

6 November 2019

## RECORD AND RESPONSE TO SUBMISSIONS Ivanhoe Estate, Macquarie Park - Stage 1

Extracts from Government agency and authority submissions and submissions from the general public received in relation to SSD 8903, and a response to each of these matters, has been outlined in the **Table below**.

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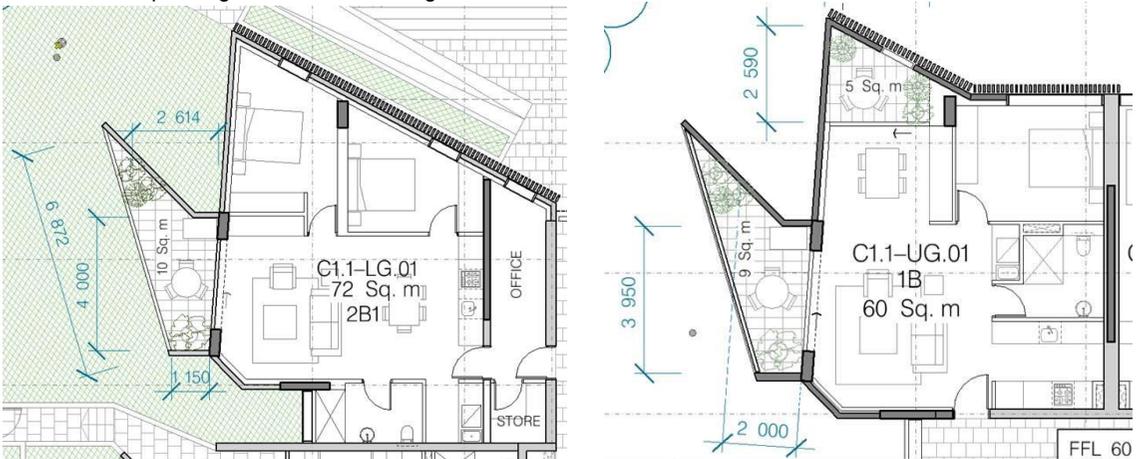
## 1.0 Authority and agency submissions

Extract	Response
<b>Department of Planning, Infrastructure and Environment</b>	
<p><b>1. Biodiversity and Trees</b>                      The Arboricultural Impact Assessment (AIA) states all trees identified as being subject to high impact cannot be successfully retained, including 164 trees of high retention value and 157 trees of medium retention value. It is however unclear which of these trees form part of the Sydney Turpentine Ironbark Forest (STIF) which is now classified as a critically endangered ecological community under the Biodiversity Conservation Act 2016. Investigate further potential revisions to the proposed scheme that would allow the retention of additional trees, particularly reducing impacts to those trees forming part of the STIF.</p>	<p>This response is accompanied by an updated Arboricultural Impact Assessment (AIA) prepared by Eco Logical (<b>Appendix T</b>), which identifies and assesses those trees required to be removed and those that can be retained across the Estate. Major design changes have reduced impacts on STIF to only two (2) trees that form part of the STIF, comprising Tree 111 and 112. One (1) additional STIF tree (Tree 9951) is identified for removal at this stage, however, it is possible that this tree may be retained at a future stage as it is protected by a retaining wall that will not be removed on the site. This will be confirmed when the final detailed construction plans and methodology are developed.</p> <p>It is further noted that the Concept SSD DA (the Masterplan) is being assessed under the savings and transitional provisions set out in the <i>Biodiversity Conservation (Savings and Transitional) Regulation 2017</i>. As a result, the application is assessed against the <i>Threatened Species Conservation Act 1995</i> and STIF is not classified as a critically endangered community. This DA is pursuant to the Masterplan and as such is also to be assessed in accordance with the savings and transitional provisions.</p>
<p>Provide additional plans/tables clearly confirming which trees are proposed to be removed/ retained, which of these trees are of medium and high retention value, and which trees form part of the STIF. This should include any trees to be retained or removed at 2-4 Lyonpark Road and 6-8 Lyonpark Road.</p>	<p>These matters have been clarified in the updated AIA at <b>Appendix T</b>.</p>
<p>The Department notes that 547 trees across the Ivanhoe Estate are to be removed under a separate Part 5 approval for demolition, including all trees located within the A1 and C1 sites. Provide further information and consideration regarding the trees to be removed within the A1 and C1 sites, including trees located on the south-western boundary of A1 and whether revisions to the proposed design/setbacks/basement would enable additional trees to be retained.</p>	<p>The trees to be removed as part of this Stage DA, and those being removed as part of the separate LAHC demolition works, are identified in the updated AIA provided at <b>Appendix T</b>.</p> <p>A further supplementary Stage 1 Arboricultural Assessment Summary by Eco Logical (<b>Appendix N</b>) has been prepared for information purposes, and confirms that the construction of Buildings A1 and C1 will require the removal of 106 trees. It demonstrates that those trees on the south western boundary of A1 are predominantly removed as part of the LAHC demolition works, with the remainder required to be removed in order to enable the installation/augmentation of services and the construction of the new road and public domain. These trees are identified as being highly impacted by the proposed works, and as such cannot be reasonably retained. The trees removed to enable the proposed works will be supplemented by new landscaping within the public domain and within the lots for buildings A1 and C1 as detailed in the revised Landscaping Plans prepared by Hassell that are available at <b>Appendix C</b>.</p>
<p>Assess the additional number of trees that would need to be removed and the associated environmental impact if the deceleration lane for the new access road from Epping Road were required to be relocated within the site boundary in the future (see also item 3 below)</p>	<p>The Ivanhoe Estate Masterplan (SSD 8707) and Stage 1 DA has been amended to remove the deceleration lane and access road to Epping Road. As such, the trees within this footprint will now be retained on the site. As a result, the proposed development has significantly reduced biodiversity impacts comprising a reduction from 0.41 hectares to 0.05 hectares of STIF to be impacted, representing an overall 88% reduction in the area of STIF that was originally proposed to be impacted. Accordingly, 94% of the existing STIF will be retained within the development site.</p>

Extract	Response
<p>Provide additional information to confirm the proposed soil depth above the basement areas will be sufficient to sustain the proposed tree planting.</p>	<p>The soil depth above the proposed basement areas will be designed in accordance with the minimum soil depths outlined in Part 4P of the <i>Apartment Design Guide</i> (ADG) and as such will be sufficient to sustain the proposed tree planting. Whilst these areas do not meet the definition of deep soil areas, they will remain capable of supporting the proposed landscaping scheme for Buildings A1 and C1. This commitment is reflected in the updated mitigation measures at <b>Section 5.0</b> of the RTS Report, and the Department may be minded to impose an appropriately worded condition to this effect.</p>
<p>Provide further information regarding the number of trees to be removed within each development stage and how these numbers relate to the staging of biodiversity offsets listed in Table 5 of the EIS</p>	<p>The updated AIA for the Masterplan details the removal of trees across the entirety of the site, and the Biodiversity Assessment Report and Offset Strategy for the Masterplan details the associated biodiversity offsets to be retired as part of these works. These offsets will be retired prior to the commencement of the Stage 1 works and will not be staged.</p>
<p>Provide further information regarding any proposed staging of the proposed street tree/public domain planting given they will be located adjacent to future construction sites.</p>	<p>Street tree planting and the detailing of the public domain will be completed in accordance with the delivery of roads on the site, which are proposed to be staged in accordance with the staging plans at <b>Appendix D</b> (reference Dwg No. 300001 (1) - DA-002). The staging of roads and planting will be coordinated with the separate applications for the delivery of buildings throughout the estate to ensure they are not impacted by future construction sites.</p>
<p>Provide a survey of tree hollows to ascertain if any contain breeding habitat for threatened species, including the Powerful Owl. If identified, measures need to be provided to avoid impacts to these habitats.</p>	<p>The Biodiversity Assessment Report and Offset Strategy that accompanies the Masterplan application identifies hollow-bearing trees and details the impact to such trees, with appropriate mitigation measures nominated in the Masterplan response. One (1) hollow bearing tree has the potential to be impacted through the redevelopment of the Estate, however, this tree is insufficient in size for a Powerful Owl. If an arborist confirms that this tree can be retained during the construction phase when excavation occurs within the tree protection zone, it will be retained. If the tree is removed, four nest boxes will be installed in the Shrimptons creek corridor. It is emphasised that this hollow-bearing tree is not located in the footprint of the Stage 1 works.</p>
<p><b>2. Built Form and Amenity</b> Provide further information and consideration of the proposed minimum 18.9 m separation between Building A1 and Building B1.1, noting the minimum Apartment Design Guide (ADG) building separation recommendation of 24 m over a building height of 25 m (9 storeys).</p>	<p>Building A1 is located entirely within the nominated Masterplan building envelope, and as such is consistent with the relevant concept proposal. Under the Masterplan, Main Street has been widened and Building B1.1 has been setback to increase the minimum building separation distance to approximately 24m between these buildings. This is considered to be appropriate as the proposed apartments will receive adequate access to sunlight and as such no increased separation is required in this instance. Privacy for building occupants can be safeguarded through privacy control measures such as internal blinds for Building A1 and external screens to be incorporated into the future detailed design of Building B1.1.</p>
<p>Investigate the provision of roof top communal open space and/or other form of communal space (internal and/or external) within Building A1. The provision of larger private open space for apartments in Building A1 should also be considered.</p>	<p>Building A1 is not capable of being provided with communal open space either at Ground Level or the rooftop of the building. This design outcome is influenced by, and considered to be appropriate, in view of the following:</p> <ul style="list-style-type: none"> <li>• The provision of communal open space is entirely consistent with the framework established under the Ivanhoe Estate Design Guidelines. These guidelines recognise that not all lots are capable of delivering communal open space, and as such it proposes a balanced approach to communal and public open space whereby greater than 25% of the Estate will be delivered as open space despite minor deficiencies within individual stages. The residents of Building A1 will be in short walking distance of the Village Green.</li> <li>• Ground Floor communal open space is not capable of being delivered on the site as Building A1 accommodates a large landscaped external terrace to be used by the childcare centre, which occupies the Ground Floor and provides other benefits such as an activated street frontage and access to services for future residents, workers and visitors to the Estate.</li> </ul>

Extract	Response
	<ul style="list-style-type: none"> <li>Likewise, rooftop communal open space is not capable of being delivered as a portion of the rooftop is to be used for private open space for the associated dwellings and for concentrated landscaping to create a greenroof. In addition, lift access cannot be provided to the rooftop and as such equitable access could not be provided to this roofspace providing a poor outcome for communal open space.</li> <li>All residents are provided with private balconies that achieve the ADG requirements and as such an appropriate degree of amenity has been achieved for all dwellings.</li> </ul>
<p>If the level 23 terrace areas of Building A1 are surrounded by 1.8 m screens, review whether these areas technically constitute additional gross floor area (GFA).</p>	<p>The <i>Ryde Local Environment Plan 2014</i> (Ryde LEP) defines GFA as being (emphasis added):  <i>“...the sum of the floor area of each floor of a building measured from the <u>internal face of external walls</u>, or from the internal face of walls separating the building from any other building, measured at a height of 1.4 metres above the floor.”</i></p> <p>The Ryde LEP does not define the terms ‘wall’ or ‘external’. As such, the natural and ordinary meaning of each word should be used. The Macquarie Dictionary defines ‘external’ as: <i>“of or relating to the outside or outer part; outer”</i>. The application of this definition in relation to the definition of GFA is clear and is not queried further. The Macquarie Dictionary defines “wall” as: <i>“Noun 1. an upright structure of stone, brick, or similar material, serving for enclosure, division, support, protection, etc., as one of the upright enclosing sides of a building or a room, or a solid fence of masonry”</i></p> <p>As illustrated in the Architectural Plans at <b>Appendix A</b>, it is proposed to install a glass balustrade on the roof of Building A1 for wind mitigation purposes in accordance with the recommendations of CPP. Whilst this balustrade is greater than 1.4m in height and as such could be interpreted to meet the definition of GFA under the Ryde LEP, this balustrade does not serve to fully enclose the rooftop terraces which will remain exposed to wind and rain penetration, contributing to the unenclosed external nature of this space. Accordingly, the proposal does not technically constitute GFA with consideration of the relevant caselaw. Of relevance in the consideration and interpretation of GFA is the judgement issued for <i>Haralambis Management Pty Ltd v Council of the City of Sydney [2013] NSWLEC 1009</i></p> <p>In this case, discussions considered the degree of permanence and enclosure provided by bi-fold windows and glass louvres to balconies, and as such whether their presence constituted the enclosure of the balcony as being an ‘enclosing wall’. Commissioner Tour found that <i>“while the bi-fold windows and louvres can be opened and can remain open due to the waterproofing and materials proposed for the inside of the balconies, they can also remain closed and the area used as a habitable room”</i>. The judgement went on to state that <i>“The enclosed verandahs / balconies / sunrooms of the proposal have the character of a habitable room and should be included as GFA”</i>.</p> <p>With regard to the subject proposal, areas of the rooftop are entirely open or partially open to the sky and as such cannot be completely or permanently enclosed. Whilst a balustrade is proposed surrounding the perimeter of the terraces, the roof at 3.1m high does not entirely enclose these spaces meaning these areas will remain permanently open and exposed to wind and rain penetration. The facade line of the apartments on this level of the building demarcate the internal/external boundary, including the heating/cooling line and weatherproofing line, and as such this façade line clearly differentiates what are considered to be internal apartment areas and external rooftop terrace areas. The rooftop terraces in this instance do not have the character of a habitable room.</p>

Extract	Response
	<p>The case also went on to consider the objectives of Clause 4.4 of the Sydney LEP (which applied to the development under this case), and specifically the objective for ensuring an appropriate bulk and scale for the character of an area. With regard to this objective the judgement noted that ‘...clearly the bulk of the building with enclosed balconies will appear different to the bulk of the building with open balconies which provide “varying depth and shadow to the façade”.’</p> <p>A comparable objective would be Clause 4.4(1)(a) in the Ryde LEP. The proposed development is considered to remain consistent with this objective, and in-keeping with the findings of the case, as the proposed transparent balustrade will not contribute to the bulk and scale of Building A1 and will be generally imperceptible when viewing the building from the public domain. Accordingly, the area in question does not contribute to increased building bulk or otherwise change the building appearance to affect the permitted scale of development on the site or the desired future character of the locality.</p> <p>Therefore, in view of the above, the rooftop area is considered to meet the relevant tests for the interpretation and consideration of GFA and has been discounted from the GFA calculations in this instance. Due to the clear design intent, material use, and external treatment of these spaces, this rooftop area cannot be permanently closed (enclosed), nor can it be used as a habitable space or room.</p>
<p>Provide further consideration of the number of apartments within Building C1 that would receive no solar access in midwinter (as many as 99), including potential alternative design options to reduce this number. Consideration should also be given to the provision of other design benefits (i.e. increased living area/larger balconies) associated with apartments that would receive no solar access</p>	<p>As detailed in the SEPP 65 report prepared by Candalepas Associates (<b>Appendix B</b>), the design of Building C1 has been dictated by solar access. The slight ‘tilt’ of the two tower forms ensures that 2 hours of direct sunlight (between 9am-11 am) are available to the northern and eastern facades at midwinter, enabling the proposed development to achieve the ADG minimum of 70% of dwellings receive 2 hours direct sunlight to living areas in the midwinter. The proposed development is, therefore, compliant with the ADG and achieves an appropriate degree of amenity.</p>
<p>Provide plans for Building A1 demonstrating the proposed airflow through apartments over the first eight storeys identified as cross ventilated.</p> <p>The Acoustic Assessment states it is not possible for the northern façade and western façade of Building A1 to comply with relevant noise criteria with doors/windows open. This appears to impact 24 apartments located below level 9 that are identified as being cross-ventilated in the design report and means future residents of these apartments would have to choose between acoustic privacy or natural ventilation. Provide further consideration of this matter, including details of any proposed mechanical/hybrid ventilation system and associated BASIX and Environmentally Sustainable Design implications.</p>	<p>Section 4.3.2 of the Design Report prepared by Bates Smart (<b>Appendix A</b>) demonstrates how apartments over the first eight storeys of the building will be cross ventilated. These apartments utilise windows and doors, and acoustic trickle ventilators specifically on the northern and western facades of the building where there are identified noise constraints. These ventilation systems provide acoustic protection as well as enabling natural airflow. The updated BASIX certificates at <b>Appendix M</b> address the installation of these ventilators, and the statement from FPA at <b>Appendix O</b> confirms that these ventilators (and other minor design changes sought) will not undermine the achievement of the nominated sustainability targets.</p>
<p>Confirm how many balconies within Building C1 do not satisfy the ADG minimum size recommendations and demonstrate the useability of these balconies, noting the relevant size of the apartment and corresponding need for increased balcony sizes for larger apartments.</p>	<p>The revised plans and SEPP 65 assessment prepared by Candalepas Associates (<b>Appendix B</b>) demonstrates that minor design changes have been made to the apartments within Building C1 to ensure that the area of all balconies comply with the ADG requirements. Whilst these balconies achieve the minimum prescribed areas, the depth of the balconies vary to provide façade articulation and privacy as detailed in Figure 56 of the Stage 1 EIS. This means that a small percentage do not achieve the full required depth across the entire balcony area. However, these balconies remain functional and provide appropriate amenity to residents as detailed in the additional diagrams prepared by</p>

Extract	Response
	<p>Candelas Associates (extracts included below) which demonstrate that the irregular shaped balconies can accommodate planting and outdoor seating.</p> 
<p>Clarify why the Building C1 green roofs are not designed to be accessible to residents.</p>	<p>The provision of communal open space is entirely consistent with the framework established under the Ivanhoe Estate Design Guidelines, and comprises 28% of the site area in accordance with the requirements of the ADG. The ground level communal open space receives a minimum of 2 hours of sunlight to 50% of the space during the mid-winter and is of a high-quality design that will benefit the recreation and socialisation of residents. The residents of Building C1 will also benefit from private balconies for each apartment and the new Village Green opposite, and as such it is proposed that the C1 building roof will operate as a greenroof and not accessible gardens.</p>
<p>Provide a table confirming the amount of internal and external storage proposed per apartment type in Building C1.</p>	<p>The updated Architectural Plans and SEPP 65 statement at <b>Appendix B</b> detail the volume and location of storage to be provided for each apartment within Building C1.</p>
<p><b>3. Traffic and Car Parking</b> Provide a response to the request for additional information from RMS and in particular, the request for the dedication of land within the site boundary to allow for the potential future relocation of the Epping Road deceleration lane.</p>	<p>Ason Group has prepared a response to each of the issues raised by RMS, which is submitted with the RTS Report at <b>Appendix E</b>. It is emphasised that the deceleration lane has been removed from the proposed Masterplan and as such will no longer be delivered as part of the Stage 1 works.</p>
<p>Provide further information regarding the issue of unrestricted public access to the basement car park of Building A1 during operating hours of the childcare centre, as identified in the Crime Prevention Through Environmental Design Assessment Report.</p>	<p>The final operation of the basement will be subject to detailed design and input from the future childcare operator, however, at this stage the car park has been designed to separate the residential parking from the visitor and childcare parking by way of boom gates and level separation (refer to the Building A1 basement plans). The CPTED report submitted with the Stage 1 EIS identified that the boom gates would not restrict pedestrian movements to the childcare centre as this was not considered necessary given that the basement will not be used or be accessible by the general public as it is only available to residents, their guests and the childcare centre. Furthermore, there is considered to be minimal danger to children from this arrangement as all children (given their age) will be accompanied by their parents/guardians to and from the childcare centre and its associated basement parking area.</p>

Extract	Response
	<p>It is recommended, however, that as part of a plan of management of the future childcare centre operator that there is CCTV coverage of the childcare centre basement parking area and the corridor leading to the basement entrance to the childcare centre to ensure this area has sufficient surveillance and the perception of safety. A security consultant with a Class 2A licence (in accordance with the Security Industry Act 1997) should provide specific advice on the placement, monitoring and maintenance of the CCTV network for the future childcare centre operator. This is reflected in the updated mitigation measures.</p>
<p><b>4. Wind</b> Confirm the design for each building includes the recommendations of the Wind Impact Assessment (WIA), noting the floorplan for level 23 of Building A1 does not appear to include the recommended 1.8 m high balustrade.</p>	<p>The revised architectural plans have incorporated the recommendations of CPP for mitigating and managing wind conditions.</p>
<p>Confirm if vertical screening is proposed adjacent to the entrances to the Building C1 towers which are identified in the WIA as being subject to accelerated wind flows.</p>	<p>The assessment by CPP submitted with the Stage 1 EIS noted that screens could assist in creating calmer wind conditions, but that the conditions in this portion of the site would be expected to improve once buildings in the surrounding areas are developed. It concludes that the wind conditions would be suitable for pedestrian walking and would pass the distress criterion, and as such further mitigation measures are not required. Notwithstanding, screens in the form of fences have been incorporated into the design of Building C1 in the locations referenced by CPP.</p>
<p>The WIA states the proposed wind conditions are suitable for pedestrian standing and walking. Provide further information regarding how wind conditions at Building C1 would be suitable for the proposed communal open space and Neighbourhood Garden activities.</p>	<p>This area is expected to be relatively shielded for most prevailing wind directions. For winds from the south the southern part of C1 would provide shielding for this area, and for winds from the west the 3 storey building between the towers provides protection for the central courtyard. Winds from the north-east have some potential to cause windier conditions in the courtyard, however the effect would be primarily affecting areas near the corners of the towers. Overall wind conditions in the courtyard would be expected to range between pedestrian sitting and standing criteria, which would be suitable for a communal area such as this. Upon completion of the entire precinct the courtyard would be further protected by the large surrounding buildings.</p>
<p><b>4. Other Matters</b> Provide a revised Quantity Surveyor Report that includes a close estimate of the jobs that will be created by the development during construction and operation.</p>	<p>This response is accompanied by an updated CIV estimate, including an estimate of construction and operational jobs, which are provided at <b>Appendix R</b> of the RTS Report.</p>
<p>Provide a Geotechnical Assessment (GA) specific to the proposed Stage 1 development noting the submitted GA, dated November 2017, relates to the overall Ivanhoe Estate redevelopment and states geotechnical investigation will be required to assess actual on-site conditions for specific structures.</p>	<p>The completion of detailed geotechnical site investigations has not been possible across the Stage 1 site owing to the presence of existing LACH buildings and residents that have prevented access. As the preliminary Masterplan assessment did not raise any significant concerns that would prevent development, it is suggested that the completion of further detailed investigations be conditioned. This would enable the progression of the separate LAHC demolition works, facilitating testing on the site, and ensure a detailed assessment is completed prior to issuing any construction certificate. The final mitigation measures have also been updated to reflect this commitment.</p>
<p>The EIS states the proposed child care centre GFA is 702 m2 and that this represents 100% of the child care centre GFA for the masterplan. However, given a second child care centre is proposed within Building B2, confirm how this relates to the overall GFA figures.</p>	<p>The demarcation of GFA under the Masterplan included an error. Whilst a second childcare centre is to be provided within the Estate, this centre is to be co-located with the proposed school and as such the GFA for the second centre was included in the breakdown for the school. As such, Building A1 will deliver all standalone childcare centre GFA but a second centre is still envisaged to be delivered in conjunction with the school. Refer to the GFA breakdowns in the Masterplan assessment.</p>

Extract	Response
Provide plans for Building A1 illustrating areas included in GFA calculations	The updated Architectural Plans for Building A1 ( <b>Appendix A</b> ) detail the areas calculated as GFA across the floors of the building. Refer to plan no. DA50.A1.001.
The Air Quality Report states there may be potential air quality impacts from the location of the basement exhaust in Building A1 adjacent to the child care centre afternoon play area and recommends monitoring prior to operation to confirm the play area is not impacted. Confirm what options would be available if the recommended future monitoring confirms the play area is impacted.	An additional air quality response has been provided by WSP ( <b>Appendix K</b> ) confirming that given the intermittent and temporary nature of pollutants generated in the car parks, it is not anticipated that ambient pollutant concentrations at the child care centre's outdoor play area would exceed the applicable ambient air quality criteria. All carpark discharge points would be designed to comply with the relevant Australian Standards, and the height of these points could be increased to benefit pollutant dispersion. It is recommended that ambient air quality monitoring be undertaken in the childcare centre's outdoor play areas prior to the commencement of childcare centre operations, which is confirmed in the updated mitigation measures at <b>Section 5.0</b> of the RTS Report.
Provide final BASIX Certificates for each building.	Updated BASIX certificates are provided at <b>Appendix M</b> of the RTS Report.
Confirm remediation works form part of the application.	In accordance with various site investigations and a Remediation Action Plan developed for the site, it is proposed to excavate a small area of contaminated materials and then dispose of the materials off-site at an appropriately licensed landfill disposal site. The excavated area will then be backfilled, if required, using clean fill materials. Further validation sampling of the remediation area will be required following the excavation and removal of impacted soils. This is confirmed in Section 3.1 and 5.19 of the EIS, and detailed in the Remediation Action Plan (RAP) submitted as Appendix W of the EIS.
Provide a copy of the JBS&G Detailed Site Investigation Report, dated 30 September 2016.	This report is provided at <b>Appendix L</b> of the RTS Report.
Provide a response to all matters contained in Appendix A of the EPA's submission.	This is addressed further in this table below.
Provide further details of the quantum of cut and fill proposed across the estate and as part of the Building A1 and Building C1 works.	The updated civil plans at <b>Appendix D</b> detail the extent of cut and fill to be undertaken for the Stage 1 works, which when combining Stages 1A and 1B equates to 213,200m <sup>3</sup> of cut, 6,550m <sup>3</sup> of fill and 217,450m <sup>3</sup> of residual.
Confirm whether social housing residents in Building C1 will have access to the communal open space.	Residents of the social housing component of Building C1 will have access to the communal open space area for this building, as detailed in the strata subdivision plans ( <b>Appendix H</b> ) which show the easements to be imposed over this portion of the site.
Provide owner's consent for the removal of trees located within the Epping Road road reserve and any trees located within 6-8 Lyonpark Road that are proposed to be removed.	No trees are proposed to be removed in the neighbouring land fronting Lyonpark Road or in the road reserve for Epping Road.
Environmental Protection Agency	
The EPA anticipates that site establishment, demolition, bulk earthworks, construction and construction-related activities will be undertaken in an environmentally responsible manner with particular emphasis on – <ul style="list-style-type: none"> <li>• the site contamination remediation action plan accompanying the EIS,</li> <li>• compliance with recommended standard construction hours,</li> </ul>	Noted, no further comment required.

Extract	Response
<ul style="list-style-type: none"> <li>• intra-day respite periods from high noise generating construction activities (including jack hammering, rock breaking, pile boring or driving, saw cutting),</li> <li>• feasible and reasonable noise and vibration minimisation and mitigation,</li> <li>• effective dust control and management,</li> <li>• erosion and sediment control, and</li> <li>• waste handling and management, particularly concrete waste and rinse water.</li> </ul>	
<p><b>2.1 Site Contamination</b></p> <p>The EPA understands that a site auditor accredited under the Contaminated Land Management Act has been engaged for the project. The EPA anticipates that that auditor would continue to be engaged at least until a section A Site Audit Statement has been issued to certify the whole of the lands comprising the Ivanhoe Estate have been made suitable for the proposed uses. The EPA understands that -</p> <ul style="list-style-type: none"> <li>• demolition of existing buildings on the development site is to be (or has been undertaken) pursuant to a separate assessment process,</li> <li>• demolition of existing roads, electricity substations and utilities are to be undertaken as part of Stage 1 of the Ivanhoe Estate Re-development project,</li> <li>• whilst the Remediation Action Plan includes an unexpected finds protocol it does not appear to explicitly address post-demolition investigation of the footprint and immediate environs of existing buildings, roads, electricity substations and utilities, and</li> <li>• the proponent proposes to remove all hazardous materials and contaminated soil from the development site for proper disposal at a facility legally able to accept those wastes.</li> </ul> <p>The EPA anticipates that given the age of some of the existing buildings, utilities and electricity substations on the Ivanhoe Estate masterplan development site –</p> <ol style="list-style-type: none"> <li>a) asbestos containing materials are likely to be encountered during demolition of existing buildings and utilities, and</li> <li>b) PCBs may be encountered during and post demolition of existing electricity substations.</li> </ol> <p>The EPA is unclear about the relative timing of the site investigations undertaken for the purposes of assessment of Stage 1 of the Ivanhoe</p>	<ul style="list-style-type: none"> <li>• Confirmation of the site auditor’s engagement is included at Appendix W of the EIS exhibited. The Site Auditor Report also include at Appendix W confirms the site can be made suitable for the proposed use regarding the Remedial Action Plan that has been prepared for that purpose. It confirms that: <i>“The Site Auditor is satisfied that the assessment and remedial planning as reported for the Site Audit site have demonstrated that the site can be made suitable for the proposed land uses.”</i></li> <li>• The demolition of buildings is being completed by LAHC as part of a separate process, and does not form part of this Stage 1 application. These demolition works are ongoing and as such certain investigations and works have not been and cannot be completed at the time of writing. It is further noted that demolition works are expected to occur over stages, and may not be completed across the entire site prior to the commencement of works. Accordingly, any requirement for additional testing, remediation and validation is to also enable the staging of works. It is recommended that the following inform a condition(s) of consent:             <ul style="list-style-type: none"> <li>– Additional investigations will be completed within the footprint of the demolished buildings and infrastructure when the separate demolition process being undertaken by LAHC has been completed at each stage. This additional testing can only be completed in stages, as works are expected to commence in areas of the site prior to the completion of demolition works across the entire site. The Remedial Action Plan can be updated progressively, as required following this testing, to the satisfaction of the Auditor and prior to issuing the relevant Construction Certificate to commence works in that component of the site.</li> <li>– The additional testing will be referenced in the Works Plan and a Validation Sampling and Analysis Quality Plan (VSAQP) to be made available to the Auditor prior to remediation in that component of the site commencing, as required.</li> <li>– The Remediation Action Plan submitted at Appendix W of the EIS contains an unexpected finds protocol, which will be updated following the completion of additional testing where required to explicitly address these post-demolition investigations. This will include, or be accompanied by, an asbestos management plan (AMP) to the satisfaction of the Auditor and prior to issuing the relevant Construction Certificate for works to commence in that portion of the site.</li> <li>– A Section A Site Auditor Statement and Site Auditor Report will be prepared at the completion of remediation works, confirming that the site has been made suitable for its intended use.</li> </ul> </li> </ul>

Extract	Response
<p>Estate re-development and the demolition of existing buildings and electricity substations across the 'masterplan' re-development site.</p> <p>The EPA, having regard to foregoing and the nature of the proposed use, considers that:</p> <ul style="list-style-type: none"> <li>a) an accredited site auditor should certify that the development site (i.e. Stage 1) can be made suitable for the proposed use if the site is remediated in accordance with the Remedial Action Plan;</li> <li>b) a Section A site audit statement (SAS) and accompanying site audit report (SAR) must be prepared at the completion of remediation and validation certifying suitability for the proposed use of the development site;</li> <li>c) additional investigation, including the footprint of demolished buildings, roads, electricity substations and utilities should be undertaken and the scope of that investigation detailed in a sampling and analysis quality plan to be provided to the site auditor for review;</li> <li>d) further details of the proposed remediation and validation strategy be provided to the site auditor in a Works Plan and a Validation Sampling and Analysis Quality Plan (VSAQP) for review by the site auditor prior to remediation commencing; and</li> <li>e) an asbestos management plan (AMP) be prepared and submitted to the site auditor for review.</li> </ul> <p><b>Recommendation</b></p> <ol style="list-style-type: none"> <li>1. That the proponent be required to implement the recommendations of the Remedial Action Plan as conditioned by the accredited site auditor.</li> <li>2. The proponent be required to ensure that following demolition of any existing buildings, roads, electricity substations and in-ground utilities further investigation is undertaken of soil contamination within the footprint of those buildings, roads, electricity substations and in-ground utilities prior to undertaking any construction.</li> <li>3. The proponent be required to conduct additional site investigation and prepare an updated Remedial Action Plan to address any identified contamination with proper regard to the:             <ol style="list-style-type: none"> <li>(i) NSW EPA Sampling Design Guidelines,</li> <li>(ii) Guidelines for the NSW Site Auditor Scheme (3rd edition) 2017,</li> <li>(iii) Guidelines for Consultants Reporting on Contaminated Sites, 2011</li> <li>(iv) the National Environment Protection (Assessment of Site Contamination) Measure 2013 as amended.</li> </ol> <p>The proponent should comply with the processes outlined in <i>State Environmental Planning Policy 55 - Remediation of Land (SEPP55)</i></p> </li> </ol>	

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<p>when assessing the suitability of the land and any remediation required in relation to the proposed sensitive use.</p> <p>4. The proponent be required to:</p> <ol style="list-style-type: none"> <li>Provide a site audit statement (SAS) and accompanying site audit report (SAR) prepared following completion of remediation and validation, certifying suitability of the development site for the proposed use prior to undertaking any construction;</li> <li>ensure that any contamination identified as meeting the trigger in the EPA 'Guidelines for the Duty to Report Contamination' is notified in accordance with requirements of section 60 of the Contaminated Land Management Act'; and</li> <li>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.</li> </ol>	
<p><b>2.2 Noise and Vibration</b></p> <p>The EPA anticipates that demolition of roads and utilities, site preparation (including tree clearing), bulk earthworks, construction and construction-related activities are likely to have significant noise and vibration impacts on surrounding residences.</p> <p>EIS Appendix Z (the acoustic assessment report) for the project is not consistent with the guidance documents adopted by the project SEARs.</p> <p><b>Recommendation</b></p> <p>The proponent be required to provide a detailed noise impact assessment report in respect of construction noise and vibration that:</p> <ol style="list-style-type: none"> <li>identifies all potentially affected noise sensitive receivers (including inter alia 137-143 Herring Road, Morling College and Macquarie Baptist Church);</li> <li>adopts construction noise management levels derived from background noise measurements undertaken in accordance with the guidance material in the Noise Policy for Industry – please refer to section 3.1 under the heading 'background noise';</li> <li>includes intermittent vibration sources which are typically the most common type of vibration source from this type of construction;</li> <li>adopts the appropriate intermittent vibration targets set out in Assessing Vibration, A Technical Guideline (DEC, 2006);</li> <li>includes recommended limits for human comfort set out in Assessing Vibration, A Technical Guideline (DEC, 2006); and</li> <li>includes an assessment of potential construction stage impacts on road traffic noise in accordance with the guidance material provided in the NSW Road Noise Policy (EPA, 2013).</li> </ol>	<p>A further detailed noise and vibration impact assessment will be prepared prior to commencement of works for Stage 1. The further assessment will be prepared in accordance with the Noise Policy for Industry and the NSW EPA Road Noise Policy and will include the parameters specified by the NSW EPA. This commitment has been reflected in the updated mitigation measures, and it is recommended that the Department impose a condition of consent to this effect.</p> <p>The detailed assessment is expected to include:</p> <ul style="list-style-type: none"> <li>identification of special activities that will be carried out and associated noise sources;</li> <li>identification of all potentially affected sensitive receivers;</li> <li>the construction noise objectives based on EPA Interim Construction Noise Guideline;</li> <li>the construction vibration criteria referenced at (d) and (e);</li> <li>confirmation of appropriate noise and vibration objectives for each identified sensitive receiver;</li> <li>noise and vibration monitoring, reporting and response procedures;</li> <li>assessment of potential noise and vibration from the proposed construction activities and construction vehicles;</li> <li>description of specific mitigation treatments, management methods and procedures that will be implemented to control noise and vibration during construction;</li> <li>construction timetabling to minimise noise impacts including time and duration restrictions, respite periods and frequency;</li> <li>procedures for notifying residents of construction activities that are likely to affect their amenity;</li> <li>contingency plans to be implemented in the event of non-compliances and/or noise complaints.</li> </ul>

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<p><b>2.2.1 General Construction Hours</b> The EPA emphasises that demolition, site preparation, bulk earthworks, construction and construction related activities should be undertaken during the recommended standard construction hours.</p> <p>The EPA emphasises that it has provided detailed guidance, being the Interim Construction Noise Guideline (ICNG), to all public authorities and that ICNG Table 1 sets out the recommended standard construction hours for all public authority projects. The EPA has previously provided detailed advice to the proponent concerning its construction/demolition projects, including the expectation of compliance with the standard hours. However, Section 6.2.1.1.1 to EIS Appendix Z 'Stage 1 DA Acoustic Assessment' appears to suggest (by reference to the Ryde Council Development Control) that alternative extended construction hours should be adopted for the project.</p> <p><b>Recommendation</b> The proponent be required to ensure that as far as practicable all demolition, site preparation, bulk earthworks, construction and construction-related activities likely to be audible at any noise sensitive receivers such as surrounding residences are only undertaken during the standard construction hours, being -</p> <ol style="list-style-type: none"> <li>7.00 am to 6.00 pm Monday to Friday,</li> <li>8.00 am to 1.00 pm Saturday, and</li> <li>no work on Sundays or gazetted public holidays</li> </ol>	<p>The Stage 1 EIS proposed that construction works would occur on the site between 7am to 7pm Monday to Friday and 8am to 4pm on Saturdays. However, it is since proposed that all construction works will occur during the standard construction hours as nominated by the EPA with the exception of vehicle access to the site. This would involve vehicles being able to access and leave the site from at 7am to 7pm Mondays to Fridays and 8am to 4pm on Saturdays. Those vehicles entering the site would be expected to turn their engines off upon reaching their destination within the Estate, ensuring there are no idling vehicles.</p> <p>This alternative solution is essential to limiting construction vehicle traffic movements from occurring during on-street peak periods, including contractors arriving and leaving for the day. This will reduce impacts on the local road network and minimise disruptions to surrounding residences and businesses. This is supported in the Traffic Impact Assessment prepared by Ason Group and submitted as Appendix L to the Stage 1 EIS, which suggests out of hours vehicle movements as a key strategy for managing and mitigating the impacts of construction works occurring on the site. This solution is also consistent Chapter 8 Section 4.6 of the Ryde Development Control Plan 2014.</p>
<p>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:</p> <ol style="list-style-type: none"> <li>they are only undertaken after 8.00 am,</li> <li>they are only undertaken over continuous periods not exceeding 3 hours with at least a 1 hour respite every three hours, and</li> <li>'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.</li> </ol> <p>The EPA emphasises that 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.</p>	<p>The Stage 1 Acoustic Assessment and the Noise Guideline considers that where properties are measured as being 'highly noise affected' by construction works, noise controls such as respite periods should be considered. As the detailed construction methodology is not available at this time, a detailed acoustic analysis including consideration of whether any surrounding residential receivers would be categorised as 'highly noise affected' cannot be completed and will be detailed prior to the commencement of works on the site. It would, therefore, be confirmed at this time whether respite periods and other mitigation solutions would be required. The final mitigation measures in <b>Section 5</b> of the RTS Report require that the proponent prepare and submit a detailed Construction Environmental Management Plan, with consideration of noise and vibration management and detailing any intra-day respite periods for highly intrusive activities where required. The Department may be minded to impose the standard condition of consent reinforcing this commitment.</p>

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<p><b>Recommendation</b> 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.</p>	
<p><i>2.2.3 Idling and queuing construction vehicles</i> 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.</p> <p><b>Recommendation</b> The proponent be required to ensure construction vehicles (including 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.</p>	<p>As discussed above, it is proposed that vehicles be able to access the site between the hours of 7am and 7pm on Monday to Friday, and between 8am to 4pm on Saturdays. This enables vehicles to enter or exit the site outside of the on-street peak hour to reduce impacts on the surrounding road network. As these hours do not comprise any early commencement of works than already permitted under the standard construction hours, the proposed alternative arrangement does not present a risk to sleep disturbance, and vehicles would be required to terminate their engines upon reaching their destination on site. Accordingly, the impact on surrounding residents would be minimal, and on-balance this alternative solution presents a far improved outcome for the operation of the surrounding area. This solution also adheres to the requirements for all other construction sites in the Ryde LGA in accordance with Chapter 8, Section 4.6 of the Ryde DCP 2014.</p>
<p><i>2.2.4 Reversing and movement alarms</i> 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 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.</p> <p><b>Recommendation</b> 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.</p>	<p>The appointed contractor will prepare a detailed Construction Environmental Management Plan prior to the commencement of works on the site. This plan will include consideration of noise and vibration impacts, as well as traffic and vehicle impacts, and will consider whether/what form of audible movement alarms would be required for vehicles. An authorised traffic controller will be present throughout the demolition, excavation and construction stages of the project ensuring there is no conflict between vehicle and pedestrian movements.</p>
<p><b>2.3 Dust control and management</b> The EPA considers dust control and management to be an important air quality issue during demolition, site preparation, bulk earthworks and subsequent construction.</p>	<p>The final mitigation measures in <b>Section 5.0</b> of the RTS Report require the preparation of a Construction Air Quality Management Plan with reference to the recommendations of the Air Quality Impact Assessment prepared by WSP (October 2018), and submitted to the Principal Certifying Authority prior to the commencement of works. This will outline strategies to be implemented to minimise dust emissions.</p>

Extract	Response
<p><b>Recommendation</b> The proponent be required to minimise dust emissions on the site, and prevent dust emissions from the site.</p>	
<p><b>2.4 Sediment control</b> 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.</p>	<p>The final mitigation measures in <b>Section 5.0</b> of the RTS Report require that erosion and sediment control is managed in accordance with the Erosion and Sediment Control Plans prepared by ADW Johnson, or as amended by a suitably qualified person. This will be determined as part of the detailed Construction Environmental Management Plan.</p>
<p><b>2.5 Groundwater management</b> The EIS indicates that intercepted groundwater is proposed to be managed using 'sump and pump' methods during the construction phase. However, the EIS is unclear whether the proponent proposes to: (a) discharge intercepted groundwater to Shrimptons Creek, and (b) what, in any, measures are proposed to ensure that any groundwater to be discharged to Shrimptons Creek would not pollute waters.</p> <p><b>Recommendation</b> The proponent be required to ensure that it does not cause or permit pollution of waters should any intercepted groundwater be discharged to Shrimptons Creek.</p>	<p>The Geotechnical Assessment prepared by Douglas Partners and submitted as Appendix G of the EIS confirms that groundwater seepage into basement excavations is likely to be readily managed using 'sump-and-pump' methods, which is consistent with Douglas Partner's experience of excavations near the subject site. The discharge point of this groundwater is not confirmed at this time, and as such it is recommended that an appropriate condition be imposed requiring that intercepted groundwater meet relevant water quality standards in the event that it is required to be discharged into Shrimptons Creek. In accordance with the submission of DPI's Land and Water, the method of disposal of pumped water shall be nominated (i.e. reinjection, drainage to the stormwater system or discharge to sewer) and a copy of the written permission from the relevant controlling authority shall be provided in a report to be provided to NRAR with the application for the authorisation.</p>
<p><b>2.6 Waste control and management (general)</b> 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:</p> <ul style="list-style-type: none"> <li>• Avoidance including action to reduce the amount of waste generated by households, industry and all levels of government</li> <li>• Resource recovery including reuse, recycling, reprocessing and energy recovery, consistent with the most efficient use of the recovered resources</li> <li>• Disposal including management of all disposal options in the most environmentally responsible manner.</li> </ul>	<p>The final mitigation measures in <b>Section 5.0</b> of the RTS Report require that the proponent provide a Waste Policy Design Compliance Certificate for the Construction Certificate application, which is to include details regarding the disposal and recycling of different materials expected from construction, and the transport and destinations of these materials. The recommendations are appropriate and may inform a condition of consent.</p>

Extract	Response
<p>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.</p> <p>The EPA further anticipates that, without proper site controls and management, mud and waste may be tracked off the site during the project.</p> <p><b>Recommendation</b> The proponent be required to ensure that:</p> <ul style="list-style-type: none"> <li>(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;</li> <li>(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</li> <li>(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.</li> </ul>	
<p><b>2.7 Waste control and management (concrete and concrete rinse water)</b> The EPA anticipates that during 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:</p> <ul style="list-style-type: none"> <li>(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</li> <li>(b) concrete rinse water is directed to a dedicated watertight skip protected from the entry of precipitation or a suitable water treatment plant.</li> </ul> <p><b>Recommendation</b> The proponent be required to ensure that concrete waste and rinse water are:</p> <ul style="list-style-type: none"> <li>(a) not disposed of on the development site, and</li> <li>(b) prevented from entering waters, including any natural or artificial watercourse.</li> </ul>	<p>The recommendations are appropriate and may inform an appropriately worded condition of consent.</p>

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<p><b>3. Operational phase</b>                      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 regarding:</p> <ul style="list-style-type: none"> <li>(a) feasible and reasonable noise mitigation measures;</li> <li>(b) stormwater management measures designed and implemented to protect the environmental values of Shrimptons Creek;</li> <li>(c) waste management in accordance with the waste management hierarchy;</li> <li>(d) water sensitive urban design; and</li> <li>(e) energy conservation and efficiency.</li> </ul>	<p>The EIS and RTS report and accompanying technical studies confirm that the operation of the proposed development will not result in any adverse environmental impacts with regard to noise management, stormwater management, waste management, water sensitive urban design, and energy conservation and efficiency. The issues identified by the EPA have been clarified in the following sections.</p>
<p><b>3.1 Noise and vibration impacts</b>                      The EPA anticipates the proposed development may have significant operational noise impacts on nearby sensitive receivers, especially residences. EIS Appendix Z 'Acoustic Assessment Report' mistakenly refers to the:</p> <ul style="list-style-type: none"> <li>• the "NSW Planning Noise Policy for Industry" instead of the Noise Policy for Industry; and</li> <li>• "NSW Environmental Protection Agency" instead of the Environment Protection Authority.</li> </ul> <p>The EPA notes with concern the proximity of the surrounding residences and other noise sensitive receiver locations. There is a need for appropriate operational noise mitigation and management measures, particularly regarding:</p> <ul style="list-style-type: none"> <li>(a) the design and location of waste storage facilities;</li> <li>(b) time restrictions on waste collection services to commercial premises including the childcare centre;</li> <li>(c) design, selection and operation of mechanical ventilation plant and equipment; and</li> <li>(d) time restrictions on grounds maintenance using powered equipment (e.g. leaf blowers, brush cutters and lawn mowers).</li> </ul>	<ul style="list-style-type: none"> <li>a) All waste collection associated with proposed Buildings A1 and C1 will occur within the building basements, which will effectively minimise noise emissions as confirmed by Acoustic Logic who state that the <i>"Loading dock and carpark are fully enclosed therefore the noise emissions shall not have any adverse impact to the noise receivers around the project site"</i>. The detailed design of these waste storage facilities will be designed to achieve the relevant standards.</li> <li>b) Whilst a restriction on the time periods for deliveries to and from the proposed buildings were not raised as being necessary in the Acoustic Assessment, a condition of consent as recommended by the EPA below may be imposed.</li> <li>c) The specifications of the plant required cannot be confirmed at this time and are reliant on the detailed design of the buildings as part of the construction phase of the project and in consultation with the appointed contractor(s). The Acoustic Assessment at Appendix Z of the EIS confirms that satisfactory levels will be achievable through appropriate plant selection and location and, if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures. In view of this, the Department may be minded to impose a standard condition of consent to confirm details of noise mitigation measures for all mechanical plant as determined by the an appropriately qualified acoustic engineer on the Construction Certificate drawings.</li> <li>d) A time restriction on the use of landscaping equipment is not considered necessary. Landscaping on the site will be carried out with consideration of the relevant neighbours, and a condition of consent to this effect would be unreasonable given the moderate scale of landscaping on the site that is commensurate with any other residential flat building or dwelling in the Sydney Metropolitan area.</li> </ul>
<p><b>Background noise measurement</b>                      The EPA emphasises that properly establishing background noise levels in accordance with guidance material (i.e. Fact Sheets A and B) of the New South Wales Noise Policy for Industry (NPI) is fundamental to a consistent approach to the quantitative assessment of noise impacts of development.</p> <p>The NPI specifies that at least a 'week's worth' of valid monitoring data is required to establish background noise levels and that noise levels measured during rainfall should be excluded when deriving those background levels. However, the EPA considers that the background</p>	<p>Acoustic Logic has prepared an updated assessment included at <b>Appendix Q</b> of the RTS Report. The assessment identifies potential noise sensitive receivers, the location and results of unattended and attended noise monitoring measurements, and the resultant background noise measurements. Acoustic Logic note that the weather affected data has been excluded from the assessment.</p>

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<p>noise measurements relied upon to calculate the rating background levels and derive the project noise trigger levels presented in EIS Appendix Z have not (as required by SEARs item 21) been undertaken in accordance with the guidance material provided in the Noise Policy for Industry. For instance, EIS Appendix Z:</p> <ul style="list-style-type: none"> <li>(a) does not identify all potential noise sensitive receiver locations;</li> <li>(b) presents unattended background noise measurements from monitoring that was not undertaken at the reasonably most- (or potentially most-) affected residences;</li> <li>(c) appears to neglect the EPA's EIS submission concerning the SSD 8707 Ivanhoe Estate Redevelopment Concept Plan highlighting the inadequacy of the background noise measurements;</li> <li>(d) in respect of background noise measurements, is inconsistent with and omits items listed in section B3 'Reporting requirements' to Fact Sheet B of the Noise Policy for Industry;</li> <li>(e) does not identify how or where weather data in respect of the background noise measurement period was sourced nor which periods were excluded for the purposes of determining rating background levels and thus are not able to be relied upon as representing one weeks' worth of valid data;</li> <li>(f) indicates that unattended background noise measurements appear to have been affected by some periods of extraneous noise without such noise being accounted for and thus (in the absence of adequate explanatory information) is not able to be relied upon for the purposes of determining representative background noise levels.</li> </ul> <p><b>Recommendations</b></p> <ol style="list-style-type: none"> <li>1. The proponent be required to submit a noise impact assessment for Stage 1 that presents background noise measurements undertaken in accordance with the guidance material in Fact Sheets A and B to the Noise Policy for Industry 2017.</li> <li>2. The proponent be required to submit a noise impact assessment for Stage 1 that reports background noise measurements in accordance with the reporting requirements set out in Fact Sheet B to the Noise Policy for Industry 2017.</li> </ol>	
<p><i>Project noise trigger levels</i> EIS Appendix Z incorrectly states that the Noise Policy for Industry is intended to limit the audibility of noise emissions. Instead, the Noise Policy for Industry sets out a framework for the derivation of project noise trigger levels that are used to assess the potential impacts of noise and indicate the noise level at which feasible and reasonable noise management measures should be considered.</p>	<p>Acoustic Logic has confirmed the following:</p> <ul style="list-style-type: none"> <li>• Section 5.1.2.1 is for the intrusiveness criteria which is the background noise plus 5 dB(A). This criteria is based on the EPA's Noise Policy for Industry.</li> <li>• The residential receivers have been categorised as 'urban' because residents along Epping Road are subject to through traffic that is characterised as being heavy and continuous during peak periods, and the residents along the northern and western boundaries of the site are high density residential in form and are partially dominated by 'urban hum' traffic sound sources.</li> </ul>

Extract	Response
<p>The proponent is required to use appropriate Rating Background Levels (RBLs) to develop project noise trigger levels at all potentially affected sensitive receivers. However, EIS Appendix Z relies on RBLs calculated (as indicated above) from background noise measurements undertaken otherwise than in accordance with the guidance material provided in the Noise Policy for Industry. It does not identify all potentially affected sensitive receivers likely to be impact by the development.</p> <p>Section 5.1.2.1 to EIS Appendix Z states that the “[i]ntrusive criteria for the project are based on the minimum RBL recommended by the EPA for the project site are detailed in the table ...” however the intrusiveness criteria presented in that table (i.e. Table 12) are not based on the EPA’s minimum RBLs Noise Policy for Industry.</p> <p>Section 5.1.2.2 to EIS Appendix Z states that pursuant to the Noise Policy for Industry “... the residential receivers in the vicinity would be considered Urban.” but offers no justification for assigning all surrounding residences to the Urban residential receiver category.</p> <p>The maximum noise level event trigger level for Leq,15min in Table 14 and Table 15 to is incorrect and instead the trigger levels for maximum noise level events should be derived in accordance with section 2.5 of the Noise Policy for Industry.</p> <p>EIS Appendix Z does not adequately demonstrate that applying one set of project noise trigger levels is appropriate for all potentially affected residential receivers.</p> <p><b>Recommendation</b> The proponent be required to submit a noise impact assessment for Stage 1 that reports project noise trigger levels derived in accordance with the Noise Policy for Industry.</p>	<ul style="list-style-type: none"> <li>• The maximum trigger noise level in Table 14 and 15 has been updated in the revised assessment included at <b>Appendix Q</b>.</li> </ul>
<p><i>Operational noise emissions (general)</i> The EPA notes that in relation to operational noise impact assessment EIS Appendix Z includes the following anomalies -</p> <p>(a) at section 5.2.5, the proponent approximates the relationship between L10 and Leq noise levels of children playing as 2dB without providing evidence to support the validity of that approximation; and</p> <p>(b) at Section 5.2.5.1 the proponent refers to child care centre noise at the nearest noise receiver described as “... Single Storey Residential Dwelling Across Caroline St.” despite there appearing to be no road named Caroline Street near the development site.</p> <p><b>Recommendation</b></p>	<p>Acoustic Logic has confirmed that they measured kids play noise in dB(A)L<sub>10</sub> to calculate the noise emissions as dB(A)L<sub>eq</sub>, and that this adopted methodology is conservative.</p> <p>Acoustic Logic has also confirmed that the references to Caroline Street was a typo and has been removed in the updated assessment at <b>Appendix Q</b>.</p>

Extract	Response
<p>The proponent be required to:</p> <p>(a) provide evidence to support the approximation in section 5.2.5 of EIS Appendix Z, and</p> <p>(b) clarify the sensitive receiver location (i.e. across Caroline St) referred to in section 5.2.5.1 of EIS Appendix Z.</p>	
<p><i>Mechanical plant and equipment</i> Section 5.2.1 to EIS Appendix Z states that "... plant selections and locations are not finalised."</p> <p><b>Recommendation</b> The proponent be required to:</p> <p>(a) provide a comprehensive quantitative assessment of operational noise impacts of mechanical plant and equipment (especially ventilation/ air conditioning plant and equipment) on surrounding noise sensitive receivers, especially surrounding residences;</p> <p>(b) ensure mechanical plant and equipment installed on the development site does not generate, (either individually or cumulatively) –</p> <p>(i) noise emissions that exceed the Project Noise Trigger Level (day, evening and night assessment periods) measured at the boundary of noise sensitive receiver locations, and</p> <p>(ii) noise emissions that exhibit tonal or other annoying characteristics.</p>	<p>The specifications for mechanical plant will be detailed when the final plant is selected in consultation with the appointed contractor and through the development of the detailed construction drawings. Accordingly, an assessment of the plant and equipment and the acoustic mitigation measures required (if any) are not known at this time. The Acoustic Assessment at Appendix Z of the EIS confirms that satisfactory levels will be achievable through appropriate plant selection and location and, if necessary, standard acoustic treatments such as duct lining, acoustic silencers and enclosures. In view of this, the Department may be minded to impose a standard condition of consent to confirm details of noise mitigation measures for all mechanical plant, as determined by the an appropriately qualified acoustic engineer, at the Construction Certificate stage.</p>
<p><i>Goods delivery and waste collection services</i> The EPA is aware of community concern arising from goods delivery and waste collection services undertaken at other public facilities and especially during evening and night times.</p> <p><b>Recommendation</b> The proponent be required ensure that goods delivery and waste collection services are not undertaken at commercial premises outside the hours of 7.00 am to 6.00 pm Monday to Friday.</p>	<p>This recommendation is acceptable.</p>
<p><i>Grounds maintenance using powered equipment</i> The EPA is aware of community concern arising from grounds maintenance involving the use of powered equipment (example: leaf blowers, lawn mowers, brush cutters) at other public facilities during early morning and evening periods as well as on weekends and public holidays.</p> <p><b>Recommendation</b> The proponent be required ensure grounds maintenance involving the use of powered equipment is not undertaken outside the hours of 7.30 am to 6.00 pm Monday to Friday.</p>	<p>Landscaping on the site will be carried out with consideration of the relevant neighbours. A condition of consent to this effect is unreasonable and unnecessary given the moderate scale of landscaping on the site which is commensurate with any other residential flat building or dwelling in the Sydney Metropolitan area.</p>

Extract	Response
<p><b>3.2 Shrimptons Creek (water quality)</b>                      The NSW Water Quality Objectives (WQOs) are the NSW Government endorsed environmental values and long-term goals for surface waters, including Shrimptons Creek.</p> <p>The EPA understands that the stormwater management system to be installed during stage 1 would serve the whole of the masterplan development site, including the stage 1 development site.</p> <p>The EPA anticipated that, in response to concerns raised by the EPA at the draft SEARs stage of the assessment process, the proponent would have developed ambient water quality targets for the receiving waters, being Shrimptons Creek, and that those targets would have been developed with having due regard to both the NSW Water Quality Objectives and national water quality guidelines.</p> <p>Instead, the proponent appears to have adopted measures intended to achieve generic per cent load reductions. In particular, the EIS indicates that proposed stormwater management measures would achieve generic per cent load reductions based on the City of Ryde's requirements (e.g. Gross Pollutants 90%, TSS 85%, TP 65%, TN 45%). However, the EPA emphasises that generic targets do not relate to waterway outcomes and may not contribute to maintaining or restoring the environmental values of the receiving waterways.</p> <p><b>Recommendation</b>                      The proponent be required to design and operate the stormwater management system to:</p> <ul style="list-style-type: none"> <li>(a) protect the environmental values of the receiving waterway (being Shrimptons Creek) where those values are currently being achieved; and</li> <li>(b) work towards achieving the environmental values of the receiving waterway where those values are not currently being achieved.</li> </ul>	<p>ADW Johnson has prepared an addendum response in regard to the Stormwater and Drainage Assessment (<b>Appendix F</b>). It confirms that the water quality targets utilised in the Assessment were to demonstrate compliance with the requirements of Ryde City Council.</p> <p>It is noted that, under the existing site conditions, the discharge entering Shrimpton's Creek is not subject to any water quality control and, in this regard, is considered "untreated".</p> <p>The stormwater management system proposed as part of the overall development includes both water quality and quantity controls, that meet council's objectives and requirements. The implementation of these proposed measures will ensure that the water entering Shrimptons Creek is treated first and of a higher quality than that which currently leaves the site and flows into it. Accordingly, the proposed stormwater management measures will improve the quality of water entering Shrimptons Creek and in-turn, enhance the long-term viability of the aquatic habitat, flora and fauna which inhabits the watercourse.</p> <p>The NSW Water Quality Objectives, as referenced by EPA in their submission, are indicative guidelines only and state that local controls (ie: Council in this instance) should take precedence. Accordingly, the stormwater management plan prepared is viewed as being sufficient for the purposes of the development application.</p> <p>Notwithstanding above, to ensure that the health of Shrimptons Creek is, at a minimum, maintained throughout the construction of the development, it is proposed that a consent condition be included, requiring assessment of the watercourse to be undertaken at regular intervals ie: prior to the commencement of works (to establish a baseline data set, annually thereafter up to completion of the development and annually This process will ensure that the health of Shrimptons Creek is monitored and if any deterioration is found, it is captured and acted upon. Following this period, Council would be responsible for any further long-term monitoring and improvement works. This process thereby provides certainty to the long-term health of the watercourse.</p>
<p><b>3.3 Waste management</b>                      The proponent should manage waste in accordance with the waste management hierarchy outlined earlier.</p> <p><b>Recommendation</b>                      The proponent be required to identify and implement feasible and reasonable opportunities for the reuse and recycling of waste, including food waste.</p>	<p>The storage, management, and disposal of waste generated by the operation of the proposed buildings on the site is considered in the Waste Management Plan prepared by Elephants Foot submitted as Appendix P of the EIS. The assessment identifies strategies to promote the management of waste in accordance with the hierarchy.</p>
<p><b>3.4 Water sensitive urban design and energy conservation and efficiency</b></p>	<p>Noted, no action is required. The statement prepared by Frasers Property Australia and included at <b>Appendix O</b> confirms that the sustainability targets are continued to be pursued and can be achieved for Stage 1.</p>

Extract	Response
<p>The EPA acknowledges that EIS sections 3.7 and 3.8 outline a range of proposed environmentally sustainable development measures for stage 1 of the project, such as:</p> <ul style="list-style-type: none"> <li>(a) a range of water sensitive urban design measures, including rainwater harvesting and re-use, and water efficient fixtures in buildings A1 and C1; and</li> <li>(b) a range of measures to maximise energy efficiency and minimise energy consumption, including installation of rooftop solar photovoltaic arrays on buildings A1 and C1.</li> </ul>	
<b>NSW Office of Environment and Heritage</b>	
<p><b>Aboriginal Cultural Heritage</b>                      As advised in OEH's submission on SSD 8707, due diligence is not a substitute for undertaking an Aboriginal cultural heritage assessment. Due diligence is a legal defence against harm under the <i>National Parks and Wildlife Act 1974</i> and is inadequate to assess the impacts of the proposed development on the Aboriginal archaeological and cultural heritage values of the subject land. Due diligence is not to be used for major projects, including State significant developments. Therefore, in order to adequately address Aboriginal cultural heritage, it is recommended that an Aboriginal Cultural Heritage Assessment Report: (ACHAR) be prepared prior to the determination of the application.</p>	<p>The due diligence confirmed there was a nil to low potential for aboriginal archaeological deposits to be uncovered on the site. As a result, it was concluded that no further assessment would be required. This is detailed in the letter provided at <b>Appendix V</b>.</p> <p>Notwithstanding this, the Applicant has committed under the Masterplan to obtain the relevant approvals from Stage 2 onwards, to satisfy the amended policy and as discussed in a DPIE meeting held 24th July 2019.</p>

Extract	Response
<p><b>Biodiversity</b></p> <p>OEH notes that staged offsets have been proposed in accordance with Table 22 and Figure 11 of the Ivanhoe Estate Re-development SSD 17_8707 Biodiversity Assessment Report and Offset Strategy (Eco Logical Australia, September 2018) in a manner that is "commensurate to the area of impacts" (page 43 of that report). However, upon review of the 'Ivanhoe Estate Redevelopment Stage 1' Environmental Impact Statement (EIS), a staged approach to the delivery of offsets may not be appropriate because SSD 8903 seeks approval for:</p> <ul style="list-style-type: none"> <li>• "site preparation works, including tree removal, demolition of roads and services, and earthworks across the Ivanhoe Estate</li> <li>• the provision and augmentation of utilities and services infrastructure across the Ivanhoe Estate, and</li> <li>• the construction of all internal roads including public domain within the road reserves, and the bridge crossing and road connection to Lyonpark Road including changes to parking, site access, landscaping and ancillary works at 2-4 Lyonpark Road; ...".</li> </ul> <p>This wording suggests most or all of the vegetation on site will be removed in relation to Stage 1. If this is the case, OEH recommends all required credits are retired upfront and that the Biodiversity Management Plan (BMP), weed management plan, Construction Environment Management Plan (CEMP) and Vegetation Management Plan (VMP) are conditioned on the approval for Stage 1 (SSD 8903).</p>	<p>The updated AIA provided at <b>Appendix N</b> details the removal of trees across the Estate, and the Biodiversity Assessment Report and Offset Strategy at <b>Appendix U</b> details the associated biodiversity offsets to be retired as part of these works. All offsets will be retired prior to the commencement of the Stage 1 works and will not be staged.</p>
<p><b>NSW Office of Environment and Heritage – Heritage Council</b></p>	
<p>The subject site is not within the curtilage of any State Heritage Register (SHR) items, nor is it within the vicinity of any SHR items. It does not contain known historic archaeology. Therefore, no heritage comments are required. No further heritage referrals for this site are required for subsequent stages of this proposal, or any future proposals.</p>	<p>Noted, no further action is required.</p>
<p><b>Transport for NSW (RMS)</b></p>	
<p>Therefore, Roads and Maritime requires the following information in order to complete its assessment:</p> <ol style="list-style-type: none"> <li>1. Concept civil engineering plans/design for proposed deceleration lane along Epping Road. The plans should include existing property boundary, width &amp; length of the deceleration lane, grades/levels on the lane, long-section &amp; cross section of the deceleration lane, location of existing and future kerb &amp; gutter, utility adjustment required, street lighting, associated drainage/ stormwater discharge information and future property boundary.</li> </ol>	<p>The deceleration lane has been removed to retain existing vegetation, as detailed in the revised Masterplan response.</p>

Extract	Response
<p>2. The proponent should construct the deceleration lane within the property boundary. However, Roads and Maritime would allow the proponent to construct the deceleration lane within the existing road reserve along Epping Road subject to dedication of land within the property boundary for any future relocation of the deceleration lane when necessary. In this regard, the land should be dedicated to Roads and Maritime at no cost and shall be identified as a separate lot in any future sub-division plan for the site.</p>	<p>The deceleration lane has been removed to retain existing vegetation, as detailed in the revised Masterplan response.</p>
<p>3. The intersection of Herring Road and Ivanhoe Place is to be signalised. However, the timing of the signalisation of this intersection is not known at this stage. Hence, the applicant should demonstrate that the existing roundabout at this intersection can accommodate Stage 1 development traffic.</p>	<p>This is addressed in the response prepared by Ason Group and included at <b>Appendix E</b> of the RTS Report. This confirms that whilst RMS has advised that the upgrade to the intersection of Ivanhoe Place with Herring Road is to be delayed, an analysis has been conducted by Ason Group with consideration of the proposed Stage 1 interim traffic arrangement and the future performance of key intersections using SIDRA modelling. The average intersection performance Level of Service for the AM and PM peak periods using the roundabout is LOS A for each peak period in each scenario, confirming that the intersection continues to comfortably operate with the Stage 1 traffic.</p>
Sydney Water	
<p>Sydney Water is currently undertaking planning for new water infrastructure in this area which will provide more detailed infrastructure requirements. Planning is due for completion in mid- 2020. If the developer intends to proceed ahead of this timeframe, they must carry out a detailed planning study to determine whether augmentation of existing water infrastructure within the growth precinct is required.</p>	<p>ADW Johnson has prepared a Civil Engineering Report (<b>Appendix D</b>) detailing how the proposed development can be serviced, including with consideration of the extension and augmentation of infrastructure.</p>
<p>Drinking Water Servicing</p> <ul style="list-style-type: none"> <li>• The proposed development is within the Marsfield Water Supply Zone. The site is currently serviced by a 150mm main in Ivanhoe Road that is fed by a 250mm main and a 500mm main in Herring Road.</li> <li>• An additional 200mm main along Ivanhoe Road from Herring Road to Narromine Road will be required to address future water pressure issues.</li> <li>• Drinking water reticulation mains inside the development and any lead in water mains should be designed according to current WSA Code - Sydney Water Edition. A scheme plan should be submitted to Sydney Water for review.</li> </ul>	<p>A feasibility application was lodged with Sydney Water Corporation (SWC) on 16 June 2017. A response was received on 3 August 2017, which confirmed that the existing water main along Herring Road had the capacity to service the proposed development. Subsequent to the feasibility application response, a meeting was held with SWC on the 5 March 2018 to further discuss the Stage 1 application. At this meeting the proposed watermain layout was tabled and discussed, with SWC not raising any issues with the concept design. Notwithstanding, the acceptance of this solution will be subject to a Section 73 Certificate, which will be obtained prior to the commencement of the relevant works on the site.</p>
<p>Wastewater Servicing</p> <ul style="list-style-type: none"> <li>• The development is within the Macquarie Park Sewerage Catchment Area Management Plan and will drain to the North Head System.</li> <li>• There is a 600mm trunk wastewater main adjacent to Shrimpton's Creek which has capacity to service the proposed site.</li> </ul>	<p>A feasibility application was lodged with Sydney Water Corporation (SWC) on 16 June 2017. A response was received on 3 August 2017, which indicated that the proposed development can drain into the existing North Head system via the existing DN600 Reinforced Concrete trunk wastewater main, located within the site along its frontage to Shrimpton's Creek. SWC advised that this DN600 trunk main had capacity to service the development. Notwithstanding, the acceptance of this solution will be subject to a Section 73 Certificate, which will be obtained prior to the commencement of the relevant works on the site.</p>

Extract	Response
<ul style="list-style-type: none"> <li>Wastewater reticulation mains inside the development and any lead in wastewater mains should be designed according to current WSA Code - Sydney Water Edition or Sydney Water's Flow Scheduling Sheet.</li> </ul>	
<b>Department of Industry – Land and Water</b>	
<ul style="list-style-type: none"> <li>An authorisation shall be obtained from the Natural Resources Access Regulator (NRAR) for the take of groundwater as part of the activity. Groundwater shall not be pumped or extracted for any purpose other than temporary dewatering during the period of construction at the site identified in the development application.</li> </ul>	<p>The recommendation is accepted.</p>
<ul style="list-style-type: none"> <li>Further investigations, as proposed by Douglas Partners in the geotechnical report, should be undertaken to verify the groundwater conditions on site. Currently methods for construction have been based on assumptions of the groundwater conditions and these assumptions should be verified:                         <ol style="list-style-type: none"> <li>Selected cored boreholes in accessible areas – to “ground-truth” the desk-top assessment and provide further information in areas where only limited data is available. These would preferably include:                                 <ol style="list-style-type: none"> <li>Bores near the basement perimeter near Shrimptons Creek, to assess whether rock levels may preclude the need for cut-off walls for basement design and construction;</li> <li>Bores at the proposed bridge abutment, to assess foundation design and construction conditions.</li> <li>Bores at selected accessible locations through the site, likely in roadways and preferably in or near the proposed basement footprints, to provide greater confidence in the consistency of ground conditions across the site. A low test/borehole density is suggested due to current access issues, and further testing would be recommended to provide greater confidence for detailed design. If practical, greater density would be focussed in areas of earlier (“Stage 1”) development.</li> </ol> </li> <li>Installation of standpipes and dataloggers – at selected bores to allow for monitoring of groundwater levels. This will assist with responses to expected DPIE–Water requirements with regard to tanking and dewatering. It is noted that as groundwater levels do fluctuate over time, a longer period of monitoring with dataloggers is necessary.</li> <li>Rising head tests – at each standpipe location, for preliminary assessment of groundwater inflow.</li> </ol> </li> </ul>	<p>Attached to the RTS Report are detailed investigations, providing additional information on site testing and conditions to the desktop study that was submitted with the Stage 1 EIS. This additional information (<b>Appendix P</b>) includes the data from four (4) boreholes near Shrimptons Creek, an assessment of the proposed bridge, and additional borehole testing, standpipes and dataloggers across the site.</p>

Extract	Response
<p>d. Laboratory testing – including petrographic testing of sandstone (to assess durability for use in rockfill), soil properties near Shrimptons Creek (to inform future scour assessment), soil and groundwater aggressivity (for structural design), groundwater chemistry (for preliminary assessment for disposal).</p>	
<ul style="list-style-type: none"> <li>Remediation activities should be undertaken where hydrocarbons above the limit were detected. Additional monitoring bores should be installed for the specific purpose of determining whether the hydrocarbon contamination has leached into the aquifer.</li> </ul>	<p>Remediation works will be completed on site in accordance with the Remediation Action Plan submitted at Appendix W of the EIS, and in accordance with any updated Plan as informed by additional testing to occur on site. This is addressed in the responses above. Following the completion of remediation works, the suitability of the site will be confirmed by the Site Auditor.</p>
<ul style="list-style-type: none"> <li>If the investigations demonstrate that the take of groundwater is likely to exceed 3 ML then the appropriate licences and approvals should be sought through NRAR.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>Following the groundwater investigations the likely impacts to surrounding groundwater users including the environment should be reported to NRAR.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>The design and construction of each building must prevent any take or inflow of groundwater after the completion of construction by making any below-ground levels fully watertight for the anticipated life of each building.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>Sufficient permanent drainage shall be provided beneath and around the outside of the watertight structure to ensure that natural groundwater flow is not impeded and:                         <ol style="list-style-type: none"> <li>any groundwater mounding at the edge of the structure shall be at a level not greater than 10 % above the level to which the water table might naturally rise in the location immediately prior to the construction of the structure; and</li> <li>any elevated water table is more than 1.0 m below the natural ground surface existent at the location immediately prior to the construction of the structure; and</li> <li>where the habitable, accessible or occupiable part of the structure (not being footings or foundations) is founded in bedrock or impermeable natural soil then the requirement to maintain groundwater flows beneath the structure is not applicable.</li> </ol> </li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>The methods and the materials used for construction shall be designed to account for the likely range of salinity and pollutants which may be dissolved in groundwater beneath the site.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>

Extract	Response
<ul style="list-style-type: none"> <li>• Groundwater quality testing of samples taken from outside the footprint of the proposed construction, with the intent of ensuring that as far as possible the natural and contaminant hydrochemistry of the potential dewatered groundwater is understood, shall be conducted on a suitable number of samples and tested at a certified laboratory.                             <ul style="list-style-type: none"> <li>a. Details of the sampling locations and the protocol used, together with the test results accompanied by laboratory test certificates.</li> <li>b. An assessment of results must be done by suitably qualified persons with the intent of identifying the presence of any contaminants and comparison of the data against accepted water quality objectives or criteria for the intended dewatering purpose.</li> </ul> </li> <li>• c. In the event of adverse quality findings, the proponent must develop a plan to mitigate the impacts of the hydrochemistry on the dewatered groundwater.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>• The method of disposal of pumped water shall be nominated (i.e. reinjection, drainage to the stormwater system or discharge to sewer) and a copy of the written permission from the relevant controlling authority shall be provided in a report to be provided to NRAR with the application for the authorisation. The disposal of any contaminated pumped groundwater (sometimes called “tailwater”) must comply with the provisions of the Protection of the Environment Operations Act 1997 and any requirements of the relevant controlling authority.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>• Contaminated groundwater—i.e. constituent concentrations above appropriate National Environment Protection (Assessment of Site Contamination) Measure (NEPM 2013) thresholds—shall not be reinjected into any geological formation. The reinjection system design, if proposed, and treatment methods to remove contaminants shall be nominated and included in a report to be provided to NRAR with the application for the authorisation. The quality of any pumped water that is to be reinjected must be demonstrated to be compatible with, or improve, the intrinsic or ambient groundwater in the vicinity of the reinjection site.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>
<ul style="list-style-type: none"> <li>• Daily measurements of water levels from monitoring bores outside basement support walls, weekly measurements of groundwater and discharge water quality, and weekly measurements of pumped volumes shall be recorded by the proponent throughout the construction phase of the development and provided to NRAR in raw data form and in a completion report prior to building certification.</li> </ul>	<p>Noted, this can inform a condition of consent.</p>

## 2.0 Public and Organisation Submissions

Each submission from a member of the general public, including local residents, local or special interest groups, and other interested persons has been summarised. Because a large number of submissions raise similar issues, rather than addressing each submission individually the issues raised in the submissions have been summarised and where possible bundled into Issue Categories. A description of the Issue Categories, and a response to each, has been provided in the table below. The analysis has been completed to determine potentially recurring themes/concerns and is not intended to discount issues raised less frequently or in a fewer number of submissions.

Issue Category	Number of Times Raised <sup>1</sup>	Response
Removal of Endangered Ecological Community	13	The Stage 1 works have been amended in-line with the concurrent changes to the Masterplan. These changes have significantly reduced the overall impacts of the proposal in terms of the number of trees requiring removal, as well as the trees identified as forming part of the Endangered Ecological Community and associated impacts on the biodiversity of the local area. The amended scheme represents a significantly improved outcome for the site that requires the removal of only three (3) EEC trees, with none of these trees located within the footprint of the proposed Stage 1 works. This issue is further addressed in <b>Section 4.1</b> of the RTS report.
Traffic and parking	10	<p>The impact of Stage 1 with regards to traffic and parking was assessed in the Traffic Impact Assessment submitted under Appendix L of the EIS. The report confirmed that traffic generation associated with the operation of buildings A1 and C1 would fit in comfortably within the assumed peak traffic thresholds generated in the redevelopment of the Estate, and thus these buildings can be comfortably accommodated within the proposed road network. Parking on the site has been provided in accordance with the minimum rates under the relevant SEPPs for social and seniors housing, and the maximum rates under Ryde's DCP.</p> <p>Whilst the capacity of Buildings A1 and C1 and the parking provided is amended in this response, the road network has been amended under the Masterplan to remove the deceleration lane from Epping Road and in doing so retain the EEC vegetation as discussed above. Ason Group have, therefore, provided an updated assessment of the revised road network (<b>Appendix E</b>) which further confirms that the proposed development can be accommodated within the existing and proposed road network and that these buildings do not require intersection upgrades.</p>
Overdevelopment of the area	7	The proposed Stage 1 buildings are entirely consistent with the maximum building heights and floor space ratio controls prescribed under the Ryde LEP, and as such the proposed buildings are consistent with the intended scale of development and do not represent an overdevelopment of the site. The proposed buildings also remain consistent with the NSW Government strategic planning directions through providing more housing and services in proximity of train stations and major road intersections to deliver integrated land use and transport outcomes, including the provision of much needed social housing.

<sup>1</sup> ie: it includes a tally of the frequency of an issue raised – a single submission could discuss a number of the identified key issues

Issue Category	Number of Times Raised <sup>1</sup>	Response
Excessive height	5	<p>Buildings A1 and C1 have been designed to be consistent with the maximum building heights prescribed under the Ryde LEP, which ranges between 45-75m within Block A1 and C1. Specifically, Block A1 is subject to a maximum building height of 75 metres and Block C1 is subject to maximum building heights of 45 and 65 metres respectively. The height limits were established as part of the Macquarie University Station (Herring Road) Priority Precinct process and the proposal is therefore consistent with the desired and emerging built form character of the centre.</p> <p>The proposed buildings are also compliant with the building envelopes nominated under the Masterplan and will not result in adverse environmental impacts in terms of overshadowing, view loss, or privacy to surrounding development as demonstrated in the Stage 1 EIS and the RTS Report and associated technical studies.</p> <p>Updated renders of the proposed buildings in their context have been prepared by Virtual Ideas and accompany the RTS Report at <b>Appendix I</b>. The visualisations demonstrate that available views of the proposed buildings on the site will remain primarily of Building A1, with Building C1 obscured from the surrounding area. Building A1 is of a comparable scale to the adjoining development of 137-143 Herring Road and reduced in height from existing buildings on the northern side of Herring Road. The proposed buildings also achieve a high-quality design outcome and will contribute to the developing Macquarie Park skyline.</p>
Potential for increase in crime and anti-social behaviour	4	<p>A Crime Prevention Through Environmental Design (CPTED) Report was prepared by Ethos Urban addressing the design of Buildings A1 and C1 and the public domain. The report assigns a Crime Risk Assessment Rating of 'Moderate' to the development, noting that as the proposed development represents the first stage of a precinct-wide re-development of Ivanhoe Estate, the Crime Risk Rating may change when considering the future environment of the Ivanhoe Estate. The assessment identified a number of recommendations that are to be implemented in the detailed design, construction and operation of Stage 1 including with regards to surveillance, lighting and technical supervision, territorial reinforcement, environmental maintenance, activity and space management, access control and design, and the definition and designation of space.</p> <p>In addition, social strategies are to be implemented with regard to the social housing and mixed tenure outcome proposed for the site. These social strategies are outlined in the amended Social Impact Assessment report developed for the Masterplan, recognising that in large developments "social interventions" (i.e.: community policing, preventative initiatives, social engagement programs etc) are as important or sometimes more important than physical design interventions in minimising crime.</p> <p>These commitments are identified in the mitigation measures for the development contained in <b>Section 5</b> of the RTS Report.</p>
Inadequate setbacks and separation	4	<p>The proposed setbacks for Building A1 and C1 have been designed in accordance with the Ivanhoe Estate Design Guidelines and the Apartment Design Guide. The proposed buildings are appropriately sited with regard to existing and future surrounding development, noting that minor changes to the concurrent Masterplan SSD DA has resulted in greater separation distances between Buildings A1 and C1 and surrounding buildings. Visual privacy, light and air will be maintained between buildings, and as such greater separation distances are not required.</p>

Issue Category	Number of Times Raised <sup>1</sup>	Response
Building A1 floorplate too large	4	<p>The proposed buildings will not adversely impact on private views from residents in surrounding residential apartment buildings, and will not result in the loss of any valuable views or landscape features. The buildings are also consistent with the NSW Government's desired future character of the area. It should be noted that the built form and massing for both buildings A1 and C1 are significantly less than the building envelope massing considered under the Masterplan.</p> <p>Updated visualisations have been prepared by Virtual Ideas (<b>Appendix I</b>), providing updated visual assessments of the buildings within the building envelopes for Building A1 and C1, confirming that Stage 1 will not result in adverse visual impacts. This issue is further addressed in <b>Section 4.4</b> of the RTS report.</p>
Insufficient infrastructure	3	<p>A number of reports have been prepared to assess the capacity of infrastructure to cater to future development on the site, which confirm that the site can be appropriately serviced. These include:</p> <ul style="list-style-type: none"> <li>• A Utilities Services Report prepared by ADW Johnson and provided at <b>Appendix G</b>, which identifies the proposed strategy for the augmentation and provision of utilities and services and confirms that this does not represent a constraint to the delivery of Stage 1.</li> <li>• Traffic Impact Assessment submitted at Appendix L of the Stage 1 EIS and an addendum statement provided at <b>Appendix E</b> of the RTS Report that confirms the road network can accommodate the proposed development.</li> <li>• Stormwater and Drainage Assessment submitted as Appendix L of the Stage 1 EIS confirming that the proposed development will achieve the relevant runoff, water quality and water reuse targets.</li> </ul> <p>In addition to the above, a school, two childcare facilities, a community centre, public swimming school and active open space will be provided across the Ivanhoe Estate site, as confirmed in the revised Masterplan. This infrastructure will benefit the residents of the Ivanhoe community and the surrounding area, adding to the wide range of community infrastructure available.</p>
Exceedance of planning controls inappropriate	3	<p>The proposed Stage 1 buildings comply with the relevant Ryde LEP planning controls, and do not exceed the maximum height of buildings and floor space ratio parameters.</p>
Insufficient open space in the area	2	<p>Submissions raised concerns with regard to the provision of public and private open space. It is recognised that no substantial public open space areas will be delivered as part of Stage 1, with the Village Green and upgrades to Shrimptons Creek to be delivered as part of subsequent future stages. This public open space across the site has been specifically designed to deliver a high level of amenity and be consistent with ADG Design Criteria 3D-1 Communal and Public Open Space, which recommends that 25% of the site be provided as communal open space. For Building C1, 864m<sup>2</sup> of communal open space has been provided at ground level, which when considered in conjunction with the public open space being delivered adjoining C1, such as the neighbourhood garden, will result in 28% of the site being provided as open space that is readily accessible to residents.</p> <p>Private open space is provided for each apartment constructed as part of Buildings A1 and C1, providing all residents with access to open space. Communal open space is also provided for the residents of Building C1 in the form of a ground level garden, benefitting social cohesion for this mixed tenure building.</p>
Impact on Shrimptons Creek	2	<p>The proposed Stage 1 buildings are located some distance from Shrimptons Creek, which forms part of the southern boundary of the site. Building setbacks to the creek will be determined under the Masterplan.</p>

Issue Category	Number of Times Raised <sup>1</sup>	Response
Exhibition was poorly advertised / inadequate	2	Public exhibition and consultation for Stage 1 has been undertaken in full compliance with the relevant statutory requirements.
Design not sympathetic to local character	2	<p>The design of Stage 1 is considered to be sympathetic to local character. A recent court case (<i>Catholic Healthcare Limited v Randwick City Council [2019] NSWLEC 99</i>) highlighted that 'compatibility is different from sameness and it is generally accepted that buildings can exist in harmony without having the same density and scale of appearance'. When considering compatibility, the design of the development cannot be expected to be a replication of the surrounding development. In addition, the case recognises that large, strategic sites best demonstrate compatibility through a master planning process or detailed site analysis. In these instances, compatibility can be achieved through design measures such as stepped building forms and concentrating building mass in areas of the site which have the least impact on its surrounds.</p> <p>The site has undergone an extensive masterplanning process based on a detailed Site Analysis (refer to Appendix B of the submitted EIS). This process has informed the layout and massing of the Stage 1 buildings in accordance with the Masterplan, which carefully balances a number of competing planning objectives as well as the functional and design needs of these buildings. It is also emphasised that the proposed buildings comply with the development standards under the Ryde LEP and as such are consistent with the desired future character for this site.</p>
Stage 1 inappropriate as concept plan not yet approved	2	Stage 1 and the Masterplan have been designed to be consistent and are concurrent with one another. Whilst these applications are to be considered concurrently, Stage 1 cannot be determined until consent is granted to the Masterplan ensuring that Stage 1 does not pre-empt confirmation of the planning and design framework established under the Masterplan.
Loss of privacy to properties on Herring Road	1	The nearest neighbouring building located to the west of Building A1 has adopted a progressive side setback that ranges from 3m to 12m from the eastern and southern boundaries. This setback varies from the Apartment Design Guide and was supported on the grounds of installing privacy screens adjacent to the interface of the site. Other surrounding buildings, such as those north of Herring Road, achieve the building separation requirements of the Apartment Design Guide ensuring that appropriate privacy is maintained between neighbouring buildings.
Construction may damage adjacent buildings	1	The proposed works will be undertaken in accordance with a detailed Construction and Environmental Management Plan (CEMP) to be prepared prior to the commencement of works, designed to minimise construction on surrounding receivers, including preventing damage to design buildings. This will include relevant consideration of the potential for dilapidation as result of site excavation and construction works.
Works are occurring outside of the site	1	All works are proposed to occur within the site, and as such additional landowners consent is not required. External infrastructure upgrades may be completed in coordination with the relevant agencies and service providers.