Need and Desirability

Proposed dredging of the Milnerton Lagoon in the Diep River Estuary, Cape Town

APPENDIX K

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PREPARED FOR
City of Cape Town

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DOCUMENT DETAILS

PROPOSED DREDGING OF THE MILNERTON LAGOON IN THE DIEP RIVER ESTUARY, CAPE TOWN: NEED AND DESIRABILITY

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Report purpose
This appendix provides a description of the rationale and motivation for the proposed dredging of the Milnerton Lagoon. It outlines key aspects of the 'need and desirability' of the proposal, as required by the EIA Regulations.

VERSION HISTORY

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1 INTRODUCTION

The consideration of 'need and desirability' of a proposal is a key part of environmental impact assessment that relates to the context, broader societal needs, and the public interest surrounding a project. Need and desirability, although not defined under the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended (NEMA), are generally considered to relate to

(a) the economic and/or societal benefit likely to be conferred by a proposed activity; and

(b) the policy and spatial planning context in which the proposed activity takes place.

Put another way, the concept of need and desirability relate to whether an activity is being proposed at the right *time* and in the right *place*.

The table below is based on the Guidelines for Need and Desirability (Department of Environmental Affairs and Development Planning [DEA&DP], 2013) and sets out the key considerations motivating the need and desirability of the project proposal. This section should be read with Section E of the Basic Assessment Report (BAR), which sets out in more detail the legislative, policy, and planning context in which the project is proposed.

Table 1. Need and desirability guidelines as applied to the project proposal

Guideline question	Response
• How will this development (and its separate elements/aspects) impact on the ecological integrity of the area? • How were the following ecological integrity considerations taken into account?:	According to the Western cape Biodiversity Spatial Plan (2017), the Milnerton Lagoon falls is not mapped within any Critical Biodiversity Areas, Ecological Support Areas, Other Natural Remaining Areas, and No Natural Remaining Areas, but does fall within a Protected Area, part of the Table Bay Nature Reserve (as per Provincial Gazette No. 8825, published in Gazette Notice No. 91, 22 September 2023). The primary function of Protected Areas is to secure biodiversity and maintain the ecological integrity of the landscapes in which they are situated. The National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM:PAA) requires that land use and management in protected areas is governed by a formally approved management plan. For the Milnerton Lagoon, this is the Table Bay Nature Reserve Integrated Reserve Management Plan (2011). The proposed dredging activity (with or without off-site disposal) is intended to improve the hydrodynamic functionality of the mouth of the estuary, which could reduce the risks associated with flooding events by facilitating improved flow and tidal flushing. Additionally, dredging is anticipated to improve the ecological integrity of the lagoon by reducing the accumulation of organic sediment and increasing tidal exchange. The Diep Estuary is classified in the 2018 National Biodiversity Assessment (NBA) as a 'Heavily Modified' estuarine system, meaning that a large shift in natural process and ecosystem function and/or loss of habitat and biota have occurred. The City of Cape Town's Biodiversity Spatial Plan [BSP] (specifically the 2018 BioNet and draft 2025 BSP) classify the proposed site as a Protected Area, as it forms part of the Table Bay Nature Reserve. The BSP objectives are to maintain the area as a Protected Area. The proposed dredging activity aligns with this objective as it aims to improve the hydrodynamic functioning of the lower reaches of the

Guideline question	Response
o Threatened Ecosystems, o	Milnerton Lagoon and is a remediation measure which, if implemented alongside other pollution abatement measures, is intended to improve the water quality in the Milnerton Lagoon and Diep River Estuary.
o Sensitive, vulnerable, highly dynamic, or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure,	The proposed dredging is being advanced because it will not impact any sensitive or vulnerable ecosystems. Instead, it is intended to enhance tidal exchange and natural scouring, and—when implemented alongside other pollution abatement measures—will contribute to improved water quality in the lower lagoon, thereby supporting ecological restoration. Temporary negative impacts of generally Very Low to Low significance are expected during the implementation phase (i.e. limited to the dredging activity) and are necessary to achieve the anticipated net positive effects of dredging for the lower lagoon.
o Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"),	The site is not located within a CBA or ESA.
o Conservation targets,	The proposed dredging is intended to improve tidal exchange and scour, to contribute to improved water quality in the lower lagoon. The site has been highly disturbed by prolonged anthropogenic pollution inputs. An Estuarine Impact Assessment was undertaken (refer to **Appendix G1** of the Basic Assessment Report [BAR]), which found that the only remaining 'natural vegetation' of environmental significance is the vegetation downstream of the Woodbridge comprising a thin strip of dunes between the Woodbridge Island development and the beach itself. This strip of dunes is outside the project area. The estuarine specialist also noted drastic declines in animal species abundance and diversity over the past 5-10 years.
o Environmental Management Framework	The site does not intersect with any Environmental Management Framework (EMF) areas. As such, no specific EMF policies or requirements are applicable to the proposed dredging. The absence of an EMF intersection confirms that the project area is not subject to any additional environmental management constraints or land use guidelines arising from an EMF.
o Spatial Development Framework, and	The City of Cape Town's 2023 Municipal Spatial Development Framework (MSDF) provides the vision for building an inclusive, vibrant, and sustainable City. Within this framework, the Milnerton Lagoon is identified as both a critical natural asset and a destination place, reflecting its ecological value and contribution to Cape Town's unique identity. The lagoon falls within a Coastal High Intensity Use Area and an area of incremental growth and consolidation. The MSDF sets out three spatial strategies to guide development and capital investment: *promoting economic growth, managing urban expansion while balancing food security and environmental protection, and building an integrated and healthy City*. The proposed dredging of Milnerton Lagoon aligns particularly with Spatial Strategy 2, which emphasizes managing development impacts on natural resources, protecting scenic and biodiversity assets, and promoting water-sensitive design responses.

Guideline question	Response
• Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	The Blaauwberg District Plan (2023) similarly identifies Milnerton Lagoon as a coastal-based destination place of recreational, heritage, and tourism value. It highlights the need to enhance recreation and tourism opportunities, safeguard smaller natural areas, and protect assets that enrich quality of life and the tourism economy. The plan also stresses the urgency of addressing pollution and degradation of water systems across the district. In this context, improving water quality in the Diep River Estuary and Milnerton Lagoon is considered vital for restoring recreational use and natural character. The proposed dredging, by improving tidal exchange and flushing in the lower lagoon, supports these objectives by enhancing ecological functioning, reducing pollution, and aligning with both citywide and district-level spatial planning policies. The proposed activity is not anticipated to impact on any global or international commitments. Nonetheless, the project aligns with national environmental legislation and sustainable development principles, which contribute to South Africa's broader international environmental commitments.
• How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The Estuarine impact Assessment highlighted the existing degradation of the Diep River Estuary caused by poor water quality, loss of biodiversity, and collapse of native fish populations. Modelling confirmed that dredging would improve tidal exchange and flushing in the lower lagoon, with associated benefits such as improved oxygenation of sediments and potential expansion of intertidal feeding areas for waterbirds. While dredging alone will not restore the estuary's health, it is expected to deliver low but positive ecological outcomes, provided mitigation measures are implemented, such as maintaining the dredged channel depth and ensuring the estuary mouth remains open. The Avifaunal Compliance Statement (**Appendix G2** of the BAR) concluded that dredging may cause short-term disturbance to bird habitats, including species of conservation concern, but that long-term outcomes would be beneficial by improving habitat quality. All specialist recommendations have been incorporated into the Environmental Management Programme (EMPr – refer to **Appendix H** of the BAR), ensuring that avoidance, minimisation, and rehabilitation measures are in place.
• How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The Estuarine Impact Assessment describes in detail the fauna and their habitats in the lower Diep River Estuary. With regard to invertebrate fauna, it notes that there have been significant changes to the benthic macrofauna communities in the Diep River Estuary over time, specifically, a dramatic decline in species richness, and an increase in freshwater species. Species that have increased in abundance include insects (primarily freshwater species). Two alien invertebrates not previously reported from the system have also been introduced. These changes reflect the changing water quality profile of the system. The Diep River Estuary system (including Rietvlei) is considered an important area for water birds in the region and is recognised as an Important Bird and Biodiversity Area (IBA) by Birdlife International.

Guideline question	Response
	While most of the information of bird abundance and species richness for the area is focused on Rietvlei, rather than the lower estuary, various sources have reported kelp gull *Larus dominicanus*, Hartlaub's gull *Chroicocephalus hartlaubii*, common tern *Sterna hirundo* and Cape shoveler *Spatula smithii*, as well as predominantly freshwater species such as red-knobbed coot *Fulica cristata* and African darter *Anhinga rufa*. Site visits undertaken by Anchor in December 2020 and February 2022 confirmed that the estuary is an important feeding and roosting area for many bird species, including greater flamingo Phoenicopterus roseus, white-breasted cormorants *Phalacrocorax lucidus* and pied avocets *Recurvirostra avosetta*. Estuaries are considered critically important nursey habitat for fish, and the Diep River Estuary historically represented some 10% of the nursery area for fish on the West Coast, including species such as the white steenbras *Lithognathus lithognathus*. However, there are clear declines in fish species richness over time. These changes are likely linked to changes in water quality, specifically increased ammonia levels linked to malfunctions in the Potsdam WWTW, as well as substantially reduced dissolved oxygen concentrations, which regularly drop below the 2 mg/l threshold for the survival of aquatic species. While many estuarine-associated species are adapted to hypoxia, an increased frequency of low oxygen events (anoxia) has almost certainly negatively impacted benthic fish communities. Dredging is expected to result in disturbance and related impacts to birds, fish and benthic organisms remaining in the lower lagoon, but only in the short-term duration of the dredging activity. Invertebrates will be impacted more directly, if present in the dredged areas, but are expected to recover from adjacent areas. All specialist recommendations have been incorporated into the EMPr, ensuring that avoidance, minimisation, and rehabilitation measures are in place. Overall, the proposed dredging represents the best practicable environmental option, with residual impacts reduced to low significance in most cases and positive outcomes expected in the long term.
• What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether; what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Sewage-derived pollution is a major contributor to the degradation of the lagoon, and recent assessments have concluded that the lagoon is impacted by an excessively high loading of organic waste from the Potsdam wastewater treatment works (WWTW), which discharges into the estuary. The nature of the proposed dredging is such that the dredged material will be placed on the sides of the channel within the intertidal zone and will not be disposed of off-site – thus no waste will be generated by the dredging activity. The EMPr however, includes measures for waste management during the implementation phase for the waste generated by construction personnel.
• How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were	Despite proximity to the Wooden Bridge, the proposed dredging will not impact on this heritage resource, as dredging activities will be limited to the lagoon itself. Hence, no standalone heritage assessment was conducted to

Guideline question	Response
explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	provide mitigation relevant to this theme. Any negative impacts assessed for the proposed dredging nuisance will be temporary and limited to the implementation phase and have been mitigated for within the EMPr. Moreover, dredging may improve public experience of the residents, businesses and visitors that live and work nearby the lagoon because of a reduction in foul odour. With the anticipated increase tidal exchange and dissolved oxygen within the lower lagoon, the proposed dredging is expected to disrupt anoxic conditions and reduce sulphur-producing bacteria that generate the foul "rotten-egg" smell.
• How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Not applicable. The proposed development will not involve the use or exploitation of non-renewable natural resources. As such, there are no anticipated impacts relating to the depletion of such resources and thus no measures were investigated in this regard.
• How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? o Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life) o Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources of the proposed development alternative?) o Do the proposed location, type and scale of development promote a reduced dependency on resources?	The proposed activity is not anticipated to impact renewable natural resources. The proposed dredging activity is anticipated to improve tidal exchange and increase dissolved oxygen availability at the mouth of the lagoon. In terms of location, the proposed alternative ensures largely positive impacts by avoiding impacting the sensitive wetland and salt marsh habitat found upstream and does not make use of any renewable natural resources. The proposed dredging activity is not expected to directly affect the dependency on resource use to maintain economic growth. The goal of dredging is to increase tidal exchange, increasing dissolved oxygen levels and decreasing the occurrence of the nuisance smell of hydrogen sulphide. The combination of the proposed dredging activity with other critical water quality remediation and pollution abatement efforts is anticipated to improve the ecological state of the lower lagoon. The reduction of nuisance and foul smells linked to sewage pollution and hydrogen sulphide will improve the quality of life of the surrounding residents and lagoon users. This may positively influence the attitude of people towards buying property in the surrounding areas which could positively impact economic growth.
• How were a risk-averse and cautious approach applied in terms of ecological impacts?	The mitigation hierarchy has been considered in the design process followed to date, which has developed, assessed and

Guideline question	Response
	discarded alternatives on an ongoing basis to arrive at the proposed activity as presented in Section H of the BAR. The proposed design avoids impacts on sensitive estuarine habitats by limiting the spatial extent of the works to the lower lagoon, rather than impacting on more sensitive salt marsh and wetland habitats upstream. Other impacts have been minimised through careful design and the incorporation of mitigation and management measures as recommended in the relevant specialist assessments. As negative impacts can be successfully mitigated to acceptable levels, there is no need to consider restoration or offsetting of impacts. The proposed activity is itself a remediation project, to address the negative impacts of pollution within the lagoon.
o What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	It must be clearly understood by the applicant, the interested public, and the competent authority that dredging of the Milnerton Lagoon is not in itself expected to contribute significantly to improving water quality or amenity value of this waterbody other than by improving tidal flushing of the lower part of the lagoon. The causes of water quality impacts are well understood and involve the current inadequate treatment of wastewater at the Potsdam WWTW, the periodic discharge of substantial volumes of untreated sewage from failing pump stations and the ongoing low-level runoff of untreated wastewater from unserviced areas of the catchment. Moreover, the proposed dredging of a channel in the lower lagoon is recommended as a short-term remediation measure to be implemented *should* the water quality in the lower lagoon improve, as indicated by increased dissolved oxygen levels exceeding 2 mg/l. This is to ensure that the intervention coincides with improvements in upstream water quality to maximise the ecological benefit rather than undertaking dredging while the source of pollution and cause of ecosystem deterioration remains unchanged. The hydrodynamic effects of the proposed dredging have been modelled using a hydrodynamic model and recent monitoring data, to quantify the anticipated impacts. However, no model can completely account for all factors influencing water quality in the lagoon; thus uncertainties and gaps in knowledge regarding this highly dynamic system remain. It is recommended that monitoring of water quality continue during and after dredging to improve the state of knowledge of the impacts of dredging – both positive and negative. As assessed in the BAR, the positive impacts of the dredging are likely to be limited in their extent (with tidal interchange improved only in the lower lagoon) and duration (with winter flooding potentially resulting in a return to the current channel profile).
o What is the level of risk associated with the limits of current knowledge?	Taking into account the risks, limitations and gaps in knowledge mentioned above, the preferred alternative for dredging of a scour channel with placement of dredged material on the sides of the channel within the intertidal zone is recommended as a short-term remediation option. With effective implementation of the mitigation measures recommended by the specialists, the proposed dredging can
o Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse	

Guideline question	Response
and cautious approach applied to the development?	feasibly be implemented and represents a risk-averse and cautious approach.
• How will the ecological impacts resulting from this development impact on people's environmental right in terms of the following: o Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? o Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	The proposed dredging will contribute to people's environmental rights primarily through positive outcomes, including the removal of historically polluted sediments that currently pose ecological and health risks, enhanced tidal exchange to improve estuarine functioning and resilience, and the creation of new intertidal habitats. These measures are expected to increase dissolved oxygen levels, disrupt anoxic conditions, and reduce odorous hydrogen sulphide emissions. Collectively, this will lead to improved air quality, visual aesthetics, and recreational value, with associated social and economic benefits for surrounding communities. The project design and layout were informed by specialist studies to enhance these positive impacts, and all recommended measures have been incorporated into the EMPr to ensure benefits are realised as fully as possible. Potential negative impacts include direct disturbance or mortality of benthic and estuarine organisms, noise and physical disturbance to species, short-term disruption of avifaunal habitat, and temporary nuisances during implementation such as noise, odour, and increased activity on site. However, given the already degraded state of the lagoon, these impacts are assessed as low in significance and will be further minimised through the application of mitigation measures contained in the EMPr, such as limiting the project footprint, managing construction noise and activity, and monitoring water quality. While the positive effects of dredging may be spatially limited to the lower lagoon and may reduce over time due to natural flood dynamics, the intervention is considered one of the few feasible short-term measures available to help improve conditions in the Milnerton Lagoon and to begin addressing pollution within the system.
• Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	During the construction phase, there will be temporary negative impacts related to noise, odour, and general construction (such as waste generation, dust generation, and risk of spills). The disruption of settled sediment on the lagoon floor will likely release substantial amounts of hydrogen sulphide, which may cause a nuisance odour to neighbouring residents, nearby businesses and other beach-goers. Dredging requires heavy machinery, meaning there will be noise disturbance to nearby residents during operational hours. With construction projects also comes waste generation, and a risk of littering, as well as potential hydrocarbon spills, all of which could pose risks or cause inconveniences to the public if not handled appropriately. Mitigation measures have been included in the EMPr to address all these impacts. These impacts will be limited to the construction phase. Post-dredging, it is expected that dredging, alongside other critical interventions in the greater catchment, will contribute to an overall improvement of nuisance odours, having a positive net effect on the wellbeing of residents near-to and frequenting the lower lagoon.

Guideline question	Response
• Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?	The positive and negative impacts of the proposed activity have been assessed in greater detail within **Section I** of the BAR, which states that the positive impacts of the dredging are likely to be limited in their extent (with tidal interchange improved only in the lower lagoon) and duration (with winter flooding potentially resulting in a return to the current channel profile). Dredging is nonetheless recommended as one of the few short-term remediation options that can feasibly be implemented, alongside other critical water quality remediation and sewage pollution abatement measures. Dredging of the lagoon was recommended in the Diep River Estuarine Management Plan (dated October 2022), which proposed dredging the lagoon to improve hydrodynamic function. The 2023 Water Quality Remediation Plan for the Milnerton Lagoon then proposed numerous sites as possible targets for dredging. During detailed project design, it became apparent the lower lagoon is the only viable target area to dredge at present to achieve intended remediation outcomes. As stated above, the proposed dredging, alongside other critical interventions in the catchment, will contribute to an overall improvement of nuisance odours, having a positive net effect on the wellbeing of residents near-to and frequenting lower lagoon.
• Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	The mitigation hierarchy has been considered in the design process followed to date, which has developed, assessed and discarded alternatives on an ongoing basis to arrive at the proposed activity as presented in **Section H** of the BAR. The proposed design avoids impacts on sensitive estuarine habitats by limiting the spatial extent of the works to the lower lagoon, rather than impacting on more sensitive salt marsh and wetland habitats upstream. Other impacts have been minimised through careful design and the incorporation of mitigation and management measures as recommended in the relevant specialist assessments. In conclusion, the specialist input has ensured that the proposed dredging is aligned with the best practicable environmental option, with residual impacts reduced to primarily low significance through the implementation phase with appropriate avoidance, mitigation, and rehabilitation measures, apart from the impacts on estuarine water quality, which remain medium negative despite mitigation. Post-dredging impacts on the lower lagoon are all assessed to be positive.
• Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	The cumulative impact of the alternatives was considered in the BAR and summarised below. All negative impacts associated with the project are limited to the construction (active dredging) phase, and all positive impacts are for the post-dredging phase: Construction phase: » Disturbance to and mortality of estuarine communities in the dredge footprint (Low negative); » Smothering of estuarine fauna through dredging (Low negative but Very low negative after mitigation); » Waste generation and disposal (Medium negative - but Very low negative with mitigation);

Guideline question	Response
	» Noise disturbance of estuarine habitats and species from dredging activities (Medium negative but Low negative with mitigation); » Water quality impacts related to dredging activities (Low negative); and » Odour impacts on adjacent residents associated with disturbance of sediment during dredging (Without dredging the nuisance hydrogen sulphide smell occurs sporadically. One of the motivations for dredging is to improve this issue, but dredging may make the smell stronger during the implementation phase). Post-dredging phase: » Impacts of dredging on magnitude of the tidal prism (Low to High positive depending on how well the recommended management items are implemented); » Impacts of a deeper channel at the mouth on nutrient-enriched fine sediments settlement and flushing (High positive); and » Impacts on estuarine health linked to the new exposed mudflat intertidal areas resulting from sediment movement (High positive). Refer to **Section I** of the BAR for a more detailed summary of the impacts and associated mitigation measures.
What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
• The IDP (and its sector plans' vision, objectives, strategies, indicators, and targets) and any other strategic plans, frameworks of policies applicable to the area,	The City of Cape Town's Five-Year Integrated Development Plan (IDP) (January 2022 – June 2027), communicates the City's long-term vision and how it is to be achieved, recognising that *"Cape Town's climate, natural assets, and biodiversity are part of what make the city a unique and desirable place to live, work and visit"* (CoCT IDP, 2022-2027, pg. 22). The vision of the IDP is to create a City of hope, in which safety, economic growth and basic services are a priority. Housing, public space, environment, amenities and transport are incorporated into a strategic plan to build a resilient, spatially integrated, inclusive, capable and collaborative city. The proposed dredging activity aligns with the objectives outlined in the IDP for public space, environment and amenities: » Objective 9.1 prioritises a healthy and sustainable environment through environmental and biodiversity management. » Objective 9.2.B focuses on environmental health, outlining the need for a healthy environment with reduced exposure to disease-causing substances and sources. » Objective 10 addresses the need for clean and healthy waterways and beaches. Unsustainable waste management has been identified as a key cause of pollution to water bodies. Objective 10.1.A includes the need for water quality improvement via improved waste management efforts. Objective 10.1.B states that waterway rehabilitation projects are needed, and that *"catching up on the significant backlog in waterway*

Guideline question	Response
	dredging and cleaning will be a priority" (CoCT IDP, 2022-2027, pg. 86). » Objective 11 provides for quality and safe parks and recreation facilities supported by community partnerships. Objective 11.1.B. addresses the need for quality recreational and park areas. Objective 11.2.A includes the need for public space improvement, whereby functional, attractive and safe public spaces are contributing significantly to environmental sustainability, enterprise development and job creation. » Objective 14 addresses the City's desire to increase the resilience of the City. This includes the need for improved environmental health to reduce vulnerability to future pandemics and improve the overall well-being of the City The proposed dredging aligns with and supports the City's strategic objectives as outlined in its IDP. The dredging activity constitutes a critical short-term remediation intervention to ensure the sustainability of the Milnerton Lagoon by promoting a healthier environment, restoring clean waterways and beaches, and encouraging safe recreational use of the lagoon. Collectively, these outcomes will strengthen the City's resilience, while supporting its social, environmental, and economic goals.
• Spatial priorities and desired spatial patterns (e.g. need for integration of segregated communities, need to upgrade informal settlements, need for densification, etc.),	The City of Cape Town's approved 2023 Municipality Spatial Development Framework (MSDF) provides a framework aimed at building a more inclusive, integrated, vibrant and healthy city. The MSDF identifies natural assets and destination places, which make the City a desirable place to live, work, study and travel. According to the MSDF, the Milnerton Lagoon falls within a Coastal High Intensity Use Area and within a spatial transformation area of incremental growth and consolidation as well as a critical natural asset. The lagoon is also identified as a destination place, meaning it is a significant area of attraction contributing to the unique identity of Cape Town. The MSDF outlines three spatial strategies that serve to direct the City's decision-making on development and capital expenditure to implement the MSDF – these strategies are listed below: 1. Plan for economic growth, and improve access to economic opportunities. 2. Manage urban growth, and create a balance between urban development, food security and environmental protection. 3. Building an inclusive, integrated, vibrant and healthy City. The proposed dredging of the Milnerton Lagoon aligns with spatial strategy 2, particularly the sub-strategies and associated policies relating to enhancing the City's unique assets and destination places and appropriately managing land development impacts on natural resources – refer to the MSDF: Volume 1, 2023, pg. 74). » Policy 13 highlights the need to "*protect and enhance scenic route sightlines and places of scenic value, including destination places*".

Guideline question	Response
	» Policy 18 addresses the need to "*increase efforts to protect and enhance biodiversity networks at all levels of government, with the public and private sector*". » Policy 19 states the need to "*plan for and mitigate the impacts of urban development on water resources and encourage water-sensitive design responses*". According to the Blaauwberg District Plan (2023), the Milnerton Lagoon is a coastal-based destination place. The district development guidelines asserts that activities and developments should: » Promote greater recreational and tourism opportunities; » Support the maintenance and enhancement of the character of natural, recreational and/heritage aspects of smaller but hugely valuable recreational and tourism nodes; » Support the many existing small natural special places, which are not appropriate for large numbers of people and attendant support facilities, but which nevertheless are valuable; and » Support natural assets that contribute to quality of life, recreation and the tourism economy. The Spatial Development Objectives in the Blaauwberg District Plan (2023) include promoting access to the coast by the general public and tourists. Supporting land use guidelines include exploring and promoting public amenity and tourism opportunities at accessible locations along the coast such as Milnerton Lagoon. According to the 2023 Blaauwberg District Plan, the pollution and degradation of rivers, wetlands and groundwater systems in the district and greater Western Cape are critical issues. Improved water quality in the Diep River Estuary and Milnerton Lagoon would benefit recreational use and improve the natural character and experience of the lower section of the lagoon. The proposed remediation activity of dredging the lower reaches of the Milnerton Lagoon is intended to improve the hydrodynamic functioning near the mouth of the estuary, to contribute to improved water quality and flushing of the lagoon, and therefore aligns with these guidelines and policies.
• Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	An Estuarine Management Plan for the Diep River Estuary (City of Cape Town and Infinity Environmental, 2022) was adopted by the City's Council in December 2022 and approved by the provincial MEC in in terms of Section 9 of the National Estuarine Management Protocol in April 2023. The plan acknowledges the systemic pressures arising from multiple land uses within the wider catchment area of the Diep River and adopts a transversal approach towards addressing these pressures. A set of specific objectives, for water quality, ecology, hydrology and other factors is established and a total of 47 priority actions are set out in the EMP for the 2022-2026 period. Dredging of the Milnerton Lagoon is specifically listed as a priority action.
• Municipal Economic Development Strategy ("LED Strategy").	The City of Cape Town's approved 2023 Municipality Spatial Development Framework (MSDF) provides a framework

Guideline question	Response
	aimed at building a more inclusive, integrated, vibrant and healthy city. The MSDF identifies natural assets and destination places which make the city a desirable place to live, work, study and travel. According to the MSDF, Milnerton Lagoon falls within a Coastal High Intensity Use Area and within a spatial transformation area of incremental growth and consolidation as well as a critical natural asset. The lagoon is also identified as a destination place, meaning it is a significant area of attraction contributing to the unique identity of Cape Town. The MSDF outlines three spatial strategies: 1. Plan for economic growth and improve access to economic opportunities. 2. Manage urban growth, and create a balance between urban development, food security and environmental protection. 3. Building an inclusive, integrated, vibrant and healthy city The proposed dredging of the lagoon aligns with spatial strategy 2, particularly the sub strategies relating to enhancing the City's unique assets and destination places and appropriately managing land development impacts on natural resources. » Policy 13 highlights the need to "*protect and enhance scenic route sightlines and places of scenic value, including destination places*". » Policy 18 addresses the need to "*increase efforts to protect and enhance biodiversity networks at all levels of government, with the public and private sector*". » Policy 19 states the need to "*plan for and mitigate the impacts of urban development on water resources and encourage water-sensitive design responses*". According to the Blaauwberg District Plan, Milnerton Lagoon is a coastal-based destination place. The district development guidelines state that activities and developments should » Promote greater recreational and tourism opportunities; » Support the maintenance and enhancement of the character of natural, recreational and/heritage aspects of smaller but hugely valuable recreational and tourism nodes; » Support the many existing small natural special places, which are not appropriate for large; » Numbers of people and attendant support facilities, but which nevertheless are valuable; and » Natural assets that contribute to quality of life, recreation and the tourism economy. The Spatial Development Objectives in the Blaauwberg District Plan include promoting access to the coast by the general public and tourists. Supporting land use guidelines include exploring and promoting public amenity and tourism opportunities at accessible locations along the coast such as Milnerton Lagoon.
• Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects),	Current socio-economic impacts of the poor water quality include nuisance impacts of foul odours on residents and businesses near the lagoon. The dredging of the lagoon is one of a suite of necessary rehabilitation measures to begin

Guideline question	Response
and specifically also on the socio-economic objectives of the area? o Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	rectifying the very poor ecological state of Milnerton lagoon. It is intended that dredging, alongside other critical remediation and pollution abatement measures, will contribute to an improved state of the lower lagoon. While the socio-economic benefits of the proposed dredging may not be large-scale or long-term in isolation, the intervention supports foundational improvements in environmental quality, which are essential for promoting a healthier environment, restoring clean waterways and beaches, and encouraging safe recreational use of the lagoon. Collectively, these outcomes will strengthen the City's resilience, while supporting its social, environmental, and economic goals.
• How will this development address the specific physical, psychological, developmental, cultural, and social needs and interests of the relevant communities?	The goal of dredging is to primarily improve the hydrodynamic function of the estuary mouth, increase tidal exchange and dissolved oxygen levels in the lower section of the lagoon. Whilst the aim of the proposed dredging is not directly focused on generating widespread socio-economic benefits, visual and odour nuisance will be reduced through targeted dredging, enhancing the aesthetic and recreational value of the lagoon and generating positive social and economic effects, particularly for local communities and tourism-related activities. In addition, the dredging activities will create short-term employment opportunities, particularly for low- and semi-skilled workers. Where feasible, these opportunities will be prioritised for residents from nearby communities, contributing to local income generation and socio-economic upliftment during the implementation phase.
• Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long term? Will the impact be socially and economically sustainable in the short- and long-term?	Remediating urban pollution impacts on the Milnerton Lagoon is an urgent priority, in light of the ecological, social, and economic impacts of the ongoing water quality and odour issues on surrounding residents and businesses. Dredging of the lower lagoon is one component of the required remedial and pollution abatement actions, and is recommended as a short-term measure to improve hydrodynamic functioning and maximise the amount of tidal flushing in the lower lagoon. As assessed in the BAR, the positive impacts of the dredging are likely to be limited in their extent (with tidal interchange improved only in the lower lagoon) and duration (with winter flooding potentially resulting in a return to the current channel profile). The measure is nonetheless recommended as one of the few short-term remediation options that can feasibly be implemented. It is assumed that the City of Cape Town will implement the upstream interventions specified in its various pollution abatement plans, directives, and catchment strategies with urgency, and that these will reduce the loading of inflowing pollutants to the lagoon. Dredging of the Milnerton Lagoon is not in itself expected to contribute significantly to improving water quality or amenity value of this waterbody other than by improving tidal flushing of the lower part of the lagoon. Upstream pollution sources remain the primary cause of poor water quality and odour in the lower lagoon and it is emphasised that upstream interventions to reduce and

Guideline question	Response
	mitigate the flow of polluted runoff into the lagoon are the most critical aspect of the City of Cape Town's response to the current situation.
In terms of location, describe how the placement of the proposed development will:	
• result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	Employment opportunities during the implementation of the dredging activity.
• reduce the need for transport of people and goods,	The dredging of the Milnerton lagoon will not impact on the need for transport of people and goods .
• result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	The dredging of the Milnerton lagoon will not impact on the access to non-motorised transport routes (i.e.,) along Marine Drive.
• compliment other uses in the area, • be in line with the planning for the area,	The City of Cape Town's IDP communicates the City's long-term vision and how it is to be achieved, recognising that "*Cape Town's climate, natural assets, and biodiversity are part of what make the city a unique and desirable place to live, work and visit*". The vision of the IDP is to create a City of hope, in which safety, economic growth and basic services are a priority. Housing, public space, environment, amenities and transport are incorporated into a strategic plan to build a resilient, spatially integrated, inclusive, capable and collaborative city. The proposed dredging activity aligns with the objectives outlined for public space, environment and amenities: » Objective 9.1 prioritises a healthy and sustainable environment through environmental and biodiversity management. » Objective 9.2.B focuses on environmental health, outlining the need for a healthy environment with reduced exposure to disease-causing substances and sources. » Objective 10 addresses the need for clean and healthy waterways and beaches. Unsustainable waste management has been identified as a key cause of pollution to water bodies. Objective 10.1.A includes the need for water quality improvement via improved waste management efforts. Objective 10.1.B states that waterway rehabilitation projects are needed, and that "catching up on the significant backlog in waterway dredging and cleaning will be a priority". » Objective 11 provides for quality and safe parks and recreation facilities supported by community partnerships. Objective 11.1.B. addresses the need for quality recreational and park areas. Objective 11.2.A includes the need for public space improvement, whereby functional, attractive and safe public spaces are contributing significantly to environmental sustainability, enterprise development and job creation. » Objective 14 addresses the City's desire to increase the resilience of the City. This includes the need for improved environmental health to reduce vulnerability to future pandemics and improve the overall well-being of the City.

Guideline question	Response
• for urban related development, make use of underutilised land available with the urban edge,	Not applicable. The dredging activity will occur within the Diep River Estuary.
• optimise the use of existing resources and infrastructure,	No impacts are expected on existing infrastructure (Woodbridge and Loxton Road bridge).
• opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	The proposed dredging activity does not require bulk infrastructure planning.
• discourage "urban sprawl" and contribute to compaction/densification,	The proposed activity is within the Milnerton Lagoon, and it will have no impacts on urban sprawl.
• contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	The proposed expansion will not contribute to the correction of historically distorted spatial patterns.
• encourage environmentally sustainable land development practices and processes,	Remediating urban pollution impacts on the Milnerton Lagoon is an urgent priority, in light of the ecological, social, and economic impacts of the ongoing water quality and odour issues on surrounding residents and businesses. Dredging of the lower lagoon is one component of the required remedial and pollution abatement actions, and is recommended as a short-term measure to improve hydrodynamic functioning and maximise the amount of tidal flushing in the lower lagoon.
• take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	Hydrodynamic modelling of the proposed dredging found that the proposed dredged channel down the centre of the lower lagoon would facilitate greater saline intrusion and saline wedge development during incoming and outgoing tides. This is expected to increase the exchange of saline and fresh water in the lower lagoon, with the seawater bringing dissolved oxygen into the lagoon. During the dry season, average salinities near the mouth of the lagoon are modelled to increase by 11.6%. During the wet season, modelled average salinities near the mouth are modelled to increase by 54% in the lower water column.
• the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	The proposal in itself is that of providing municipal basic service delivery in the form of rehabilitation of the Milnerton Lagoon.
• impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	The Milnerton Lagoon was historically a popular site for recreation and the remediation of its water quality therefore aligns with the MSDF to allow for the safe continued use of the space for such activities.
• in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	**Environmental Restoration:** The dredging aims to improve water quality by increasing flow velocities and tidal exchange, which helps reduce pollution and improve the ecological health of the lagoon. A healthier lagoon can become a focal point for community activities and environmental education, fostering a sense of shared responsibility and connection among residents. **Enhanced Public Spaces**: By restoring the lagoon, the project can create attractive public spaces for recreation and leisure. Clean and accessible waterfront areas can serve as

Guideline question	Response
	communal gathering spots, encouraging social interaction and community cohesion. **Economic Opportunities:** Improved environmental conditions can attract tourism and related businesses, such as cafes, restaurants, and recreational facilities. This can lead to job creation and economic growth, benefiting the local community and promoting a more integrated and vibrant settlement
How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
• What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? • What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge? • Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	The primary assumption on which the recommendation to dredge the lower lagoon is based, is that the City of Cape Town's other existing projects and programmes relating to pollution abatement in the Diep River Estuary will be successful in reducing the loading of pollutants entering the lagoon. Without these, dredging alone is not expected to significantly improve the current situation. The hydrodynamic effects of the proposed dredging have been modelled using a hydrodynamic model and recent monitoring data, to quantify the anticipated impacts. No model can completely account for all factors influencing water quality in the lagoon, however, and there remain uncertainties and gaps in knowledge about this highly dynamic system. It is recommended that monitoring of water quality continue during and after dredging to improve the state of knowledge of the impacts of dredging – both positive and negative.
How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
• Negative impacts: e.g. health (e.g. HIVAids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	The proposed design avoids impacts on sensitive estuarine habitats by limiting the spatial extent of the works to the lower lagoon, rather than impacting on more sensitive salt marsh and wetland habitats upstream. Other impacts have been minimised through careful design and the incorporation of mitigation and management measures as recommended in the specialist assessment. As negative impacts can be successfully mitigated to acceptable levels, there is no need to consider restoration or offsetting of impacts. The proposed activity is itself a remediation project, to address the negative impacts of pollution on the lagoon.
• Positive impacts. What measures were taken to enhance positive impacts?	The Estuarine Impact Assessment concluded that if dredging a channel into the lower lagoon is implemented alongside other crucial interventions, three main positive impacts will be achieved: **Increased magnitude of the tidal prism** Modelled results suggest that the difference between pre-dredge and post-dredge salinities are minimal at maximum tidal extents (peak high tide and peak low tide). However, the larger post-dredge cross sectional area facilitates larger saline intrusion and saline wedge development in the lower estuary during high energy incoming and outgoing tides (i.e., spring high tides). This can enable increased exchange between saline water and fresh water in the lower estuarine system.

Guideline question	Response
	Improved flushing of sediment, and prevention of future sediment settlement The new, narrow dredged cannel in the lower reaches of the system may concentrate any nutrient-enriched fine sediments that has been transported down the system, where the enhanced tidal prism will more readily flush it out through the mouth (with the overall larger volume flow rate in dredged area). **Creation of new intertidal areas resulting from relocation of material out of the centre channel** Assuming that the additional sediment is colonised by benthic macrofauna, this has the potential to expand the feeding area available to waders and other waterbirds, which feed on the intertidal mud/sandflats. In addition, the creation of larger tidal flats adjacent to the dredge area will be exposed at low tide, along with any deposited material. Exposure to air may facilitate oxygenation of these sediments, and exposure to sunlight may have a sterilising effect. Note that the Estuarine Impact Assessment clarified that the model results and associated assessment suggest that **dredging will not address all of the challenges faced by the Milnerton Lagoon — for long term, high significance positive impacts to be realised, improvement of inflow water from the catchment and various point sources (including the Potsdam WWTW)** is imperative to improve estuarine health over the long term.
• Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	Dredging alone is not expected to achieve the desired permanent ecological, human health and/or aesthetic outcomes unless there is a significant change at a catchment scale, reducing the routing of major pollutants into the Diep River. However, dredging is proposed to be pursued as part of a suite of complementary interventions, with a specific focus on improving tidal exchange in the lower Milnerton Lagoon. These complementary interventions include the upgrading and expansion of the Potsdam WWTW to increase the capacity and efficacy of treatment, and the upgrading of the Koeberg Road and Phoenix sewage pump stations. The proposed dredging intervention supports foundational improvements in environmental quality, which are essential for promoting a healthier environment, restoring clean waterways and beaches, and encouraging safe recreational use of the lagoon. Due to strong linkages and dependencies between human wellbeing, livelihoods and ecosystem services, the anticipated outcomes of the proposed dredging will strengthen the City's resilience, while supporting its social, environmental, and economic goals.
• What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	The 'best practicable environmental option', which relates to the Constitution's requirement to secure 'ecologically sustainable development' requires a consideration of potential negative impacts, known and unknown, against the socio-economic benefits of development. The negative impacts of the proposed dredging activity on the environment can be mitigated by the implementation of the EMPr. Therefore, there are no reasons to not consider the proposed activity to be the best practicable option for the

Guideline question	Response
	site, since it is intended to provide a necessary rehabilitation of the estuary. The specialist input has ensured that the proposed dredging is aligned with the best practicable environmental option, with residual impacts reduced to primarily low significance through the implementation phase with appropriate avoidance, mitigation, and rehabilitation measures, apart from the impacts on estuarine water quality, which remain medium negative despite mitigation. Post-dredging impacts on the lower lagoon are all assessed to be positive.
• What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	There are no adverse environmental impacts associated with the proposed dredging that will unfairly discriminate against any person. The identified preferred alternative is sufficient to allow the best practicable environmental option to be selected. No site alternatives exist for the proposed activity. The alternative layout assessed exhibit similar environmental impacts. Refer to **Section H** of the BAR for the detailed investigation of alternatives for the proposed dredging.
• What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	No impact on access to environmental resources, benefits and services to meet basic human needs and well-being are anticipated as a result of the proposed dredging, therefore no special measures for access are required.
• What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	An EMPr for the construction and post-dredging phases of the proposed dredging has been developed to address this requirement.
What measures were taken to:	
• ensure the participation of all interested and affected parties,	The Public Participation Process (PPP) undertaken as part of the Basic Assessment is detailed in **Section F** of the BAR. Various methods were employed to notify potential Interested and Affected Parties (I&APs) of the proposed project, including media notices, written notifications, and site notices; methods are detailed in **Appendix F** of the BAR.
• provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
• ensure participation by vulnerable and disadvantaged persons,	
• promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	I&APs will be provided with opportunities for participation throughout the environmental assessment process in terms of the Environmental Impact Assessment (EIA) Regulations of 2014, as amended. Furthermore, an environmental awareness plan is incorporated into the EMPr.
• ensure openness and transparency, and access to information in terms of the process,	During the PPP, information will be made as accessible as possible. This is to include the publication of all reports on the internet and sharing of such information via WhatsApp upon request. Transparency will be ensured in all assessment and decision-making processes.
• ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge,	The needs, interests and values expressed by all I&APs will be recorded and recognised during the public participation process.

Guideline question	Response
• ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was promoted.	Participation by all I&APs will be encouraged, and opportunities for women and children will be promoted, during the environmental assessment process.
• Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	There is a pressing need for the undertaking of rehabilitation measures in the Diep River Estuary to address pollution in the lagoon and improve tidal interchanges. The proposed activity will provide for improved social and economic outcomes associated with reduced odour and improved water quality in the lower lagoon.
• What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	There is a detailed environmental awareness programme in the EMPr. The health and safety concerns will be addressed by the implementation of relevant occupational health and safety legislation, and an environmental control officer (ECO) will be appointed to monitor the compliance with the EMPr.
Describe how the development will impact on job creation in terms of, amongst other aspects:	
• the number of temporary versus permanent jobs that will be created,	Considering the nature of the activity, job opportunities will include those associated with the implementation of the dredging activity.
• whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	
• the distance from where labourers will have to travel,	Travelling distance is unlikely to impact on job creation.
• the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits),	The job opportunities will be for the entire site, with equitable distribution.
• the opportunity costs in terms of job creation	No opportunity costs are anticipated.
What measures were taken to ensure:	
• that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment,	The authority consultation process carried out by the EAP will assist in coordinating the policies, legislation and mandates of the various organs of state.
• that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	
• What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The PPP, which is an integral part of the EIA process, provides a means of managing potential impacts of environmental resources and determining whether the proposed use of resources is in the public's interest.
• Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	Mitigation measures are realistic and reasonable; therefore, the risk of a long-term negative legacy due to the dredging activity is low.
• What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	Impacts and their associated recommended mitigation measures have been identified, forming a key part of the EMPr, and will form part of the environmental authorisation, should it be granted. Responsibility for their implementation and compliance with any authorisations would lie with the applicant.

Guideline question	Response
• Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations	Refer to **Section H** of the BAR for a detailed description of alternatives and the selection of the best practicable environmental option.
• Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	Negative cumulative socio-economic impacts are not anticipated in relation to the proposed activity. Positive socio-economic impacts include the creation of employment, which will contribute cumulatively to economic development in the area. Targeting the lower lagoon for dredging will directly reduce odour and visual nuisance at the preferred site, improving the amenity value of the lower lagoon, resulting in positive social and economic spinoffs for nearby residents, local businesses, and tourism, while restoring the lagoon's potential as a recreational asset.