Our Ref: DOC21/291828
Your Ref: SSD 10398

Planning and Assessment Group
Department of Planning, Industry and Environment
Locked Bag 5022
Parramatta NSW 2124

Attention: Mr James McDonough

Dear Mr McDonough

RE: Hanson Tweed Sand Plant Expansion, Cudgen Tweed LGA, (SSD 10398)

Thank you for your e-mail dated 14 April 2021 about the Hanson Tweed Sand Plant Expansion at Cudgen seeking comments from the Biodiversity and Conservation Division (BCD) of the Biodiversity, Conservation and Science Directorate in the Environment, Energy and Science Group of the Department of Planning, Industry and Environment. I appreciate the opportunity to provide input.

The BCD was formerly part of the Office of Environment and Heritage, but now forms part of a Group that has responsibilities relating to biodiversity (including threatened species and ecological communities, or their habitats), National Parks and Wildlife Service estate, climate change, sustainability, flooding, coastal and estuary matters.

The BCD issued project-specific Environmental Assessment Requirements dated 9 December 2019 for Aboriginal cultural heritage (ACH), biodiversity, acid sulfate soils (ASS) and water and soil matters. As we no longer have carriage of ACH matters, we have no comment on this aspect of the proposal and you should obtain advice on ACH from Heritage NSW in the Department of Premier and Cabinet.

We have reviewed the documents provided and are satisfied that the ASS and flood risk assessments are adequate. We therefore have no issues to raise in relation to ASS or flood risk management. However, several issues are apparent with the assessment for biodiversity as discussed in detail in **Attachment 1** to this letter.

In particular, the proponent has not addressed our biodiversity project specific requirements by assessing the impacts on areas that were required to be rehabilitated as part of the current approval. Also, the proponent does not appear to have addressed the State Environmental Planning Policy (Coastal Management) 2018 and there are several anomalies in the documents. Most importantly, the EIS fails to identify a suitable final land use or provide for appropriate rehabilitation of the site.

The SEARs required the proponent to provide a proposed rehabilitation strategy for the site having regard to the key principles in the Strategic Framework for Mine Closure. The Strategic Framework aims to encourage the development of comprehensive closure plans that return all mine sites to viable, and wherever practicable, self-sustaining ecosystems, and that these plans are adequately financed, implemented and monitored.

The BCD does not consider the current rehabilitation arrangements as described in Appendix 2 Concept Rehabilitation and Landscape Management Plan adequately meet these Strategic Framework objectives.

In summary, the BCD recommends that:

1. Before the proposed development is considered any further the proponent be required to identify suitable end use/s and provide a rehabilitation plan that will demonstrate how the extraction areas will be returned to viable, and wherever practicable, self-sustaining ecosystems, and that these plans are adequately financed, implemented and monitored in accordance with the *Strategic Framework for Mine Closure* and other relevant guidance documents, as required by the Secretary's Environmental Assessment Requirements for this proposal.

2. The BDAR be amended as follows:

    a. Show the correct Approved Extraction Area and existing rehabilitation areas in Figures 8-15.

    b. The species polygon for Southern Myotis is to include areas that were required to be rehabilitated as part of the current consent but that will be impacted as a result of the proposed development and the offsets calculated according to the BAM-C.

    c. Provide a comprehensive assessment of prescribed and indirect impacts arising from the proposal such as lighting, site disturbance, increased relocated traffic and loss of connectivity and impediments to movement for threatened species including the Koala.

3. The areas that were required to be rehabilitated in accordance with the current consent and the revised Rehabilitation and Landscape Management Plan (RLMP) prepared by JWA (2019), and that will be impacted by this proposal, must be quantified. Offsets for impacts that cannot be avoided must be calculated using the Biodiversity Assessment Method (BAM) Calculator or BAM-C according to the most appropriate PCT present.

4. The EIS and BDAR need to include greater consideration to the cumulative impacts of this and adjacent extractive operations, including impacts on groundwater, particularly in consideration of predicted sea level rise.

5. If the consent authority decides to approve this development, the riparian rehabilitation should provide as a minimum 20m – 50m wide fully vegetated riparian areas. It should also include a minimum 10m wide wetland revegetated area with appropriate slope to enable effective restoration to occur and for areas to be maintained in the future.

6. The EIS be expanded to provide a full response, detailing specifically how the EIS both addresses and satisfies the requirements of clauses 13 and 14 of the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP).

7. The following document changes are required:

    a. Correct the references in Table 26 of the EIS to Sections 6.1.5.1 and 6.1.10 as these do not exist.

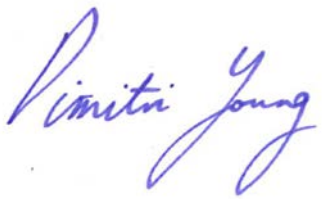
    b. Correct the reference in Table 32 of the EIS to Cumulative Impacts being discussed in Section 5.1.13 which does not exist.

    c. Address the anomalies in areas identified as riparian restoration and open space/ public use areas in the EIS versus the CRLMP.

The BCD requests an opportunity to review any amended documents and to be consulted on any proposed conditions of consent and relevant post approval documents such as Restoration and Rehabilitation Plans.

If you have any questions about this advice, please do not hesitate to contact Ms Rachel Lonie, Senior Conservation Planning Officer, at rachel.lonie@environment.nsw.gov.au or 6650 7130.

Yours sincerely



27 May 2021

DIMITRI YOUNG
Senior Team Leader Planning, North East Branch
Biodiversity and Conservation

Enclosure: Attachment 1: Detailed BCD Comments – Hanson Tweed Sand Plant Expansion at Cudgen (SSD 10398)

Attachment 1: Detailed BCD Comments – Hanson Tweed Sand Plant Expansion at Cudgen (SSD 10398)

The Biodiversity and Conservation Division (BCD) of the Department of Planning, Industry and Environment has reviewed the documents supplied including the following:

- Environmental Impact Statement (EIS) Hanson Tweed Sand Plant Expansion Phase 5 to Phase 11 prepared by Zone Planning Group Pty Ltd March 2021
- Biodiversity Development Assessment Report (BDAR) prepared by JWA Ecological Consultants March 2021
- Concept Rehabilitation & Landscape Management Plan (CRLMP) prepared by JWA Ecological Consultants March 2021 (Appendix H2)

The proposal involves expanding the current sand extraction plant by approximately 190 ha leading to a total footprint of 236 ha for the existing and future sand extraction areas. Expansion works will also include the construction of an internal haul road connected to the Pacific Motorway and a new sand washing plant and associated buildings. The Environmental Impact Statement (EIS) assesses Phase 5 to Phase 11 of the Hanson Tweed Sand Plant Expansion, with Phase 11 being the ultimate phase of the project.

1. Biodiversity

<u>Rehabilitation areas</u>

The BDAR incorrectly identifies an “Approved Extraction Area” in Figures 8-15 (see Figure 1 below). This includes areas that were required to be rehabilitated in accordance with previous consent and, in particular, the revised Rehabilitation and Landscape Management Plan (RLMP) prepared by JWA (2019).

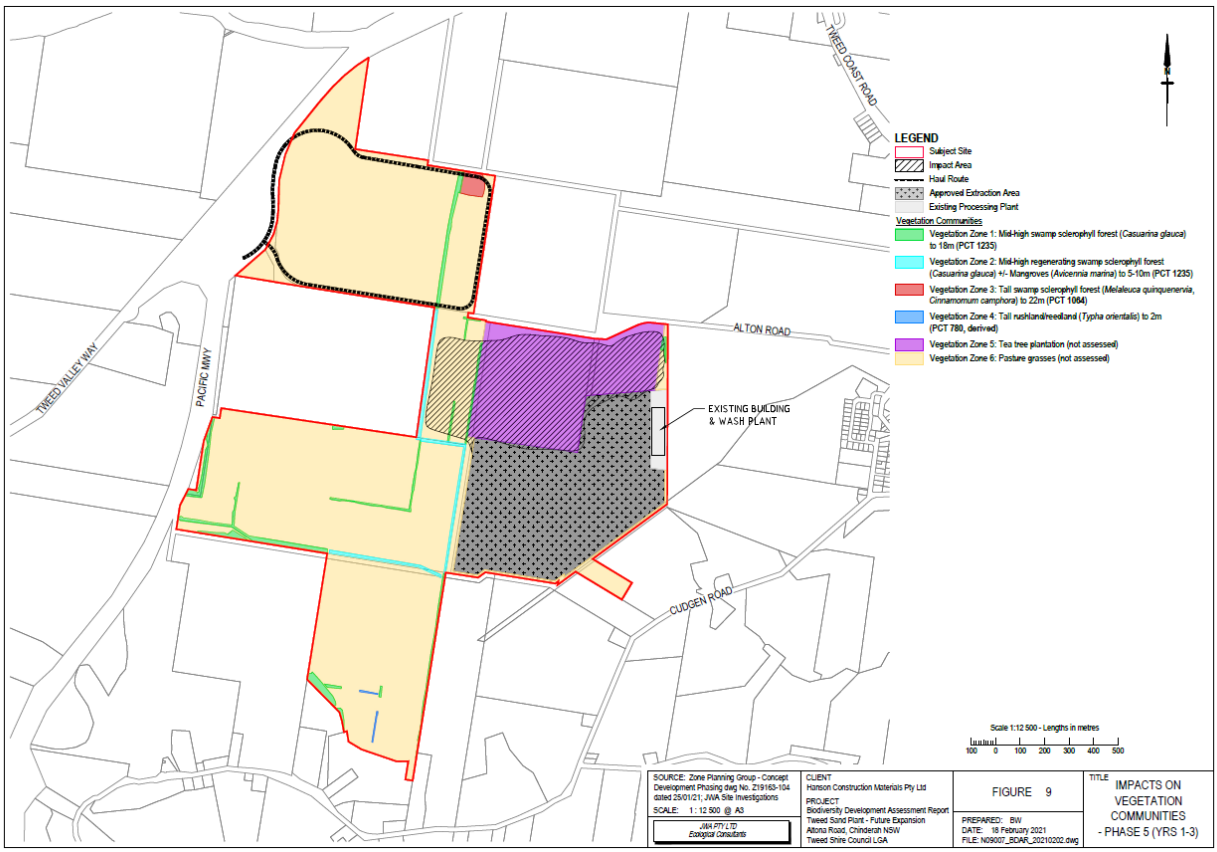


Figure 1. Figure 9 in the BDAR describes an approved extraction area that includes areas required to be restored and rehabilitated under the current approval.

Our BCD project specific Environmental Assessment Requirements (EARs) included that impacts on existing rehabilitation areas should be offset if they could not be avoided. Wetland, riparian and open space rehabilitation areas were required to be rehabilitated in accordance with the RLMP as shown in Figure 2 below.

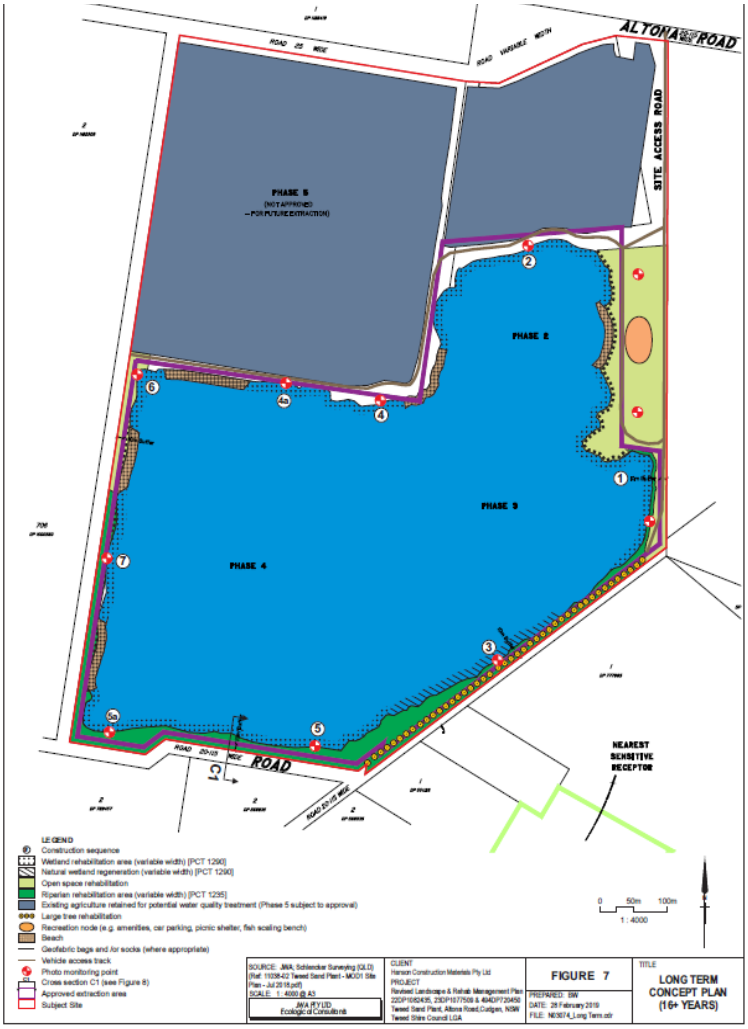


Figure 2. Figure in the Revised Rehabilitation and Landscape Management Plan (RLMP) prepared by JWA (2019) describing wetland and riparian rehabilitation areas in the final phase of the current sand mining operation.

Although rehabilitation of some of these areas (i.e. Phase 2 areas numbered 2, 4 and 4a) has not occurred on the premise that an expansion of the development was proposed, the rehabilitation of all these areas was a requirement of the consent and the impacts on these areas needs to be assessed and, where appropriate, offset.

If impacts on these areas cannot be avoided, offsets for the loss of these areas should be calculated using the Biodiversity Assessment Method Calculator (BAM-C) according to the most appropriate Plant Community Type (PCT) present, noting some areas were identified as being aligned to PCT 1290. The EIS and BDAR should document the offset requirements and demonstrate how the offsets will be delivered.

BCD Recommendations

1. The BDAR must be amended to show the correct Approved Extraction Area and existing rehabilitation areas in Figures 8-15.

2. The areas that were required to be rehabilitated in accordance with the current consent and the revised Rehabilitation and Landscape Management Plan (RLMP) prepared by JWA (2019), and that will be impacted by this proposal, must be quantified. Offsets for impacts that

cannot be avoided must be calculated using the Biodiversity Assessment Method Calculator according to the most appropriate PCT present.

Prescribed and indirect impacts

The BDAR does not adequately assess the indirect and prescribed biodiversity impacts. Despite identifying potential indirect impacts in section 5.3 such as increased light, noise and activity that may cause reclusive species to move away from habitat edges, the BDAR does not give this any further consideration.

The BDAR also does not consider there will be prescribed impacts such as the impact of:

- development on the connectivity of different areas of habitat of threatened species that facilitates the movement of those species across their range,
- development on movement of threatened species that maintains their lifecycle, and
- vehicle strikes on threatened species of animals or on animals that are part of a threatened ecological community.

For example, the BDAR finds the proposed development will not result in any additional impacts on connectivity as the area is already affected by past clearing and cattle grazing activities. It also finds it unlikely that the development will contribute to an increase in the risk of vehicle strikes but does not substantiate this claim.

The development will result in a significant change to landform including clearing of linear strips of vegetation along the canals. The final development will consist of large water bodies with 10m of fringing vegetation. Both the removal of linear strips of vegetation, changing land use, and, over time, the creation of large bodies of water, may create impediments for the movement of species.

The EIS states that additional onsite staff may be required as production increases to the maximum of 950,000 tonnes per annum. Also, the associated increase in haulage would require additional truck drivers. Connection to the Tweed Valley Way / M1 interchange is proposed in place of the current access with associated new haul roads and road widening/upgrades. As a result of the 24 hours, seven days per week operations, lighting will be required. All of these aspects of the proposal will result in indirect and prescribed impacts that have not been adequately assessed in the BDAR.

There are Bionet Koala (*Phascolarctos cinereus*) records in the locality including three in the adjoining property to the south dated 2004, 2006 and 2012 and to the north dated 2012 and 2018 (see Figure 3 below). Although the location of the northern 2018 record is shown on the site this may not be accurate. The northern 2012 record is identified as being a vehicle collision on the Pacific Highway southbound at the Cudgen exit, Cudgen. Koalas are known to occur in the area and may move across the site, as well as possibly finding habitat on the development site such as the area of vegetation in the north. The BDAR has not considered these records or the likelihood of koalas being present and moving through parts of the site.

BCD Recommendation

3. The BDAR requires greater consideration of indirect and prescribed impacts such as lighting, site disturbance, increased and relocated traffic and loss of connectivity and impediments to movement for threatened species including the Koala.

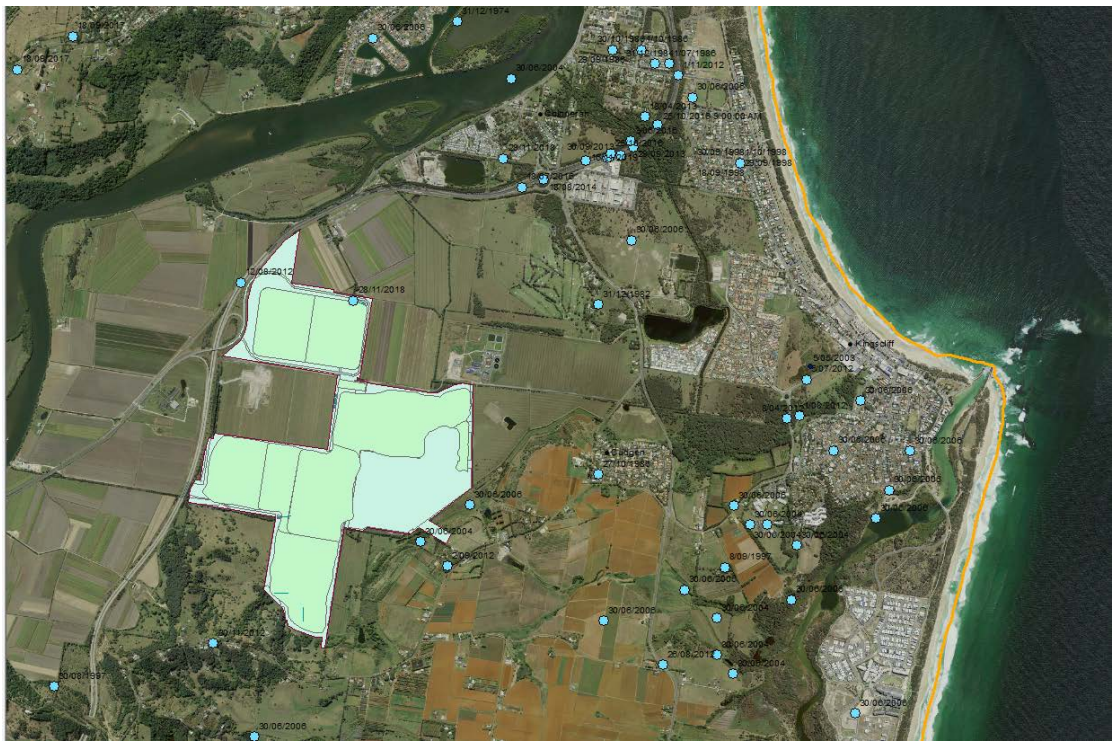


Figure 3. BioNet koala records (blue dots with the late date entry) in relation to the development site.

Other issues

The BDAR suggests there may also be impacts arising from groundwater lowering on groundwater dependent ecosystems (GDEs) through lowering of the water table, such as a drawdown of up to 0.5m which is predicted to occur within a small portion of the Low Potential GDE, as mapped on the southern boundary of the expansion footprint west of Lot 1 DP1250570. It finds that because this GDE is already highly modified, it is unlikely to be significantly impacted by the groundwater draw down. Again, this finding is not substantiated. We note however that the groundwater assessment states that detailed groundwater balance modelling would be required to estimate groundwater exchange based on dynamic (rather than assumed static) groundwater levels.

The EIS does not appear to give adequate consideration to the cumulative impacts arising from this and other adjacent extractive land uses. For example, under Section 6.13 there are two paragraphs in total. The SEARs required an assessment of likely cumulative impacts of the proposed quarry, operating in combination with other established quarries in the locality, paying particular attention to likely impacts on water resources, land capability and potential implications for strategic land use planning in the region. Table 32 references Cumulative Impacts being discussed in Section 5.1.13 of the EIS but this section is not provided.

Despite stating the groundwater modelling predicts that the groundwater level throughout the expansion area and throughout the model domain will increase by a minimum of 0.1 m up to a maximum of 1.0 m, and that the predicted sea-level rise will exacerbate tidal inundation and impede the site's drainage leading to increased waterlogging of soils, there does not appear to be an assessment of the impact this will have in the longer term on the lake systems and the proposed rehabilitation areas. If the rehabilitation areas are, for example, only 10m wide we question when and how often these could be inundated.

BCD Recommendation

4. The EIS and BDAR must include greater consideration of the cumulative impacts of this and adjacent extractive operations, including impacts on groundwater, particularly in consideration of predicted sea level rise.

Species Polygon

The BDAR identifies a species polygon for Southern Myotis (*Myotis macropus*) but this does not include areas that were to be rehabilitated as part of the current approval. Losses of these areas that cannot be avoided should also be identified as part of a species polygon for Southern Myotis and the offsets calculated according to the BAM-C.

BCD Recommendation

5. The species polygon for Southern Myotis must be amended to include areas that were required to be rehabilitated as part of the current consent but that will be impacted as a result of the proposed development and the offsets calculated according to the BAM-C.

2. Final Land use and Rehabilitation

End Use

The EIS states under section 3.9 End Use that Hanson would retain ownership of the site following completion of sand extraction and any proposed subsequent use of the site would be decided via the appropriate consultative, application and regulatory processes in place at that time. The BCD does not consider this sufficiently provides for the rehabilitation of the site following the sand extraction.

The *Mine Rehabilitation - Leading Practice Sustainable Development Program for the Mining Industry* (September 2016) (https://www.industry.gov.au/sites/default/files/2019-04/lpsdp-mine-rehabilitation-handbook-english.pdf) states, "*For mining companies in Australia, rehabilitation should be an integral component of their sustainable development strategies. Rehabilitation is invariably a key performance indicator against which companies' environmental performance is judged. Poorly rehabilitated mines provide significant legacy problems for all elements of society—governments, communities and companies*."

The proposed final phase of the project would be large open water bodies with limited rehabilitation to be retained in private ownership (Hanson). Such areas would require ongoing management and monitoring to protect water quality and other environmental values. It is not clear how such management and monitoring would be funded by the company once it has completed its extraction operations at the site. The current lack of an end use and an inadequate rehabilitation plan appears likely to create legacy problems for future generations.

BCD Recommendation

6. Before the proposed development is considered any further, the proponent should be required to identify suitable end use/s and provide a rehabilitation plan that will demonstrate how the extraction areas will be returned to viable, and wherever practicable, self-sustaining ecosystems, and that these plans are adequately financed, implemented and monitored in accordance with the *Strategic Framework for Mine Closure* and other relevant guidance documents, as required by the Secretary's Environmental Assessment Requirements for this proposal.

Rehabilitation and recreation use

The current proposal appears to have limited public recreational or biodiversity values in its final form. We note the proposed rehabilitation plan is not the same as was shown in the Concept End Use Plan provided as part of the request for EARs, which had larger areas for recreation and better connections between rehabilitation areas (see Figure 4 below).

The EIS states the site will be subject to progressive rehabilitation resulting in a naturalised final landform with a total rehabilitation area of approximately 20 ha or almost 10%. The total site area is 236 ha therefore the rehabilitation represents around 8.5% of the total site area. This is an unacceptable level of site rehabilitation. This figure presumably assumes no access tracks or other

infrastructure in the 'rehabilitation' area and appears to include areas already required to be rehabilitated as part of the current operations.

Figure 4. End Use Concept presented at the request for SEARs stage.

It also appears the proposed development will remove the Open Space Recreational area that was part of the current approval in the eastern part of the site as shown in the RLMP extract below (see Figure 5 below).

As described in the RLMP Legend, rehabilitation in this eastern area included a beach, recreational node (e.g. amenities, car parking, picnic shelter, fish scaling bench) and open space rehabilitation. According to the RLMP this area was to be planted in accordance with an approved Landscape Plan with locally occurring native species in order to provide habitat and foraging resources for native fauna as well as improving the visual amenity of the subject site.

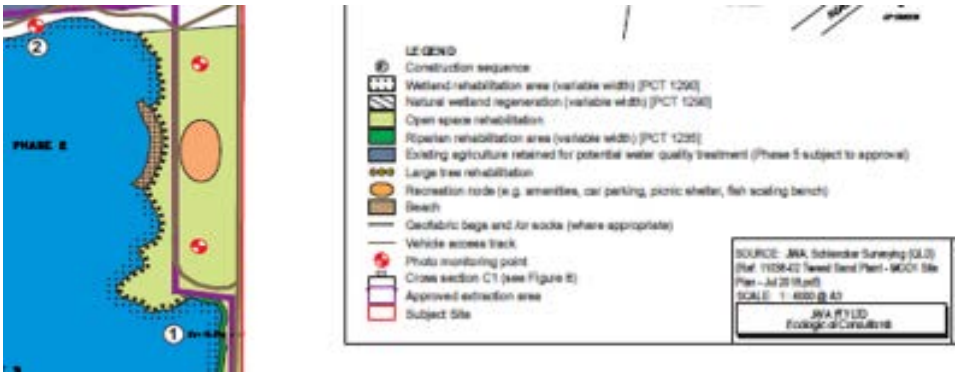


Figure 5. Recreational area in the current approval as described in the RLMP that is to be removed.

The proposed minimum 10m width of vegetation to fringe the future lakes does not appear to include any provision for vehicular access, bike/walking trails and open space as well as sufficient area to plant a riparian zone, particularly given advice in the EIS about the potential for future inundation due to sea level rise. Although there may be opportunities to create open space areas, riparian rehabilitation areas should be entirely vegetated and not be identified for open space. Such open space recreational areas should be additional to that required for rehabilitation.

The BAM 2020 prescribes riparian buffer distances of 50m for estuarine areas, 50m for important wetland and 20m for other wetlands. While none of these directly apply in this instance we recommend as a minimum that the final landform include 20m – 50m wide fully vegetated riparian areas. It should also include a minimum 10m wide wetland revegetated area with appropriate slope to enable effective restoration to occur and for areas to be maintained in the future.

We note there is a difference in the information provided on riparian restoration and open space/ public use areas in the EIS and CRLMP. The EIS Appendix A15 – Conceptual Final Landform Plan describes the areas as 'open space & riparian rehabilitation areas' and the CRLMP describes them as 'riparian rehabilitation'. This anomaly should be rectified.

BCD Recommendation

7. If the consent authority decides to approve this development, the riparian rehabilitation should provide as a minimum, 20m – 50m wide fully vegetated riparian areas. It should also include a minimum 10m wide wetland revegetated area with appropriate slope to enable effective restoration to occur and for areas to be maintained in the future.

3. Flooding

From Council flood studies, the flood levels for the site are estimated at the following:-

- 20% AEP 1.5mAHD;
- 5% AEP 2.3m AHD;
- 1% AEP 3.2m AHD;
- Probable Maximum Flood 8.2m AHD.

Details on riverine flooding and stormwater are provided in Appendix D1 - Flood and Stormwater Report, Tweed Sand Plant, Flood and Stormwater Assessment by Burchills Engineering Solutions dated February 2021.

The proposed works involve extraction of sand from the subject site turning farming land into ponds. The works involve construction of bunds around the ponds to control surface drainage. The proposed bunds vary in height between 1.3 and 1.75m AHD. Existing ground level is approximately 0.9 - 1.2m AHD.

The flood assessment undertaken was for the 20%, 5%, 1%, 1% + climate change and 0.2% AEP flood events. For Development Phase 11 (ultimate stage) flood modelling showed flood improvements in the 20% and 5 % AEP floods and no significant change in the 1% AEP event. There were impacts of 20-30mm for the 1% AEP + Climate change and 0.2% AEP events around the NE corner of the site and extending for approximately 300m.

The Tweed Shire Council has also undertaken Tidal Inundation Assessment and Mapping in March 2019. The study updates tidal inundation extent information within the Tweed Estuary and its surrounding townships, considering both present and future tides arising from sea level rise, incorporating storm surge events in line with current best practice modelling and floodplain/coastal management. From the study, the following levels were estimated for Chinderah:

- 2018 - 1% AEP - 1.44m AHD;
- 2018 - 1 Exceedance per year (EY) 1.2m AHD;
- 2120 - 1% AEP -1.89m AHD;
- 2120 - 1 Exceedance per year (EY) 1.67m AHD.

The associated inundation mapping shows the development site as remaining dry in the tidal events even though the ground level is lower than the river tidal level. This is most likely because the bank of the Tweed River is roughly above 2.0m AHD and the drains and the stream entering the Tweed River are flood gated restricting tidal inundation to mainly within bank extents.

The applicant has also provided a Flood Response Action Plan dated February 2021 by Burchills Engineering Solutions. The plan looks at evacuation and emergency response for a flood event. The site and local roads do flood, so an evacuation plan is required. There is high flood free ground to the south-east of the site. This part of the Tweed floodplain does receive flood warning from the Bureau of Meteorology and there is time to safely evacuate.

The applicant has assessed the proposed development for a range of flood events and for emergency response. The main works involve extraction of sand from the site with low level bunding to control surface water. For current flood events, the flood assessment predicted minimal impact on flood behaviour and levels up to the 1% AEP flood event. Minor impact was shown for future 1% AEP flood event with climate change factors and for the 0.2% AEP flood event over a relatively small area. Flood safety and response can be addressed as there is warning time to take appropriate action.

The BCD therefore does not raise any issues for the development in relation to flooding matters.

4. Coastal Management

In relation to requirement of the State Environmental Planning Policy (Coastal Management) 2018 (CM SEPP), the EIS documentation in Table 26 (p79) correctly identifies that the "*The north-western most corner of Lot 51 DP1166990 is mapped in the 'Coastal Environmental Area and 'Coastal Use Area' under this policy*".

Table 26 states "*The proposal has been designed to avoid impacts relating to the items identified in Clause 13 and 14. Development consent can be granted*" and lists the relevant sections and appendices. It should be noted of those sections (6.1.1., 6.1.5.1. and 6.1.10) and appendices, no such section 6.1.5.1 or 6.1.10 exists in the EIS.

Furthermore, when addressing the requirements of Clause 13 and Clause 14 of the CM SEPP, it is not considered adequate to just note that the proposal has been designed to avoid impacts. Rather, each clause and its requirements should be both listed and a full response provided, detailing specifically how the EIS both addresses and satisfies the requirements of each clause.

Given the current limited information, the BCD has been unable to provide a more detailed response on whether the specific CM SEPP Clauses have been satisfied or otherwise in the EIS.

BCD Recommendations

8. The EIS should be expanded to provide a full response, detailing specifically how the EIS both addresses and satisfies the requirements of clauses 13 and 14 of the State Environmental Planning Policy (Coastal Management) 2018 (Coastal Management SEPP).

9. The following document changes are required:

    a. Correct the references in Table 26 of the EIS to Sections 6.1.5.1 and 6.1.10 as these do not exist.

    b. Correct the reference in Table 32 of the EIS to Cumulative Impacts being discussed in Section 5.1.13 which does not exist.

    c. Address the anomalies in areas identified as riparian restoration and open space/ public use areas in the EIS versus the CRLMP.