and calculation of the dewatering volumes.	A dewatering licence will be obtained prior to any works intercepting and dewatering groundwater at Block 5. The licence application will include all relevant information required by DPI (NOW).
13	Groundwater Monitoring Plan The GMP should be accompanied by a hydrologic evaluation of the site and the remediation aspects.	As per the previous RTS report, Lendlease confirms that the GMP to be prepared is a "Groundwater Monitoring Plan", per the RAP, and will be prepared to the satisfaction of the Site Auditor. Further hydrologic evaluation of the site is not considered necessary, as the Remedial Action Plan and supporting studies include detailed groundwater evaluation, which has been prepared to the satisfaction of the Site Auditor.
Port Authority of NSW		
14	Port Authority of NSW is to be consulted with in respect to any proposed traffic changes on Hickson Road which may restrict or impede the passage of trucks.	Lendlease does not object to the proposed recommendations.
SafeWork NSW		
15	Requests further details on: - The risk management approach in relation to risks to on-site workers. - The risk management approach related to asbestos hazard.	Site workers are identified in the HIA as sensitive receptors, and the risk management assessment detailed in the HIA applies to them. An Asbestos Management Plan will be prepared. As described in the EIS (Section 7.3), the Asbestos Management Plan and any associated ACM removal works will include consideration of construction worker protection and the NSW EPA endorsed The Use of Asbestos-Contaminated Soils on Barangaroo, Report to the Environment Protection Authority. Prepared by Associate Professor Tim Driscoll, Sydney School of Public Health, Sydney Medical School, University of Sydney (March 2013).

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16	Health monitoring of workers should be considered if there is any significant risk of exposure to soil contaminants from the works to be undertaken.	Risks to workers from exposure to pollutants either via inhalation of suspended particles and/or vapours and dermal contact, were assessed as being high (possible with moderate consequences) but manageable. The HIA (Appendix D) has concluded that the following management measures are adequate: Engineering controls and safe work practices. Filtration systems Asbestos Management Plan; and Use of appropriate PPE. On-site dust control measures; Effective hygiene procedures such as hand washing. In addition, prior to commencement of works, a detailed Health Management Plan will be prepared, which will include a suitable occupational health monitoring program.
Sydney Water		
17	Sydney Water specifies that: The developer will need to obtain formal requirements for protection and monitoring to build near or over Sydney Water assets, including SPS 1129. An Environmental Management Plan, structural assessments, geotechnical studies and supporting information will need to be submitted as part of the appropriate Sydney Water application. Access to Sydney Water assets will need to be maintained at all times for standard and emergency operational needs. The environmental approval for any works associated with Sydney Waters systems will need to be covered under the Environmental Impact Assessment approval.	Lendlease will continue to liaise with Sydney Water to ensure that work methods are acceptable to Sydney Water and the diversion work is carried out as per Sydney Water's Asset Creation Process. In particular: Appropriate applications to Sydney Water will be made in order to obtain formal requirements for protection and monitoring to build near or over Sydney Water assets. Access to Sydney Water assets will be maintained to Sydney Water's requirements. This SSDA includes for works to protect and/or divert Sydney Water systems, as described in the EIS.

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Roads and Maritime Authority		
18	RMS requests that a Construction Traffic Management Plan be prepared which includes consideration of the impacts on site access and traffic movements along Hickson Road from new signalised intersections and traffic signals.	Lendlease does not object to the proposed requirements.
Residents Submission 1		
19	Air Quality No emergency warning system is in place to warn neighbouring residents to remain indoors/close doors and windows or to evacuate people who may be present in a determined risk area in the event of pollutants or dangerous vapours escaping into the air.	Lendlease currently operates a reactive management system for air emissions. Dust pollution concentrations (as PM₁₀) would be monitored continuously and compared to trigger levels agreed with the EPA. The trigger levels are set well below the relevant air quality impact assessment criterion. The purpose of the reactive management system is to allow Lendlease to adapt its work program in order to ensure air quality impact assessment criteria are not exceeded. A worst case scenario would be if trigger levels were exceeded and no other mitigation measures were available to bring down emissions. In this unlikely scenario, work would temporarily cease until the problem is rectified (e.g. the offending plant/equipment is replaced or moved, or adverse ambient climatic conditions stopped). As such, one of the objectives of the reactive management system is to ensure residents are not put in the position where doors/windows must be closed or residents evacuated, as a result of health concerns arising from air emissions. Please also refer to the response at Issue 7 in this table, which relates to the EPA comments on trigger levels.

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20	Noise Adequate mitigation measures should be put in place to protect amenity of surrounding residents. The noise assessments undertaken have not considered low frequency noise. Self-powered lights/generators have been detrimental to the acoustic amenity surrounding residences. The 2.4 metre solid hoarding / noise barrier is unlikely to mitigate noise to nearby apartments that look down on the construction site from an elevated position on Kent Street. Noise may also be magnified by reflections from the Towers in Barangaroo South.	Lendlease provides the following response to comments raised: • A Noise and Vibration Management Plan will be implemented which includes a suite of noise and vibration mitigation and management measures aimed at achieving the noise management levels established for surrounding receivers. • The noise assessment has considered low frequency noise and Wilkinson Murray conclude that no adjustment to the predicted noise levels is required, based on the proposed plant to be used (including generators). • With regards to the proposed 2.4m hoarding, while this treatment will not mitigate noise to upper level apartments, other measures at the site such as attenuators, shrouds and barriers will be implemented as part of the Noise and Vibration Management Plan, to mitigate noise impacts. • Noise predictions were conducted using computer noise modelling that included the three main towers located to the south of the site. The predictions included any reflections from the buildings. It is further noted that as these buildings are located to the south of the site any contributions from noise reflections off these buildings at residences to the east will be small. Refer to the further information provided by Wilkinson Murray regarding the above in Appendix B.
Residents Submission 2 (Objection)		
20	Temporary emission stacks presumably are to vent toxic emissions from the disturbed subsoil and excavation from this site probably to protect workmen. Clarification as to the reason for these emission stacks is requested. Nearby apartments are all to the West of the site and with prevailing West winds during	Without the use of excavation enclosures the remediation works would result in the exposure of contaminated soils to the atmosphere and lead to the emissions of air pollutants from the soil. The excavation enclosures capture air emissions released during excavation and

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	nights of Spring - Summer (the so called off shore air movements as the warm sea air rises at night), will be subject to continued toxic emissions from the stacks.	handling of contaminated soils. The emission stack includes an emissions control system, made up of carbon filtration beds. The emissions control system prevents toxic emissions, and ensures air emissions from the excavation enclosure are treated prior to discharge to meet EPA requirements. The Air Quality Impact Assessment models the emissions from the stacks at receivers around the site. Modelling showed that emissions would not cause air quality impacts at receivers around the site. As such, the excavation enclosures and emissions stacks are proposed to be used for the purpose of protecting human health and amenity of surrounding residents and visitors.
Jemena (Objection)		
22	Characterisation of Development Jemena submits that <i>“The works, if carried out, go substantially beyond what is “required” or “appropriate” to facilitate the removal of the EPA Declaration. In reality the works have been designed to serve the separate purpose of the Barangaroo development. It is an artificial construct to seek to describe and justify the works as being specifically for remediation to enable the removal of the EPA declaration and not for the separate purpose of facilitating the Barangaroo development..”</i> for the following reasons:	The majority of the matters in this RtS Issue 22 have been raised previously by Jemena following the first public exhibition period, with a response included by Lendlease in the previous Block 5 Response to Submissions (RtS), prepared by JBA and dated July 2015. It should be noted that there is nothing in relevant planning legislation that requires the scope of a development application involving remediation to remove a Declaration made under the <i>Contaminated Land Management Act 1997</i> to be limited to what is required to remove the Declaration. Nevertheless, in this case, the proposed extent and scope of remediation at Block 5 is limited to that which is required to remove the EPA Declaration, as clearly set out in the EIS and RAP (AECOM, 2013). Any additional excavation or remediation associated with development works at Block 5 would be the subject of a separate RAP and a separate development application. At this stage there is no proposal for a further development application in respect of development on Block 5. The scale and design of any future development on Block 5 is therefore uncertain.

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		In response to the specific reasons put forward by Jemena for this assertion:
	a) The Barangaroo Concept Plan was approved in 2007, before the EPA Declaration was made in 2009. <i>"The Barangaroo Concept Plan approved the construction of significant buildings and underground carparks the footprints of which are in the Declared Area including Block 5. To implement the Barangaroo Concept Plan, BDA must excavate Block 5 within the Declared Area to construct the buildings and car parking requirements within Block 5. Any development application proposed for Block 5 is required to be consistent with the Barangaroo Concept Plan."</i>	a) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(a) (JBA Jul 2015)
	b) <i>"The nature and extent of the actual contamination identified in AECOM's reports for Block 5 does not warrant remediation to the scale proposed. An objective analysis in Block 5 demonstrates that the proposed excavations are out of proportion to the nature and extent of the contamination within Block 5."</i> There are "very few exceedances of relevant criteria of contamination within Block 5", and there is only 1 identified sample of SPGWT within Block 5, only 2.3% of contaminant mass is located at Block 5, 90% of excavated material will not require treatment.	b) As detailed in Section 8.1 of the RAP (AECOM, 2013), and further explained in response to Issue 30 below, the extent of remediation required for VMP Remediation Works was determined based on consideration of a number of factors including the presence of historic gasworks infrastructure, the distribution of SPGWT and Confirmed Impacted Material (CIM), and the standard of remediation that can be practically achieved and regulatory policy requirements.
	c) <i>"The RAP for the Block 5 remediation works makes it clear on page 94 that Lend Lease would select the appropriate remediation approach only after decisions had been made about the nature of the proposed development of the site..."</i>	c) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(b) (JBA Jul 2015)
	d) <i>"The EIS contemplates that Block 5 will be used for the Barangaroo project and that further applications will be made for the buildings to be located on Block 5. The EIS uses the consistency of the excavation with the Concept Plan and future development to justify the remediation approach. The EPA Declaration area is zoned Mixed Use and the</i>	d) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(c) (JBA Jul 2015)

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	<i>Concept Plan approves the use of Block 5 for large buildings, which will necessarily require deep excavations to facilitate their construction. Block 5 is designated for commercial development” and “will need to be excavated to facilitate that development”. “The applicant knows the excavations need to occur ... irrespective of the contamination and is consistent with the applicant selecting the remediation approach of excavation to facilitate the future development of the Barangaroo site. If the applicant is proposing to use the site for basements and the Barangaroo development, the applicant should clearly state this in the [Block 5 DA] and include the development in the Block 5 DA to enable a proper assessment of impacts of the proposal to be made. This is information relevant to the [Block 5 DA].”</i>	
	e) <i>“Whilst the Block 5 DA provides indicative lines ... for the boundaries of the excavation, the Block 5 DA seeks approval for the excavation within the total nominated area. The circumstances in which Lend Lease may elect to excavate out the entire area are not clearly presented in the EIS.”</i>	e) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(d) (JBA Jul 2015)
	f) <i>“The Block 5 DA includes the construction of walls. There is limited information provided about how and where these will be constructed and how they will relate to the location and nature of basement walls for carparks for future buildings.”</i>	f) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(e) (JBA Jul 2015)
	g) The Block 5 DA includes excavation outside of the EPA Declaration area;	g) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(f) (JBA Jul 2015)
	h) <i>“The EIS eliminates options for remediation such as in situ stabilisation or solidification because these may be inconsistent with future land use. No proper consideration has been given to in-situ remediation options which may have less substantial environmental impacts because they are incompatible with the proposed development on the site and the Barangaroo Concept Plan.”</i>	h) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(g) (JBA Jul 2015)

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	i) <i>"The proposed splitting and staging of the remediation has been adopted solely for the purpose of the Barangaroo development. Blocks 4 and 5 (where ex-situ remediation is proposed) are development blocks. Hickson Road (where in-situ remediation is proposed) is a public road outside of the Barangaroo development area. The need to split and stage remediation is entirely driven by the Barangaroo development. ... The RTS does not explain why, absent the development, the remediation has been split into Block 4 and Block 5 and why, for example, a wall needs to be constructed between Block 4 and 5 for works to remove the Declaration. Clearly this is development related and has nothing to do with removing the declaration based on paved open space."</i>	i) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(h) (JBA Jul 2015) In addition, it is noted that the retention wall between Block 4 and 5 is being constructed under a separate DA (SSD 5897) to facilitate staged remediation and also in support of excavation for the purposes of facilitating a future basement at Block 4. It is unrelated to the current or possible future land uses at Block 5. Splitting the remediation into separate DAs is an appropriate way to efficiently manage the completion of remediation to remove the EPA Declaration in the context of a progressively developing precinct.
	j) <i>"A HHERA dated 2011 was prepared for the applicant for the development works in the declaration area, which assumes that Block 5 will be excavated for basement car parking and the HHERA develops remediation criteria based on the excavations occurring and basements being installed." This HHERA was approved by the EPA prior to the VMP HHERA being prepared "This suggests that the excavation approach to remediation was pre-determined before preparation of the VMP HHERA and RAP."</i>	j) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A54(i) (JBA Jul 2015) The partial excavation of Block 5 is required to undertake remediation works to enable the EPA to revoke the EPA Declaration, insofar as the EPA Declaration relates to Block 5. The two HHERAs merely reflect two possible remediation extents that have different objectives reflecting two different future land use scenarios. In this case, the VMP HHERA is appropriate, as only VMP Remediation Works are included for Block 5 in the approved RAP given the uncertainty over the nature of the development that will proceed on Block 5. The Block 5 DA also only includes VMP Remediation Works. It proposes that the excavation will be backfilled after the remediation is undertaken.
	<i>"In these circumstances, the Block 5 DA and its supporting material should be treated with caution. It would be an error for the Department and the Minister to proceed on the basis that the proposal is justified from a planning</i>	The remediation works described in the Block 5 DA are not works for the purpose of facilitating the delivery of the Barangaroo development or that result in the installation or construction of structures or works

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	<i>perspective, because the proposed development in Block 5, as described in the Block 5 DA and supporting documentation, is required to remove the Declaration."</i> <i>"If the applicant needs to excavate Block 5 for the purposes of the Barangaroo project, irrespective of the contamination, then this is a matter which should be disclosed and made clear, and properly assessed, as part of the Block 5 DA."</i>	relating to the delivery of the Barangaroo development.
23	Reliance on HHERA and RAP to justify Block 5 DA <i>"The applicant's reliance on the previous HHERA risk assessment and RAP to justify the remediation approach is flawed. The HHERA states that the contamination in the EPA Declaration area presents unacceptable risks because an unprotected maintenance worker may dig 2 metres below the surface of the site and that the existing contamination may impact on groundwater dependent ecosystems (GDEs) within the vicinity of the site or possibly Darling Harbour. The HHERA concludes that these are unacceptable risks which drive the need to remediate the contamination. The HHERA is flawed and inconsistent with the excavation approach in the Block 5 DA because:</i>	The majority of the matters in this RtS Issue 23 have been raised previously by Jemena following the first public exhibition period, with a response included by Lendlease in the previous Block 5 RtS, prepared by JBA and dated July 2015.
	a) <i>The HHERA does not consider that workers accessing service trenches on the site could wear personal protective equipment as part of a management plan. The RAP and Block 5 DA, however, propose the excavation of the contamination which will directly expose workers and surrounding residents to the contamination. The health risk assessment accompanying the Block 5 DA ... is based on the workers wearing protective equipment as well as management plans and odour control systems. If a valid comparison is to be made between the health risks of managing the contamination in situ and ex situ removal, then the HHERA and the health risk assessment for the application should use the same assumptions about use of personal protective equipment. Instead, the unreasonable assumption that maintenance workers would</i>	a) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A55(a) (JBA Jul 2015)

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	<i>not use personal protective equipment when excavating the existing site is used to drive a result that all contamination should be removed from the site. This does not make sense and fails to take into account practical realities. The fallacy of this approach is demonstrated by the applicant currently using the Declared Area for its construction activities, the use of the site to accommodate 100,000 people for the papal visit, the installation and use of Sydney Water's underground sewer pumping station and other services under Block 5, the way the site has been managed for close to 100 years by the NSW Government and the applicant's use of such measures to manage the risk in actively exposing the contamination to the environment through its remediation approach;</i>	
	<i>b) There is no analysis presented in the HHERA on the workers accessing service trenches within Block 5. Block 5 is much less contaminated than Block 4 and Hickson Road. The risk to unprotected workers presented in the HHERA are evaluated on the maximum contamination values which were detected across the Declared Area. These were in Block 4 and Hickson Road and not Block 5. The risks to unprotected workers are much less on Block 5 than those presented in the HHERA which are based on the maximum values detected in Block 4 and Hickson Road and insufficient to support the remediation proposed for Block 5.</i>	b) As explained in Appendix H (page 5) of the July 2015 RtS, the maximum reported groundwater concentrations were adopted in the HHERA based on consideration of identified data gaps, and uncertainties associated with input parameters for the quantitative risk modelling, to provide a conservative estimation of potential risks under a 'worst-case' scenario, whereby a maintenance worker could be working within the most impacted area of the Site. This approach is commonly adopted in the assessment of human health risks at contaminated sites in the absence of data relating to actual exposures and is in accordance with Australian and NSW guidance (refer to Section 2.1, Appendix H of the July 2015 RtS for a list of relevant guidance).
	<i>c) The HHERA is based on an assumption that GDEs are present and that these need to be protected. It uses this as justification for unacceptable risk which drives the asserted need to remediate the site. The HHERA is inconsistent with the development HHERA approved by the EPA on 9 June 2011, which does not mention GDEs. ... Further, the development applications for Block 4 and Block 5 now state that there are no GDEs on the site and are used to justify a conclusion that the environmental</i>	c) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A55(b) (JBA Jul 2015)

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	<i>impacts are acceptable because excavation will not impact on GDEs. ... There are no GDEs. The precautionary principle has been misapplied. The RAP is therefore flawed and cannot be used to justify the granting of the Block 5 DA;</i>	
	d) <i>There is no evidence that the contamination of the site poses a threat to Darling Harbour. The discharge study undertaken by the Barangaroo Delivery Authority's consultants, which is referred to in the RAP, confirms that the contaminants from the EPA Declaration area do not impact on the harbour because tidal flux in the imported fill. ... The RTS refers to the need to reduce contaminate mass load (the RAP says to around 90%). The EIS confirms that the total mass load within Block 5 is actually around 2.3%. There is no analysis presented in the EIS of the contribution of the minimal contamination mass within Block 5 to the risk to Darling Harbour or workers."</i>	d) Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A55(c) (JBA Jul 2015). In addition, as described in responses to Issues 22(b) and 31, the extent of remediation is defined by a number of factors – including the presence of historic gasworks infrastructure, the distribution of SPGWT and Confirmed Impacted Material (CIM), and the standard of remediation that can be practically achieved and regulatory policy requirements - and is subject of the validation protocols set out in the RAP.
24	Failure to adequately consider alternatives The applicant has not properly considered the available options for remediation of Block 5. In this regard, the National Environmental Protection (Assessment of Contaminated Land) Measure (NEPM) (which is given effect in NSW as an EPA guideline under s105 of the Contaminated Land Management Act 1997) provides guidance on attainment of environmental outcomes in relation to the hierarchy of options. Jemena contends that <i>"the applicant has not properly applied the NEPM requirements in section 6.2.3 of the EIS. In particular, the applicant has not considered the environmental, economic and social impacts of each option in the context where excavation is not required for the Barangaroo development. A proper consideration of these issues would demonstrate that the proposed excavation of the site is not the best environmental, social or economic way of remediating the site (unless of course the purpose of the excavations is to facilitate the Barangaroo development)."</i>	The matters in this RtS Issue 24 have been raised previously by Jemena following the first public exhibition period, with a response included by Lend Lease in the previous Block 5 RtS, prepared by JBA and dated July 2015. Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A56 (JBA Jul 2015).

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25	Proposed excavation exceeds remediation extent The development contemplated by the Block 5 DA involves excavation of a large area of land which is much larger than the "blue" area which is identified in the applicant's own HHERA/Remediation Extent/RAP documentation as requiring remediation (see pages 45 and 46 of EIS). The RTS explains that additional land is required for "battering" to access the excavations and further excavation. The "blue area" overestimates the area requiring remediation in any event. The proposed excavations are larger than what is actually required to address the contamination.	The majority of the matters in this RtS Issue 25 have been raised previously by Jemena following the first public exhibition period, with a response included by Lend Lease in the previous Block 5 RtS, prepared by JBA and dated July 2015. Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A58 (JBA Jul 2015). The remediation extent (i.e. the "blue area") reflects the indicative remediation area determined by the RAP and subsequent Auditor approval, and has been agreed with the EPA. The extent of potential excavation sought in SSD 6533 – as shown on the Block 5 Remediation Earthworks Drawing BB2_PA1_A007 (yellow shading) – is proposed to allow for potential additional excavation/batters if required to "chase out" the full extent of VMP Remediation Works. It does not relate to development works.

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26	Incomplete information The EIS contemplates that Block 5 will be used for the Barangaroo project and that further applications will be made for the buildings on Block 5. The RTS claims that consistency with the Concept Plan has not been used to justify the remediation approach. However, section 1 of the RAP makes it clear that the future development of the site was one of the objectives taken into account in the analysis of remediation alternatives. Further, the remediation the subject of the development application is required by law to be consistent with the Concept Plan. The consent authority cannot properly evaluate this development application and its relationship with the Barangaroo project in the absence of the development applications for Block 5. In our submission, the consent authority cannot properly assess the application in the absence of this information.	The majority of the matters in this RtS Issue 26 have been raised previously by Jemena following the first public exhibition period, with a response included by Lend Lease in the previous Block 5 RtS, prepared by JBA and dated July 2015. Refer response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A59 (JBA Jul 2015). In addition to this, it is noted that the SEARs and the <i>Environmental Planning and Assessment Act 1979</i> require that the proposal be assessed against the approved Barangaroo Concept Plan to ensure it is consistent with that Concept Plan. Given the nature of the proposed remediation works (i.e. not being works that facilitate the delivery of the Concept Plan or that result in the installation or construction of structures or works relating to the delivery of the Concept Plan) consistency with the Concept Plan has only been considered to the extent necessary to confirm that the remediation works would not unreasonably constrain the future development of Block 5 in accordance with the Concept Plan.
27	Increased risks relative to current state The applicant has failed to explain whether the undertaking of the works as proposed would result in a more significant risk of harm to human health or the environment than ongoing lawful use of the land in absence of the development work. The proposed development creates a health and environmental risk as it involves exposing the contamination to persons and creating and discharging contaminants into the harbour. These are the issues that the HHERA sought to prevent. The applicant should undertake a comparative risk and environmental analysis of managing the contamination in situ based on existing use and excavating the material and exposing it to the environment. The applicant has not done this. In this respect, a valid comparison would require an undertaking of risk and environmental analysis using the same human health and environmental risk assessment criteria for the development application (which contemplates exposing the contamination	The majority of the matters in this RtS Issue 27 have been raised previously by Jemena following the first public exhibition period, with a response included by Lendlease in the previous Block 5 RtS, prepared by JBA and dated July 2015. In particular, refer to the response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A60 (JBA Jul 2015). As documented in the EIS, the proposed Block 5 remediation work can be carried out generally in accordance with the relevant environmental impact assessment guidelines and will result in a net public interest benefit in the long term through achieving the remediation objectives. The proposed remediation works will remove sources of gasworks contamination in order to meet the RAP objectives and the VMP

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	to the air, protected workers accessing the subsurface and direct discharge of treated wastewater to the harbour) as is used in the HHERA/RAP (which is based on the contamination being presently covered with concrete capping, an assumption that unprotected workers will access the subsurface, no evidence of discharge of elevated contaminants to the harbour but an assumption there are GDEs on the development site requiring protection). The RTS states that the proposed remediation will remove contamination such that the remaining soil does not represent any significant risk of harm to human health or the environment under existing land use scenarios and comply with the remediation objectives in the RAP. It then states that the Block 5 remediation works can be carried out in a manner which can ensure that significant adverse environmental effects do not occur and environmental impacts will remain within acceptable limits through mitigation measures. There is no evidence that the GDEs exist and all development applications for Barangaroo have proceeded on the basis that there are no such GOEs. This is not an ecological risk and this is confirmed by the technical consultant's documents appended to the Block 4 DA. There is no evidence in the HHERA, RAP, EIS and RTS that the levels of contamination within Block 5 (as opposed to Block 4 and Hickson Road), present an unacceptable risk to an unprotected worker carrying out works. In any event, the risk can be managed by requiring such workers to wear PPE consistently with other risk assessments and procedures in respect of the site. There is substantial evidence in the EIS of the significant environmental impacts which will occur as a result of the excavation of material in Block 5. These are outlined in detail in the multiple technical appendices to the EIS, the submissions from the Government Agencies, and the RTS (eg traffic, odour, air emissions, water discharges to the harbour) and are confirmed by the need to undertake extensive measures to try to mitigate but not eliminate these impacts. No significant adverse effects from the contamination in Block 5 have been	HHERA remediation criteria which will facilitate the removal of the EPA Declaration in so far as it applies to Block 5. Issues relating to the extent of remediation in relation to maintenance workers and the presence of GDEs are addressed in response to Issue 23 above.

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	identified in the EIS other than the above two risks. No analysis or comparison is made of these risks against the actual environmental impacts of the project in respect of Block 5. An objective comparison would actually show that the environmental impacts of undertaking the works are much greater than the impacts of leaving the contamination on Block 5 in-situ.	
28	Lack of Block 5 remediation detail in RAP The RAP approved by the EPA is missing necessary detail about the proposed excavation of Block 5 and is insufficient, from a planning perspective, to justify granting consent to the Block 5 DA. Whilst the RTS points out that excavation is only being sought to the extent specified in the RAP plus any "ancillary excavation" required to access this area, the EIS and RTS does not provide any real indication of the extent of excavation proposed, location of retention walls, relationship with proposed and existing development etc and is insufficient to determine the application.	As noted in the July Block 5 RtS - Appendix A, RtS Ref A61 (JBA Jul 2015) - the Block 5 DA is not seeking consent to excavate all of Block 5. Excavation is only sought to the extent specified in the RAP insofar as it is required to remediate the significant contamination and enable the removal of the EPA Declaration (i.e. 'VMP Remediation Works'), plus any ancillary excavation required to access this area (e.g. excavation batters). In addition to the above, the RAP provides parameters around anticipated extent of remediation required (e.g. such as the vertical extent to the depth of the underlying natural bedrock to an expected maximum depth of 10m bgl) and a detailed validation process, whereby the extent of remediation is not able to be finalised until such time as the requirements of the RAP are met to the satisfaction of the Site Auditor.
29	Ecologically sustainable development (ESD) The analysis of the development in the context of ESD is flawed. It does not properly consider and balance the environmental impacts and risks of the existing contamination within Block 5 (which is of less significance than contamination within Block 4) against the environmental impacts and risks of excavating the contamination and exposing it to persons and the environment. It does not, for example, consider the quality of groundwater currently discharging or likely to discharge into Darling Harbour arising from existing contamination, against the quality of water proposed to be disposed of by the applicant directly into the harbour as part of the development, or the health risks of leaving the contamination in situ against exposing workers and residents by excavating the contamination.	The matters in this RtS Issue 29 have been raised previously by Jemena following the first public exhibition period, with a response included by Lend Lease in the previous Block 5 RtS, prepared by JBA and dated July 2015. In particular, refer to the response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A62 (JBA Jul 2015).

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30	Underlying land use to remove EPA Declaration The EIS is silent on identifying the underlying land use which is required to remove the EPA Declaration. The EIS should expressly state what land use is required to remove the declaration so that the remediation can be properly considered and assessed. The RTS confirms that the remediation criteria have been developed based on the existing land use being paved open space use. However, the remediation approach has been selected having regard to the Barangaroo Concept Plan which is to use the parts of Block 5 in the Declared Area for buildings.	As noted in the July Block 5 RtS - Appendix A, RtS Ref A63 (JBA Jul 2015) - the VMP HHERA and RAP which form part of the EIS state that remediation criteria (for VMP Remediation Works) have been developed based on the existing land use within the EPA Declaration Area which is paved open space. In addition to the above, as described in the response to Issue 26 in this RtS, the SEARs and the <i>Environmental Planning and Assessment Act 1979</i> (EP&A Act) require that the proposal be assessed against the approved Barangaroo Concept Plan. The remediation works described in the Block 5 DA are not works for the purpose of facilitating the delivery of the Concept Plan / Barangaroo development or that result in the installation or construction of structures or works relating to the delivery of the Concept Plan / Barangaroo development. Consistency with the Concept Plan has therefore not been used to justify the remediation approach, although it is noted that the proposed works will not constrain future development on Block 5 that is consistent with the Concept Plan.

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31	Remediation Extent Overstates Remediation Area The remediation area presented in Figure F15 of the VMP Remediation Extent document (which has been adopted and presented in the RAP and EIS) is much larger than that which the underlying bore data supports. The remediation area identified in these remediation documents extends across parts of the EPA Declaration area where no evidence of exceedences of the contamination criteria (SPGWT or CIM) has been reported and where no evidence of contamination exceeding the soil or groundwater SSTC has been found. The RTS states that the remediation extent was determined on factors beyond merely identification of the SPGWT or CIM including ESD and relevant policies. The RTS does not say how these are applied in respect of <i>Block 5</i> to arrive at a much larger area than the SPGWT and CIM data supports. This is particularly important as the Remediation Extent and RAP confirms that around 2.3% of the contaminant mass load is in Block 5.	The majority of the matters in this RtS Issue 31 have been raised previously by Jemena following the first public exhibition period, with a response included by Lendlease in the previous Block 5 RtS, prepared by JBA and dated July 2015. In particular, refer to the response to this issue previously detailed in the Block 5 RtS - Appendix A, RtS Ref A64 (JBA Jul 2015). In addition to the above, the process for establishing the remediation extent is detailed in the <i>RAP</i> and the <i>VMP Remediation Extent Report</i>, which is referenced in the <i>RAP</i>.

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32	VMP 2 Has Not Been Approved BDA is currently negotiating a Voluntary Management Proposal ("VMP 2") with the EPA for the carrying out of the works described as remediation for the purposes of removing the EPA Declaration. Jemena has raised substantive issues with the EPA in relation to the content of and process for arriving at the HHERA, RAP and BDA's proposed terms of VMP 2 (including the absence of remediation works plans which are required to be prepared before the VMP can be implemented). VMP 2 has not yet been approved nor has the earlier VMP requiring the formulation of the remediation plan been completed. Accordingly, the VMP cannot be used as a justification from a planning perspective for the carrying out of the works described by Lendlease as remediation works to remove the Declaration.	The VMP requires remediation of the EPA Declaration Area. SSD 6533 provides for remediation works that will result in remediation of part of the EPA Declaration Area. The proposed Block 5 remediation works are therefore consistent with the VMP. BDA has submitted a second VMP (VMP 2) that addresses the detailed remediation activities for the site to the EPA for approval. The EPA has endorsed the remediation objectives set out in the RAP, and the remediation works described in the RAP have formed the basis of VMP 2. The BDA has advised that it has carefully considered Jemena's comments on the current draft VMP2 that has been submitted to the EPA. In order to address Jemena's concerns and facilitate the timely approval of VMP2, BDA has requested that the EPA considers a further proposal to split the VMP2 into three sub-plans to enable Jemena to review and comment on each Remediation Works Plan before the EPA approves that sub-plan. It is further noted that this is a separate process that will be progressed with the EPA in accordance with the CLM Act, and should not influence the assessment and approval of the remediation works under the EP&A Act.
33	For these reasons, Jemena submits that the application should be refused. In the RTS, Lendlease refers to clause 12(1) of SEPP 55. Jemena submits that a proper application of this clause should lead the consent authority to refuse development consent for the following reasons: The clause needs to be applied to the application which is only for the remediation by way of excavation and offsite disposal for <i>Block 5</i>; The contaminate mass within Block 5 is 2.3% (97.7% of the contaminate mass is outside of Block 5. The main contamination is not on Block 5. The clause requires a comparison of risk of harm from the development against "use of the land concerned". The HHERA, RAP, EIS and RTS identify only one risk from the contamination on Block 5 from the use of the land for its current	The remediation works the subject of SSD 6533 are Category 1 remediation works (as defined in SEPP 55) to address the EPA Declaration insofar as it relates to Block 5 (refer also to Section 3.1.3 of the EIS). As a consequence of the above, Clause 12 (1) of SEPP 55 applies. Clause 12 (1) of SEPP 55 states that: <i>"The consent authority must not refuse development consent for a category 1 remediation work unless the authority is satisfied that there would be a more significant risk of harm to human health or some aspect of the environment from the carrying out of the work than there would be from the use of the land concerned (in the absence of the</i>

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	open space paved use. That risk is to an unprotected worker digging a 2m deep trench. The identified risk is based on the contaminate levels on Block 4 and Hickson Road not the actual levels on Block 5. In any event, the risk is removed by workers wearing PPE which is way the site is currently managed. There are no material risks arising from the existing lawful use of Block 5. The HHERA identifies the main ecological risk being the presence of GDEs in the groundwater between the Declared Area and the harbour. The EIS and RTS documents confirm that there is no evidence the contamination is impacting on Darling Harbour. The GOEs do not exist and, in any event are proposed to be mostly excavated as part of the Barangaroo development. The EIS, submissions from authorities and the RTS record in detail the significant environmental impacts which will arise from the excavations and require significant mitigation measures which will reduce but not eliminate the environmental and human health impacts. Whilst these measures may, in most but not all cases, comply with relevant guidelines, there is nevertheless still a significant environmental impact which would need to be compared against the risks of the existing contamination identified in the HHERA. Jemena submits that if an objective comparison is made of the human health and environmental risks of the existing contamination in Block 5 remaining in situ against the impacts of the development then the consent authority could, and should, refuse the development application consistently with clause 12.	<i>work) for any purpose for which it may lawfully be used.”</i> The Block 5 remediation works EIS and this Response to Submissions demonstrate that undertaking the works the subject of SSD 6533 would not result in a more significant risk of harm than if the works were not carried out. In particular the proposed Block 5 remediation works: - Comply with the relevant environmental impact assessment guidelines in terms of short term impacts associated with the emission of pollutants to air and water. - Address the significant risk of harm to human health and the environment identified by the EPA Declaration through the removal of contaminant mass. - Contribute to a long term improvement of ground water quality which is leaving the Site and provide for an improvement to the environmental conditions in the vicinity of the site. - Result in a net public interest benefit in the long term through the removal of the historical legacy of contamination at the Site. Accordingly, Clause 12 of SEPP 55 should inform the determination of SSD 6533. It is highlighted that Clause 12 of SEPP55 is not directed to the circumstances when consent should be refused (as suggested by Jemena) but rather to the circumstances when consent must not be refused.