Port of Gladstone Gatcombe and Golding Cutting Channel Duplication project - Draft EIS Submission Analysis Register											
Sub. No.	**Submitter**	**Submitter Types**	**Comment ID**	**Draft EIS Chapter**	**Draft EIS section**	**Issue / Topic**	**Submitter description of the issue**	**Submitter suggested solution/ mitigation**	**Action required?**	**Direction to proponent**	**Proponent response to submission/direction (to be completed)**
1	Queensland Ambulance Service	Advisory agency	1.01	20 Hazard and risk	Section 20.6.2, pg 15-16	Emergency Response Plan	Emergency Response Plan formulation and testing	Please provide the Queensland Ambulance Service (QAS) with a copy of the Emergency Response Plan. Notification to QAS of Emergency Response Plan (ERP) testing or exercises for possible attendance and participation. Stakeholder contact: Officer-in-Charge, QAS Gladstone. E: QASGladstone.OIC@ambulance.qld.gov.au	Y	Proponent to update commitments list to include a commitment to to provide QAS a copy of the ERP for the project and notifty QAS Gladstone of any ERP testing or exercises for possible attendance.	This commitment has been included in AEIS Section 20.3 and Appendix I.
2	Gladstone Regional Council	Local government	2.01	15 Transport		Impact on road networks	Gladstone Regional Council does not have any objections to the proposed works.	Council would like to see some further consideration given to any potential impacts on Councils road networks (i.e. Guerassimoff and Landing Roads) as the project progresses.	Y	Proponent to note.	This submission comment has been addressed in AEIS Section 15.2 and Appendix I.
2	Gladstone Regional Council	Local government	2.02	9 Nature conservation		Marine plants	The report explains that the 5% loss of seagrass habitat associated with the project is considered significant. How will the Project Offset Framework address the re- establishment of seagrass habitats and other benthic habitats within the Port? The report explains that seagrass, mangroves and saltmarsh communities provide a number of ecosystem services. How will the loss of these ecosystem services be mitigated?		Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix E4.
2	Gladstone Regional Council	Local government	2.03	15 Transport		Impact on road networks	Chapter 15 describes that large numbers of heavy vehicle traffic will transport quarry material during the 36 month bund wall construction period. How does the proponent intend to maintain and repair the Council owned road asset during and following the construction period?		Y	Proponent to address.	This submission comment has been addressed in AEIS Section 15.3 and Appendix I.
	Gladstone Regional Council	Local government	2.04	14 Waste	Section 14.6.4	Waste	Council requests more details in relation to Section 14.6.4 and the expected waste water generated by the dredger activities and the expectations that is will be transported to the Council sewage treatment plan for treatment.		Y	Proponent to address.	This submission comment has been addressed in AEIS Section 2.2 and Appendices F (Section 8.1.4) and I.
3	Department of Agriculture and Fisheries	Advisory agency	3.01	9 Nature conservation	Section 9.3.4, pg 9-11	Fish passage	MSES – no mention of waterway providing for fish passage as an MSES	Include: Waterway providing for fish passage as an MSES.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.6.3 and 9.15.3.
3	Department of Agriculture and Fisheries	Advisory agency	3.02	9 Nature conservation	Section 9.26, Table 9.86, pg 9-318	Marine plants	Summary of project impacts and identification of significant residual adverse impacts. The description states that it is unlikely the project will result in impacts to mangrove and saltmarsh communities, however section 9.4.3.2 states areas of potential impact: project potential indirect impact areas include approximately 94.50ha mapped remnant vegetation analogous with intertidal communities. Including samphire on marine clay pans 33.52 ha, mangrove on marine clay pans 23.51ha + mangrove in estuaries 17.77ha and saltpan vegetation 19.70ha.	Include any potential indirect impacts to marine plants (including mangroves, seagrass, macroalgae, samphires and saltmarsh) into the summary of expected significant residual impact (SRI).	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.2.2, 9.4.4 and 9.4.6.
3	Department of Agriculture and Fisheries	Advisory agency	3.03	9 Nature conservation	Section 9.26.13, Table 9.88, pg 9-337	Seagrass	States that there will be a significant residual impact to 156.41ha of seagrass. Section 9.9.2.1 details the impacts to seagrass 375.06ha. This number has been calculated from the direct loss of seagrass habitat due the reclamation and adjacent area that will no longer be able to support seagrass. Section 9.4.3.2 states potential indirect impacts to 94.50ha of other marine plant communities. Macro algae has been identified to be likely within the channel duplication area, with surveys to be completed before works. These marine plants have been excluded from the MSES table.	All marine plants are MSES (not just seagrass) the table should be updated to include the whole area of direct loss of seagrass and potential impacts to other marine plants as a result of the works.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.2.2 and 9.4.4.
3	Department of Agriculture and Fisheries	Advisory agency	3.04	18 Social impact assessment	Section 18.8.5.3 & Section 18.8.6.3, Table 18.33 & 18.44, pgs 18-49 & 18-50 and App N3, Table 3.1, pg 6.	Engagement-Commercial and recreational fishing industry	Further consultation with commercial and recreational fishers and traditional owners identified, but no commitment to fisheries adjustments.	If this proposal is accepted by the office of the Coordinator-General further consultation with peak fishing bodies will need to be undertaken. The goal is that fisheries adjustments will be negotiated for each impacted fishery (commercial, recreational and indigenous), not only for the loss of fishing area, but for the loss of productivity as a result of losing these vital habitats (commercial), and the loss of access to these fisheries (recreational and indigenous).	Y	Proponent to update commitment list (Appendix Q4) to include a commitment to undertake further consultation with peak fishing bodies regarding potential impacts from the project.	This submission comment has been addressed in AEIS Appendix I.

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4	Department of State Development, Manufacturing, Infrastructure and Planning - Economic and Infrastructure Strategy	Advisory agency	4.01		N/A	N/A	Nil response	Nil response	N	No action required.	
5	Department of State Development, Manufacturing, Infrastructure and Planning - State Development areas	Advisory agency	5.01	1 Introduction	Page 1-73	GSDA Development Scheme	Page 1-73 of the Introduction document states the Gladstone SDA development scheme was first gazetted in 2000.	The date of gazettal was in 2001 (despite the cover title of the document being dated December 2010).	Y	Proponent to note the correct gazettal date.	GPC has noted this submission comment.
5	Department of State Development, Manufacturing, Infrastructure and Planning - State Development areas	Advisory agency	5.02	1 Introduction	Page 1-74	GSDA Development Scheme	Page 1-74 of the Introduction document states that "Under the GSDA development scheme, no person may carry out a development that is for a MCU of premises in the GSDA without the approval of the Coordinator-General, unless an exemption applies. Where the proposed development other than a MCU (e.g. operational work), the Planning Act applies".	The GSDA development scheme also regulates operational work for the clearing of native vegetation in all precincts with the exception of the Curtis Island Environmental Management Precinct, unless an exemption applies.	Y	Proponent to note.	GPC has noted this submission comment.
6	Private submiter	Private submitter	6.01	19 Economics		Enivonmental and economic viability	The current project proposal does not meet sound criteria with respect to environmental and economic sustainability. It potentially puts the required expansion of the Port of Gladstone Shipping Channel capacity in jeopardy. See submission - this is based on three (3) independent reviews that support this statement. 1. Independent Review by the Port of Gladstone (July 2013) and its Supplementary Report (Oct 2013), undertaken on behalf of the Australian Government to comply with a decision made by the World Heritage Commission. 2. The Curtis Coast Coastal and Marine Resources Inventory 2012 3. The CSIRO Review of Port of Gladstone Western Basin Dredging and Disposal Project (April 2018). The project is not economically sustainable and would require government funding to be economically viable	Due to the significant environmental impact, the project should only be approved if there are no lower impact alternative dredging methods. The project cannot be supported commercially and could only continue with a government subsidy of up to $500 million. Before any approval is given, the Australian and Qld government, in conjuction with the Gladstone Port Corporation, should discuss the environmentally sustainable alternatives (outlined in submission) with UNESCO and seek their position on the alternatives proposed above.	Y	Proponent to address. Proponent to update the supplementary dredge material placement report to provide a more robust analysis of potential feasible dredge material disposal options including other land-based alternatives to the proposed reclamation area. Noting that the methodology for disposal has changed since the options analysis. There are a number of options in the Appendix which were not taken forward as the methodology at the time (i.e. pumping material) made these options unfeasible. The proponent should revise these options and provide a discussion on whether these options are now feasible using the most recent proposed methodology (barging and transporting material) or whether they would still be unfeasible due to other factors (e.g. availability of land, unreasonable economic costs or environmental reasons.	The submission comment in relation to the assessment of alternative placement options has been addressed in AEIS Appendix C.
6	Private submiter	Private submitter	6.02	2 Project Description		Dredging disposal options	Proposed alternative dredging recommended for assessment	Proposal 1: Sea disposal at the existing Federal Government approved East Banks Dredge Disposal site. Proposal 2: Use of a Trailer Dredge with the dredge material pumped into the Fisherman's Landing Reclamation area.	N	The Department of Transport and Main Roads have deemed both methodologies to be inconsistent with the *Sustainable Ports Act 2015*	Section 36(2) of the *Sustainable Ports Act 2015* (Ports Act) requires an approving authority for development that is, or relates to, capital dredging to include a condition that material generated from capital dredging must not be deposited, or disposed of, in a restricted area (within the GBRWHA but outside the Commonwealth marine park) unless the material is beneficially reused. During the development of the Project EIS a number of dredging methodologies were considered by GPC (refer Project EIS Section 2.4.4.1). The Project preferred dredging equipment, methodology and dredged material placement area is provided in the Project EIS Section 2.4.4.2.
7	Gladstone Conservation Council Inc	Organisation	7.01	1 Introduction		Safety risks of LNG vessels in port	Potential environmental and safety risks with enabling larger ships carrying LNG to enter the port.	Emergency response plan/s formulation - potential hazards and safety risks (LNG)	N	Proponent to note. See QAS Emergency Response Plan (#1.01 above).	This commitment has been included in AEIS Section 20.3 and Appendix I.
7	Gladstone Conservation Council Inc	Organisation	7.02	1 Introduction		Need for project and cost	Not convinced duplication of channel is required, as port is not fully efficient in use of existing port infrastructure. The $760m cost of the project is not justified, and the benefits to local community is overstated.	The port can accommodate growth projections of vessel movements through more efficient ship scheduling.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 1. 5.

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7	Gladstone Conservation Council Inc	Organisation	7.03	1 Introduction	Table 1.1	Western Basin Dredging and Disposal Project (WBDDP) legacy issues	January 2012- GPC was issued an infringement notice under the EPBC Act, for placement of dredged material outside the approved East Banks dredged material placement area (DMPA). Legacy issues of water quality (algal blooms, putrid, acid sulphides, sediments) impacts on human health (shewanella infections), reduction of habitat for marine fauna and flora (dugongs, turtles, seagrass meadows). The offsets for the WBDDP for seagrass meadows were inadequate for the loss of foraging habitat for dugong.	Continuous monitoring of water quality of carrier water of the dredge spoil (metals, nutrients, algal growth, sulphides) prior to water's release. Review the cumulative loss of seagrass meadows from previous reclamation projects (and associated reduction of foraging habitat for dugong and turtles), and provide sufficient offsets with the proposed impacts for this project (i.e. the Fisherman's landing reclamation area removed a vast extent of seagrass meadows).	Y	Proponent to address.	The submission comment in relation to the water quality monitoring is addressed in AEIS Appendix H (Section 6.8). The submission comment in relation to Project offsets is addressed in AEIS Appendix E4.
8	Department of Transport and Main Roads	Advisory agency	8.01	1 Introduction	Section 1.9.25, pg 1-56	Traffic impact assessment (TIA) - haulage of quarry material on SCR	Notes the potential need for quarry material, accepts the delay of the TIA given haulaage of quarry materilan not likely requiring state-controlled roads (SCR)	Recommended that a condition be included in the Coordinator-General evaluation report requiring the proponent to undertake a traffic impact assessment of the project impacts on state-controlled roads, during detailed design stage.	Y	Proponent to repond. Proponent update commitment list to include a commitment to undertake a traffic impact assessment of the project impacts on state-controlled roads, during	This submission comment has been addressed in AEIS Section 15.2 and Appendix I.
8	Department of Transport and Main Roads	Advisory agency	8.02	15 Transport	Section 15.4.5, pg 15-11 & 15-12	Traffic impact assessment - road safety and intersection performance	Accepts the delay of the TIA given haulage of quarry material likely not requiring SCR.	Recommended that a condition be included in the Coordinator-General evaluation report requiring the proponent to undertakes time road safety, pavement condition and intersection performance assessment and mitigation proposal, in sufficient time to complete works prior to commencement of significant project traffic	Y	Proponent to repond. Proponent update commitment list to include a commitment to undertake road safety, pavement condition and intersection performance assessment and prepare a mitigation proposal, prior to commencement of significant project traffic.	This submission comment has been addressed in AEIS Section 15.2 and Appendix I.
8	Department of Transport and Main Roads	Advisory agency	8.03	15 Transport	Section 15.4.5, pg 15-11 & 15-12	Draft Road-use Management Plan (RMP), dependent on off-site quarry material haulage	Accepts the delay of the draft RMP given haulage of quarry material likely not requiring SCR.	Recommended that a condition be included in the Coordinator-General evaluation report requiring the proponent to prepare a final RMP six months before commencement of project traffic, during detailed design stage	Y	Proponent update comittment list to include a commitment to prepare a final road management plan and provide to DTMR for approval 6 months prior to commencement of construction (i.e. commencement of project traffic).	This submission comment has been addressed in AEIS Section 15.2 and Appendix I.
8	Department of Transport and Main Roads	Advisory agency	8.04	15 Transport		Revised dredging methodology.	No issues with revised dredging methodology.		N	Proponent to note.	GPC has noted this submission comment.
9	Department of Aboriginal and Torres Strait Islander Partnerships	Advisory agency	9.01	Appendix N3 – Preliminary Draft SIMP		Employment opportunities for Aboriginal and Torres Strait Islander peoples	(Appendix N3 - Social Impact Management Plan - Ch. 4, Table 4.1) Table 4.1 Workforce Action Management Plan - Incorporate a minimum target of 3.6% employment rate for Aboriginal and Torres Strait Islander people in the EIS, and reference to a revised GPC Reconciliation Action Plan to reflect same.	Recommended the EIS incorporate a minimum target of minimum target of 3.6% employment rate for Aboriginal and Torres Strait Islander people. Identify roles that can be filled for local workers, with a focus on recruitment and training opportunities for Aboriginal and Torres Strait Islander peoples. Revise the GPC Reconciliation Action Plan, and reference the revised document in the EIS.	Y	Proponent to address. Acknowledge need for specialist workforce, and identify local training opportunities for Aboriginal and Torres Strait Islander people.	AEIS Appendix J, (Table 4.1) has been amended to include a commitment to *endeavour* to achieve a 3.6% employment rate for Aboriginal and Torres Strait Islander people. It is important to note that this may not be achieveable during early phases of the Project. The Project dredging requires a specialist labour skill set and as such would be carried out by an overseas contractor. Notwithstanding this, GPC see there may be other opportunities in later stages of the Project to achieve this target, including partnerships for implementing offsets.
10	Department of Natural Resources, Mines and Energy	Advisory agency	10.01	5 Topography, geology and soils	Section 5.4.4 (Acid sulfate soils)	Acid Sulfate Soils	It has been reported that the laboratory removed the large shell fragments (> 2mm) prior to sieving and fine grinding, and that the dredged material will contain a high level of acid neutralising capacity (ANC), substantially above the net acidity of the sediments. Regardless of the potential benefits of the shell material being further broken and ground up during the dredging operations to neutralise acidity, there has been no evidence provided to support the conclusion that these sediments have full self-neutralising capacity. In general, biogenic shells and large shell fragments (e.g. greater than 1 mm) are commonly regarded as ineffective in contributing to the ANC of a soil, and should not be used to justify a reduced or 'nil' liming rate. There may be an argument for a lower level of liming, but not to the level proposed in the EIS.	*The Qld ASS Technical Manual, Soil Management Guidelines* (Dear et al 2014) require that Action Criteria in Queensland be based on existing plus potential acidity, not net acidity. Therefore liming rates should be based on existing plus potential acidity (and safety factor), and not net acidity. This is to be reflected in any ASS Management Plan formulated as part of the approval process, as outlined in the section below. **It is noted that section 5.4.4.4 now states that self-neutralisation will not be relied upon as a sole treatment for PASS within the dredge material.* This may only partially address the issue raised.*	Y	Proponent to address. Proponent to provide an outline of ASS Management measures as part of the additional infomration to the EIS. The ASS Management must reflect the requirements of the Qld ASS Technical Manual, Soil Management Guidelines.	This submission comment has been addressed in AEIS Section 5.2.

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10	Department of Natural Resources, Mines and Energy	Advisory agency	10.02	5 Topography, geology and soils		Acid Sulfate Soil Management Plan	(S 5.4.4 – Acid sulfate soils) The EIS has committed to formulate an ASS Management Plan three months prior to the commencement of the Project activities (page 5-10), yet an ASS Management Plan (similar to the content of pages 5-9 onwards) is present as an appendix. Given that there are proposals for a limited degree of liming to neutralise acidity, there are concerns that this is not an appropriate strategy. It is also difficult to make a determination as to whether the performance indicators such as 'no exceedances of trigger values outlined in the ASS Management Plan' on page 5-11 are appropriate. Closure reporting and potentially Handover testing is also recommended for this ASS disturbance (refer to the Qld ASS Technical Manual, Soil Management Guidelines).	It is recommended that a series of comprehensive ASS Management Plans be formulated as part of the approval process, to ensure that the management mechanisms are appropriate for this form of ASS disturbance, and consistent with the QLD ASS Technical Manual, Soil Management Guidelines (particularly in terms of liming rates, verification testing, closure reporting and handover testing). Reporting and testing should be provided to DES as the administering authority.	Y	Proponent to address. Proponent to provide an outline of ASS Management measures as part of the additional infomration to the EIS. The ASS Management must reflect the requirements of the Qld ASS Technical Manual, Soil Management Guidelines.	This submission comment has been addressed in AEIS Section 5.4.
10	Department of Natural Resources, Mines and Energy	Advisory agency	10.03	5 Topography, geology and soils		Acid Sulfate Soils	(S 5.6.1.3 - Bund wall and barge unloading facility construction) Verification rates specified in section 5.6.1.3 are inconsistent with those specified in the Qld ASS Technical Manual, Soil Management Guidelines. The calculated liming rate is considered not appropriate, as it is based on the use of ANC and not existing plus potential acidity (as recommended in the Qld ASS Technical Manual, Soil Management Guidelines).	It is recommended that a series of comprehensive ASS Management Plans be formulated as part of the approval process, to ensure that the management mechanisms are appropriate for this form of ASS disturbance, and consistent with the QLD ASS Technical Manual, Soil Management Guidelines (particularly in terms of liming rates, verification testing, closure reporting and handover testing). Reporting and testing should be provided to DES as the administering authority.	Y	Proponent to address. Proponent to provide an outline of ASS Management measures as part of the additional infomration to the EIS. The ASS Management must reflect the requirements of the Qld ASS Technical Manual, Soil Management Guidelines.	This submission comment has been addressed in AEIS Section 5.4.
10	Department of Natural Resources, Mines and Energy	Advisory agency	10.04	5 Topography, geology and soils		General Comment	(S 5.6.1.3 - Bund wall and barge unloading facility construction) A '*significant length of time* ' and '*regular auditing* ' are undefined terms.	Define '*significant length of time* ' and '*regular auditing* '.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendices F (Section 9.1 (significant length of time defined) and 6.7 and 6.11 (auditing)) and G (Section 8.1 (significant length of time defined) and 6.7 and 6.11 (auditing)).
10	Department of Natural Resources, Mines and Energy	Organisation	10.05	5 Topography, geology and soils		Groundwater Monitoring	(S 5.6.1.3 - Bund wall and barge unloading facility construction) Given the inability to readily detect changes in pH in a tidal environment, there is a preference for more than 'once daily' monitoring (e.g. automated, at least every 15 minutes). As aglime is sparingly soluble, it is generally not an effective neutralising agent for acidic waters.	Confirm if the groundwater baseline pH values have already been determined. If monitoring detects groundwater pH values outside of 6.5-8.5, it can be difficult to remedy this. In addition, groundwater pH values in coastal areas are often outside of this range.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 5.5.
10	Department of Natural Resources, Mines and Energy	Advisory agency	10.06	5 Topography, geology and soils		Acid Sulfate Soils - Mitigation Measures	(S 5.6.1.3 - Bund wall and barge unloading facility construction) The reasons why no mitigation measures for minimising the potential ASS impacts are necessary for the placement of maintenance dredging material in the existing East Banks Dredge Material Placement Area are not specified.	Provide an explanation as to why no mitigation measures for minimising the PASS impacts are necessary for the placement of maintenance dredging material in the existing East Banks Dredge Material Placement Area.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 5.6.
11	Department of Housing and Public Works (Excluding Sport and Recreation Services)	Advisory agency	11.01	18 Social impact assessment		Social Impact Management Plan	(S 18.9.1 - Mitigation and Appendix Q4 - EIS commitments) The department notes the commitment to prepare a Social Impact Management Plan (SIMP) addressing the matters outline in 18.2 (Section 18.9.1).	Department requested to review the SIMP when it is completed.	Y	Update project commitments list to include a commitment to provide the Department of Housing and Public Works a copy of the SIMP	This submission comment has been addressed in AEIS Appendix I.
11	Department of Housing and Public Works (Excluding Sport and Recreation Services)	Advisory agency	11.02	18 Social impact assessment		Workforce Management Plan	(S 18.9.2 - Workforce Management Plan) The department notes the proponents EIS commitments associated with a Workforce Management Plan and the content within this plan.	S 18.9.2 outlines a broad range of matters for the SIMP to address and the department advise that they expect these to include EIS Workforce Management Plan matters.	N	Proponent to note the matters for the SIMP to address.	AEIS Appendix J (Preliminary Social Impact Management Plan Draft) outlines the matters to be addressed as part of the Workforce Management Plan.

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12	Department of Environment and Science	Advisory agency	12.01	00 General project comment		Suitability of the options investigation	The department does not consider that the draft EIS has adequately considered all feasible alternatives, as required by section 3.5 of the proposed project's TOR. The supplementary options investigation completed in 2019 (Appendix B1) and used to inform the proponent's choice of the preferred dredged material placement site, has considered the eight sites short-listed in the original investigation completed in 2015 (reported in Appendix B2). The original options investigation considered potential offshore dredged material placement sites, no longer permitted under the Sustainable Ports Act 2015, and onshore placement sites within 3km of the dredging activity, given the logistical constraints and costs of transporting dredged material onshore via pipeline. Offshore disposal of dredged material is no longer an option and the current project no longer proposes to transport the majority of the dredged material via pipes, but proposes to unload the dredged material from barges directly into trucks for distribution within the reclamation area. Only a small portion of dredged material is still proposed to be piped directly into the reclamation area by a dredge (approximately 150,000m3 of dredged material from the proposed barge access channel). In light of these significant changes to the project methodology, particularly the potential to now transport the dredged material via trucks to sites more than 3km from the dredging activity, the department recommends the supplementary options investigation be revised to consider any feasible onshore placement sites.	The department recommends the options investigation be revised in light of the significant environmental values identified and located at, or adjacent to, the proposed western basin expansion (WBE) reclamation area that would be impacted by the proposed project. For example, should the construction of the proposed WBE reclamation area be allowed to proceed, it would result in the removal of a significant seagrass meadow and 48.62ha of high ecological significance (HES) wetlands, which would directly reduce the availability of feeding habitat for marine turtle species and dugongs in Port Curtis (the Port). The proposed construction of the WBE reclamation area is also likely to significantly impact migratory shorebirds, including four species listed as endangered under the Nature Conservation Act 1992 (NC Act) and critically endangered under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC Act).The design of the existing western basin reclamation area sought to avoid impact to these same environmental values. Any revised options investigation should consider additional onshore placement sites with less significant environmental values that may have become available and would be feasible to be used since the completion of the original options investigations.	Y	Proponent to address. Proponent to update the supplementary dredge material placement report to provide a more robust analysis of potential feasible dredge material disposal options including other land-based alternatives to the proposed reclamation area. Noting that the methodology for disposal has changed since the options analysis. There are a number of options in the Appendix which were not taken forward as the methodology at the time (i.e. pumping material) made these options unfeasible. The proponent should revise these options and provide a discussion on whether these options are now feasible using the most recent proposed methodology (barging and transporting material) or whether they would still be unfeasible due to other factors (e.g. availability of land, unreasonable economic costs or environmental reasons. The proponent and OCG to work with DES and DAF to determine the level of options analysis required to satisfy the needs of the agencies.	This submission comment has been addressed in AEIS Section 1.6 nad Appendix C.
12	Department of Environment and Science	Advisory agency	12.02	00 General project comment		Consideration of future port dredged material disposal needs	The options investigation and final decision on the proposed location, size and design of the dredged material placement site has considered future Port capital and maintenance dredged material disposal needs. The draft EIS does not clearly quantify how much additional capacity would remain in the WBE reclamation area on completion of this project. The draft EIS has not demonstrated that the location and design of the dredged material placement site has been selected to avoid and minimise potential environmental impacts Given the potential impacts of the proposed reclamation area on seagrass, HES wetlands and other matters of state environmental significance (MSES) and national environmental significance (MNES), including turtles, dugongs and migratory shorebirds, the department requires specific detailed information, supported by evidence and a reasoned discussion, to determine the acceptability of the size and location of the dredge material placement site, including: •planned dredging campaigns that are proposed to be accommodated in the proposed WBE reclamation area •volumes of material from future dredging projects that are planned to be placed in the WBE reclamation area •planned timing of these projects •additional capacity within the WBE reclamation area available on completion of each of these projects.	The draft EIS should include a detailed explanation of why the volume of dredged material to be disposed of in the existing western basin reclamation area has been significantly reduced since the completion of the EIS for that project. The draft EIS should also explain why there is a reduced capacity in the existing western basin reclamation area to accommodate dredge material from approved dredging campaigns (e.g. Clinton Vessel Interaction Project) as well as this proposed project. In the absence of this detailed information, the department is of the view that a potential impact area larger than is required for this project is unacceptable.	Y	Proponent to address. Proponent to provide additional information to provide greater justification for the size of the reclamation area. If the reclamation area is larger to accommodate dredge material from future dredging campaigns then this needs to be clear in the EIS. Proponent to provide additional infomation on why the volume of dredged material to be disposed of in the existing western basin reclamation area has been reduced since the completion of the Western Basin Dredging and Disposal project. The addtional infomation should also justify why there is a reduced capacity in the existing western basin reclamation area to accommodate dredge material from approved dredging campaigns (e.g. Clinton Vessel Interaction Project) as well as this proposed project	This submission comment has been addressed in AEIS Section 1.6 nad Appendix C.
12	Department of Environment and Science	Advisory agency	12.03	00 General project comment		Assessment of project impacts on MSES and MNES	The Nature Conservation chapter includes an assessment of a range of individual potential source impacts on MSES and MNES in isolation from one another. The cumulative impacts of these multiple potential impacts and their potential synergistic impact on each matter are not adequately addressed in the draft EIS. The draft EIS therefore likely underestimates the cumulative impacts of all project activities on some MSES and MNES.	The impact assessment for each MSES and MNES, including the significant residual impact assessment should be revised to account for the cumulative and potentially synergistic impacts of all proposed project activities.	Y	Proponent to address. Proponent to provide additional information which provides a more detailed analysis and quantification of cumulative and synergistic impacts of the project on MSES and MNES values in the Port. The SRI assessment needs to account for cumulative and potentially	This submission comment has been addressed in AEIS Sections 9.2.3, 9.3.1, 9.4.5, 9.5.2, 9.6.4, 9.7.1, 9.8.2, 9.10.6 and 9.11.3.

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12	Department of Environment and Science	Advisory agency	12.04	00 General project comment			The potential impacts and risk assessment rating tables included in each draft EIS chapter do not list the mitigation measures responsible for improvements in the hazard risk grade for each potential impact source for the proposed project. It is therefore very difficult to verify and cross reference these tables with the proposed mitigation measures to ensure the accuracy of the potential effectiveness of mitigations measures in improving hazard risk grades. For example, Table 8.21 does not indicate which proposed mitigation measures would be effective in reducing the hazard risk grade of "Localised, short term increases in turbidity" from medium to low.	Potential impacts and risk assessment rating tables in each draft EIS chapter should be amended to include effective mitigation measures, to assist with their interpretation.	Y	Proponent to address.	This submission comment has been addressed in the relevant AEIS chapter risk assessment sections by referencing the relevant Dredging EMP and Project EMP management plans. The Dredging EMP and Project EMP and assoicated management plans are included in AEIS Appendices F and G.
12	Department of Environment and Science	Advisory agency	12.05	0 Executive summary	1.9.3.1	Great Barrier Reef Biodiversity Conservation Strategy 2013	It is unclear why the executive summary states that "Project impact assessment and mitigation measures will be consistent with the objectives of the Great Barrier Reef Biodiversity Conservation Strategy 2013." More detail is required to justify this statement.	Describe in detail why it is believed that the "Project impact assessment and mitigation measures will be consistent with the objectives of the Great Barrier Reef Biodiversity Conservation Strategy 2013."	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 1.7.2.
12	Department of Environment and Science	Advisory agency	12.06	1 Introduction	Chapter 1, section 1.9.2.10	Marine Parks Act 2004	This and other draft EIS chapters do not consistently refer to the Great Barrier Reef Coast Marine Park (GBRCMP). The extent of this marine park is shown on Figure 1.1 but does not appear again in the draft EIS. Note: The GBRCMP is located between the boundaries of the highest astronomical tide and three nautical miles offshore. This is not always correctly stated in the draft EIS.	Ensure consistent reference to the Great Barrier Reef Coast Marine Park in relevant draft EIS chapters and figures, particularly the nature conservation chapter. Ensure the GBRCMP is correctly described throughout the draft EIS.	Y	Proponent to note.	GPC has noted this submission comment.
12	Department of Environment and Science	Advisory agency	12.07	1 Introduction	Chapter 1, section 1.9.2.1	Nature Conservation Act 1992	This section does not refer to all the species listed under the NC Act, but only makes reference to the Water mouse (*Xeromys myoides*). It is unclear why other NC Act listed species are not listed here.	Amend the draft EIS to list all NC Act listed species relevant to the proposed project.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.2.1.
12	Department of Environment and Science	Advisory agency	12.08	1 Introduction	Chapter 1, section 1.9.2.10	Marine Parks Act 2004	This section implies that the Marine Parks Act 2004 (MP Act) is not relevant to the project. The GBRCMP waters are adjacent the location of dredging and the dredged material placement area, therefore the proposed project has the potential to impact the waters of the GBRCMP. Hence, the MP act is relevant to this project.	Amend the EIS to acknowledge that the proposed project is adjacent the waters of the GBRCMP and has the potential to impact the marine parks natural and cultural values. Amend the description of the relevance of the MP Act to this project.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 1.7.1.
12	Department of Environment and Science	Advisory agency	12.09	2 Project Description	Chapter 2, section 2.5.6	Construction rate and timing	This section does not describe all environmental windows that are proposed to be avoided during bund construction to avoid and minimise potential impacts to environmental values e.g. periods when sensitive migratory shore birds are likely to use the intertidal area adjacent the proposed reclamation area.	Describe any environmental windows during which dredging and bund construction are proposed to be suspended. Include these in the list of commitments for the proposed project.	Y	Proponent to address. Commitment 8.16 in Appendix Q Proponent committments only applies to scheduling the timing of dredging works for managing water quality impacts on seagrass. There are no commitments to avoiding dredging or reclamation construction works around sensitive environmental windows for marine fauna such as marine turtles or migratory shorebirds. Update proponent comittments list to include a comittment to design the dredging program and construction program of the bund wall and reclamation area in consideration of sensitive environmental windows. Identify for dredging campaign and reclaramtion area the highest risk periods for listed species activity, with explanation of management/mitigation measures to be implemented for each.	This submission comment has been addressed in AEIS Section 9.14.
12	Department of Environment and Science	Advisory agency	12.10	2 Project Description	Chapter 2, section 2.5.3	Reclamation area concept design	The draft EIS states that the bund wall is designed to a 100 year ARI. However, this section of the draft EIS does not discuss whether this level of design is suitable given the known intensity of significant storm and weather events for the area, and the potential environmental risk that the failure of the structure may result in. This assessment should also consider whether this level of design would continue to be suitable under current climate change predictions.	Describe the applicability of the chosen ARI design level. Demonstrate how the design has taken into account current modelled climate change driven increases in the frequency and intensity of storms and cyclones and sea level rise.	Y	Proponent to address.	This submission comment has been addressed in the AEIS Sections 7.2 and 11.3.2. The 100 year ARI design level is not considered the most appropriate level to use in the marine location of the proposed WBE reclamation area. For the Project it is considered more appropriate to use the combined storm tide and sea level change.

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12	Department of Environment and Science	Advisory agency	12.11	2 Project Description	Chapter 2, section 2.5.3	Reclamation area concept design	The draft EIS should justify how it was determined that a bund height of +7m LAT and the proposed design of the bund wall, is sufficient to protect against the potential impacts of climate change (e.g. changes in storm tide, sea level rise and changes is wave height).	Describe in detail why a final bund height of +7m LAT and the design of the bund wall, having an allowance of +1.88m above existing HAT at Fisherman's Landing, was determined as adequate in relation to the potential impacts of climate change.	Y	Proponent to address.	This submission comment has been addressed in the AEIS Sections 7.2 and 11.3.2.
12	Department of Environment and Science	Advisory agency	12.12	2 Project Description	Chapter 2, section.2.5.10	Reclamation area concept design	Cells within the proposed WBE reclamation area would be designed and maintained so that a freeboard of not less than 0.5m would be available to accommodate significant rainfall events. However, the draft EIS does not discuss why a 0.5m free board is appropriate.	Describe why the freeboard of 0.5m is sufficient to accommodate the significant rainfall and runoff events that occur in this region.	Y	Proponent to address.	This submission comment has been addressed in the AEIS Section 2.3.
12	Department of Environment and Science	Advisory agency	12.13	6 Sediment quality	Chapter 6, section 6.5.2	Sediment sampling	The department has previously provided comment on the requirement to ensure that sediment sampling and testing for the project is consistent within the currency periods of the NAGD and NEPM. If approved, the proposed project is unlikely to commence until 2023 and collected sediment testing results would be almost 10-years old. There may be a need for sediment sampling and testing to be repeated to ensure its currency. It is the proponent's responsibility to ensure the currency of sediment sampling prior to dredging.	Describe the requirement for sediment testing to fulfil the currency requirement of the NAGD and NEMP and commit to ensure all sediment testing is current at the time of dredging.	Y	Proponent to address. Proponent to update commitments list to include a commitment to undertake sediment testing prior to dredging works to ensure the data is current and up to date. OCG to work with DES and the proponent to develop a condition for ERA 16 requiring the proponent to undertake further sediment testing prior to dredging works.	This submission comment has been addressed in the AEIS Section 6.2 and Appendix I.
12	Department of Environment and Science	Advisory agency	12.14	6 Sediment quality	Appendix Q3, and Appendix G	Sediment sampling	The sediment quality assessment did not include samples across the entire dredge depth at all sites along the duplication path. The NAGD requires that capital dredging projects provide reliable screening results and characterisation of dredge materials for potential contaminants of concern across the entire dredge depth. Therefore, the risks to the environmental values from anthropogenic organic and inorganic chemicals in the Port during dredging and from the tailwater discharge could not be adequately assessed.	Describe the concentration of contaminants in material to be dredged in accordance with the procedures outlined in the NAGD.	Y	Proponent to address. Describe the concentration of contaminants in material to be dredged in accordance with the procedures outlined in the NAGD. Proponent to update commitments list to include a commitment to undertake sediment testing prior to dredging works to adequately characterise the sediments proposed to be disturbed.	This submission comment has been addressed in the AEIS Section 6.3 and Appendix I.
12	Department of Environment and Science	Advisory agency	12.15	6 Sediment quality	Chapter 6, section 6.5.2.1	Sediment sampling-Metals/metalloids	Some sediment samples retuned elevated levels of manganese. Concentrations returned are only marginally above the NEPM Residential A Health investigation levels (i.e. HIL-A) of 3800 mg/kg and are not of any concern from a land management perspective (i.e. this reclaimed land will never be residential land, and is more likely to be industrial land which raises the HIL from 3,800 mg/kg to 60,000 mg/kg). Nonetheless, manganese monitoring should be included in the tailwater monitoring and the EMP to ensure appropriate dilution of manganese.	Ensure the inclusion of manganese monitoring in monitoring plans for tailwater and tailwater receiving waters.	Y	Proponent to ensure manganese monitoring is included in tailwater monitoring and the Environmental Monitoring Procedure. Include manganese as a monitoring parameter for tailwater discharge conditions for ERA 16.	This submission comment has been addressed in the AEIS Appendix H.
12	Department of Environment and Science	Advisory agency	12.16	6 Sediment quality	Chapter 6, section 6.4.3.3 Sample collection	Acid sulfate soils	It is difficult to determine whether sediment sampling density to characterise acid sulphate soils (ASS) is adequate in the absence of a discussion of the achieved sediment sampling density versus to sampling plan or expected sampling density.	Justify the density of sediment sampling undertaken to characterise ASS, compared to the planned density of sediment sampling.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 5.3.

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12	Department of Environment and Science	Advisory agency	12.17	6 Sediment quality	Chapter 6, section 6.5.2	Acid sulfate soils	A number of issues were identified with regards ASS characterisation undertaken in the draft EIS: • Sample density is potentially too low to achieve a full understanding of the ASS risks and variability of material to be dredged. • Sample analysis places a significant reliance is placed on the acid neutralising capacity (ANC) of the soils in relation to the acid generation potential. The draft EIS states that much of the soil is "self-neutralising acid sulfate soils". New guidance requires that the ANC is ignored, unless validated by laboratory assessment. Further, the reports go on to state that through the dredging and excavator activity, etc., that the soils will be "mechanically mixed and ground"… "making available the full self-neutralising capacity of the sediments." This statement is however not supported by any science or case study and additional costly treatment and management of ASS may be required during the project if validation testing (which will be required to adopt the new requirements) finds that the ANC is lower than expected. • An ASS management plan has not been included in the draft EIS. Notwithstanding the above issues, the proponent has committed to detailed validation program and proposed a validation sampling density of 1 sample per 1,000 m3. This rate of validation sampling density will be conditioned, should the project be approved.	Include a detailed ASS management plan in the draft EIS describing all proposed ASS validation testing, treatment and management. Include draft conditions for all aspects of the project requiring approval of the department, including conditions regarding ASS validation testing density, ASS treatment and management. Note: that additional ASS treatment and management will be required to be completed should the validation testing identify a lower than expected ANC.	Y	Proponent to address. Proponent to provide an updated draft ASS Management Plan as part of the additional information to the EIS. The ASS Management plan must reflect the requirements of the Qld ASS Technical Manual, Soil Management Guidelines.	This submission comment has been addressed in AEIS Section 5.4
12	Department of Environment and Science	Advisory agency	12.18	7 Coastal processes and hydrodynamics	Chapter 7	bathymetric surveys	The draft EIS should acknowledge that the bathymetric data (current as of 2018) may require updating, depending on the final timing of dredging. The department understands that GPC undertakes regular bathymetric surveys of shipping channels in the Port.	Commit to update bathymetric data prior to dredging.	Y	Proponent to address. Update commitment list to include a commitment to update bathymetric data prior to dredging.	The commitment has been included in Appendix I.
12	Department of Environment and Science	Advisory agency	12.19	7 Coastal processes and hydrodynamics	Chapter 7, section 7.3.2	Extreme water levels	The draft EIS references 0.3m of sea level rise. However, this value is sourced from a superseded International Panel on Climate Change (IPCC) report. The most recent IPCC report and its recommendations should be implemented, referenced and the draft EIS updated where the information is different from previous version.	Relevant sea level rise level information should be updated to be consistent with the current IPCC report. Any implications for the project design and operation should be described.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 7.2.
12	Department of Environment and Science	Advisory agency	12.20	7 Coastal processes and hydrodynamics	Chapter 7, section 7.3.5.3	Facing Island	Given the potential for the project to contribute to increases in sedimentation in the Facing Island Harbour, the proponent should commit to monitoring sedimentation before, during and after the project to ensure the impact of dredging on sedimentation is quantified and effective mitigation measures implemented, if required.	Include commitments to monitor sedimentation in the Facing Harbour before, during and after the project and implement mitigation measures to correct for any significant increase in sedimentation resulting from the project.	Y	Proponent to address. Proponent to update commitment list to include a commitment to monitor sedimentation in the Facing Island Harbour before, during and after the project and implement mitigation measures to correct for any significant increase in sedimentation resulting from the project.	This submission comment has been addressed in AEIS Section 7.3. The commitment has also been included in Appendix I.
12	Department of Environment and Science	Advisory agency	12.21	7 Coastal processes and hydrodynamics	Chapter 7, section 7.5	Mitigation measures - reclamation	Given the predicted impact of the construction of the reclamation areas on adjacent coastal processes, a monitoring program to monitor for and identify changes in landforms, intertidal areas and sub-littoral bathymetry for areas adjacent to, or expected to be impacted by, the reclamation area must be included in the EIS.	Provide a program to monitor potential changes in the coastal processes due to the construction and placement of the WBE reclamation area, including changes to: • land forms, including coastal and dune vegetation • existing navigable channels • intertidal areas, including feeding area for migratory birds • wetlands, including groundwater regimes • existing approved tidal works structures. The draft EIS should detail monitoring methods and effective mitigation measures that could be implemented to limit the impact of such changes in coastal process.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 7.3. The commitment has also been included in Appendix I.
12	Department of Environment and Science	Advisory agency	12.22	8 Water quality	8.6.4.2 - Impacts of reclamation on coastal processes and hydrodynamics, erosion and siltation	Reclamation	The draft EIS describes the construction of the proposed reclamation areas and resultant increases in-water erosion to the north and west of the proposed WBE reclamation area. The draft EIS discusses erosion continuing until a new equilibrium depth is achieved in these areas. However, the draft EIS does not indicate the likely depth of this new equilibrium depth. The draft EIS should indicate the likely future equilibrium depth of these areas given that this change has the potential to impact the use of these areas by migratory shorebirds and other species.	Describe the likely future equilibrium depth of the channel to the north and west of the proposed WBE reclamation area as a result of increased flows and erosion in these areas. If additional geotechnical or other data is require to inform this assessment, this data should be collected and provided.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.2 and AEIS Appendix D.

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12	Department of Environment and Science	Advisory agency	12.23	8 Water quality	8.6.4.2 - Impacts of reclamation on coastal processes and hydrodynamics, erosion and siltation	Maintenance dredging	Construction of the proposed WBE reclamation area would likely increase sediment deposition to the east of the reclamation area, potentially increasing the need for future maintenance dredging in this area. The likely impact of this increased sedimentation on the likely frequency of maintenance dredging should be described in the draft EIS. The potential impact of any increase in maintenance dredging should also be assessed in the draft EIS.	Provide an assessment of how increased sedimentation adjacent to the proposed WBE reclamation area would influence the requirement to undertake maintenance dredging of the northern section of the shipping channel. Any increased requirement for maintenance dredging should be clearly described and its impact assessed.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.2.
12	Department of Environment and Science	Advisory agency	12.24	8 Water quality	8.6.5.3 - Siltation	Maintenance dredging	The draft EIS does not clearly state whether an increase in sedimentation in the Gatacombe and Golding Channel on completion of the project would require an increased maintenance dredging regime and whether any increased frequency in maintenance dredging has been adequately assessed in the draft EIS.	Describe whether increased sedimentation in the Gatcombe and Golding Channel would increase the requirement for maintenance dredging. Should further maintenance dredging be required, amend the draft EIS to fully assess the potential impacts in maintenance dredging.	Y	Proponent to address.	This submision comment has been addressed in AEIS Section 7.3 and Appendix D. There will be no significant change to the Pot of Gladstone annual maintenance dredging regime, only a proportional increase in the average duration of the typical annual dredging campaign.
12	Department of Environment and Science	Advisory agency	12.25	9 Nature conservation	9.13.2.3 - Short term decline in water quality in the marine environment	Water quality	The draft EIS should include a discussion of whether it is appropriate to consider increased turbidity over a year of dredging as a short-term decrease in water quality, particularly regarding the potential impacts of the dredging on fauna in the Port. It is possible that a year of elevated turbidity at some sites may result in avoidance of these areas by some fauna (e.g. fish, marine turtles and dolphins) and it is unclear if the draft EIS has fully considered this potential impact.	Discuss the appropriateness of the impact assessment considering increased turbidity over a year of dredging as a short-term impact on fauna.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.15.2.
12	Department of Environment and Science	Advisory agency	12.26	9 Nature conservation	9.13.2.3 - Short term decline in water quality in the marine environment	Water quality	Limits for tailwater discharge from the dewatering pounds are proposed in Table 15, Appendix Q3. The end-of-pipe limits proposed for the tailwater discharge are greater than water quality objectives for TSS and NTU. There has not been an adequate assessment of the cumulative impacts of simultaneous tailwater discharges from two current WB releases points and the proposed WBE release point. Therefore, it is not known whether simultaneous discharges can be managed to achieve sufficient mixing and ensure the water quality objectives for TSS and turbidity are met in the receiving environment within close proximity to the release points. The location of release points shown in Figure 6 of Appendix Q3 indicates releases would occur in the channel between the existing and future reclamation areas. This may limit mixing and dilution and result in ongoing sedimentation near the outfall.	Predict the spatial extent of sediment dispersion from all tailwater release points and demonstrate that the water quality objectives would be met within a reasonable distance from these. Modelling should consider a worst case scenario where all release points were releasing simultaneously at the maximum TSS and at maximum release rate. Predictions should be made across varying tidal cycles and current velocities. Demonstrate that the release locations chosen for the release points provide the greatest potential for mixing and dilution and would result in the lowest risk to the receiving environment.	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 7.4 and Appendix D (Sections 5.2.2 and 5.4.5)
12	Department of Environment and Science	Advisory agency	12.27	9 Nature conservation	9.13.2.3 - Short term decline in water quality in the marine environment	Water quality	The project proposed a 100 mg/L turbidity limit for tailwater discharges, but does not justify why the project cannot achieve the industry best practice limit of 50 mg/L as described in Stormwater Guideline—Environmentally Relevant Activities, available at: https://environment.des.qld.gov.au/assets/documents/regulation/pr-gl-stormwater-guideline-era.pdf The draft EIS should not assume that a limit approved for a previous project is suitable for use by this project, but should aim to achieve industry best practice. Where this is not possible, the proponent must demonstrate that this increased discharge rate and the water quality of releases will not impact environmental values.	Describe why the project cannot achieve the industry best practice limit of 50 mg/L and why this project should be licensed to discharge at the higher 100 mg/L. This information should include evidence that this increased discharge limit will not impact environmental values.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.3.3.
12	Department of Environment and Science	Advisory agency	12.28	Appendix Q3 – Environmental monitoring procedure	6..8 - Tailwater discharge monitoring	Water quality	The department recommends the addition of BPAR monitoring sites located in close proximity to seagrass meadows near the WBE reclamation area to ensure the protection of inshore seagrass meadows and fish that use these meadows as habitat.	Include additional BPAR monitoring sites located in close proximity to seagrass meadows near the WBE reclamation area.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix H (Section 6.2.2, Table 7 and Figure 4).
12	Department of Environment and Science	Advisory agency	12.29	8 Water quality	8.2.1.2 - Monitoring locations and rationale. Appendix Q3, 6.1.2 - Water quality monitoring sites, and Table 4 - Project water quality monitoring sites	Water quality	The water quality monitoring sites proposed to be used to assess and manage water quality during proposed project operations do not include appropriate reference sites that would be unimpacted by the dredging activities i.e. sites located outside of the zone of influence. Table 11 of the EMP, includes only compliance sites for the management of turbidity, and no reference sites outside the zone of influence of dredging. Monitoring of dredging impacts requires the use of unimpacted reference sites located outside the zone of influence. The need for references sites is described in the report titled “Improved Dredge Material Management for the Great Barrier Reef Region”, Department of Environment and Energy, Australia, available at: https://www.environment.gov.au/marine/gbr/publications/improved-dredge-material-management-great-barrier-reef-region).	Nominate appropriate water quality monitoring reference sites (i.e. for physicochemical parameters and toxicants) located outside the predicted zone of influence of dredging.	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 8.3.1, Figure 8.4 and Appendix H.

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12	Department of Environment and Science	Advisory agency	12.30	8 Water quality	8.2.1.2 - Monitoring locations and rationale. Appendix Q3	Water quality	There are some inconstancies between chapters and sections of the draft EIS that describe the water quality monitoring program (i.e. site names and the methods used at each site over time). This makes it difficult to match the historic approaches with monitoring to occur during the proposed project. For example, site codes in Chapter 8 are separated into two groups: 'offshore' (i.e. CD1, CD2, CD3, CD4 and CD5) and 'inshore' (i.e. P5/MH30, P2B/WB50 and QE3) (refer to Figure 8.1 and Table 8.1) for profiling baseline local water quality. These site codes do not match the proposed compliance sites for the reactive monitoring program in Appendix Q3. Also, in place of historical monitoring sites, relatively new sites were added including MH10, MH60, and NW10 (Tables 4, 9, 10 and 11). For these new sites, it is not clear how historical baseline water quality would be compared with these new/additional sites for the purpose of compliance during dredging. Moreover, cumulative impacts of other environmental activities and natural variations on these nominated new monitoring sites are relatively unknown.	Provide a table describing the naming of each site and its relation to historical water quality monitoring data, as well as monitoring methods proposed to be used in the future monitoring program. Demonstrate that historic baseline monitoring data are representative of water quality at these new sites and that the monitoring methods used are comparable. For example, explain the relationship between baseline data and the proposed new 'compliance sites' like MH10, MH60, and NW50 mentioned in Appendix Q3. Describe how baseline data, triggers proposed and approaches to assess compliance, would be sufficiently conservative to distinguish potential impacts from the proposed project from natural variation.	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 8.3.2.1, 8.3.2.2, 8.3.2.3 and Appendix H (Sections 5.2.2 and 5.4.5).
12	Department of Environment and Science	Advisory agency	12.31	Appendix Q3 – Environmental monitoring procedure	6.1.2 - Water quality monitoring sites.	Water quality	There is no justification for excluding baseline water quality monitoring sites for the inshore waters from the compliance water quality monitoring program (e.g. QE3 in the Narrows, and sites P5 and CD3 in the Mid harbour referred to in section 5.3 of Appendix Q3 are not included in the compliance water quality monitoring program).	Describe why the inshore sites are excluded from the compliance water quality monitoring program, or re-instate baseline monitoring sites (e.g. QE3, P5 and CD3) for inshore waters in the future project monitoring program (refer Section 6.1, Table 4 and Table 11).	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 8.3.2.1 and Appendix H.
12	Department of Environment and Science	Advisory agency	12.32	8 Water quality	8.7.2 - Establishment of the Western Basin Expansion reclamation area and barge unloading facility	Reclamation	Stormwater gathered by the WBE reclamation area will need to be managed so that stormwater can be retained within the reclamation area or discharged from approved release points, and comply with release limits. The draft EIS does not describe the potential release of stormwater that may be required after a significant rain event. Tailwater discharge is described as only occurring from the currently approved discharge locations within the existing WB reclamation area. It is unclear how excess stormwater can be dealt with in the northern WBE reclamation area if it will not be discharged from this reclamation area.	Clarify how stormwater will be managed within the reclamation area. Describe any potential discharge from approved release points following significant rain events and the need to discharge stormwater from addition discharge points (for example from the northern part of the WBE reclamation area).	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 8.4.
12	Department of Environment and Science	Advisory agency	12.33	8 Water quality	8.7.3 - Dredging activities	Dredging	The draft EIS commits to "Where practical scheduling the timing of dredging to reduce the potential likelihood for turbid plumes to impact on sensitive receptors such as avoiding the late spring and early summer periods (together with other less extreme summer periods), which represent key periods for seagrass growth and resilience building" However, it is noted that the cessation of dredging over late spring and early summer is unlikely to be practical if the dredge is onsite and weather is conducive for dredging. The department recommends the proponent amend this commitment and commit to the cessation of dredging in late spring and summer in order to avoid impacts to seagrass. The draft EIS should describe all other environmental windows in which dredging is proposed to be suspended in order to avoid or minimise impacts to sensitive receptors.	Ensure dredging is always suspended during late spring and summer, rather than just when it is practical. Describe in which months dredging would be suspended, for clarity. Describe all environmental windows in which dredging or other project activities would be suspended.	Y	Proponent to address. Commitment 8.16 in Appendix Q Proponent committments only applies to scheduling the timing of dredging works for managing water quality impacts on seagrass. There are no commitments to avoiding dredging or reclamation construction works around sensitive environmental windows for marine fauna such as marine turtles or migratory shorebirds. Update proponent comittments list to include a comittment to design the dredging program and construction program of the bund wall and reclamation area in consideration of sensitive environmental windows.	Submission comment has been addressed in AEIS Section 9.14.
12	Department of Environment and Science	Advisory agency	12.34	8 Water quality	8.7.7 - Maintenance dredging	Maintenance dredging	Mitigation measures for maintenance dredging must include measures to avoid and minimise the cumulative impacts of capital, maintenance and other dredging campaigns that may occur at the same time.	Include mitigation measures to avoid and minimise the cumulative impacts of capital, maintenance and other dredging campaigns that may occur at the same time.	Y	Proponent to address.	To be addressed by GPC as part of the annual Port wide maintenance dredging environmental approval process and associated Environmental Management Plan and Environmental Monitoring Procedure.

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12	Department of Environment and Science	Advisory agency	12.35	Appendix Q3 – Environmental monitoring procedure	6.1.2 - Water quality monitoring sites and Table 4 - Project water quality monitoring sites.	Water quality	It is not clear whether the benthic photosynthetically active radiation (BPAR) reference sites (RBN and RBS located outside the proposed project impact areas within Rodds Bay and south of the Port) will be active during the project. As per Figure 4 in Appendix Q3, sites RBN and RBS are is categorised as 'BPAR site WBDDP (2009 - 2016)' indicating reference to another past project. It is suggested that these or other suitable reference sites are included in the monitoring program for BPAR. It is unclear whether water quality monitoring is proposed to be completed at the BPAR monitoring sites RBN and RBS during the proposed project. It is recommended that it is, as this is particularly important for the protection of the marine park area in offshore waters. The draft EIS must reference the use of the Queensland Monitoring and Sampling manual for BPAR monitoring methods.	Clarify whether BPAR is proposed to be monitored at RBN and RBS during the proposed project. Nominate appropriate water quality monitoring reference sites (for BPAR, physicochemical parameters and toxicants) sites outside the predicted zone of influence of dredging. Reference the BPAR monitoring methods described in the Queensland Monitoring and Sampling Manual, is available at: https://environment.des.qld.gov.au/water/monitoring/sampling-manual/pdf/biological-assessment-measuring-light-using-par.pdf	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.3.1 and Appendix H (Sections 6.2.1 and 6.2.2, Tables 7 to 10 and Figure 4).
12	Department of Environment and Science	Advisory agency	12.36	Appendix Q3 – Environmental monitoring procedure	6.2.2 - Seagrass light monitoring sites and Table 7 - Monitoring location for BPAR for seagrass protection	Water quality	It is noted that the control sites PAR1 and PAR2 only measure photosynthetically active radiation (PAR) above sea/ground level (Table 7), which is designed to study atmospheric variations in light, including cloud cover, rather than light reaching seagrass meadows on the benthos. The draft EIS should clarify whether BPAR is proposed to be monitored at these locations. It is recommended that it is, for comparison with sites inside the dredging zones of influence.	Clarify if BPAR would also be measured and include more detailed descriptions of PAR monitoring methods, as per the Queensland Monitoring and Sampling Manual available at: https://environment.des.qld.gov.au/water/monitoring/sampling-manual/pdf/biological-assessment-measuring-light-using-par.pdf	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.3 and Appendix H (Section 6.2.1) .
12	Department of Environment and Science	Advisory agency	12.37	Appendix Q3 – Environmental monitoring procedure	Section 6.1.2 Water quality monitoring sites, and Table 4 Project water quality monitoring sites	Water quality	The proposed draft EIS monitoring does not include sites that allow for the protection of sensitive hard and soft coral reefs outside the zone of influence of dredging. Bottom water currents are likely to be the key driver for resuspension and the movement of suspended sediments and associated nutrients toward coral reef areas within the Port during the channel duplication program (Figure 7.1, Chapter 7).	Include and detail appropriate monitoring points and indicators to identify any potential impacts of dredge plumes on the hard and soft coral reefs in and around the Port.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.11.
12	Department of Environment and Science	Advisory agency	12.38	Appendix Q3 – Environmental monitoring procedure	Section 6.1.2 - Water quality monitoring sites, and Table 4 Project water quality monitoring sites	Water quality	There is a considerable gap between monitoring points CD1 and CD5 (about 15 kilometres). At present, this 15 km area will not be monitored and it is possible that sediments plumes generated by dredging may escape undetected between these points.	Include appropriate monitoring sites at a suitable spatial resolution. Consider the need for additional sites for monitoring water quality parameters between CD1 and CD5.	Y	Proponent to address.	Submission comment has been addressed in AEIS Section 8.3.4.
12	Department of Environment and Science	Advisory agency	12.39	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, section 6.1.2 and Table 4 Project water quality	Water quality monitoring	The robustness of the methodology adapted in the 6 hourly exponentially weighted moving average (EWMA) control charts for turbidity monitoring could not be ascertained. According to Section 6.6.1, during dredging, a 60% weightage would be given to the immediate mean of 6 hours and 40% weight for the preceding 6 hours of the 15-minute interval time series data. Therefore, at any given point of time, turbidity within only a 12 hour window is being considered. It is not clear in the draft EIS how much weightage is given to the collected baseline data at each monitoring point. A running 6-hourly EWMA for a year of baseline data is presented in Figures 3.2 to 3.14, Appendix H1. However, it is unknown how statistical shifts in turbidity during dredging would be assessed against baseline historical data. Where there are no historic data for the proposed new water quality monitoring sites the EMWA approach would not provide an effective measure of change and the proponent would need to define a baseline for those sites prior to dredging.	Justify the lack of appropriate weightage for the historical baseline data in the EMWA control chart at each compliance site during dredging. EWMA control charts should be reliable and weighed against the baseline value. Describe in detail how a lack of historic data at some proposed compliance monitoring sites would be managed with during the proposed project.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.4 and Appendix H (Section 6.6.1).

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12	Department of Environment and Science	Advisory agency	12.40	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, section 6.6.1	Water quality	Proposed turbidity triggers that would be used to assess compliance, did not match the baseline data presented elsewhere in the draft EIS. Furthermore, the source of the proposed triggers were not able to be determined. Consequently, it is not clear whether the proposed compliance triggers are appropriate. For example, results of baseline 80th percentile turbidity values presented in the Table 4.10, Section 4.8.2 of Appendix H1 do not match the baseline 80th percentile values proposed for the triggers in Table 11 of Appendix Q3. All of the proposed triggers are higher than the equivalent baseline percentiles. For example, 80th percentile values for all the monitoring points in inshore waters are less than 13 NTU for all seasons. However, proposed 80th percentile triggers of up to 19 NTU have been set in the Table 11. Given the duration of the proposed project (i.e. approximately one year), relatively high compliance turbidity trigger values set at all the monitoring points may not be appropriate to protect environmental values.	Present summary statistics for the proposed turbidity triggers (in Table 11, Appendix Q3) and demonstrate that these values are representative of baseline conditions. State the source of data used to derive numerical criteria for turbidity monitoring in the Table 11 of Appendix Q3.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.5 and Appendix H (Section 6.6.1).
12	Department of Environment and Science	Advisory agency	12.41	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, section 6.6.1 , and Table 11	Water quality monitoring	The EMP includes a common turbidity trigger limit (i.e. a single trigger) for all the offshore monitoring points (including CD1, CD2, CD4 and CD5). The use of a single trigger for multiple sites is not adequately justified. Some variation in turbidity between sites is expected. According to the discussion and results presented in the Table 4.10, Section 4.8.2 of Appendix H1, turbidity at offshore sites is often stratified and varies spatially as compared to a well-mixed inshore water. This is evident from the data presented in Table 4.10. For example, turbidity at CD5 is very low as compared to the CD2 and CD3 in dry and wet seasons. Therefore, it is likely necessary to stipulate separate triggers for each site. There is a need to clarify that compliance would be assessed for each site independently. Furthermore, reasons for excluding CD3, the only monitoring point at the mid-harbour from compliance monitoring is unexplained.	Set site specific compliance limits for each off-shore site separately (i.e. add separate triggers for CD1, CD2, CD4 and CD5 in the compliance monitoring Table 11, Appendix Q3). Clarify that compliance checking and reporting would be undertaken for each site independently using site specific triggers. Describe why site CD3 was excluded, from Table 11. The department recommends that this site be reinstated.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.3.2.1 and Appendix H (Section 6.6.1, Tables 7, 8 and 11).
12	Department of Environment and Science	Advisory agency	12.42	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, Table 11	Water quality monitoring	The turbidity triggers applied at site NW50 in the Narrows are not sufficiently conservative to reflect the management intent of a Slightly Disturbed (SD) system under the EPP (Water). The triggers presented are suited for a Moderately Disturbed system and should be revised to reflect the management intent for SD waters under the EPP (Water). The triggers used should not seek to maintain water quality, but demonstrate it is being improved to achieve the Water Quality Objectives. Guidance on approaches to develop water quality guidelines for a SD system are provided in a draft guideline on Deciding aquatic ecosystem indicators and local water quality guideline at:https://environment.des.qld.gov.au/water/pdf/deriving-local-water-quality-guidelines.pdf	Revise the turbidity triggers in Table 11, Appendix Q3 for site NW50 to reflect the management intent of Slightly Disturbed (SD) under the EPP (Water).	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix H (Table 11).

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12	Department of Environment and Science	Advisory agency	12.43	Appendix G – Coastal Processes and Hydrodynamics Technical Report	Appendix G	Water quality modelling	There are some uncertainties surrounding the water quality predictions presented in the modelling outcomes in Appendix G of the draft EIS due to: • turbidity being modelled at a single depth range (i.e. 1m from the bottom) • ensuring consistency of modelling assumptions between scenarios • the expected timeframes for the dredge campaign • the potential for increased volume of tailwater releases during wet weather. These matters are discussed below. Predictions were made using a depth averaged turbidity of the bottom 1m of the water column over a 14 day period across the Port (see Figures 5-10 and 5-13 in section 5.4). The predicted turbidity at a depth of 1m may not be sufficient for a comprehensive ecological risk assessment. The department notes that plumes from TSHD and other dredging operations often leave trails of suspended sediments in the entire water column. The draft EIS modelling assumptions used to assess the channel duplication (Section 5.2.3.2, Stage 2 Dredging) as compared with Stage 1 (Initial works) were not clear. The draft EIS does not describe the cumulative impacts on the water quality from proposed channel duplication activities, and tail water discharge from reclamation areas for all Stages of the dredging campaign during the proposed project life-span (of approximately 1 year). Furthermore, draft EIS Table 2.12, Chapter 2, Project Description proposes a dredging campaign of approximately 58 weeks for channel duplication. However, modelling presented in Section 5.2.3.2 considers a dredging scenario of only 25 weeks for the Stage 2 (channel duplication) dredging works. The implications of any under-predictions on the EMP remains unknown.	Include a detailed discussion and assessment of the limitations of the modelling and the predicted zones of impact.	Y	Proponent to address.	There appears to be a mis-interpretation of the modelling outputs presented in the Project EIS Appendix G. Further information is provided below to assist in the interpretation of the modelling results and predicted zones of impact. 1.The bottom 1m results are presented to meet a GBRMPA requirement and were not used as the basis for the impact zone derivation. Depth-averaged turbidity results are also presented, and were used in the impact zone derivation 2. The modelling assumptions for each scenario are clearly outlined in Appendix G. The average change in the turbidity percentiles was calculated for each stage of the dredging campaign, and the overall impact at each location in the model was taken as the largest predicted impact from any of the project stages. 3. The impact zone derivation process does include the cumulative impact of all project stages, and tailwater discharge 4. The total duration of channel duplication dredging works (Stage 1 and Stage 2) is 58 weeks (33 weeks plus 25 weeks). There is no inconsistency with the EIS Project description. 5. Tailwater discharge will be managed during wet weather to ensure discharge limits are not breached.
12	Department of Environment and Science	Advisory agency	12.44	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, Table 1	Water quality monitoring	Elevated levels of nutrients (e.g. nitrogen and phosphorous) in marine waters during dredging could be a major stressor for the coral reef ecosystem at the Port and adjacent marine park area. It is recommended that monitoring for the full suite of nutrients is undertaken to fully assess the contribution of the tailwater releases to nutrients in the Port. Therefore, numerical criteria for monitoring nutrients in the tailwater discharge are not sufficient (see Table 15). Water quality monitoring parameters for the tailwater discharge should include TN, TP, DON, ammonia, oxidised nitrogen, particulate phosphorus, dissolved organic phosphorus and filterable reactive phosphorus.	Include end-of-pipe monitoring for the full suite of nutrients i.e. TN, TP, DON, ammonia, oxidised nitrogen, particulate phosphorus, dissolved organic phosphorus and filterable reactive phosphorus.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.12.
12	Department of Environment and Science	Advisory agency	12.45	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, section 6.1.1	Water quality monitoring	The EMP does not include monitoring sites in close proximity to the tailwater release from the WBE reclamation area. Because end-of-pipe limits for the tailwater discharge are greater than water quality objectives for TSS and NTU, there would be a mixing zone in the receiving environment. The department recommends that an additional monitoring site and appropriate triggers be included adjacent to the proposed WBE reclamation area. This would help to ensure water quality objectives for TSS and NTU are met in close proximity to any release.	The draft EIS should include an additional monitoring site in close proximity to the tailwater release and apply appropriate triggers in the EMP as required.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 8.3.2.2
12	Department of Environment and Science	Advisory agency	12.46	Appendix Q3 – Environmental monitoring procedure	Appendix Q3, Tables 8, 9 and 10	Water quality monitoring	The draft EIS should commit to continuous monitoring of physiochemical parameters at all stages of the proposed project. This can be readily achieved and may provide early indication of any variation in metals etc that are being tested for less frequently.	Include continuous monitoring of all physiochemical parameters for all stages of the proposed project.	Y	Proponent to address. Update the commitment list to include a commitment to undertake continuous monitoring of all physiochemical parameters for all stages of the proposed project.	This submission comment has been addressed in AEIS Section 22.6 and Appendix H (Tables 8 to 10 and Figure 4).
12	Department of Environment and Science	Advisory agency	12.47	Appendix Q3 – Environmental monitoring procedure	Appendix Q3	Water quality monitoring	Numerical triggers for physicochemical parameters and toxicants are not provided in Appendix Q3, Tables 5 and 6 for water quality monitoring during dredging. Howoever, triggers for pH, EC, DO, metals and metalloids are required in the receiving environment, as the activity has the potential to impact on these parameters.	Include numerical triggers for pH, EC, DO, metals and metalloids in Appendix Q3, Tables 5 and 6. Triggers should be defined according the Australian Water Quality guidelines, 2018, the State, regional, baseline or literature data as appropriate.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix H (Section 6.1.2 abd Tabke 6).

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12	Department of Environment and Science	Advisory agency	12.48	Appendix Q3 – Environmental monitoring procedure	Appendix Q3	Water quality monitoring	The draft EIS EMP proposes to monitor dissolved metals. However, in Chapter 8, section 8.3.5, it was recognised that human drinking water (for waters in which desalination for drinking water may apply) is a relevant Environmental Value within the EPP (Water) for the Port of Gladstone adjacent coastal waters and nearby estuaries. Where human drinking water is a relevant environmental value, metal concentrations are required to be measured as 'total metals' to allow a full assessment of potential impacts to human consumers. Accordingly, there is a need to monitor the total concentration of toxicants (e.g. metals and metalloids) and apply relevant triggers in the Monitoring Plan.	Consider and describe the relevance of Human Drinking values of water in Port Curtis, given it is listed as a relevant Environmental Value within the EPP (Water). Include available monitoring limits for the total concentration of metals and metalloids as per national, state and regional guidelines.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.7 and Appendix H (Table 6).
12	Department of Environment and Science	Advisory agency	12.49	9 Nature conservation	Appendix Q3	Biodiversity offsets	Under the offsets assessment framework it must be demonstrated how impacts have been avoided before mitigation measures are applied and then offsets provided for any remaining significant residual impact (SRI). However, the draft EIS does not describe how the proposed project has sought to avoid impacts and no description is presented in Chapter 9 as to the acceptability of impacts to MSES (noting that there are also a range of matters of national environmental significance (MNES) impacted by the proposed project).	Clearly describe how the proposed project has sought to avoid impacts to MSES. Describe why the level of adverse impact to a range of environmental values and MSES is considered an acceptable environmental impact.	Y	Proponent to address. Proponent to update the supplementary dredge material placement report to provide a more robust analysis of potential feasible dredge material disposal options including other land-based alternatives to the proposed reclamation area. Noting that the methodology for disposal has changed since the options analysis. There are a number of options in the Appendix which were not taken forward as the methodology at the time (i.e. pumping material) made these options unfeasible. The proponent should revise these options and provide a discussion on whether these options are now feasible using the most recent proposed methodology (barging and transporting material) or whether they would still be unfeasible due to other factors (e.g. availability of land, unreasonable economic costs or environmental reasons. The proponent and OCG to work with DES and DAF to determine the level of options analysis required to satisfy the needs of the agencies.	This submission comment in relation to avoiding impacts on MNES and MSES has been addressed in AEIS Section 9.15.1. The Project EIS Supplementary DMPOI has been replaced with the AEIS Appendix C. The Channel Duplication Project Draft Offset Strategy is provided in AEIS Appendiix E4.

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12	Department of Environment and Science	Advisory agency	12.50	9 Nature conservation	Chapter 9	Options analysis - Reclamation	There is no discussion in the chapter as to why the option to reclaim intertidal habitat is the preferred option over potential land-based disposal, particularly in light of the significant environmental values identified within and adjacent the proposed WBE reclamation area. It is noted that some aspects of this rationale is included in the options assessments but the criteria for this assessment does not align with the current proposal in terms of limitations of land disposal sites. However, given the potential impacts to MSES and MNES this justification should be clearly explained in this chapter to assist the reader in understanding why the site was chosen, over sites with less significant environmental values.	Justify why this site was chosen despite potential impacts on the significant environmental values present.	Y	Proponent to address. Proponent to update the supplementary dredge material placement report to provide a more robust analysis of potential feasible dredge material disposal options including other land-based alternatives to the proposed reclamation area. Noting that the methodology for disposal has changed since the options analysis. There are a number of options in the Appendix which were not taken forward as the methodology at the time (i.e. pumping material) made these options unfeasible. The proponent should revise these options and provide a discussion on whether these options are now feasible using the most recent proposed methodology (barging and transporting material) or whether they would still be unfeasible due to other factors (e.g. availability of land, unreasonable economic costs or environmental reasons. The proponent and OCG to work with DES and DAF to determine the level of options analysis required to satisfy the needs of the agencies.	This submission comment has been addressed in AEIS Section 1.6 and Appendix C.
12	Department of Environment and Science	Advisory agency	12.51	9 Nature conservation	Chapter 9	Cumulative impacts	This chapter assesses a range of individual impacts to MSES in isolation from one another. For example, migratory shorebirds are identified as subject to a range of impacts from the construction of the Western Basin Expansion (WBE) reclamation areas including: the direct loss of foraging habitat; vehicle strike; disturbance from construction noise, vibration, dust, waste material, marine debris and weeds; changes in hydrodynamic and water quality (resulting in erosion and siltation) that are likely to lead to loss of foraging resources and roosting behaviour. Migratory shorebirds would also be subject to the potential impacts from dredging, including contaminant releases and increased vessel movements. The impact of these multiple stressors have not been appropriately assessed for their cumulative or synergistic impacts on each identified environmental value, although these pressures acting in concert may lead to a threshold or tipping point for a local population or ecological community.	Clearly identify how the multiple identified potential impacts overlap both spatially and temporally. Clearly describe the cumulative and synergistic impacts of the proposed project on each of the identified ecological values listed in Table 9.1. The revised assessment should inform a revised SRI assessment.	Y	Proponent to address.	This submission comment has been addressed in Sections 9.2.3, 9.3.1, 9.4.5, 9.5.2, 9.6.4, 9.7.1, 9.8.2, 9.10.6 and 9.11.3.

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12	Department of Environment and Science	Advisory agency	12.52	9 Nature conservation	Chapter 9	Sensitive environmental windows	This chapter does not consider or include commitments to schedule dredging and construction works around sensitive environmental windows, in order to avoid or minimise impacts to environmental values. For example, the draft EIS should consider the additional protection afforded by avoiding construction and dredging during: turtle nesting season (when turtles may inter-nest in the Port), seagrass senescence, fish spawning periods, and periods when migratory seabirds use the intertidal areas adjacent the reclamation area.	Consider and commit to the avoidance of sensitive environmental windows to avoid and minimise potential impact of the proposed project.	Y	Proponent to address. Commitment 8.16 in Appendix Q Proponent committments only applies to scheduling the timing of dredging works for managing water quality impacts on seagrass. There are no commitments to avoiding dredging or reclamation construction works around sensitive environmental windows for marine fauna such as marine turtles or migratory shorebirds. Update proponent comittments list to include a comittment to design the dredging program and construction program of the bund wall and reclamation area in consideration of sensitive environmental windows. Identify for dredging campaign and reclaramtion area the highest risk periods for listed species activity, with explanation of management/mitigation measures to be implemented for each.	This submission comment has been addressed in Section 9.14.
12	Department of Environment and Science	Advisory agency	12.53	9 Nature conservation	Chapter 9, section 9.8.2	Seagrass values	The impact of the proposed project on seagrass has been calculated as a percentage of seagrass habitat, based on the area of seagrass habitat in the Port in 2017. The draft EIS states that seagrass meadows are in poor condition and do not cover as large an area as they have historically. The draft EIS should acknowledge the seasonal and longer term variation in the quality and extent of seagrass habitat in describing the likely impact of the proposed project on seagrass.	Provide an estimate of the impact of the proposed project on seagrass based on the historic distribution of seagrass meadows in the Port.	Y	Proponent to address.	This submission comment has been addressed in Section 9.4.2.
12	Department of Environment and Science	Advisory agency	12.54	9 Nature conservation	Chapter 9, section 9.9	Macroalgae	Figure 9.20 does not include all areas of macroalgae in the Port that are known by the department. This map should be reviewed and revised to include all accessible data on the distribution of macroalgae in the Port.	Review all marcroalgae data available for the Port and amend Figure 9.20 to include the full distribution of macroalgae in the Port and amend the impact assessment to reflect any changes in macroalgae distribution.	Y	Proponent to address.	Submission comment has been addressed in AEIS Sections 9.4.2 and 9.4.3.
12	Department of Environment and Science	Advisory agency	12.55	9 Nature conservation	Chapter 9, section 9.9.2.1 Chapter 9, section 9.15.2.1	Seagrass	These sections describes permanent losses of seagrass and soft bottom habitat occupied by macroinvertebrates that would result from the construction of the proposed WBE reclamation area. The WBE reclamation area does not appear to have been designed to avoid and minimise impacts to seagrass or soft bottom habitats as the capacity of the WBE reclamation is greater than that required for this project. A smaller reclamation area would reduce the proposed project's impacts on seagrass and macroinvertebrates. Furthermore, the draft EIS does not describe any analysis of options for the design, shape, size and placement of the proposed reclamation area to avoid and minimise impacts to seagrass, macroinvertebrates and other environmental values in this area (e.g. to minimise impacts to hydrodynamics, turtles, migratory shorebirds). Note: this issue is also described in the critical matters section of this advice.	Describe why a reclamation area larger than is required to accommodate the dredge spoil generated by this project is justified, given that this is inconsistent with the department's management hierarchy of avoid, mitigate, etc. Describe how the design, shape, size and placement of the proposed reclamation area has sought to avoid and minimise impacts to seagrass and macroinvertebrates and other environmental values in this area. Describe how the design of the reclamation has sought to avoid and minimise changes in the local hydrology.	Y	Proponent to address.	This submisision comment has been addressed in the AEIS Revised DMPOI (refer AEIS Appendix C).
12	Department of Environment and Science	Advisory agency	12.56	9 Nature conservation	Chapter 9, section 9.9.2.1	Seagrass	Table 9.33 describes 99.33ha of indirect impacts to seagrass, however no map or figure is included to indicate where these areas of indirect impact are predicted to occur.	Indicate on a map where indirect impacts to seagrass are predicted to occur. Describe the criteria used to identify where indirect impacts are predicted to occur.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.4.2 and Figures 9.9a and 9.9b.
12	Department of Environment and Science	Advisory agency	12.57	9 Nature conservation	Chapter 9, section 9.9.8	Marine plant offsets	This section does not definitively state whether the proposed project would result in a SRI to marine plants.	Update this section to ensure it includes a definitive statement regarding whether a SRI is predicted or not for marine plants.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.2.3 and 9.4.5.

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12	Department of Environment and Science	Advisory agency	12.58	9 Nature conservation	Chapter 9, section 9.10.2	Coral impacts	The draft EIS states that "There is the potential for short term declines in water quality to impact on reef communities during Project activities, however these impacts are not expected to be significant." It is however unclear whether this impact refers to sub-lethal or lethal impacts to corals and whether other elements of the reef community are expected to be impacted or not.	Describe in detail the predicted impacts of dredge plumes and sedimentation on reef communities, including the different taxa present in reef communities (e.g. corals and sponges). Describe whether these impacts are expected to be sub-lethal or lethal impacts. If impacts are predicted to be lethal, include a prediction of the percentage of coral and other taxa that are predicted to die.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.5.1 and 9.5.2.
12	Department of Environment and Science	Advisory agency	12.59	9 Nature conservation	Chapter 9, section 9.11.8	Coral impacts	The following sentence does not make sense, given that the exposure of reef habitats to dredging activity impacts should be temporary "The potential exposure of reef habitat to dredging activity impacts will be permanent and within a contained area, therefore moderate in magnitude."	Clarify what permanent impacts to reef habitat are likely.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.5.1 and 9.5.2.
12	Department of Environment and Science	Advisory agency	12.60	9 Nature conservation	Chapter 9, section 9.12.1.1	Fish communities	The draft EIS does not include a detailed description of the composition of fish communities that utilise the Port, and in particular the proposed WBE reclamation area and the area to be dredged. The draft EIS should propose effective mitigation measures to ensure fish, including stingrays are not trapped within the reclamation area during construction.	Include a detailed description of fish communities that utilise the Port, in particular the species that utilise the areas proposed to be occupied by the WBE reclamation area and the dredge channel. Describe effective mitigation measures that would be implemented during the construction of the WBE reclamation area to ensure fish are not entrapped within the reclamation area.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.6.2.
12	Department of Environment and Science	Advisory agency	12.61	9 Nature conservation	Chapter 9, section 9.13.2	Biodiversity offsets	The estuarine stingray (Dasyatis fluviorum), listed as near threatened under the NC Act has the potential to be impacted by the proposed project given the presence of suitable habitat for this species within the proposed WBE reclamation area and the channel to be dredged. The draft EIS identifies this potential impact. However, it does not include adequate detailed information regarding the distribution and abundance of this species within the Port to support the impact assessment and SRI which concludes no SRI is likely to occur result for this species.	Include additional detailed information regarding the distribution and abundance of the estuarine stingray to support the conclusions of the impact assessment and SRI.	Y	Proponent to address.	This submission comment has been addressed in Sections 9.6.1, 9.6.4 and 9.6.5.
12	Department of Environment and Science	Advisory agency	12.62	9 Nature conservation	Chapter. 9, section 9.17.2.4	Fish communities	This section incorrectly states that impacts to fish species from the construction of the WBE reclamation area would not occur until dredging commences. The construction of the WBE reclamation area would however immediately impact the availability of habitat for fish and the mortality of fish within the reclamation area in the short-term. The impact assessment should be amended to correct this information.	Acknowledge that impacts from the construction of the proposed WBE reclamation area would result in immediate impacts to fish habitat availability and short-term impacts to those individuals entrapped within the reclamation area.	Y	Proponent to address.	This submission comment has been addressed in Section 9.6.2.
12	Department of Environment and Science	Advisory agency	12.63	9 Nature conservation	Chapter. 9, section 9.17.2.4	Indirect impacts of reclamation area	The area of indirect impact on migratory shorebirds from the construction of the WBE reclamation area has not been adequately depicted and accounted for. The foraging area outside the WBE reclamation area is important habitat that is contiguous with the western coastline of the Port (i.e. extending to the north at the roost site (NAR1) at Friend Point). It is noted that the Friend Point roost site would not be directly impacted, however the important foraging habitat associated with the roost site would be impacted. The fidelity that the birds have for these roosts/foraging areas is described in literature as 'critical' and multiple surveys confirm the importance of these foraging areas adjacent roosting sites. Therefore, the department considers that the indirect impact area for migratory shorebirds consists of the intertidal and subtidal foraging areas adjacent to the WBE reclamation area extending to the north, including the Friend Point roosting site. Furthermore, figures in the draft EIS do not clearly depict this area. Figure 9.61 shows potential habitat, however there is no depiction of the extent of habitat likely to be indirectly impacted by the proposed project.	Include an assessment of the total extent of the potential indirect impact area on migratory shorebirds, including the foraging area and adjacent roosting area. The total indirect disturbance area should be calculated in hectares, provided in a table and depicted in a figure at a suitable scale. This additional area should inform a revised SRI assessment that includes both direct and indirect impacts to migratory shorebirds.	Y	Proponent to address.	This submission comment has been addressed in Sections 9.8.1, 9.8.2 and 9.8.3.

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12	Department of Environment and Science	Advisory agency	12.64	9 Nature conservation	Chapter 9, section 9.17.7	Biodiversity offsets	The SRI assessment was stated to be in accordance with the Commonwealth and State offsets framework. Permanent and irreversible impacts to MNES values are recognised and it concluded that an offset for migratory shorebirds would be required under the Commonwealth offsets framework. Information presented in the draft EIS also indicates a potential SRI to other MSES values. The department considers likely impacts to MSES, including HES wetlands, marine plants and protected wildlife habitat (e.g. migratory shorebirds, Beach stone-curlew, water mouse, marine turtles and dugong). However, the draft EIS does not include an offset strategy for review. The acceptability of proposing an offset is predicated on meeting the principle of achieving a conservation outcome. Without providing a proposed offset area analysis the department cannot determine whether an offset is an acceptable course of action. It is noted that the impact includes the loss of a significant area of foraging and roosting habitat for four species of migratory shorebirds listed as endangered under the NC Act, and critically endangered under the EPBC Act.	Provide a draft Offset Strategy for review and assessment. The strategy must addresses both the State and Commonwealth offsets framework requirements.	Y	Proponent to address. Provide a draft offset strategy as additional information. More detail must be provided for matters that are more difficult to offset and highly sensitive matters including critically endangered migratory bird habitat. There needs to be cofidence that an offset can be provided to adequately compensate for the residual significant impact. The additional information should also provide detail (in table format) which shows where MNES and MSES matters overlap.	This submission comment has been addressed in AEIS Appendix E4 (Channel Duplication Project Draft Offset Strategy).
12	Department of Environment and Science	Advisory agency	12.65	9 Nature conservation	Chapter 9, section 9.18	Marine turtle communities	The draft EIS does not provide an adequate assessment of the current knowledge of marine turtles and their habitats within the Port. For example, the draft EIS includes incomplete use of recently published papers and reports; uses references that are irrelevant to the issue discussed; presents a disjointed representation of data relevant to particular issues and a misunderstanding of marine turtle biology.	Update the background and baseline information on marine turtles in the Port in the EIS and address the detailed comments below.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9.
12	Department of Environment and Science	Advisory agency	12.66	9 Nature conservation	Chapter 9, section 9.18.2.1	Marine turtle communities	The draft EIS does not acknowledge the lack of studies focused on surveying or monitoring marine turtle populations foraging in the deeper subtidal habitats of the Port. Studies completed to date have instead focused on green turtles, which preferentially foraging in the shallower waters because of their dependence on a vegetation diet.	Acknowledge that marine turtle surveys in the Port to date have focused on shallow water feeding green turtles. Note the absence of surveys focused on deeper water feeding species/populations and describe the gaps in knowledge of these species in the Port in the draft EIS. Ensure this lack of knowledge regarding deeper water feeding turtle species is adequately considered and addressed in the impact assessment.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9 (marine turtle studies information) and Section 9.9 (precautionany principle incorporated into marine turtle impact assessment).
12	Department of Environment and Science	Advisory agency	12.67	9 Nature conservation	Chapter 9, section 9.18.2.1	Marine turtle communities	The draft EIS is dismissive of the significance of the smaller numbers of the endangered loggerhead, hawksbill and olive ridley turtles, compared to the much larger numbers of green turtles foraging within the Port. The draft EIS should note the following information and amend the impact assessment to account for the vulnerability of these less common species to further impacts.	Address these comments and take account of the vulnerability of the less common turtle species to additional losses of habitat and individuals via indirect and direct mortality. •The SW Pacific loggerhead genetic stock experienced major decline in breeding numbers in eastern Australia (attributed to drowning in Prawn Trawls) since the 1970s. By 2000, the annual nesting population in Queensland was estimated at approximately 500 females for the year (equivalent to an 86% decline in numbers). In the past 18 years, the population recovery have been minimal: the current size of the annual nesting loggerhead population in Queensland is at approximately 75% of the population level of the mid-1970s. The reduction in the area of available habitat and the mortality of even small numbers of large immature and adult loggerheads within the population within Port Curtis should not be dismiss as not significant. It should be noted that the recent IUCN RED-LISTING has classified the SW Pacific Loggerhead genetic stock as critically endangered. •The olive ridley nesting population within Queensland is a unique and endemic genetic stock to Queensland. The annual nesting population is currently estimated at a few hundred adult females annually and with an annual recruitment of new females into the breeding population approaching zero. The olive ridley turtles that have been recorded within Port Curtis and the immediately adjacent waters have not been genetically assessed to identify their stock. Any reduction in the area of available habitat and the mortality of even a small numbers of large immature and adult olive ridleys within the population within Port Curtis should not be dismiss as not significant. •The multiple genetic stocks of hawksbill turtle populations nesting within north Queensland and the eastern Coral Sea region are all severely depleted and the mixed stocks of hawksbill turtles foraging within the GBRWHA are in decline. A reduction in the area of available habitat and the mortality of even a small numbers of immature and adult hawksbills within the population within Port Curtis should not be dismiss as not significant.	Y	Proponent to address.	These comments have been addressed in AEIS Section 9.9.2. However the information below should be noted in relation to the submission comments. According to the 2013 review undertaken by Limpus et al for the Port of Gladstone ERMP, isolated loggerhead turtles nest on beaches within the port limits of Port Alma and Port Curtis, but not on an annual basis and they have also been recorded within the port limits of Port Alma and Port Curtis. During the ERMP studies, aimed to increase the understanding of the Green Turtle population in Port Curtis, reports of loggerhead turtles foraging within the Port have only been documented throughout 2016, with no observations reported in 2017 and the report for 2108 is currently not available. As for Hawkbill turtles, the 2013 review reported that no Hawksbill turtle nesting has been recorded within the 500km radius area of interest around Port Alma and Port Curtis. The 2016 report increased the understanding of the Green turtle population in Port Curtis and stated that a search of rocky reefs bordering the Pelican Banks, Quoin Island and Facing Island during turtle rodeo capturing of Green turtles failed to find Hawksbill turtles foraging within this habitat type and only 3 Hawksbill turtles were reported from in the Port of Gladstone (Limpus et al. 2016b). For Olive ridley turtles, the 2013 review states there is no index nesting beach for monitoring Olive ridley turtle breeding in eastern Australia, there is no index foraging area for monitoring Olive ridley populations in eastern Australia and there has been no recorded breeding by Olive ridley turtles in eastern Australia. The Australian nesting is mostly restricted to Western Cape York Peninsula, Arnhem Land and adjacent islands. While the species has been only rarely reported from within Port Alma and Port Curtis, Olive ridley turtles have been recorded throughout the broader area of interest (500km radius) with respect to Port Alma and Port Curtis.

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12	Department of Environment and Science	Advisory agency	12.68	9 Nature conservation	Chapter 9, section 9.18.2.1	Marine turtle communities	Table 9.66 does not acknowledge the full range of habitats utilised by marine turtle species in the Port. This table and the impact assessment for these species should be updated to reflect this information.	Amend Table 9.66 to acknowledge the following information. •The presence of a foraging flatback population within the deeper subtidal waters of the Port, including existing dredged channels (foraging on soft bodied benthic invertebrates). •Foraging by pelagic post hatchling flatback turtles (foraging on plankton in the entrances to Port Alma & Port Curtis). •Presence of a foraging loggerhead population within the deeper subtidal waters of the Port, including existing dredged channels (foraging on mollusc, crustacean and echinoderm benthic invertebrates). •Known foraging hawksbill population utilising coral and rocky reefs and some soft bottom habitats within the shallow and deeper subtidal waters of the port (foraging on encrusting invertebrates and algae). •known foraging olive ridley population within the deeper subtidal waters of the port, including existing dredged channels (foraging on mollusc and crustacean benthic invertebrates).	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9.2.
12	Department of Environment and Science	Advisory agency	12.69	9 Nature conservation	Chapter 9, section 9.18.2.2	Marine turtle communities	The draft EIS has confused inter-nesting habitat with foraging habitat. Inter-nesting habitat is the habitat utilised by nesting females while preparing eggs for the nest clutch to be laid within a single breeding season. Breeding females within the inter-nesting phase do not feed. Furthermore, the draft EIS does not consider the potential for dredging activities during the flatback nesting season to cause mortality, injury or disturbance to these turtles while preparing eggs for laying during the successive fortnightly nesting cycles. There is no evidence of green turtle inter-nesting habitat within the Port, however a significant proportion of the inter-nesting habitat utilised by locally nesting flatback turtles lies within the Port and overlaps with the proposed area for dredging.	Correctly refer to areas of the Port that are used for inter-nesting by each turtle species. Account for potential impacts of proposed project activities on the reproductive output and survival of inter-nesting flatback turtles.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9.2 (inter-nesting habitat information) and Section 9.10 (impact assessment). However the information below should be noted in relation to the submission comments. It is important to note that not all marine turtle species nest in the Gladstone region based on the biological information presented in 2008/2009 and 2013 reviews on Olive ridley and Hawksbill turtles as well as turtles recorded nesting on local beaches, South End in particular. As for Leatherback turtles, they are known to nest south of Gladstone and as far north as Mackay. There is no record of this species on Curtis Island in 25 years or on Facing Island during its program. There is no evidence for internesting behaviour for the limited number of Green and Loggerhead turtles that nest in the Gladstone region.
12	Department of Environment and Science	Advisory agency	12.70	9 Nature conservation	Chapter 9, section 9.18.2.2	Marine turtle communities	The draft EIS incorrectly reports leatherback nesting at Curtis, Peak and Avoid Islands during the 2017-18 breeding season. This is incorrect as there has been no recorded breeding by leatherback turtles in Queensland in the last 20 years.	Correct reference to leatherback nesting at Curtis, Peak and Avoid Islands in the 2017-2018 breeding season and the incorrect reference to Limpus et al, 2018.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9.2.
12	Department of Environment and Science	Advisory agency	12.71	9 Nature conservation	Chapter 9, section 9.18.2.3	Marine turtle communities	The draft EIS includes misunderstandings of the diet of green turtles and resulting misrepresentation of the habitat of the species. Green turtle populations can function solely on an algal diet and therefore utilise the full spectrum of intertidal and shallow subtidal habitats for foraging. However, the draft EIS considers only seagrass as green turtle habitat and therefore very much underestimates the habitat of green turtles within the Port. The draft EIS also does not include recent finding by the Gladstone Ports Corporation (GPC) funded marine turtle monitoring teams currently working in the Port and therefore does not include recent learnings regarding significant foraging aggregations of green turtles within the Port.	Correct reference to leatherback nesting at Curtis, Peak and Avoid Islands in the 2017-2018 breeding season and the incorrect reference to Limpus et al, 2018. Amend Table 9.69 to include seagrass, macroalage and mangroves in the calculation of green turtle habitat in the Port. Reanalyse the potential impact of the proposed project based on this wider range of habitat use by green turtles.	Y	Proponent to address.	These submission comments have been addressed in AEIS Section 9.9.2 (reference to leatherback nesting) and Section 9.10.2.1 (Green turtle habitat).
12	Department of Environment and Science	Advisory agency	12.72	9 Nature conservation	Chapter 9, section 9.18.2.4	Marine turtle communities	The draft EIS fails to recognise foraging by immature and adult flatbacks in deeper subtidal waters, including dredged channels and the presence of post hatchlings foraging on plankton in surface waters. The draft EIS therefore potentially underestimates the potential impacts of the proposed project on flatback turtles. Furthermore, the draft EIS includes inconsistencies on the stability of the flatback turtle nesting population. Emphasis should be given to the most recent reports.	The impact assessment of flatback turtles must take account of: • the loss of benthic foraging habitat for flatback turtles • the potential for dredging related death or injury of foraging flatback turtles • the impact of subsequent maintenance dredging which would prevent or impede recovery of available food resources in the channel. Revise the impact statement to reflect these matters.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.9.2.

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12	Department of Environment and Science	Advisory agency	12.73	9 Nature conservation	Chapter 9, section 9.18.2.5	Marine turtle communities	The draft EIS does not include recent findings of resident foraging populations of hawksbill and loggerhead turtles within the Port, as identified by the GPC marine turtle research teams.	Provide information regarding resident foraging population of resident foraging hawksbill and loggerhead turtles within the Port from the GPC funded marine turtle monitoring team. Based on this information, amend the impact statement and risk assessment for these species to take account of: • the loss of benthic foraging habitat • the potential for dredging related death or injury of foraging turtles • the impact of subsequent maintenance dredging which will prevent or impede the recovery of available food resources within the proposed dredging footprint.	Y	Proponent to address.	These submission comments have been addressed in AEIS Section 9.10 (impact assessment).
12	Department of Environment and Science	Advisory agency	12.74	9 Nature conservation	Chapter 9, 9.19.1.2	Marine turtle communities	Given the current state of knowledge for marine turtles within the Port, the "likelihood of occurrence" of loggerhead, hawksbill, olive ridley turtles should be changed to "expected" in Table 9.68 and elsewhere in the draft EIS. Furthermore, the footnote of this table should state that all marine turtle species are listed as Species of Conservation Significance.	Amend Table 9.68 to reference loggerhead, hawksbill and olive ridley turtles as expected to occur. Amend the table footnote to read: "All marine turtle species are listed as Species of conservation significance." Amend the impact assessment for these species to address that they are expected to occur in the Port.	Y	Proponent to address.	The submission comment in relation to the table footnote has been addressed in AEIS Section 9.9 . The likelihood of occurrence for the six marine turtle species have not been amended as these liklihood levels are considered appropriate based on the current state of knowledge for marine turtles with the Port. It is important to note these liklihood levels for the marine turtle species have not directly influenced the Project impact assessment, as all five marine turtle species (i.e. Green, Flatback, Loggerhead, Hawksbill and Oliver ridley) have been incorporated into the impact and risk assessment, including the threatening processes (refer AEIS Appendix E2), potential synergistic impact assessment and significant residual adverse impact assessment (refer AEIS Section 9.10).
12	Department of Environment and Science	Advisory agency	12.75	9 Nature conservation	Chapter 9, 9.19.1.2	Marine turtle communities	The draft EIS does not describe the impact of removing an area of habitat and the potential impact of this habitat removal on populations of marine turtles. A reduction in the area of available foraging habitat has the potential to reduce the Ports carry capacity for the herd, resulting in a reduction in the species population size. The draft EIS does not adequately address this matter in the impact assessment.	The assessment should acknowledge and take account or the longer-term impact of this permanent loss of habitat on marine turtles	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.10 (impact assessment).
12	Department of Environment and Science	Advisory agency	12.76	9 Nature conservation	Chapter 9, 9.19.2.5	Marine turtle communities	The draft EIS does not adequately address the matter of light impacts on marine turtles nor recognise that the current level of sky glow over the Port is already adversely impacting nesting turtles and the ocean finding behaviour of hatchlings on nesting beaches within at least 18km of the Port. Any additional light spill from the dredge and the dredge material placement area and unloading facility during the proposed project, including during subsequent operations on the proposed WBE reclamation area, would add additional light pollution into a light environmental already impacting marine turtles.	Acknowledge that the addition of light into an environment already impacting marine turtle behaviour will likely impact on marine turtles. Describe the potential impacts and likely changes in turtle behaviour and population. There is no currently demonstrated turtle friendly light that is non-disruptive to marine turtles, therefore mitigation measures must be implemented to ensure that: •only amber LED aeroscreen lighting is used outside of buildings on the reclamation area •using shading, no light source within the area is directly visible from outside the perimeter of the area (excluding lighting required for navigation and safety).	Y	Proponent to address.	The submission comment in relation to the existing light environment within the Port) has been addressed in AEIS Section 9.10.2.5. The submission comment in relation to the turtle friendly light migation measures has been addressed in AEIS Appendices G and I.
12	Department of Environment and Science	Advisory agency	12.77	9 Nature conservation	Chapter 9, section 9.19.3 and 9.19.3.2	Marine turtle communities	The draft EIS should consider that there are four species of marine turtles utilising the entire proposed dredge footprint that are feeding on seagrass, algae, mollusc, crustaceans, echinoderms, seapens, soft corals, and encrusting invertebrates. The dredge footprint should also be considered habitat for dolphins who transit and forage in this area. Therefore the entire dredge footprint should be considered in calculations of habitat loss for each turtle and dolphin species, with resulting reductions in the carrying capacity of the Port for each species.	Ensure the impact assessment includes the entire dredge footprint in calculations of habitat loss for all four turtle species and dolphin species.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.10.3.2.
12	Department of Environment and Science	Advisory agency	12.78	9 Nature conservation	Chapter 9, section 9.19.3.4 and 9.19.3.5	Marine turtle communities	It is unrealistic to expect that dredging through marine turtle habitat would not result in some direct mortality, potentially of endangered marine turtle species, either from contact with the dredger of from vessel strikes. Any direct mortality has implications for the recovery of these species which should also be adequately discussed in the draft EIS.	Acknowledge and address the potential for the direct mortality of marine turtles during dredging.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.10.3.4 and 9.10.3.5.
12	Department of Environment and Science	Advisory agency	12.79	9 Nature conservation	Chapter 9, section 9.19.3.5	Marine turtle communities	The draft EIS does not discuss the results from telemetry studies which have showed a significant proportion of the inter-nesting flatback turtles breeding on the Gladstone coast are utilising the proposed area for dredging during the three months of each breeding season. There are no studies to identify the potential impact of dredging on inter-nesting female egg production or behaviour. Furthermore, it is unclear whether the creation of new deeper channels has the potential for increasing the proportion of the nesting population that utilises inter-nesting habitat under the Port shipping traffic and what impact the increased use of this habitat might have on their ongoing reproductive success and survival.	Describe the potential negative impact of dredging on the behaviour of inter-nesting female flatback turtles and their egg production. Describe the potential implications of an increasing proportion of the inter-nesting flatback turtle population utilising a deeper shipping channel. Incorporate the risk of direct mortality and the disruption of egg production in these inter-nesting females into the risk assessment for this species.	Y	Proponent to address.	These submission comments have been addressed in AEIS Section 9.10.3.2 (dredging impacts) and Section 9.10.7 (Project impact implications for Flatback turtles).

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12	Department of Environment and Science	Advisory agency	12.80	9 Nature conservation	Chapter 9, section 9.19.3.6	Water quality	The draft EIS does not include an assessment of the impact of short-term declines in water quality during dredging on filter feeding fauna (for example, but not limited to bivalves, sea pens) that are food for marine turtles and other species.	Include an assessment of the potential impact of short-term declines in water quality during dredging on benthic macroinvertebrates.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.10.3.6.
12	Department of Environment and Science	Advisory agency	12.81	9 Nature conservation	Chapter 9, section 9.19.3.7	Marine turtle communities	The draft EIS does not address the potential impact of the proposed project on the dispersal of turtle hatchling at night from nesting beaches such as at the southern end of Facing island. Dispersing hatchlings can be attracted to the illuminated water around vessels and in such situation there would be an increased level of predation of the hatchlings by fish and sharks.	Assess fully the potential impacts of lighting on marine turtles. The department does not consider the potential impacts as negligible. The EIS should consider the potential impact of lighting and the potential for hatchling aggregations near dredge vessels that would likely result in increased turtle hatchling mortality. There are no currently demonstrated turtle friendly light that is non-disruptive to marine turtles. Therefore mitigation measures must be implemented to ensure (with the exception of required navigation lighting) that: •ōnly amber LED aeroscreen lighting is used for lighting outside of cabins •c̄abin portholes on all vessels to be blacked out at night to prevent light spill •w̄ith the use of shading, no light source within the area is directly visible from outside the vessel perimeter.	Y	Proponent to address.	These submission comments have been addressed in AEIS Sections 9.10.2.5 and 9.10.3.7 (potential impacts of lighting) and Appendices F and I (marine turtle friendly light mitigation measures).
12	Department of Environment and Science	Advisory agency	12.82	9 Nature conservation	Section 19.19.7	Marine turtle communities	The department disagrees with the current SRI assessment completed for marine turtles and believes that the proposed project would results in a SRI for species of marine turtle. It is noted that the SRI should be reassessed based on the changes requested in previous comments on the draft EIS with regards marine turtles.	Address the preceding comments regarding marine turtles, including the SRI assessment.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.10.6 and 9.10.8.
12	Department of Environment and Science	Advisory agency	12.83	9 Nature conservation	Section 9.18 - Marine Turtles	Marine turtle communities	The draft EIS has treated the potential impact of each project activity on marine turtle species quite separately from those of other proposed project activities. No attempt has been made in the draft EIS to assess the cumulative impact of all project activities on marine species of turtle.	Include a comprehensive and detailed assessment of the potential cumulative impacts of all project activities on each marine turtle species.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.10.6 and 9.10.8, noting that the cumulative impacts of all Project activities has been incorporated into the synergistic impact assessment.
12	Department of Environment and Science	Advisory agency	12.84	9 Nature conservation	Section 9.20.2.3 - Dugongs, and Section 9.21.7 - Significant residual impact assessment, and Table 9.79	Dugong communities	The draft EIS states that dugongs feed in all seagrass meadows in the Port. The WBE reclamation area is located in an area declared a dugong protection area (Rodds Bay) under the Fisheries Act 1994 and the NC Act. As such, these intertidal seagrass meadows are considered important foraging habitat for the local dugong population. The loss of this seagrass meadow from the construction of the WBE reclamation areas has the potential to reduce the extent of occurrence of the local dugong populations. The total area of mapped seagrass meadows within and adjoining the WBE reclamation area in 2017 was 156ha. However, it is noted that if the historical extent of seagrass (from 2002-2016) was used this would total an impact area of 375ha. It is considered that the historical extent of seagrass meadows provides a more appropriate impact area. Also, it is recognised that areas currently mapped as sand will likely contain seagrass seeds and propagules within the substrata and the maintenance of a viable seedbank is essential for the resilience of seagrass meadows in the Port. These areas should be considered as 'likely', if not 'known' habitat. The department considers that the project will result in a SRI to dugong. A revised SRI assessment should be undertaken to account for the loss of the historical seagrass extent and account for the total indirect impact area.	Describe the cumulative impact of all direct and indirect impacts of the proposed project on seagrass meadows and foraging habitat on dugongs. Include the historic extent of seagrass habitat in the assessment of the potential impact of the proposed project on seagrass and dugongs. The disturbance area should be calculated in hectares, provided in a table, depicted in a figure at a suitable scale and inform the revised SRI assessment.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.11.4.3 and 9.11.5.2.
12	Department of Environment and Science	Advisory agency	12.85	9 Nature conservation	Section 9.21.3.3 - Short term decline in warer quality in the marine environment	Dolphin communities	This section does not reference two recent studies of contaminants in humpback dolphins (Meager and Limpus 2014 and Weijs et al 2016). The draft EIS also should discuss the potential impacts of the avoidance of turbid plumes by fish and the resultant impact of this fish avoidance behaviour on dolphins feeding on fish.	Make reference to the findings of these two studies of contaminants in humpback dolphins, noting that the impacts of the contaminants on dolphin health are not well understood. Reference the potential impacts of the avoidance of turbid plumes by fish and the resultant impacts on dolphins.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.11.3.1.
12	Department of Environment and Science	Advisory agency	12.86	9 Nature conservation	Section 9.21.4 - Removal and installation of navigational aids	Noise pollution	Given the low likelihood that dugongs, marine turtles, fish and other marine fauna would be observed even if they are a present, the soft start up for piling must be used regardless of whether these fauna have been observed in the area prior to piling or not.	Amend the piling soft-start mitigation measure to ensure that a soft-start is always implemented before piling.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix G.

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12	Department of Environment and Science	Advisory agency	12.87	Appendix K2 - Underwater Noise Technical Report	Table 2	Noise pollution	This table includes some inaccuracies that must be corrected. The impact assessment for these species should also be amended to take into account these changes in their likelihood of occurrence.	Amend the inconsistencies in Appendix K, Table 2 and the impact assessment for these dolphin species to account for the following information: • Indo-Pacific bottlenose dolphins should be included as “confirmed in the area” • Common bottlenose dolphins, spinner dolphins and false killer whales should be recorded as having “a low likelihood of occurring” in the outer channel • Long-nosed fur seals have also been confirmed relatively close at Pancake Creek • Acknowledge the single record of a southern right whales at Rock Cod Shoals in 2018.	Y	Proponent to address.	This submission comment has been addressed in AEIS Sections 9.11.4 and 9.11.5.
12	Department of Environment and Science	Advisory agency	12.88	9 Nature conservation	Section 9.20 - Marine mammals - whales	Whale communities	The information in this section is inaccurate and incomplete. This section and the impact assessment regarding whales should be amended.	Amend section 9.20, Tables 9.72 and 9.73 to correct the background information and the impact assessment regarding whales. • Table 9.72 should refer to Queensland waters only and should also note that long-nosed fur seals often visit the Gladstone area during winter (e.g. Pancake Creek in 2018, DES unpublished data) • Amend Table 9.73 to correct the following information: The common minke whales have not been confirmed in Queensland waters (only dwarf minkes and Antarctic minkes. Omura’s and fin whales have been recorded in Queensland waters (Eye on the Reef data)); Southern right whales have been confirmed in the Gladstone region (DES data); other than humpback whales, all species should be recorded as having a low likelihood of occurrence in the area. • Humpback whales: As the size of the humpback population increases, the number of humpback whales visiting the Port is expected to increase. The migration season is also lengthening, with migrants now expected from May to October (with low numbers also reported in April and November). The draft EIS should be amended to note this information.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.11.2, Table 9.38 and Sections 9.11.4 and 9.11.5.
12	Department of Environment and Science	Advisory agency	12.89	9 Nature conservation	Section 9.20 - Marine mammals - dolphins	Dolphin communities	This section includes some incomplete and incorrect information that should be amended. The impact assessment for these species may also require correction.	Amend section 9.20 and Table 9.74 to correct the information below, regarding marine mammals-dolphins, particularly: • Only the Australian humpback dolphin is frequently found in the Port. Indo-Pacific bottlenose dolphins have also been reported in the Port. Within the seaward areas of the dredging works, spinner dolphins, common bottlenose dolphins and false killer whales may be encountered (but are rare in the area) • Table 9.74: remove the common dolphin from this table, which have not been confirmed north of Fraser Island. Either remove Risso’s dolphins or include the other pelagic dolphins (e.g. Fraser’s and Pan tropical spotted dolphin). • Humpback dolphins: The discussion of this species is incomplete. Update the draft EIS with more recent information on population size and structure in the region (e.g. Cagnazzi 2017, Parra et al 2018, Parra and Cagnazzi 2016, Meager et al 2018). • Snubfin dolphins: Only one snubfin dolphin has been reported in the Port (D. Cagnazzi, pers. comm.) • Coastal bottlenose dolphin and Indian Ocean bottlenose dolphin: revise and use the standard names for these species from the scientific literature, which is the Indo Pacific bottlenose dolphin, Tursiops aduncus and the common bottlenose dolphin, Tursiops truncatus. It is the former species that is associated with inshore habitats in Queensland (locally referred to as the ‘inshore bottlenose dolphin’), whereas common bottlenose dolphins are pelagic and are larger. There are many scientific articles on Tursiops aduncus that should also be referred to in the draft EIS.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 9.11.3.3 and Table 9.39.
12	Department of Environment and Science	Advisory agency	12.90	13 Noise and vibration	Section 13.4.2.2 - Marine fauna hearing sensitivities		The draft EIS should reference the findings of a study of hearing thresholds measured for the humpback dolphins sibling species Sousa chinensis (Li et al 2012).	Reference and discuss the findings of this study of hearing thresholds in the humpback dolphin sibling species Sousa chinensis.	Y	Proponent to address.	This submission comment has been addressed in Section 9.11.3.2.

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12	Department of Environment and Science	Advisory agency	12.91	9 Nature conservation	Chapter 21	Cumulative impacts	Ongoing development in the Port is leading to a step wise reduction in wildlife habitat and the degradation of Port's environmental values, which is not acknowledged in the draft EIS. For example, the proposed reclamation area comprises 48.62 ha of HES wetlands and 156.41 ha of seagrass. However, the draft EIS does not describe the areas of habitat that have already been lost as a result of previous development in the Port. The cumulative impact of development in the Port on these values and matters is not discussed. The draft EIS should include a rigorous, detailed discussion based on scientific evidence of the cumulative impact of the current proposed development in the context of the impacts of historic Port development.	Include a rigorous, evidence based assessment of the cumulative impact of historic port development (by GPC and others) on the environmental values of the Port. Include a table that lists the hectare area of each habitat lost as a result of historic development in the Port. Discuss the potential impacts of this current project in relation to historic impacts to these values. Discuss whether the additional impacts from this project are acceptable in terms of the cumulative historic impacts.	Y	Proponent to address by: - providing references to relevant information on the existing environment as provided in the draft EIS - providing a summary of how development has occurred in the Port of Gladstone in the past (or referencing where this information could be found in the draft EIS), including acknowledgement of how long-standing development has impacted on environmental values in the Port.	This submission comment has been addressed in AEIS Section 9.12.
12	Department of Environment and Science	Advisory agency	12.92	9 Nature conservation	Section 9.29.13 - Significant residual adverse impacts assessment	Cumulative impacts	The draft EIS states a range of significant impacts to MSES from the construction of the WBE reclamation areas. Table 9-88 states the following impact areas: • 48.6ha of HES wetland • 275.5ha of protected wildlife habitat (migratory shorebirds) • 275.5ha of protected wildlife habitat (beach stone-curlew) • 156.5ha of marine plants (seagrass). The department notes that these extents do not include areas subject to indirect impacts. Any SRI assessment should assess potential direct and indirect project impacts. There are unclear or contradictory statements regarding the extent of impacts to prescribed environmental matters. For example, section 9.9.2.1 states that based on the historical extent of seagrass the construction of the WBE reclamation area and areas adjoining it would result in the direct loss of 375ha of coastal seagrass habitat. In contrast, the SRI assessment only includes 156.5ha of marine plants (seagrass).	Provide a detailed assessment of the impacts to MSES (and MNES) that relate to the offsite and indirect impacts of proposed project activities. The assessment should take into account the definition of indirect impacts in the SRI guidelines by the Department of State Development, Infrastructure and Planning 2014 and the Significant impact guidelines 1.1, Commonwealth of Australia 2013 available at: http://www.dlgrma.qld.gov.au/resources/guideline/planning/dsdip-significant-residual-impact-guideline.pdf. and http://www.environment.gov.au/system/files/resources/42f84df4-720b-4dcf-b262-48679a3aba58/files/nes-guidelines_1.pdf Clarify the extent of impacts for MSES and MNES by adequately accounting for and combining the indirect impact areas to the direct impact areas. This additional indirect impact area should inform a revised SRI assessment and any potential offset obligation. Ensure the draft EIS consistently refers to both direct and indirect areas of impact.	Y	Proponent to address. Ensure consistent numbers presented in draft offsets stategy (as per comment ID 12.64)	This submission comment has been addressed in Section 9.15.3.
12	Department of Environment and Science	Advisory agency	12.93	11 Climate and climate change assessment	Chapter 11	Climate change	This chapter does not include reference to all climate change discussions in other chapters. For example, this chapter does not discuss climate related hazards in Chapter 20, or the storm vulnerability report by James Cook University (2004).	The proponent should cross check to ensure all climate change related assessments discussed in other draft EIS chapters are included in chapter 11.	Y	Proponent to address.	This submission comment is addressed in AEIS Sections 11.4 and 11.5.
12	Department of Environment and Science	Advisory agency	12.94	11 Climate and climate change assessment	Section 11.5.5.7 - Sea level rise, and Chapter 20, section 20.6.1 - Safety in design, and Appendix Q1, section 7.6.1 - WBE reclamation area, and Chapter 7, section 7.3.2 - Extreme water levels	Climate change	The draft EIS should clearly reference the source of all information used in calculations and discussions of predicted sea level rise and the proposed height of the WBE reclamation area bund wall. For example, projected sea level rise for 2030 (0.13m) and 2090 (0.64m); predicted 1,000 year ARI storm tide and climate change conditions of +1.79m; or climate change allowance of 0.87m by 2010.	Ensure the draft EIS clearly states the source of all data related to climate change predictions.	Y	Proponent to address.	This submission comment is addressed in AEIS Sections 11.3.1 and 11.3.2.
12	Department of Environment and Science	Advisory agency	12.95	7 Coastal processes and hydrodynamics	Section 7.3.2 - Extreme weather, and Chapter 11, section 11.5.3 - Tropical storms and cyclones, and Chapter 20, section 20.4.2.1 - Cyclone	Extreme weather	The draft EIS includes contradictory information regarding predictions for the frequency and intensity of cyclones. Chapter 7 refers to predictions of a 10% increase in the frequency and intensity of cyclones, while Chapters 11 and 20 refer to a decrease in the formation of cyclones, but an increase in the intensity of rainfall during extreme rainfall events, such as cyclones.	Remove the contradictions in the draft EIS with regards the frequency and intensity of cyclones.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 11.2.

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12	Department of Environment and Science	Advisory agency	12.96	12 Air quality and GHG assessment	Section 12.6.2 - Greenhouse gases	Emissions	The draft EIS only assesses the impact of some sources of GHG emissions and not others. It is unclear why some sources of GHG emissions were omitted. The department notes the following GHG emissions sources have been omitted from the GHG assessment: • GHG including carbon dioxide and met2hane that would be released from dredged material once placed above the water level • Barges and tugs • Maintenance dredging plant • Vehicles, trucks and other on land machinery and equipment.	Describe all GHG emission sources, there potential impacts and proposed mitigation measures in the draft EIS. Where GHG emissions are omitted from the draft EIS clearly explain why.	Y	Proponent to address for sources associated with this project	This submission comment is addressed in AEIS Section 12.4.
12	Department of Environment and Science	Advisory agency	12.97	12 Air quality and GHG assessment	Section 12.6.2.2 - Dredging operations, sectopm 12.7 - Summary	Emissions	This chapter contains inconsistencies in annual CO2-e emission estimates. Maximum annual emissions for the proposed project are estimated at 175,421 tCO2-e in section 12.5.4 and 262,059 tCO2-e in Table 12.34.	Correct or justify this inconsistency in maximum annual emissions estimated for the proposed project.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.5.
12	Department of Environment and Science	Advisory agency	12.98	12 Air quality and GHG assessment	Section 12.5 - Potential impacts	Emissions	Wind erosion of exposed land areas was estimated using the default TSP emission factor of 0.85 Mg/ha/yr, based on USEPA AP42 Chapter 11.9 (see Appendix J). The short term hourly emissions estimated based on this emission factor may not represent the worst case emissions during strong winds. Strong wind have a tendency to lift-off more dust and to generate worse emissions during hours. The Australian NPI specifies default TSP emission factor as 0.4 kg/ha/hr which is much greater than the adopted value. Furthermore, it is not clear how the emissions for wind erosion were estimated in Table 12.21, Table 12.22 and Table 12.24.	Discuss why the lower USEPA emissions factor was applied rather than the higher than the Australian NPI value. Discuss the implications of using the lower emissions factor on the modelled dust emissions. Discuss how worst case emissions compare to those modelled using the USEPA emissions factor. Discuss dust emissions from wind erosion of exposed areas under strong wind conditions and the effect these worst case emissions will have on the estimated maximum ground level concentrations (GLC) at sensitive receptors. Explain how the dust emissions from the wind erosion were estimated in Table 12.21, Table 12.22 and Table 12.24.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.6.
12	Department of Environment and Science	Advisory agency	12.99	12 Air quality and GHG assessment	Section 12.5 - Potential impacts	Emissions	A number of control measures to mitigate dust emissions are proposed to be implemented during the construction of bund walls and during dredged material barge unloading operations at BUF and placement at the reclamation areas (see Table 12.20 and Section 12.5.1.3). For the estimation of dust emissions, it was assumed that watering would achieve a 75% reduction in emissions from wheel generated dust and a 50% control on all other extraction and processing activities. The NPI Emission Estimation Technique Manual for Mining (NPI, 2012) specifies two control efficiencies for watering: • 50% control – Level 1 watering (2 L/m2/hour), and • 75% control – Level 2 watering (>2 L/m2/hour). It is not clear whether Level 2 and Level 1 watering is proposed to be applied to achieve a 75% reduction in emissions from wheel generated dust and a 50% control on all other extraction and processing activities.	Clarify in the EMP whether Level 2 or Level 1 watering is proposed to be applied to achieve a 75% reduction in emissions from the wheel generated dust and a 50% control on all other extraction and processing activities.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.2.
12	Department of Environment and Science	Advisory agency	12.100	12 Air quality and GHG assessment	Section 12.5 - Potential impacts	Emissions	The mass emissions of air pollutants for the diesel generators were estimated using Australian NPI emission factors and provided in Table 12.23. However, the draft EIS does not provide information on stack emissions in terms of concentrations at the standard temperature, pressure and oxygen reference level to compare against the source emission standards. The department considers this best practice based on NSW EPA Protection of the Environment Operations (Clean Air) Regulation, 2010: http://www.legislation.nsw.gov.au/sessionalview/sessional/sr/2010-428.pdf	Provide and describe emissions of air pollutant from the diesel generators in terms of mg/Nm3 at oxygen reference level and compare against the NSW POEO Regulation 2010.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.2.
12	Department of Environment and Science	Advisory agency	12.101	12 Air quality and GHG assessment	Section 12.5.2 - Dredged material placement dredging operation	Emissions	It is estimated that activities such as dredging and the transport of dredged material from the BUF to the reclamation areas would result in elevated ground level concentrations (GLC) of dust across some of the residential areas in Targinnie. Particularly, PM10 is considered as the most critical parameter. The maximum PM10 24-hr average GLC presented in Figure 12.33 reflects this issue. However, the GLC at the sensitive receptors in Targinnie were not provided in the draft EIS.	Proved at least the cumulated maximum PM10 24-hr average GLC at the sensitive receptors in Targinnie. Should the maximum concentration exceed the EPP (Air) objective, provide the number of days of exceedances per year.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.3.

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12	Department of Environment and Science	Advisory agency	12.102	12 Air quality and GHG assessment	Section 12.5.2 - Dredged material placement dredging operation	Emissions	Predicted dust deposition rates during the proposed project are expected to exceed ambient air quality objectives and as a result have potential impacts on flora and fauna values. The draft EIS states additional management measures would be applied to reduce GLC of particulates and dust deposition rates during dredged material placement, including additional watering to ensure material being dozed or graded is damp and applying suppressants to reduce emissions from material haulage. Dust deposition monitoring was also proposed near the wetlands and bird habitat areas to assist in validating actual dust deposition rates due to the proposed project. However, the EMP and draft EIS Commitment (Appendices Q1, Q2 and Q4) do not describe these monitoring programs.	Include a commitment to conduct dust deposition monitoring near the sensitive receptors in the EMPs (Appendices Q1, Q2 and Q4). Include triggers for actions to protect against impacts of dust deposition at these sites and describe potential actions to avoid dust deposition impacts.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 12.8 and Appendices F and G. The commitment has also been included in AEIS Appendix I.
12	Department of Environment and Science	Advisory agency	12.103	12 Air quality and GHG assessment	Section 12.6.1 - Air quality	Emissions	Watering is included as a proposed mitigation measure to supress dust generation and minimise air emissions. However, the potential source of this water is not defined, nor the potential impact of different water qualities on the proposed project's ability to meet local water quality objectives and discharge limits.	Describe the likely source of water to be applied as a dust suppression. Include an analysis of the potential impact of this water on the ability of the proposed project to meet water quality objectives and release limits.	Y	Proponent to address.	This submission comment is addressed in AEIS Section 12.7.
12	Department of Environment and Science	Advisory agency	12.104	12 Air quality and GHG assessment	Section 12.6.2 - Greenhouse gas, and Appendix I3 Table 1 - Potential project impact on threatening processes for conservation significant and mirgratory species and Threatended Ecological Communities	Emissions	This section includes mitigation measures related to greenhouse gas (GHG) emissions, including: • fuel efficiency/maintenance/scheduling of machinery and vehicles • dredging operations that are meant to apply to energy use and GHG emissions but these are not listed in the Air Quality Management Plans within Q1/2 EMPs • minimisation of diesel consumption during the earthworks • consideration and evaluation of the potential to supplement fuel volumes with bio-diesel • reduction of heavy fuel consumption in dredging vessels by connecting them to mains power while docked. However, these proposed mitigation measures are not included in the Air Quality Management Plans, though some are listed in Appendix Q4 draft EIS Commitments.	Include a commitment to prepare an Air Quality Management Plan, which includes all mitigation measures for GHG emissions.	Y	Proponent to address. Update commitment list to include a commitment to prepare an Air Quality Management Plan, which includes all mitigation measures for GHG emissions.	This submission comment has been addressed in the AEIS Section 12.8. The commitment has also been included in AEIS Appendix I.
12	Department of Environment and Science	Advisory agency	12.105	13 Noise and vibration	Appendix Q2 - Project environmental management plan	Noise pollution	The draft EIS has appropriately dealt with noise and vibrations that would be generated by the proposed project. However, the draft EIS and Appendix Q do not describe how the proponent would enforce the implementation of commitments and mitigation measures described in the draft EIS by contractors and sub-contractors working on the proposed project.	Describe how the proponent would ensure project contractors and subcontractors would implement commitments and proposed mitigation measures described in the draft EIS.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendix G (Sections 5.1 and 6.7), and AEIS Appendix F (Sections 5.2 and 6.7).
12	Department of Environment and Science	Advisory agency	12.106	14 Waste	Chapter 14	Waste	The department notes that the proposed project would not likely generate large quantities of waste or difficult waste to manage and would not involve any of the waste Environmentally Relevant Activities (ERA). Waste including office waste, waste oils, kitchen waste, would be managed as would be managed for any large construction project.	Should the project be allowed to proceed, the department recommends the following waste conditions to be imposed : • All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste. • Incompatible wastes must not be mixed in the same container or waste storage area.	Y	Proponent to address. Proponent to update commitment lists to include a commitment that: - all waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste. - incompatible wastes must not be mixed in the same container or waste storage area.	This submission comment has been addressed in the AEIS Section 2.4 and Appendices F and G. The commitment has also been included in AEIS Appendix I.
12	Department of Environment and Science	Advisory agency	12.107	Appendix B1 - Supplementary DMPOI Study	Section 2.2.2 - Findings	Reclamation area concept design	Five potential dredged material placement sites are excluded from further suitability assessment for use by the proposed project in this section of the supplementary options assessment (Appendix B1). However, no rationale for their exclusion from further analysis is provided. It is noted that the rationale for their exclusion is mentioned in Appendix B2, however, the department considers that a revised options assessment should reconsider all previously considered and additional dredge spoil placement sites, given changes in the regulation of dredge spoil and dredging methodology, that allows for dredged material to be trucked more than 3km from the dredging activity and expands the potential sites available for the placement of the dredged material. Note: this comment is also discussed in the critical matters section of this advice.	Undertake a revised options assessment that acknowledges the changes in the regulation of dredged material placement and the dredging and transport methodology proposed for the project.	Y	Proponent to address. Proponent to update the supplementary dredge material placement report to provide a more robust analysis of potential feasible dredge material disposal options including other land-based alternatives to the proposed reclamation area.	This submission comment has been addressed in AEIS Section 1.6 and Appendix C.

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12	Department of Environment and Science	Advisory agency	12.108	Appendix B1 - Supplementary DMPOI Study		Reclamation area concept design	The options assessment should describe how the potential implications of climate change have been considered in the options assessments and the final choice of the preferred dredged material placement sites. The draft EIS should describe why the preferred option is appropriate in light of the potential impacts of climate change on this site.	Describe how potential impacts of climate change have been considered in the options assessments and the final choice of the preferred dredged material placement sites. Describe why this site is appropriate in light of these potential climate change impacts.	Y	Proponent to address.	The potential impacts of climate change are not considered to be a significant factor in the determination of the preferred dredged material placement location for Project dredged material. Climate change considerations have been incorporated into the Project EIS and AEIS concept design of the proposed WBE reclamation area, and the Project EIS and AEIS Chapters 11 and 12 provides the appropriate Project impact assessment in relation to climate change issues and impacts.
12	Department of Environment and Science	Advisory agency	12.109	Appendix D - Independent Review of WB bund wall Findings and Recommendations	Table 2 - Key findings and recommendations from independent review of bund wall performance	Reclamation area concept design	In response to the independent review of the western basin bund wall leakage, the proponent has committed to undertake: • additional geotechnical investigation for the WBE reclamation area and BUF • groundwater modelling and piping investigation, during the detailed design phase of the proposed project. It is recommended that these studies be undertaken as part of the draft EIS to ensure the risk of leakage from the proposed WBE reclamation area can be managed appropriately, particularly in light of the significant issues identified with leakage from the previous reclamation area.	Complete the required geotechnical, groundwater modelling and piping studies and present the findings in an amended draft EIS to demonstrate that the risk of leakage from the proposed WBE reclamation area can be managed appropriately.	Y	Proponent to address, including any results (or update on progress) on commitments in response to independent review.	This submission comment has been addressed in AEIS Appendix I. The appropriate timing for undertaking the additional geotechnical investigation, groundwater modelling and piping studies for the WBE reclamation area and bund walls is during the Project detailed design phase and as part of the Operational Works (tidal works) application and approval process.
12	Department of Environment and Science	Advisory agency	12.110	22 Environmental management plans	Chapter 22	Approvals	The draft EIS should include draft conditions for each approval required for the proposed project.	Propose draft conditions for all coastal approvals required for the proposed project, including the environmental authority needed for ERA 16.	Y	Proponent to address. Provide indication of expected timing for provision of proposed conditions sets.	This submission comment has been addressed in AEIS Section 22.10. GPC will provide OCG with proposed draft conditions in October and November 2019.
12	Department of Environment and Science	Advisory agency	12.111	Appendix Q2 – Project Environmental Management Plan	Section 8.10 - Water quality management plan	Water quality	The draft EIS EMP does not include monitoring nor effective mitigation measures that would be implemented to detect and respond to detected leakages from the reclamation walls.	Describe effective monitoring and mitigation measures to ensure bund wall leakages are detected and can be responded to appropriately.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.8 and Appendices G and H.
12	Department of Environment and Science	Advisory agency	12.112	Appendix Q2 – Project Environmental Management Plan	Section 7.6.2 - Placement of armour material via trucks along public roads	Water quality	The draft EIS EMP should discuss in detail the risk of a section of bund wall not being adequately armoured prior to a break in construction (i.e. for a significant weather event). The draft EIS should assess the potential impact on water quality were a section of wall to fail after initial construction (but prior to the armour layer being placed). The draft EIS should include a detailed discussion of how breaks in construction would be managed, given that the bund wall would take 18 months to construct per reclamation area.	Discuss in detail how breaks in construction would be managed to ensure protection of the partially constructed bund wall and assess the risks and potential impacts of a partial wall failure.	Y	Proponent to address.	This submission comment has been addressed in AEIS Section 22.9 and Appendices G (Section 8.10) and H.
12	Department of Environment and Science	Advisory agency	12.113	Appendix Q1 – Dredging Environmental Management Plan	Appendix Q1, Q2, Q3	Mapping	Mapping in this section does not include maps showing the location of MNES.	Amend the relevant figures to indicate the location of MNES.	Y	Proponent to address. Note that this comment related to maps in EMP (vs updates to dEIS chapter material).	Mapping of MNES and MSES will be provided in the Dredging EMP and Project EMP as part of post EIS environmental applications.
12	Department of Environment and Science	Advisory agency	12.114	Appendix Q1 – Dredging Environmental Management Plan	Q2 - Project Management Plan and Q3 - Environmental monitoring procedure	Management plans	The management plan for the proposed project does not include all proposed management strategies, mitigation measures and commitments included in individual draft EIS chapters.	Cross check the draft EIS to ensure all proposed management strategies, mitigation measures and commitments listed in the draft EIS chapters are included in the relevant management plan.	Y	Proponent to address.	This submission comment has been addressed in AEIS Appendices F to H.
12	Department of Environment and Science	Advisory agency	12.115	Appendix G – Coastal Processes and Hydrodynamics Technical Report	Section 5.4.4.1 - Maintenance Dredging	Climate change	The draft EIS does not include an adequate discussion on how the projected changes to sea level rise, sediment movement and wave action due to climate change would influence maintenance dredging requirements.	Discuss how maintenance dredging would be influenced by climate change, particularly how the volume of dredged material to be removed during maintenance dredging would change as a results of climate change.	Y	Proponent to address, noting that maintenance dredging approvals are subject to separate approval/assessmnet process.	Any climate change impacts on maintenance dredging requirements at the Port of Gladstone will not be significantly different with or without the Project. The projected minor increase in maintenance dredging volumes due to the Project are independent of any climate change related impacts.
13	Queensland Police Service	Advisory agency	13.01				Nil response	Nil response	N	No action required.	