



APPENDIX 8: Botanical, Faunal (terrestrial) and Terrestrial Biodiversity Compliance Statement

FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

**SCOPING & ENVIRONMENTAL IMPACT ASSESSMENT (S&EIA) FOR THE
PROPOSED 2 MEGALITRES PER DAY (MLD) SOLAR POWERED SEAWATER
DESALINATION PLANT IN THE PORT OF EAST LONDON, BUFFALO CITY
METROPOLITAN MUNICIPALITY, EASTERN CAPE PROVINCE, BY TRANSNET
NATIONAL PORTS AUTHORITY**

DFFE EA Application Reference Number: 14/12/16/3/3/2/2845

September 2026



ANCHOR
environmental

PART OF



Proposed two megalitre per day (MLD) solar-powered seawater desalination plant in the Port of East London, Buffalo City Metropolitan Municipality, Eastern Cape Province Transnet National Ports Authority.

DRAFT

**Botanical, Faunal (terrestrial) and Terrestrial Biodiversity
Assessment**

PREPARED FOR:

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JUNE 2026

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Dr Greer Hawley completed her BSc degree in Botany and Zoology and a BSc Honours in Botany from the University of Cape Town in 1998 and 1999, respectively. She completed her PhD (Microbiology) at Rhodes University in 2007. Greer's core academic focus has been in the field of taxonomy both in the plant and fungal kingdom although her research experience is diverse, ranging from fresh water and marine algae, estuarine diatoms, plant species classification and fungal species identification and ecology. Greer was employed at Coastal and Environmental Services (CES) for over 13 years where she was involved with, and managed, many projects ranging from:

- 1) Environmental impact assessments in the aquaculture, waste and renewable energy sectors;
- 2) Biodiversity impact assessments and biodiversity management projects in South Africa, Sierra Leone, Mozambique, Eswatini and Malawi;
- 3) Catchment-based mapping and management plan for climate change adaptation (Malawi) and alien invasive plants (Buffalo City Metro); and
- 4) Environmental Planning projects such as Environmental Management Frameworks, Strategic Environmental Assessments and Environmental Management Plans.

More recently, Greer has become involved with biodiversity planning projects where she managed the review of the gazetted Eastern Cape Biodiversity Conservation Plan (2019) and the revision of the City of Ekurhuleni Bioregional Plan (2020/2021). Through these and the above-mentioned projects, Greer has demonstrated successful co-ordination and management of multi-faceted projects with large teams, meeting deadlines and ensuring the production of high quality deliverables. Stakeholder engagement is a core function in all these projects.

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Jonathan completed his Master's degree in ornithology and phylogenetics through Rhodes University in Grahamstown, which he obtained with distinction in 2023. His M.Sc followed straight on from his B.Sc(Hons) in Zoology, and B.Sc in Entomology and Ichthyology from the same institution. He is an old-school naturalist with a passion for birding, herping and list-keeping, and he has over 10 years of guiding experience around Southern Africa. His other work experience includes contractual EIA surveys (3 years), birding app development (5 years), and junior school sports coaching (3 years). Although his professional focus has usually been ornithological in nature, he is comfortable working with most other animal classes as well and has published both research and photographic material of mammals, fishes, reptiles, amphibians, and invertebrates. Jonathan has been with CES since early 2023.

Acronyms

CBA	Critical Biodiversity Area
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and the Environment
ECBCP	Eastern Cape Biodiversity Conservation Plan (2019)
EN	Endangered
EIA	Environmental Impact Assessment
GN	Government Notice
LC	Least Concern
NBA	National Biodiversity Assessment (2018)
NEMA	National Environmental Management Act
NEMBA	National Environmental Management Biodiversity Act
NEMPAA	National Environmental Protected Areas Act
PNCO	Provincial Nature Conservation Ordinance
QDS	Quarter Degree Square
SANBI	South African National Biodiversity Institute
TOPS	Threatened and Protected Species
SCC	Species of Conservation Concern
VU	Vulnerable

Glossary

Alien Invasive Species refers to an exotic and invasive species that can spread rapidly and displace native species causing damage to the naturally occurring biodiversity and the environment.

Biodiversity is the term that is used to describe the variety of life on Earth and is defined as “*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*” (Secretariat of the Convention on Biological Diversity, 2005).

Protected Area is an area that has been proclaimed for the purposes of conservation and is recognised in terms of the National Environment Management Protected Areas Act.

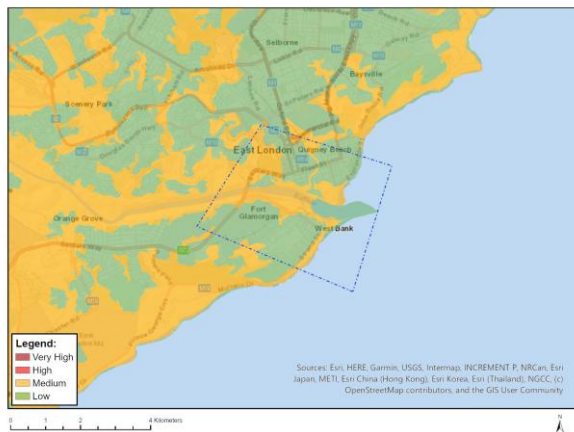
Executive summary

Introduction

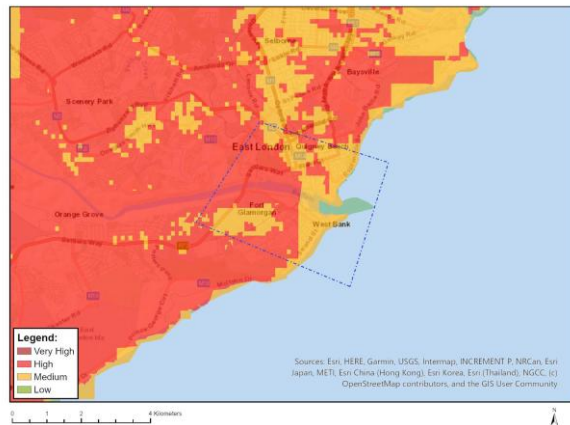
Transnet SOC Limited (division Transnet National Ports Authority (TNPA)) has appointed contractors (Sunwater East London Joint Venture (Pty) Ltd (Sunwater)) for the construction of a two (2) megalitre per day (MLD) solar-powered Reverse Osmosis (RO) desalination plant within the Port of East London (PoEL), Buffalo City Metropolitan Municipality, East London. Big Thorn Environmental, in association with CES have been appointed to undertake the botanical, faunal and terrestrial biodiversity assessment as part of the Scoping and Environmental Impact Assessment (S&EIA) for the project.

National Screening Tool

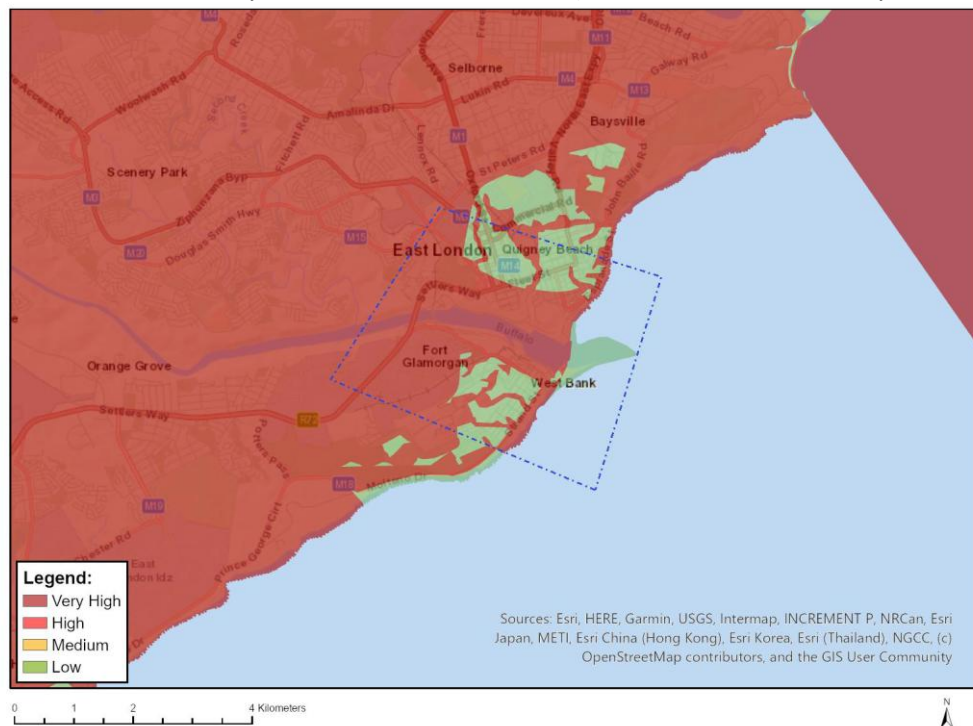
According to the National Screening Tool, the Plant and Animal theme for the wider landscape are of MEDIUM sensitivity, while the Terrestrial Biodiversity theme is mapped as VERY HIGH sensitivity due to the area being mapped as a Critical Biodiversity Area according to the Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019).



a) Plant Theme sensitivity



b) Animal Theme sensitivity



c) Terrestrial Biodiversity sensitivity

Species of Conservation Concern

No plant, reptile, amphibian, mammal or invertebrate Species of Conservation Concern (SCC) were recorded in the proposed project development sites for the PoEL RO and Solar PV sites. However, three threatened species, all water birds, were observed: the Cape Cormorant (EN), Caspian Tern (VU) and African Darter (NT). The populations of these species have adapted to the development and activities of the Port of East London. Land-based developments are not likely to impact these populations significantly.

Site Ecological Importance (SEI) – sensitivity

The majority of the project area has been assessed as Very Low sensitivity, while a small sliver of natural vegetation, which may support mobile threatened species (e.g. birds) has been classified as Low. No concerns regarding any of the proposed development activities in the any of the alternative layouts have been identified.



d) Site Ecological Importance

Terrestrial Biodiversity Assessment

The natural **ecological drivers** (e.g. fire, browsing/grazing) and **ecological processes** (e.g. pollination, breeding/foraging sites) that shape species composition and structure, have been removed from the proposed development sites for decades. Imagery dating back to 1966 and 70 indicate how the sites were already modified. Given the level of modification and degradation, as well as the sites isolation from other natural areas, and the edge effects of surrounding urban, residential and industrial development, the potential for the site to function as an important area for movement of species through the landscape (i.e. important for connectivity) is extremely constrained and highly unlikely.

The National land cover map (2014) was a key informant of the ECBCP (2019). The scale and resolution of the CBA mapping therefore does not always reflect the conditions on the ground, and for this reason

all Biodiversity spatial plans should be ground-truthed. In this instance, historical aerial imagery from 1966 shows the land uses in the Port of East London, and is evidence that the sites proposed for development were historically modified. The proposed development sites therefore do not comply with the requirements of CBAs in terms of the Technical Guidelines for CBA mapping (SANBI, 2017) and the associated land use recommendations/guidelines of the ECBCP (2019) **do not apply**. In addition, it is the opinion of the author that the patches of trees on site do not constitute indigenous forests in structure.

The authors confirm that for the Plant Theme, Animal Theme and Terrestrial Biodiversity Theme, there are no concerns regarding the sensitivity of the proposed PoEL RO-Solar PV facility and associated infrastructure, and that no significant impacts will result from the proposed development. It is therefore the opinion of the specialists that the proposed development may be authorised, with the below recommendations for inclusion into the Environmental Management Programme:

- Conduct a search and rescue prior to clearing to ensure that nests, small reptiles and mammals are moved out of the area.
- Rehabilitate/revegetate construction areas with indigenous plant species.
- During construction and for 6 months post-construction, monitor and eradicate AIPs from the construction site.

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Section 1. Introduction

1.1. Project description, locality, and region

Transnet SOC Limited (division Transnet National Ports Authority (TNPA)) is proposing the construction of a 5.5 ML solar-powered Reverse Osmosis (RO) desalination plant within the Port of East London, Buffalo City Metropolitan Municipality, East London. This water will be used to support port operations and reduce dependence on municipal water supplies. Big Thorn Environmental, in association with CES have been appointed to undertake the specialist botanical, faunal and terrestrial biodiversity assessment as part of the Scoping and Environmental Impact Assessment (S&EIA) for the project.

The main components of the proposed project are summarised below and in Figure 1.1:

Water Intake & Pipelines

The water intake infrastructure will involve an intake head attached to a floating pontoon and on-land pump house covering 340 m³, from which raw water will be pumped to the RO desalination plant.

RO Plant Site

The RO Plant will include the following infrastructure amounting to 1,630m² in extent:

- RO plant and associated systems and infrastructure (general and chemical storage rooms, control room with main electrical switchboard, battery storage containers.
- Brine holding/storage and ultrafiltration tanks.
- Vehicle access and parking area.
- Raw water holding tank (200m³).
- Mini substation/transformer.

Across the road to the north of the RO Plant Site, a site camp (2,900m²) will be established on an area previously used as a site camp for the road upgrade.

Reservoir Site

Just south of the RO Plant Site, freshwater (permeate) produced by the RO plant will be stored in a 1ML reservoir. The site has a footprint of 1,883m² which includes the reservoir and the surrounding access area.

Solar Plant Site

The Solar Plant Site is located east of the Reservoir site and will involve the installation of a PV array to act as the primary energy source for the RO plant. The site is approximately 5,500m².

Marine Outfall & Pipelines

The brine (the water containing the salt removed during the process), which is a by-product of the RO process, will be stored in an on-site holding tank and discharged via gravity through a dedicated marine outfall pipeline. The discharge pipeline follows existing road infrastructure, and crosses over the railway lines to cross over rocky coastline and dolosse and terminate on the seaward edge of the breakwater. The coastal section of the pipeline will be encased in a concrete culvert. Brine discharge will initially be approximately 815 m³/day and increase to 3,260 m³/day at full capacity. A site camp (2,406m²) will be located within the coastal zone adjacent to the port breakwater.

1.2. Alternative layouts considered

The Preferred layout for the water abstraction, RO and Solar Plant and brine discharge has been provided and assessed (Figure 1.1). Alternative layouts and pipeline routes were also considered,

although these alternatives have since been screened out by the engineering team (Figure 1.2). There is no material difference in terms of environmental sensitivity of any of the layout alternatives from a terrestrial biodiversity, plant or animal perspective. In this report, the term “project area” refers to the wider port area that encompasses the proposed preferred layout, associated infrastructure, and previous alternatives.

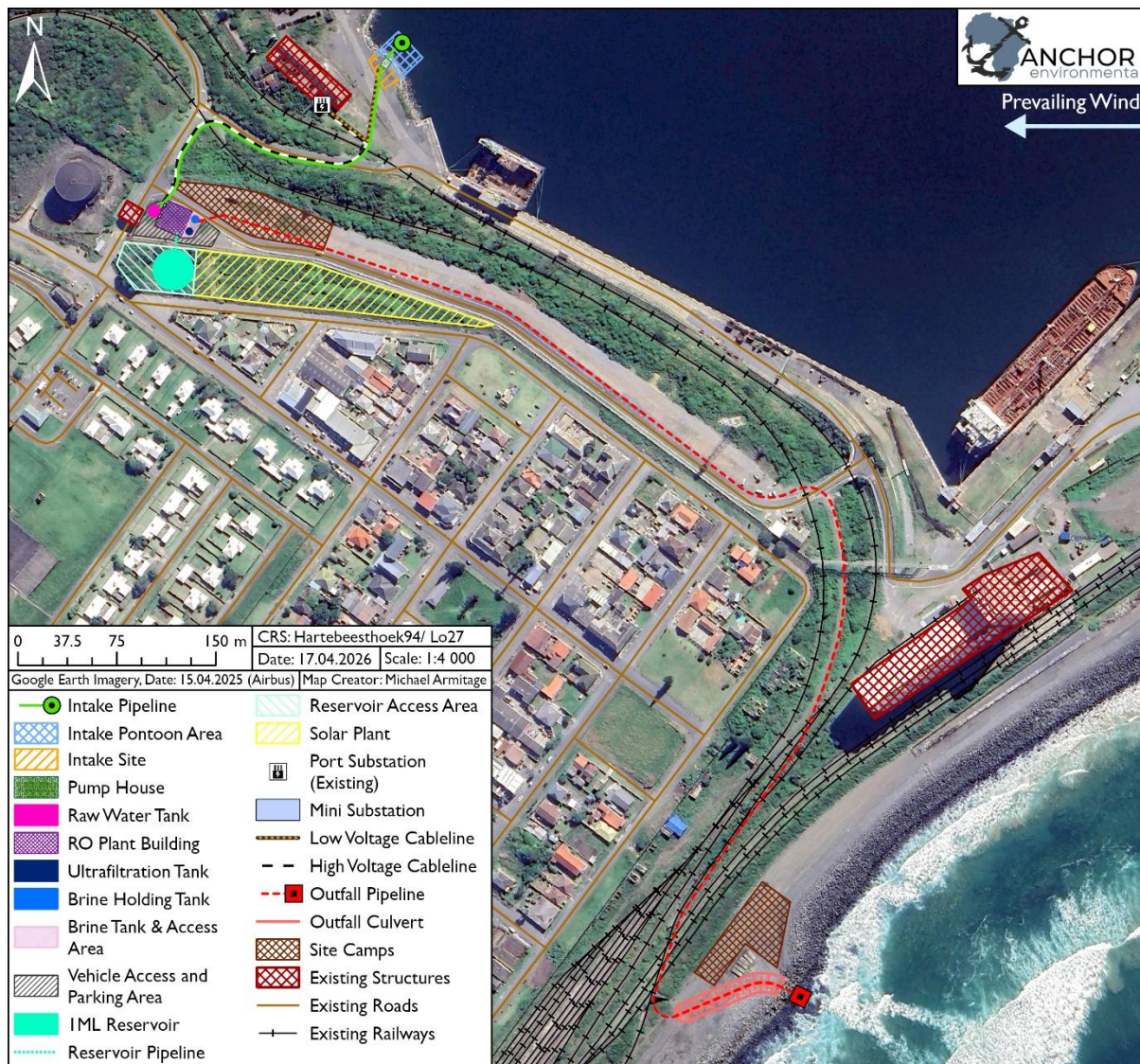


Figure 1.1 The Preferred site layout map indicating project activities.

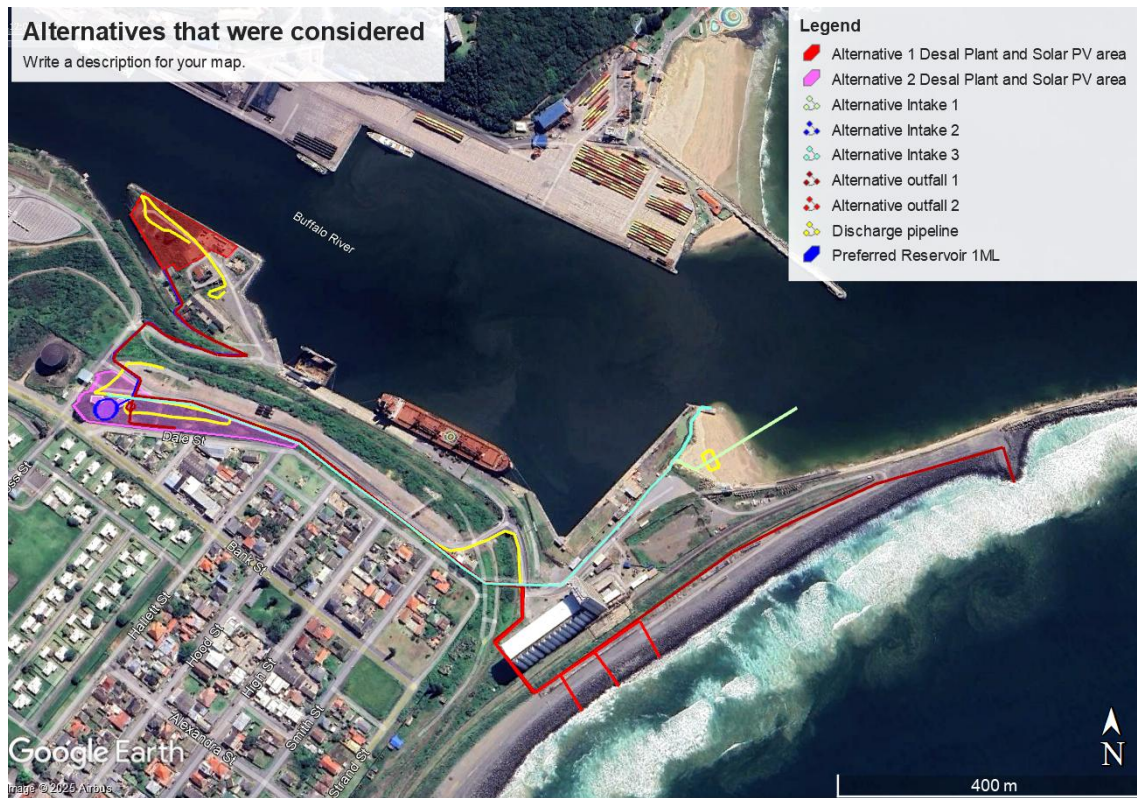


Figure 1.2 The alternative sites and pipeline routes considered during the assessment.

1.3. National Screening Tool

The approach to the impact assessment is informed by the gazetted protocols and guidelines which are linked to the outputs of the National Screening Tool. As the project includes a solar component, the tool was run over a larger area to ensure that any bird species of conservation concern (SCC) within the wider landscape were identified and assessed.

1.3.1. Plant Theme

The sensitivity rating of the project area is considered LOW to MEDIUM due to the potential presence of 11 threatened plant species (Figure 1.3).

1.3.2. Animal Theme

The sensitivity rating of the project area is considered LOW to HIGH due to the presence of six threatened bird species inland of the proposed development sites, and the potential presence of a further two threatened birds, one insect and three threatened mammals within the wider landscape (Figure 1.4).

1.3.3. Terrestrial Biodiversity Theme

The sensitivity rating of the project area is mapped as VERY HIGH due to the intersection of the site with Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Strategic Water Source Areas (SWSAs), and Critically Endangered (CR) ecosystems (Figure 1.5).

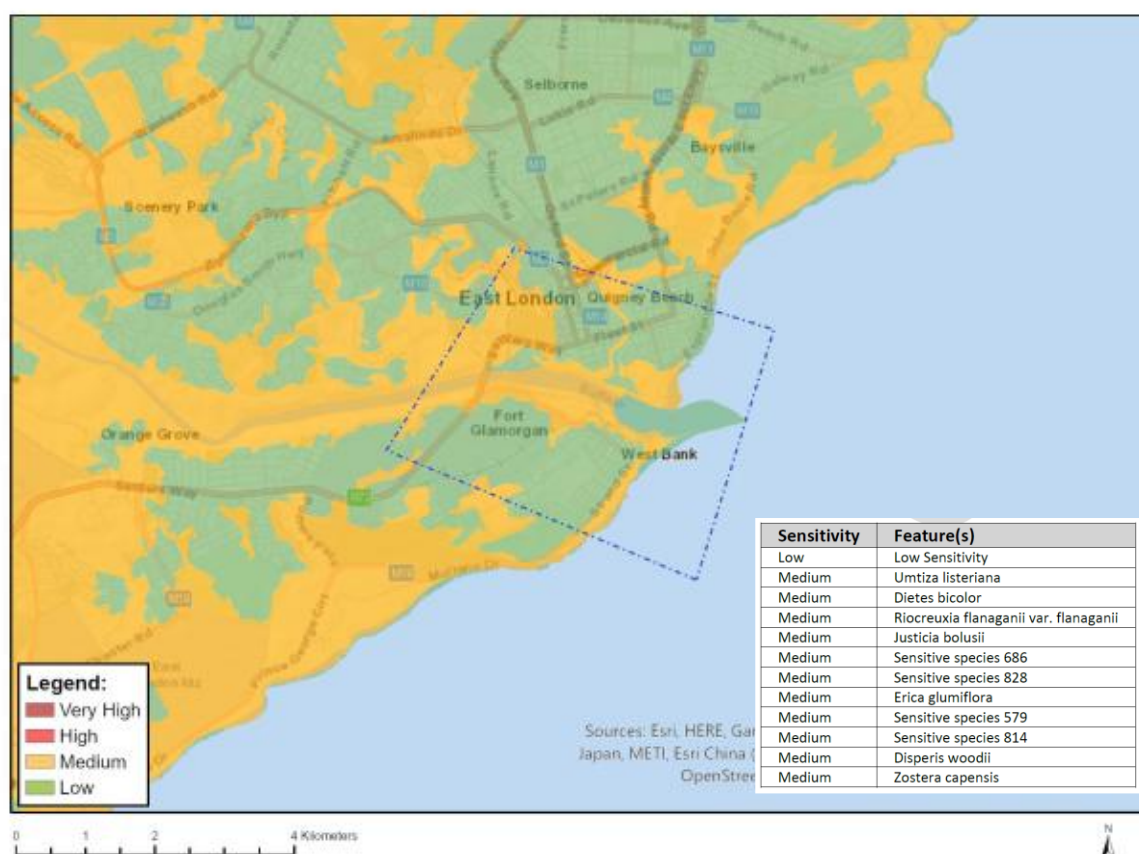


Figure 1.3 National Screening Tool - Plant theme

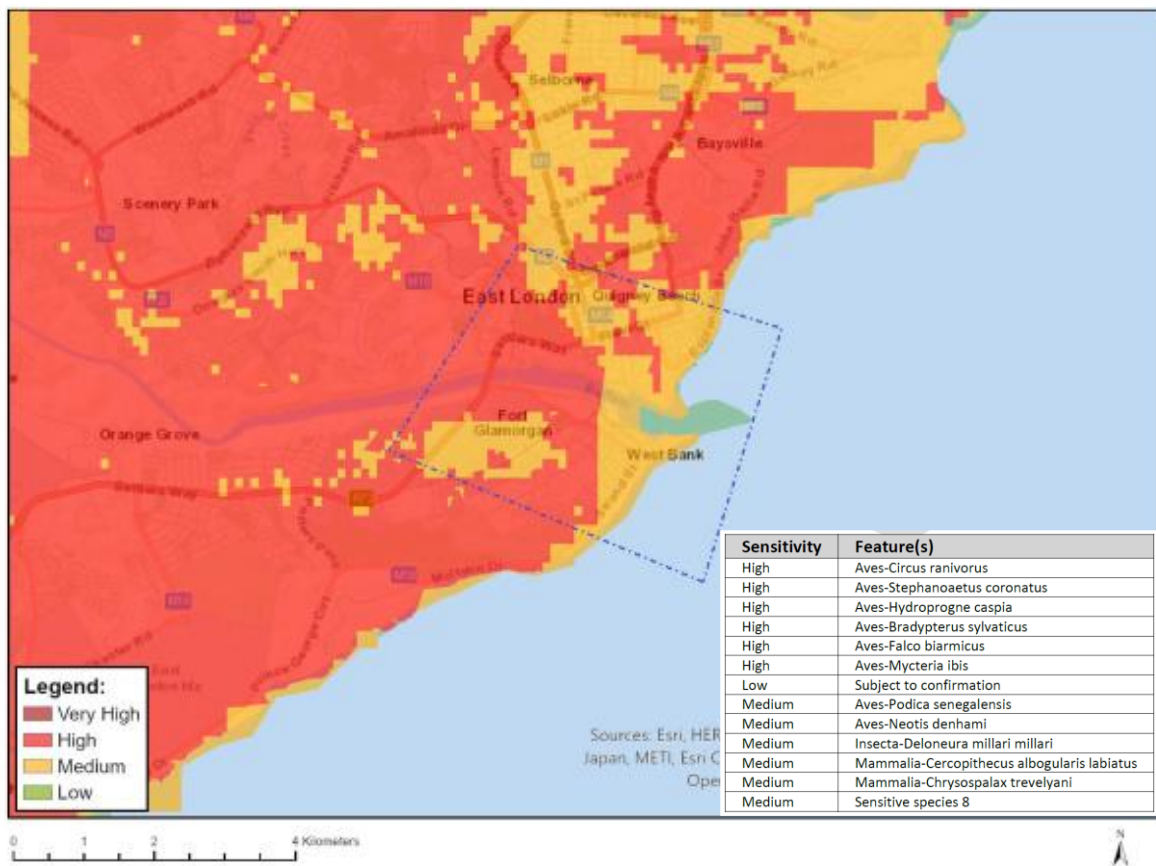


Figure 1.4 National Screening Tool - Animal theme

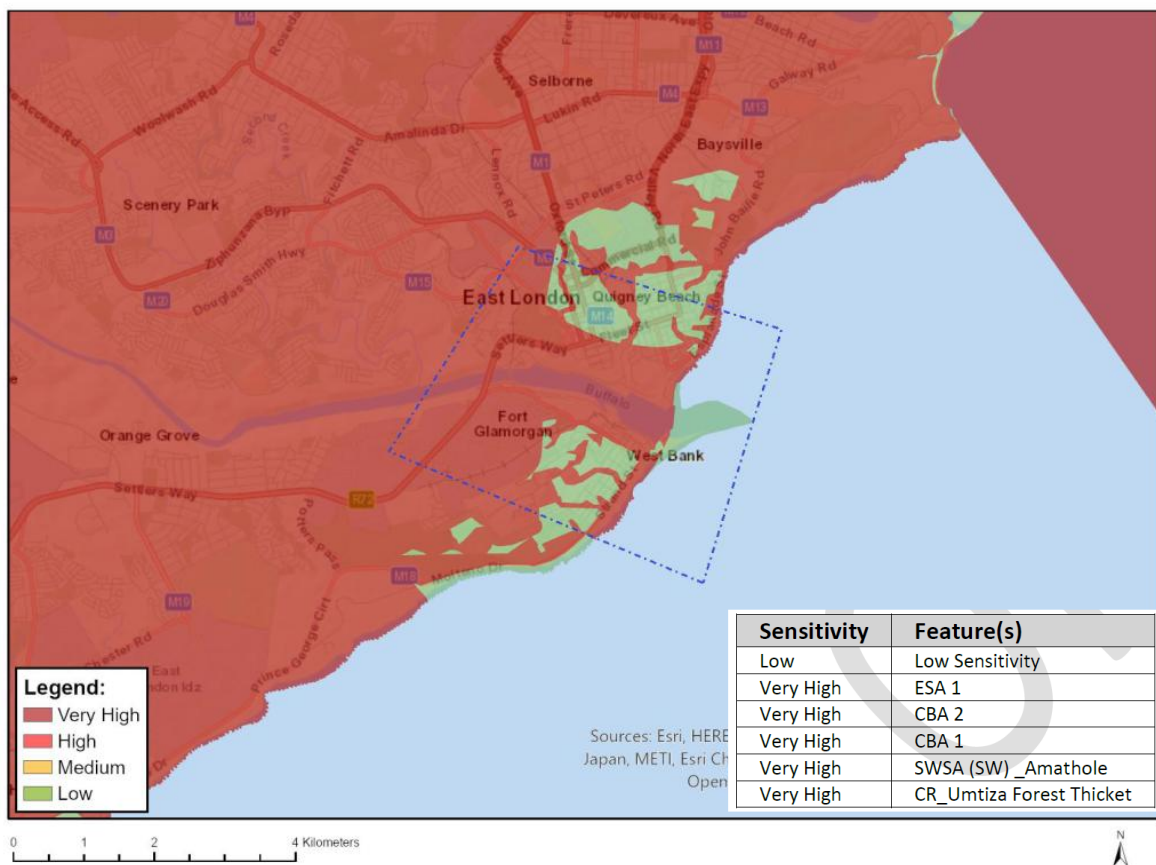


Figure 1.5 National Screening Tool – Terrestrial biodiversity theme

Section 2. Approach

2.1. Field Survey

On 30 April 2025 the entire terrestrial area of the site (100% density) was surveyed on foot. Observations regarding the species and site condition were made along the entire path. The survey path is provided in Figure 2.1 below.

The purpose of the survey was to assess the habitats and the ecological condition within the project area by recording:

- The vegetation cover and community/habitat types;
- All the plant and faunal species observed (both indigenous and alien invasive species);
- Sensitive ecosystems; and
- The condition of the ecosystems in terms of current and surrounding land uses of the site.

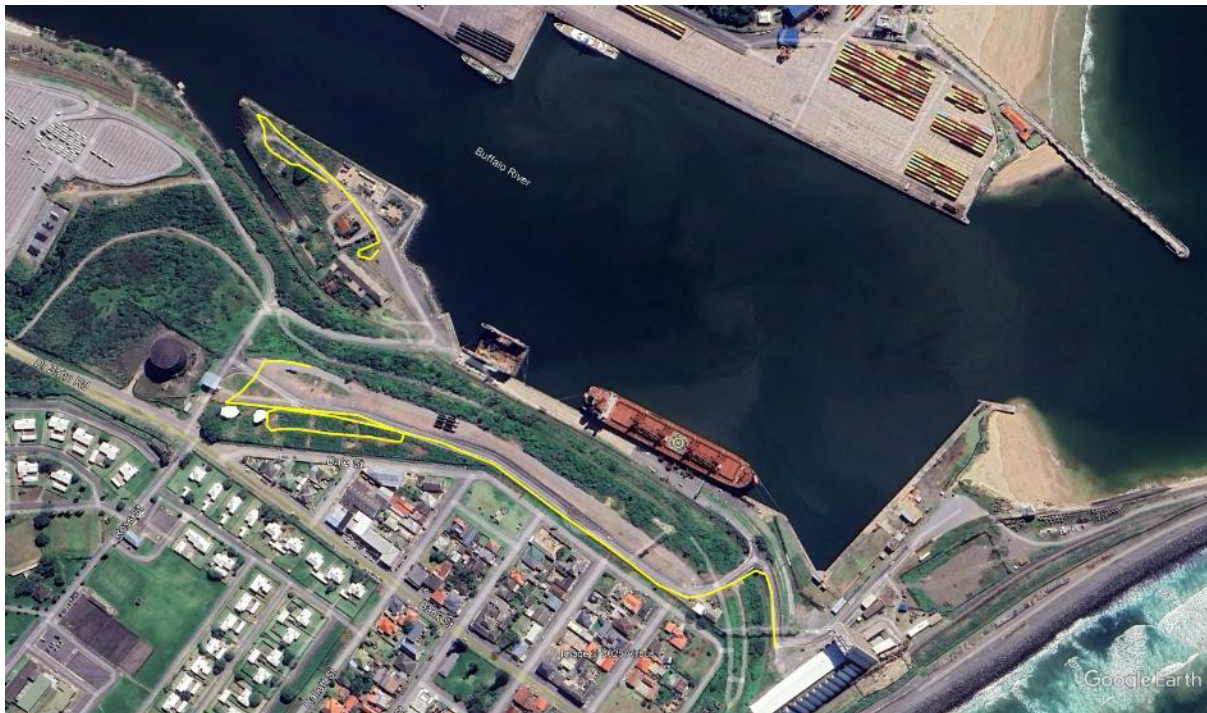


Figure 2.1 Survey path taken in the Port of East London (yellow tracks)

2.2. Reporting requirements and objectives

2.2.1. Plant (botanical) theme

The objectives of this study are to characterise the natural ecological resources in the project area and assess the potential impact of the proposed development activity. To achieve this, the study was guided by the Species Environmental Assessment Guidelines (SANBI, 2020) and complies with the requirements of the “Procedures for the Assessment and minimum criteria for reporting on identified environmental themes”, also known as the Protocols for specialist assessment of animal and plant species (GN 1150 of 2020 as amended in 2023). Based on the site survey and historical degradation of the sites, the sites are considered LOW sensitivity (refer to Section 5) and as such a Plant Species Compliance Statement (this report) has been prepared for the project area.

2.2.2. Animal (faunal) theme

According to Section 3 (1) of GN R. 1150, *'an applicant intending to undertake an activity identified in the scope of this protocol, on a site identified on the screening tool as being of high sensitivity for animal species theme, must submit an Animal Specialist Assessment'*. However, in terms of Section 1.3 of GN R. 1150, where the information gathered for the project footprint differs from the designation of high sensitivity on the screening tool and is found to be of a low sensitivity, then a Compliance Statement must be submitted. Based on the site survey and historical degradation of the sites, the sites are considered LOW sensitivity (refer to Section 5) and as such an Animal Species Compliance Statement (this report) has been prepared for the project area.

2.2.3. Terrestrial Biodiversity theme

The Terrestrial Biodiversity assessment component of the report has been developed in accordance with the "Protocol for the assessment and minimum report content requirements for Environmental Impact on Terrestrial Biodiversity" (NEMA GN 320 of 2020), which will from now be referred to as the "Terrestrial Biodiversity Protocol". The DFFE screening tool identified portions of the project area as falling within a Critical Biodiversity Area and an Endangered ecosystem, and was therefore classified as VERY HIGH sensitivity. However, the site has been severely modified, is no longer in a natural state and it is unlikely that the site will contribute in any meaningful manner towards the conservation of the ecosystem type. After a site visit and inspection of current and historical aerial imagery, the development area was deemed a 'Low' sensitivity in terms of the Terrestrial Biodiversity theme. Therefore, a compliance statement was prepared for the S&EIA.

2.3. Site Sensitivity Assessment

The approach to determine the Site Ecological Importance (SEI) in terms of both species and habitat followed the Species Environmental Assessment guideline (SANBI, 2021). The habitats in the project area were assessed based on criteria regarding their conservation importance, functional integrity and receptor resilience. The sensitivity map was developed by applying the SEI sensitivity criteria to spatial areas depicting the ecosystems and communities. The method that was applied is summarised in Appendix B. The SEI rating informs the impact assessment and mitigation requirements.

2.4. Limitations and Assumptions

This report acknowledges the following limitations:

- The report is based on a project description received from the client.
- The site was surveyed once during April. While the information recorded is deemed sufficient for an assessment, a full species assessment was not possible during the short survey.

Section 3. Physical Profile

3.1. Climate

Climate (rainfall, temperature, humidity, etc) has a profound influence on species distribution and ecological processes that drive ecosystems. The climate of East London is considered mild and sub-tropical (Figure 3.1), with predominantly summer rainfall, but substantial frontal winter rain is common. The summers are warm with average temperatures of 25°C, but which can reach upwards of 38°C. The winter temperatures are mild reaching lows of 15°C.

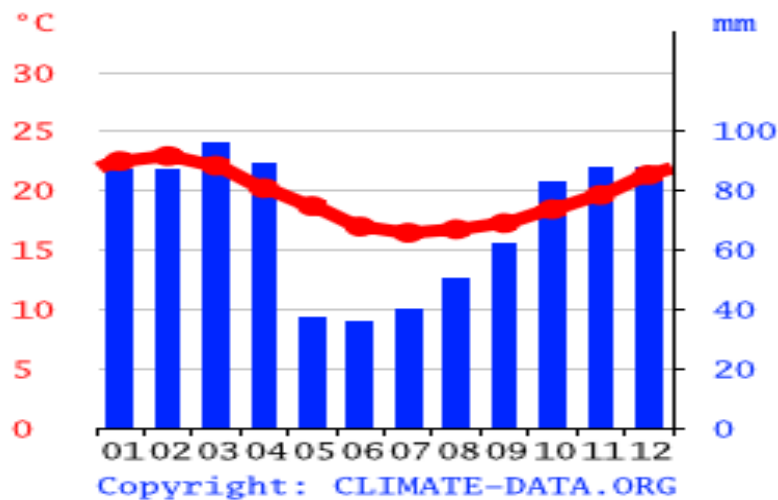


Figure 3.1 Climate data for East London (<https://en.climate-data.org/africa/south-africa/eastern-cape/east-london-633/>)

3.2. Geology and soils

The geology of an area influences the soil formation, the pH and mineral content of soil, and in turn influences vegetation composition and structure, and is therefore a factor that is considered when describing the vegetation type(s) and the species that it supports. The project area is located on alluvium/sand/calcrete associated with the deposits along the coastline.

3.1. Hydrology and Topography

The two relevant hydrological features included the Buffalo Estuary (Endangered) and a section of (vulnerable) coastline (NBA, 2018). These ecosystems are described in more detail and assessed in separate specialist reports (Figure 3.3).

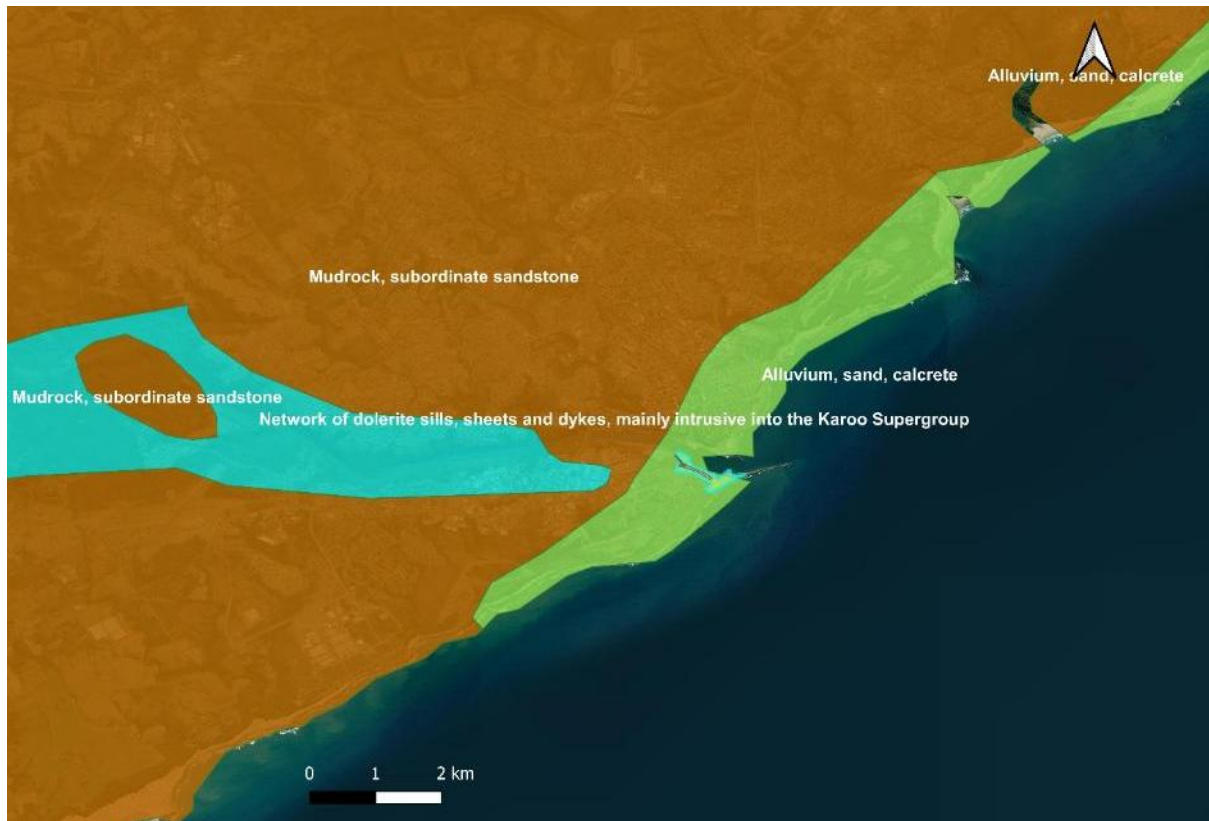


Figure 3.2 Geology of the project area. Project area in Alluvium, sand, calcrete.



Figure 3.3 Proximity of the Buffalo Estuary and the coastline relative to the project area in the PoEL.

Section 4. Botanical Assessment (Plant theme)

4.1. Site floristics

4.1.1. South African Vegetation Map – ecosystem threat status

According to the South African Vegetation Map (Mucina et al., 2006-2024) the project area (blue polygon) includes portions of Umtiza Forest Thicket (Figure 4.1), which is Critically Endangered. However, the proposed development footprint (yellow polygon) and potential alternatives are located in areas that have been historically modified, as has been mapped in the gazetted Red List of Ecosystems (2023).

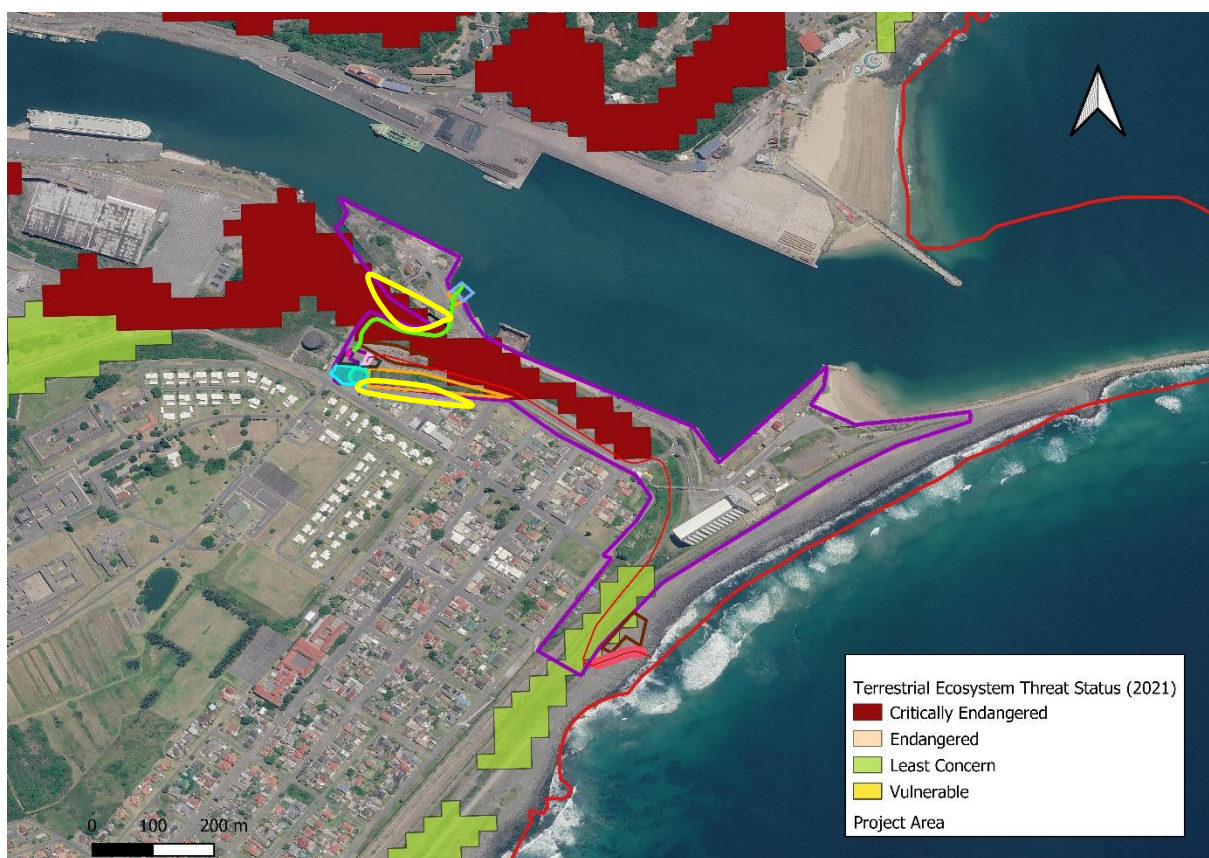


Figure 4.1 Vegetation map (Mucina et al., 2006-2024) and the ecosystem threat status of the wider landscape (RLE, 2021). The proposed solar, desal and intake development areas (preferred site) are outlined in yellow.

4.1.2. Vegetation communities

The vegetation structure and composition of the Preferred sites for the Desalination and Solar PV development area are briefly described below:

Preferred site for the proposed PoEL RO and Solar PV facility (yellow and light blue shading)



The preferred site for the Solar PV and Desalination plants have been historically modified by permanent structures and degraded. Aerial imagery from 1970 indicating permanent structures in the site being proposed for development (yellow outline in image below).



The vegetation at this site is completely overrun by alien and invasive plant species (AIPs). Over 80% of the area is covered by AIPs. The site has been historically modified and has recently been disturbed.

The natural species that remain are tolerant to disturbance and are fast-growing pioneer species. No protected species were identified.



A few *Strelitzias*, an *Erythrina* tree and a *Ficus* tree make up a small patch to the north east of the preferred reservoir site, but the tree crown is small and is **not**, in the opinion of the author, a patch of forest.

In addition, a patch of two trees on the north west boundary of the preferred reservoir site consists of exotic trees.



A large exotic *Ficus* is located in the south-western corner, surrounded by *Erythrina* trees. These trees will be impacted. It is the opinion of the author that these trees do not constitute an indigenous forest in structure, or species composition. The AIPs and exotic trees should be removed.



4.1.3. Indigenous plant species

During the site survey, nine (9) indigenous plant species were recorded. These are hardy species that tolerate disturbance and propagate easily. No protected species were recorded, and no threatened or protected species are expected to occur within the proposed development sites due to historical modification and degradation of these areas.

Table 4.1 Indigenous plant species recorded at the two proposed development sites.

Family	Species name	RO-Solar PV site (Preferred site)
ARECAEAE	<i>Phoenix reclinata</i>	1
ASTERACEAE	<i>Chrysanthemoides monilifera</i>	Many
ASTERACEAE	<i>Brachylaena discolor</i>	
BIGONIACEAE	<i>Tecoma capensis</i>	Many
FABACEAE	<i>Erythrina caffrum</i>	Patch, plus small trees scattered throughout disturbed site
FABACEAE	<i>Vachellia karroo</i>	Scattered
MALVACEAE	<i>Grewia occidentalis</i>	1
MORACEAE	<i>Ficus thonningii</i>	Patch1
STRELITZIACEAE	<i>Strelitzia regina</i>	Patch and 4-5 scattered throughout disturbed site

4.1.4. Alien and invasive plant species

In total, 10 alien and invasive plant species were recorded. This number is probably an underestimate as more focus was placed on searching for indigenous species.

Table 4.2 Alien and Invasive plant species recorded on site.

Species name	Common name	Alien Invasive Category
<i>Schinus terebinthifolius</i>	Brazilian pepper	1b
<i>Cestrum laevigatum</i>	Ink berry	1b
<i>Acacia saligna</i>	Port Jackson Willow	1b
<i>Lantana camara</i>	Lantana	1b
<i>Nephrolepis exaltata</i>	Sword fern	1b
<i>Psidium guajava</i>	Guava	2
<i>Ricinus communis</i>	Castor oil bush	2
<i>Solanum chrysotrichum</i>	Devils fig	1b
<i>Canna indica</i>	Canna	1b
<i>Opuntia ficus-indica</i>	Prickly pear	1b

Section 5. Faunal Assessment (Animal Theme)

5.1. Faunal Species of Conservation Concern

Only avifaunal SCC were observed during the site survey. No amphibian, reptile or mammal species were noted. While a number of invertebrates species were noted, there is no suitable habitat in the development sites for the threatened invertebrate species that were listed in the National Screening Tool.

Table 5.1 lists the threatened avifaunal species potentially occurring in the project area and wider landscape. Of these, 11 species have a Moderate and three a High Likelihood of Occurrence, while only three threatened species were directly observed during the site visit (Cape Cormorant (EN), Caspian Tern (VU) and African Darter (NT)). Most of the listed species are water birds (primarily marine, although some are estuarine or freshwater birds), with the exception of four terrestrial species (Crowned Eagle, Forest Buzzard, Black-winged Kite, and Knysna Warbler). Waterbirds are typically associated with the coastal, nearshore, estuarine and/ or inland waterbody environment and are unlikely to be significantly affected by land-based developments within the Port. These species tend to remain close to the waterbodies and/ or coast and occupy less disturbed habitats. Furthermore, the port environment is already highly modified and subject to ongoing disturbance from industrial and shipping activities. Bird populations that do occur within the area are considered to have adapted to these conditions. Of the four terrestrial species, Crowned Eagle has been previously observed roosting in tall trees around Port Entrance and utilise forest areas for foraging. Crowned Eagles have adapted to the urban settlement and have been recorded along most estuaries and forested areas throughout the city of East London. The remaining three bird species are more likely to occur inland of the proposed development and are unlikely to use the port area frequently, given its transformed nature and disturbance levels. It is also relevant to note that several buildings in the immediate vicinity of the site already host rooftop solar installations. The proposed development therefore does not introduce a novel disturbance type to the area. Considering the disturbed nature of the PoEL and the adaptability of avifauna in this environment, it is unlikely that the proposed solar-powered desalination plant will result in significant negative impacts on the bird species in the area.

Table 5.1 Potential Avifaunal SCC and indicated species recorded on site.

Common Name	Scientific Name	Present	Regional Red List Status	Likelihood of Occurrence
Albatross, Indian Yellow-nosed	<i>Thalassarche carteri</i>		EN	Low
Cormorant, Cape	<i>Phalacrocorax capensis</i>	X	EN	Confirmed
Penguin, African	<i>Spheniscus demersus</i>		EN	Low
Skua, Subantarctic (Brown)	<i>Stercorarius antarcticus</i>		EN	Moderate
Eagle, Crowned	<i>Stephanoaetus coronatus</i>		VU	High, but unlikely to use southern side of the harbour.
Finfoot, African	<i>Podica senegalensis</i>		VU	Low
Gannet, Cape	<i>Morus capensis</i>		VU	Low
Harrier, African Marsh	<i>Circus ranivorus</i>		VU	Low
Kingfisher, Half-	<i>Alcedo semitorquata</i>		VU	Low

Common Name	Scientific Name	Present	Regional Red List Status	Likelihood of Occurrence
collared				
Petrel, White-chinned	<i>Procellaria aequinoctialis</i>		VU	Low
Sandpiper, Curlew	<i>Calidris ferruginea</i>		VU	Moderate
Stork, Yellow-billed	<i>Mycteria ibis</i>		VU	Low
Tern, Caspian	<i>Hydroprogne caspia</i>	X	VU	Confirmed
Tern, Roseate	<i>Sterna dougallii</i>		VU	Low
Buzzard, Forest	<i>Buteo trizonatus</i>		NT	Moderate
Darter, African	<i>Anhinga rufa</i>	X	NT	Confirmed
Duck, Yellow-billed	<i>Anas undulata</i>		NT	Moderate
Egret, Great	<i>Ardea alba</i>		NT	Moderate
Falcon, Lanner	<i>Falco biarmicus</i>		NT	Low
Flamingo, Greater	<i>Phoenicopterus roseus</i>		NT	Low
Hamerkop	<i>Scopus umbretta</i>		NT	Moderate
Heron, Black-crowned Night	<i>Nycticorax nycticorax</i>		NT	High
Kite, Black-winged	<i>Elanus caeruleus</i>		NT	Moderate
Knot, Red	<i>Calidris canutus</i>		NT	Low
Owl, Marsh	<i>Asio capensis</i>		NT	Low
Plover, Grey	<i>Pluvialis squatarola</i>		NT	Moderate
Plover, Kittlitz's	<i>Charadrius pecuarius</i>		NT	Low
Sanderling	<i>Calidris alba</i>		NT	Moderate
Shearwater, Sooty	<i>Ardenna grisea</i>		NT	Low
Shoveler, Cape	<i>Anas smithii</i>		NT	Moderate
Teal, Red-billed	<i>Anas erythrorhyncha</i>		NT	High
Turnstone, Ruddy	<i>Arenaria interpres</i>		NT	Low
Warbler, Knysna	<i>Bradypterus sylvaticus</i>		NT	Moderate

Section 6. Site Ecological Importance

The Species Environmental Assessment Guideline criteria (SANBI, 2020) were applied to assess the Site Ecological Importance (SEI) or sensitivity of the proposed development area. The site was assessed based on its conservation importance, functional integrity, and receptor resilience (Appendix B) for combined plant and animal theme.

The majority of the project area has been assessed as Very Low sensitivity, while a small sliver of natural vegetation, which may support mobile threatened species (e.g. birds) has been classified as Low. No concerns regarding any of the proposed development activities in the any of the alternative layouts have been identified.



Figure 6.1 Site Ecological Important (sensitivity) for the project area of the proposed RO-Solar PV facility.

Section 7. Terrestrial Biodiversity Assessment

7.1. Terrestrial Biodiversity Protocols

In order to provide context to the Terrestrial Biodiversity Assessment, the following requirements of the protocol are summarised:

The Terrestrial Biodiversity Protocol specifies that the following needs to be described at project and landscape level:

- Ecological drivers and how the proposed development will impact these.
- Ecological processes and how the proposed development will impact these.
- Ecological corridors used for the movement of flora and fauna that proposed development would impede.
- Significant terrestrial landscape features: e.g. species associations, Strategic Water Source Areas (SWSAs), Freshwater Ecosystem Priority Areas (FEPAs), etc.
- Terrestrial biodiversity and ecosystems including:
 - Vegetation types
 - Threatened ecosystems
 - Locally important habitat types (e.g. wetlands)
 - Ecological connectivity and evidence of habitat fragmentation
 - If applicable, species mapping and important habitats for threatened species (i.e. areas that are used for nesting, foraging) and movement patterns.

In terms of the Terrestrial Biodiversity Protocol, the assessment of site sensitivity must be based on the results of a site inspection and must identify:

1. Critical Biodiversity Areas (CBAs)
2. **Ecological Support Areas – including an assessment of:**
 - a. **Impact on ecological processes within or across the site**
 - b. **Extent to which the proposed development will impact on functionality of the ESA**
 - c. **Loss of ecological connectivity due to degradation or barriers to species movement.**
3. Protected Areas (PAs in terms of NEMPAA) – the specialist must provide an opinion on whether the proposed development aligns with the objectives or purpose of PA and the zoning as per the Protected Area Management Plan (PAMP) of the PA.
4. Priority areas for PA expansion – including the way in which the proposed development will compromise or contribute to the expansion.
5. Strategic Water Source Areas (SWSAs) – impact on terrestrial habitat of SWSA and impact on water quality and quantity.
6. Freshwater Ecosystem Priority Areas (FEPAs) sub-catchments – impact on habitat condition and species in FEPA sub-catchment.

The protocols outline the need to identify alternative development footprints which would be of a low(er) sensitivity. In this case, the alternatives for all components of the proposed RO-Solar PV facility and associated infrastructure have all been assessed and found to be located in sites classified as Very Low sensitivity.

7.1.1. Ecological drivers and processes

The natural ecological drivers (e.g. fire, browsing/grazing) and ecological processes (e.g. pollination, breeding/foraging sites) that shape species composition and structure, have been removed from the proposed development sites for decades. Imagery dating back to 1966 indicate how the sites were already modified. It is highly unlikely that these sites have recently, or ever will in the future,

contributed toward supporting natural terrestrial biodiversity, and have effectively lost ecological function.

Given the level of modification and degradation, as well as the sites isolation from other natural areas and the edge effects of surrounding urban, residential and industrial development limit the potential for the site to function as an area that important for movement of species through the landscape (i.e. important for connectivity).

7.1.2. Strategic Water Source Areas

The proposed PoEL RO-Solar PV facility is not located in a Strategic Water Source Area (Figure 7.1).



Figure 7.1 Amathole Strategic Water Source Area in relation to the PoEL project area (purple outline).

7.1.3. Eastern Cape Biodiversity Conservation Plan (ECBCP, 2019)

In terms of the Eastern Cape Biodiversity Conservation Plan (2019), the proposed development property is located in a Terrestrial Critical Biodiversity Area 1 (Figure 7.2). These areas are defined as areas that are required to meet biodiversity targets. The land use objective for CBA1 areas is to maintain them in a natural state. The ECBPC (2019) was modelled using an integrated land cover map (based on the National 2014 landcover map available at the time). The National land cover map was used to identify areas that were **still in a natural state**. The scale and resolution of the mapping does not always reflect the conditions on the ground, and for this reason all Biodiversity Spatial Plans should be ground-truthed. In this instance, historical aerial imagery from 1966 shows the land uses in the Port of East London at the time, and is evidence that the sites proposed for the RO and PV facility development were historically modified (Figure 7.3). The sites therefore do not comply with the

requirements of CBAs in terms of the Technical Guidelines for CBA mapping (SANBI, 2017) and the associated land use recommendations/guidelines of the ECBCP (2019) therefore **do not apply**. In addition, the discharge pipeline route follows exiting roads and crosses railway lines to the coastline.



Figure 7.2 ECBCP (2019) in the project area of the proposed PoEL RO-Solar PV facility.

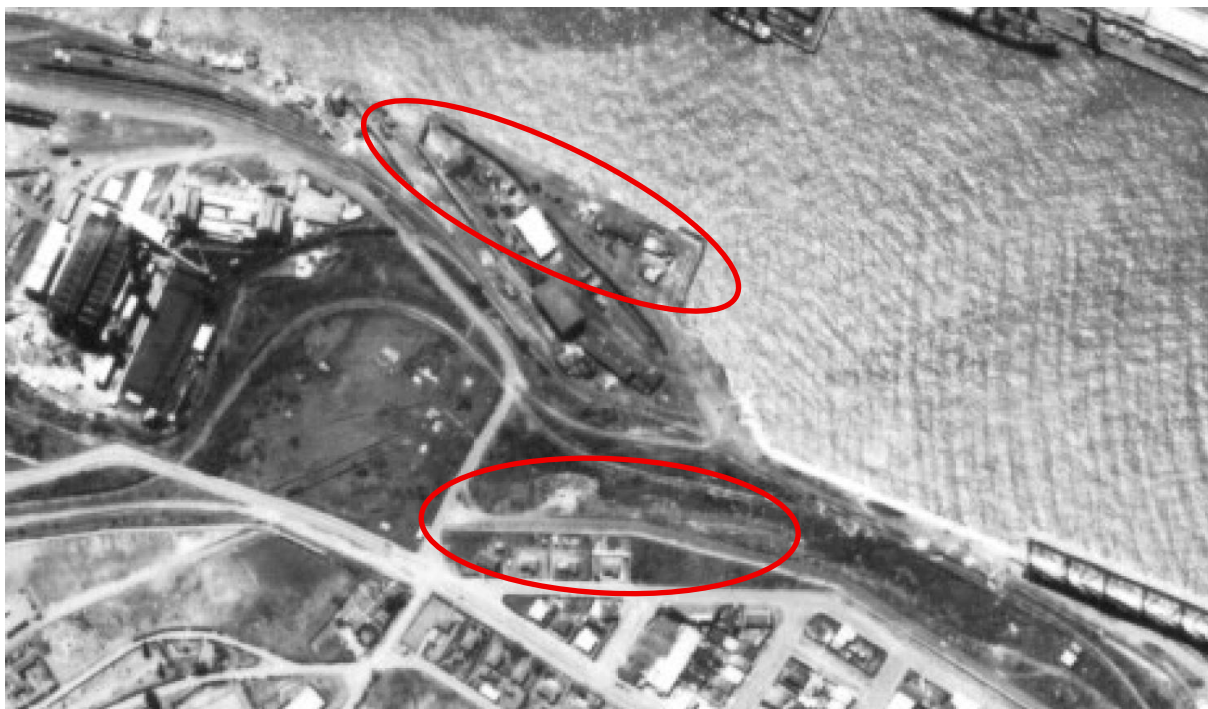


Figure 7.3 Historical aerial imagery (1966) showing port development within the proposed development sites (red circles).

7.1.4. Protected Areas and Protected Area Expansion Strategy Priorities

The proposed PoEL RO-Solar PV facility is located approximately 1.3km from the Potters Pass Nature Reserve (Figure 7.4). The suburb of Westbank and the East London Correctional Prison is located in between. Therefore, the proposed development will not impact the nature reserve.

Further inland from the Port up the Buffalo River, a Protected Area Expansion Strategy (PAES) priority has been mapped, which forms an extension of the Umtiza Nature Reserve (Figure 7.4). The PAES is located approximately 2.6km upstream from the proposed development and is unlikely to impact on the potential conservation of the site in the future.



Figure 7.4 Protected Areas (SAPAD, Q4-2024) and NPAES (DFFE, 2018).

Section 8. Conclusions and Recommendations

8.1. Summary of findings

The proposed preferred development sites and the associated infrastructure, as well as the potential alternatives for the development components, are all located within areas that are, or have been historically, modified and impacted. The indigenous plant species diversity is exceptionally low, while the alien plant species count is high.

No areas of HIGH sensitivity, associated with plant, animal or terrestrial biodiversity, were identified. It is the authors' opinion that it is highly unlikely that any threatened plant species are present, and the three threatened marine/estuarine bird species observed with the estuary habitat will not be significantly affected by project construction or operation.

8.2. Recommendations

The following is recommended for inclusion into the Environmental Management Programme:

- Conduct a search and rescue prior to clearing to ensure that nests, small reptiles and mammals are moved out of the area.
- Rehabilitate/re-vegetate construction areas with indigenous plant species where possible/feasible.
- During construction and for 6 months post-construction, monitor and eradicate AIPs from the construction site.

8.3. Statement and Opinion of the Specialist(s)

The authors confirm that for the Plant Theme, Animal Theme and Terrestrial Biodiversity Theme, there are no concerns regarding the sensitivity of the proposed PoEL RO-Solar PV facility and associated infrastructure, and that no significant impacts will result from the proposed development. It is therefore the opinion of the specialists that the proposed development may be authorised.

Section 9. References

DEDEAT Eastern Cape Biodiversity Conservation Plan (2019). Hawley, Desmet and Berliner, Online: <https://bgis.sanbi.org/Projects/Detail/233>

DFFE National Screening Tool:
<https://screening.environment.gov.za/screeningtool/#/pages/welcome>

South African National Biodiversity Institute (2006- 2024). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Online, <https://bgis.sanbi.org/Projects/Detail/208>.

SANBI (2016) Lexicon of Biodiversity Planning in South Africa. Beta Version, June 2016. South African National Biodiversity Institute, Pretoria. 72 pp.

SANBI National Biodiversity Assessment (2018). Estuarine, Marine and Coastal component: <https://bgis.sanbi.org/Projects/Detail/223>

SANBI (2020). Species Environmental Assessment Guideline. Guidelines for the implementation of the Fauna and Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 2.1 2021.

South African National Biodiversity Institute & Department of Environment, Forestry and Fisheries (2021) Red List of Terrestrial Ecosystems of South Africa June 2021. South African National Biodiversity Institute. Pretoria, South Africa.

Appendix A Compliance with minimum requirements

The contents of this specialist report comply with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts for the Plant and Animal Theme (GN 1150 of 2020, as amended in 2023) and on Terrestrial Biodiversity (GN R. 320 of 2020).

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 1150			SECTION OF REPORT
3.1	The Terrestrial <u>Plant and Animals Species</u> Specialist Assessment Report must contain, as a minimum, the following information:		
	3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2; Appendix D
	3.1.2	A signed statement of independence by the specialist;	✓
	3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 2.3
	3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Section 2.3
	3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 1.3
	3.1.6	A description of the mean density of observations/number of samples sites per unit area of site inspection observations;	Section 2.3
	3.1.7	Details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;	Section 4 & 5
	3.1.8	The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;	N/A
	3.1.9	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);	Section 6
	3.1.10	A discussion on the cumulative impacts;	Section 8.2
	3.1.11	Impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);	Section 8.3
	3.1.12	A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and	Section 9.3
	3.1.13	A motivation must be provided if there were any development footprints identified as per paragraph 2.3.12 above that were identified as having “low” or “medium” terrestrial plant species sensitivity and were not considered appropriate.	N/A
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
3.1	The Terrestrial Biodiversity Specialist Assessment Report must contain, as a minimum, the following information:		
3.1.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;		Page 2; Appendix D
3.1.2	A signed statement of independence by the specialist;		✓
3.1.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;		Section 2.3
3.1.4	A description of the methodology used to undertake the site verification and impact assessment and site inspection, including equipment and modelling used, where relevant;		Section 2.3
3.1.5	A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;		Section 1.3
3.1.6	A location of the areas not suitable for development, which are to be avoided during construction and operation (where relevant);		Section 7.2
3.1.7	Additional environmental impacts expected from the proposed development;		Section 8
3.1.8	Any direct, indirect and cumulative impacts of the proposed development;		Section 2.3
3.1.9	The degree to which the impacts and risks can be mitigated;		Section 2.3
3.1.10	The degree to which the impacts and risks can be reversed;		
3.1.11	The degree to which the impacts and risks can cause loss of irreplaceable resources;		
3.1.12	Proposed impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);		Section 2.3 and 9.2
3.1.13	A motivation must be provided if there were development footprints identified as per paragraph 2.3.6 above that were identified as having a “low” terrestrial biodiversity sensitivity and that were not considered appropriate;		n/a
3.1.14	A substantiated statement, based on the findings of the specialist assessment, regarding the acceptability, or not, of the proposed development, if it should receive approval or not; and		Section 9.3
3.1.15	Any conditions to which this statement is subjected.		
3.2	The findings of the Terrestrial Biodiversity Specialist Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr where relevant.		✓
3.3	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		✓

Appendix B Site Ecological Importance Criteria

Table A.1 Criteria for establishing Site Ecological importance and description of criteria

Criteria	Description
Conservation Importance (CI)	<i>The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.</i>
Functional Integrity (FI)	<i>A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.</i>
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	<i>The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.</i>
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	



forestry, fisheries & the environment

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SPECIALIST DECLARATION FORM – AUGUST 2023

Specialist Declaration form for assessments undertaken for application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

REPORT TITLE

Scoping & Environmental Impact Assessment (S&EIA) for the Proposed 2MLD Solar Powered Seawater Desalination Plant in the Port of East London, Buffalo City Metropolitan Municipality, Eastern Cape Province, by Transnet National Ports Authority

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Botanical, Faunal (terrestrial) and Terrestrial Biodiversity Assessment
Specialist Company Name	Coastal and Environmental Services
Specialist Name	Jonathan Balmer
Specialist Identity Number	920603 5102 08 0
Specialist Qualifications:	MSc (Ornithology)
Professional affiliation/registration:	SACNASP No. 163104
Physical address:	
Postal address:	PO Box 934, Makhanda, 6140
Postal address	PO Box 934, Makhanda, 6140
Telephone	0466222364
Cell phone	0828870241
E-mail	Jo.balmer@cesnet.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Jonathan Balmer declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and;
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

Coastal and Environmental Services (Pty) Ltd.

Name of Company:

05 Jun 2026

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Jonathan Balmer, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Coastal and Environmental Services (Pty) Ltd.

Name of Company

05th June 2026_

Date



Signature of the Commissioner of Oaths

05 Jun 2026

Date

LYNN SMIT
COMMISSIONER OF OATHS
Reference Number: 9/1/8/2 EAST LONDON
Commissioner of Oaths (RSA)
39 Harewood Drive, Nahoon Mouth,
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4. The specialist must be aware of and comply with 'the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Botanical, Faunal (terrestrial) and Terrestrial Biodiversity Assessment
Specialist Company Name	Big Thorn Environmental CC
Specialist Name	Greer Hawley-McMaster
Specialist Identity Number	780530 0065 088
Specialist Qualifications:	BSc Hons (Botany), PhD (Microbiology)
Professional affiliation/registration:	SACNASP No. 007524
Physical address:	226 Blue Marlin Road, Sunrise-on-Sea, East London, 5201
Postal address:	n/a
Postal address	n/a
Telephone	0437374887
Cell phone	0748887988
E-mail	greer@btbio.co.za

SPECIALIST DECLARATION FORM – AUGUST 2023

2. DECLARATION BY THE SPECIALIST

I, Greer Hawley-McMaster declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. “the Protocols”) and in Government Notice No. 1150 of 30 October 2020.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing –
 - any decision to be taken with respect to the application by the competent authority; and
 - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 48 and is punishable in terms of section 24F of the NEMA Act.



Signature of the Specialist

Big Thorn Environmental CC

Name of Company:

05 Jun 2026

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, Greer Hawley-McMaster, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.



Signature of the Specialist

Big Thorn Environmental CC

Name of Company

05/06/2026_

Date



Signature of the Commissioner of Oaths

. 05th June 2026

Date

LYNN SMIT
COMMISSIONER OF OATHS
Reference Number: 9/1/8/2 EAST LONDON
Commissioner of Oaths (RSA)
39 Harewood Drive, Nahoon Mouth,
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SOUTH AFRICA



South African Council for Natural Scientific Professions

herewith certifies that
Jonathan Peter Balmer
Registration Number: 163104
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Zoological Science (Professional Natural Scientist)

Effective 18 April 2024

Expires 31 March 2027



President of Council

Chief Executive Officer



To verify this certificate scan this code

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Greer Leigh Hawley

Registration Number: 007524

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)

in the following field(s) of practice (Schedule 1 of the Act)

Environmental Science (Professional Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective 23 July 2014

Expires 31 March 2027



A stylized signature in black ink.

President of Council

A stylized signature in black ink.

Chief Executive Officer



To verify this certificate scan this code