

ENVIRONMENTAL MANAGEMENT FRAMEWORK

REVIEW AND UPDATE OF THE EAST LONDON INDUSTRIAL DEVELOPMENT ZONES ENVIRONMENTAL MANAGEMENT FRAMEWORK

SEPTEMBER 2024

REVIEW AND UPDATE OF THE EAST LONDON INDUSTRIAL DEVELOPMENT ZONE'S ENVIRONMENTAL MANAGEMENT FRAMEWORK

ENVIRONMENTAL MANAGEMENT FRAMEWORK REPORT

Prepared for:

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business streamlined

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1 INTRODUCTION

The East London Industrial Development Zone (ELIDZ) forms part of an initiative implemented and supported by the South African Department of Trade and Industry (DTI) that aims to encourage economic growth in South Africa by attracting local and foreign investment for promoting industrial development. The objectives of the DTI's IDZ Programme are to:

- Facilitate the creation of industrial complexes that provide strategic economic advantage.
- Provide suitable locations for the establishment of strategic investments.
- Enable the centralisation of exploitation of resource-intensive industries.
- Take advantage of existing industrial capacity, promote integration with local industry and increase value-added production.
- Create employment and other economic and social benefits in the region in which it is located.
- Be consistent with any applicable national policies and law.

The first Environmental Management Framework (EMF) for the ELIDZ was developed in 2006 and was last reviewed and updated in 2011. This review and update of the ELIDZ is the second review and update of the ELIDZ EMF.

The Status Quo Report for this EMF Review and Update provides a review of the current literature pertaining to the operational activities within the ELIDZ and describes the current biophysical, social and economic resources and/or conditions related to the ELIDZ. Input into the updated Status Quo report is also obtained through stakeholder engagement.

1.1 BACKGROUND TO THE EAST LONDON DEVELOPMENT ZONE

The ELIDZ is located within the Buffalo City Metropolitan Municipality (BCMM) in the Eastern Cape of South Africa. The ELIDZ has zones in three locations within the BCMM, namely East London, Fort Jackson and Berlin (Figure 1-1).

The ELIDZ was formally designated as an IDZ in April 2002, and a Provisional Industrial Development Zone Operator's permit was awarded in September 2002, which enabled the establishment and marketing of the IDZ to potential investors. The construction of the ELIDZ then commenced in 2003 with the installation of the bulk services.

In January 2004, the ELIDZ became a SOC (Pty) Ltd entity as a necessary step to be able to apply to the DTI for a Permanent IDZ Operators Permit. The Permanent IDZ Operator Permit was issued in July 2007.



Figure 1-1: Locality map of the East London Industrial Development Zone's sites across the Buffalo City Metropolitan Municipality.

The East London locality is comprised of six zones with tenants occupying each of these zones (Figure 1-2). The East London Zones include the automotive park, agro-processing industries, energy-sector tenants, and the science and technology park.



Figure 1-2: Locality of the Zones around the East London site of the Industrial Development Zone.

The Fort Jackson site is currently undeveloped and is earmarked to support the development of SMME's in the greater BCMM area (Figure 1-3) and the Berlin site is proposed to be developed as a renewable energy hub with an Environmental Authorisation already in place for the proposed development of a 50MW Solar PV facility (Figure 1-4).



Figure 1-3: The Fort Jackson site that is earmarked to support SMMEs in the greater Buffalo City Metropolitan Area.

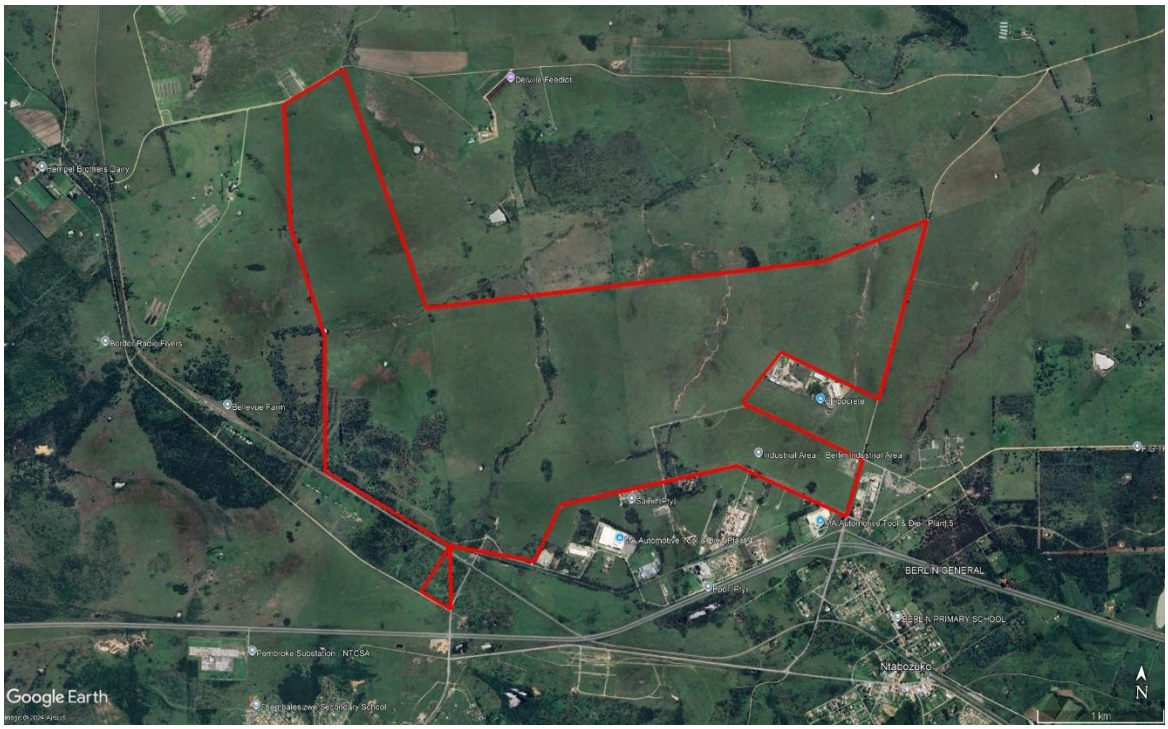


Figure 1-4: The Berlin site that has an existing Environmental Authorisation for the development of a 50MW Solar PV facility.

The ELIDZ SOC (Pty) Ltd, as a custodian of the ELIDZ is responsible for the general management and related activities associated with the operation of the IDZ. Therefore, the ELIDZ SOC (Pty) Ltd provides the framework for activities within the ELIDZ, coordinates development and provides resources. The primary task of the ELIDZ SOC (Pty) Ltd is to provide and enable an environment for industrial development, which includes the following:

- Installation and maintenance of infrastructure
- Provision of relevant services
- Maintenance of common areas

The ELIDZ SOC (Pty) Ltd is responsible for enforcing rules and procedures governing activities within the IDZ and, as such, will also ensure that an implementation of appropriate environmental management in terms of South Africa's legislation. The ELIDZ SOC (Pty) Ltd has adopted various programmes and/or strategies to ensure that the ELIDZ is environmentally sustainable. The ELIDZ has undergone rigorous auditing processes and maintains an internationally recognised standard for environmental managements, ISO 14001. An Environmental Management System (EMS) for the ELIDZ as a whole has been developed and is being implemented and since the commencement of construction for the installation of services, a monitoring programme has been established to observe potential changes in aspects such as noise, air quality, surface and ground water quality.

In addition, the ELIDZ SOC (Pty) Ltd is committed to establishing and maintaining an Occupational Health and Safety (OHS) Management System, which will manage potentially detrimental effects on the health and safety of all employees and communities affected by the development.

1.2 Environmental Management Framework in South Africa

1.2.1 Definition of an Environmental Management Framework

According to the National Environmental Management Act: Environmental Management Framework (EMF) Regulations (547 of 2010) an EMF is defined as:

"…a study of the biophysical and socio-cultural systems of a geographically defined area to reveal where specific land-uses may be best practiced and to offer performance standards for maintaining appropriate use of such land."

An EMF is a proactive decision-support tool used for strategic spatial planning which seeks to integrate land- use plans (current and future) with the impact burden on the landscape in order to identify and implement spatial and management practices that eliminate/reduce impacts.

The updated ELIDZ EMF is a vehicle for sustainable development as determined by environmental considerations, socio-economic needs and integrated governance.

1.2.2 Legislative Context for Environmental Management Frameworks

The National Environmental Management Act (107 of 1998) (NEMA) makes provision in terms of Section 24 for tools that can be used to support informed decision-making with respect to the management of impacts on the environmental that arise from human activities.

NEMA Section 24(2)(e) allows the Minister or MEC (in concurrence with each other) to compile environmental information and maps of particular geographical areas, which specify the attributes of the environment (including sensitivity, extent, interrelationship and significance of such attributes) which must be taken into account in decision-making by competent authorities.

The EMF is part of a suite of tools used for Integrated Environmental Management, which include:

- Environmental Management Systems
- Environmental Impact Assessment
- State of indicators
- Environmental Management Plans
- Environmental Management Frameworks

Section 24(2) also makes provision for the Minister (or MEC in concurrence with the Minister) to identify:

“Geographical areas based on environmental attributes in which activities may not commence without environmental authorisation (EA) OR activities that may be excluded (exempted) from authorisation by the competent authority”.

The process and content of the compilation of EMFs is regulated by the EMF Regulations (547 of 2010) and additional guidance is provided in the published EMF guidelines (806 of 2012). The development of the updated ELIDZ EMF will comply with Section 3 (Development of EMFs) and Section 4 (Content of EMFs) and guided by the aims provided under Section 2(3).

1.2.3 Purpose of the ELIDZ EMF, Study Objectives and EMF applications

The purpose of the ELIDZ EMF needs to be clearly defined and communicated to all stakeholders, since there is a tendency to confuse the purpose and objectives of the different environmental management tools (e.g. Strategic Environmental Assessments).

The purpose of the updated ELIDZ EMF is to:

- Function as a support mechanism in the Environmental Impact Assessment (EIA) process, in the evaluation and review of development applications.
- Inform decision making regarding spatial land-use planning applications (such as Spatial Development Frameworks, or SDFs).

- Facilitate cooperative governance through integration of different regulatory responsibilities and through the process of developing mechanisms for addressing the needs (and mandates) of relevant authorities.
- Co-ordinate management of strategic spatial environmental information concerning a ELIDZ specific geographic area.

The primary objectives of the updated ELIDZ EMF are to:

- Promote sustainability and sustainable development by:
  - Anticipating potential impacts and providing indicator thresholds, limits.
  - Assessing existing impacts that need to be addressed.
- Secure environmental protection where this is needed.
- Promote co-operative environmental governance by supporting informed and integrated decision-making by making significant and detailed information about an area available at proposal feasibility stage.
- Support the EIA process by indicating scope of work for EIAs.

The key output of an EMF is a map of integrated land-use management zones, together with management recommendations for each zone. Therefore, the following entities are relevant:

- Competent Authorities: EMFs are to be taken into account by competent authorities since 24(4)(b)(vi) states that they must be used by CAs in decisions on applications for Environmental Authorisations (EAs).
- Spatial Planning Agents: EMFs consolidate and provide cross-cutting information and maps which is useful for a wide variety of applications e.g. EIAs, SDFs, IDPs and open space planning.
- Developers: Provide development applicants with early indication of where development would be most appropriate in the landscape.
- Environmental Assessment Practitioners: EAPs must reference the EMF and associated Environmental Management Plans (EMPs) in order to integrate the findings and management requirements described therein, for any proposed EA application.
- Municipalities: The legislative framework does not make EMFs binding on decisions processed by other parties (e.g. local authorities).

2 APPROACH AND METHODOLOGY

2.1 APPROACH AND METHODOLOGY

The process of reviewing and updating the ELIDZ EMF was divided into the following phases:

- Phase 1: Data Sourcing and Literature Review
- Phase 2: Status Quo Assessment/ Situational Analysis
- Phase 3: Draft EMF (including Implementation Plan and Strategy) in preparation for final EMF submission

Table 2.1 below provides a detailed approach that was undertaken for the review and update of the ELIDZ EMF.

Table 2-1: Approach to the development of the ELIDZ EMF.

PHASE 1: Data sourcing and literature review
A project inception meeting was held at the inception of the project. The inception meeting aimed to clarify the terms of reference and to compile a list of available documents from the ELIDZ that will form part of the data review activity. The identification of key stakeholders was also initiated at the project inception meeting. Identified sources of information formed part of the literature review process included, but was not limited to, the following: • Existing ELIDZ EMF. • Existing ELIDZ Strategies and Plans. • Current laws, policies, plans and programmes applicable to the ELIDZ. A brief summary of the literature and data identified during this review process that pertain to the EMP review and update process was provided. This summary was be taken forward into the next stage of the project.
PHASE 2: Status Quo /Situational Analysis
An assessment of the current status of the ELIDZ (East London, Berlin and Fort Jackson) was undertaken as a pre-cursor to the development of the EMF. The Status Quo/Situational Analysis analysed the current development footprint, industrial clustering in the ELIDZ, and the identification of environmental sensitivity zones. An initial desktop assessment using spatial data sets was used to analyse the current state of the areas surrounding the ELIDZ sites. The attributes that were assessed will include, but are not limited to, the following: • Topography • Climate and climate change • Geology and soils • Paleontological and Heritage sensitivity • Hydrology – surface and groundwater (and threat/conservation status)

- Estuaries
- Vegetation (and threat/conservation status)
- Eastern Cape Biodiversity Conservation Plan
- Protected and conservation areas
- Fauna
- Marine and coastal environment
- Air quality
- Noise

A site visit was conducted to each of the sites to confirm the outcomes of the desktop analysis and to identify and gaps that may remain.

The environmental sensitivity zones were delineated through the integration of the various attributes assessed in the Status Quo/Situational Analysis. The purpose of the environmental sensitivity analysis was to provide an overarching view of the inherent environmental sensitivity of the study area. Functionally, the sensitivity analysis does not contribute substantially to any further downstream development in the EMF. The sensitivity analysis will be used as a platform for the identification of open space systems, and for spatial support in conservation planning.

Zones of environmental sensitivity identified in the sensitivity analysis can also be termed ***"land use opportunity and constraint zones".*** These zones determine the fitness and environmental suitability of a specific area for certain types of development based on the status quo and inherent land use characteristics of the area.

Opportunities may include:

- Areas able to accommodate specific development growth demands with minimal environmental impact.
- Sensitive environmental attributes that can be conserved.
- Limits on pollution and waste generation that can be achieved without significant cost.

Constraints may include:

- Development growth trends that exceed the ability of the area to accommodate additional demands without encroaching on environmentally sensitive areas.
- The location of good building sand in an area identified as good habitat for rare and endangered species.
- Low ambient air quality in an area where there is a high demand for industrial growth.

Based on the outcomes of the Status Quo/Situational Analysis, key environmental management priorities of the area were identified and carried forward into the development of the EMF.

PHASE 3: Draft EMF (including implementation plan and strategy) in preparation for Final EMF submission.

The resulting EMF is the culmination of all the input derived through the above-mentioned phases of the project and provides a spatial "road map" for environmental planning within the ELIDZ. The main outputs for this phase of work includes the development of the following:

Management Zones

Integration of the critical environmental constraints identified during the Status Quo/Situational Analysis phase feeds into the determination of management zones. These zones illustrate the interrelationship between various environmental attributes, focused specifically on the peculiarities that determine their sensitivity.

The purpose of management zones is to focus attention on the critically important areas and to facilitate decision-making in them. Management zones should highlight critical environmental areas and ensure that any development applications lodged in these areas adheres to the management criteria (management guidelines) relevant to the zone.

Management Guidelines

The functionality of an EMF is largely dependent on the implementability of the recommended environmental management guidelines. These management provisions and guidelines are developed by assessing the inputs from the public participation process and combining it with the information gathered from the various technical assessment inputs. These guidelines should aim to:

- Integrate the outcomes of the desired state of the environment.
- Clearly define and address any management objectives which have been established.
- Maximize the opportunities to the benefit of both the environment and development in an area.
- Make clear recommendations regarding the way that development should occur within a specific area.
- Provide guidance on the environmental thresholds to development in a specific area.
- Identify development that would not be appropriate in sensitive areas.
- Manage the constraints of the area through interventions that seek to protect the environment against significant impacts while being sensitive to the social needs and aspirations in the area.

A description and prioritisation of environmental issues will be undertaken and guidelines for EIA processes and specific development activities will be drafted.

As part of the EMF implementation plan, recommendations for institutional arrangements and assigned roles and responsibilities will be outlined and key performance indicators will be developed to monitor the implementation of the EMF will be developed.

A revision schedule for the EMF will also be determined and indicated as part of the EMF.

Public Participation

The EMF Regulations require the following public participation process to be conducted at minimum as prescribed by subsection 2(c).

The following public participation activities are envisaged for the ELIDZ EMF:

- Advertisement in a local newspaper informing the public of the project (Daily Despatch).
- Notification of key stakeholders.
- Registration of all I&APs and establish an I&AP register to record issues, comments and inputs.
- Provide all registered I&APs opportunity to review the drat EMF.
- Prepare a comments and response report.

- Finalise the EMF to incorporate stakeholder comments.

In addition to the finalisation of the EMF in preparation for submission to DEDEAT, the following will be provided to the ELIDZ as an output of the EMF project for ELIDZ internal purposes:

- Collation of available ELIDZ Environmental Due Diligence information and the development of an easy-to-access database for reference purposes when assisting potential investors.
- Update of the ELIDZ's Environmental Due Diligence Questionnaire.

2.2 ASSUMPTIONS

The updated ELIDZ EMF status quo report was primarily based on desktop information gathering from various sources and it is assumed that this information is accurate.

It is assumed that the EMF will undergo continuous revision and will be updated with new and more accurate information, as it becomes available.

Due to the iterative nature of the EMF process, additional spatial data may be acquired during subsequent phases of the EMF. As such, new information will be incorporated into a revised version of this report and added to the GIS database.

3 DESIRED STATE OF THE ENVIRONMENT

3.1 BACKGROUND TO THE DESIRED STATE REPORT

According to the published EMF guidelines (2012), the analysis and evaluation of baseline information; issues raised through stakeholder engagement; and sector planning needs, provides the basis for establishing environmental priorities. The Desired State of Environment Report captures the information derived and collected in the Baseline Report and uses the information to:

- Present the development opportunities in the ELIDZ (referred to as the economic desired state).
- Present the current state of the land in terms of land cover.
- Present the issues and the needs of the ELIDZ and tenants.
- Create a layer of sensitive natural features which may represent constraints to development activities and where these constraints are distributed.

The priorities of the ELIDZ are expressed as the Desired State of the Environment, which encompasses all aspects of the ELIDZ including the economic, social, cultural and natural environment. The Desired State is used to set the objectives of the EMF and develop management guidelines for each of the Environmental Management Zones.

The Desired State of the ELIDZ was developed by integrating:

- Spatial information available for respective sectors which are currently active and are planned in the ELIDZ.
- Input from tenants within the ELIDZ.
- An updated land cover reflecting current land use patterns.

Based on the spatial data gathered in the Status Quo Report, the key aspects that have been identified as playing a major role in the spatial planning and development of the ELIDZ include:

- ELIDZ industrial development – current development and future development plans
- Private Open Spaces (Open Space Management Plan)
- Hydrological features
- Estuaries
- Vegetation types and their threat status
- Eastern Cape Biodiversity Conservation Plan
- Protected and Conservation areas
- Marine and coastal environment
- Air quality – point sources of emissions

The natural environment and industrial and human activities cannot be disaggregated. Each has an influencing effect on the other and people are intrinsically dependent on natural resources for survival. This inter-relationship makes it necessary to understand and integrate the needs and aspirations of the

stakeholders who work within the ELIDZ into environmental planning, with the aim of facilitating and promoting sustainable development opportunities in areas of need.

The updated land cover establishes the current status quo in terms of land use and pressures. This was an influential spatial layer that assisted with moderating and rationalising the "desired state" of different environmental sectors as it demands consideration of the current settlement and use in the light of sectoral plans.

3.2 Description and Approach

The Sections in the Desired State Report present information on the development opportunities, land cover statistic, social needs, environmental priorities and finally undertakes conflict/constraint analysis. A brief overview on the approach to each section of the Desire State is summarised below (Table 3.1).

Table 3.1: A brief description of each section of the Desired State and the approach

Section	Approach
ELIDZ development (current)	The existing development and development opportunities of the ELIDZ, identified in the Status Quo Assessment Report, were incorporated and summarised in this Desired State section.
Land cover	An updated (2018) land cover, generated by this study, is presented and a comparison is made with the National Geo-Spatial Information (NGI) land cover (2013/14) in order to discern land use trends and pressures.
Social needs	The social profile of the greater Buffalo City Metropolitan Municipal (BCMM) Area has already been fully described in the Status Quo Report. A summary of this information is provided.
Environmental constraints, sensitivity and priorities (Hydrological features, estuaries, vegetation types and their threat status, Eastern Cape Biodiversity Conservation Plan, Protected and Conservation areas, marine and coastal environment and air quality – point sources of emissions	The biodiversity and ecosystem information collected and present in the Baseline Assessment Report, including freshwater features, estuaries, coastline, vegetation and species level data, and relevant buffers around these geographical features is considered. In addition, biophysical features such as slope gradient and the Ecosystem Based Adaptation data are included as constraints. Protected Areas and relevant buffers have been applied.
Conflict/constraint analysis	Each development opportunity (desired state) was assessed against each environmental constraint. The relationship (either in conflict or compatible) was assessed and represented in a conflict matrix. This analysis permits a more refined assessment of the conflict of each type of spatially relevant development opportunity against all natural environmental constraints. This is necessary as not all development types are in direct conflict with conservation/protection objectives of important biodiversity or ecosystems. The conflict matrix used QGIS to develop maps of areas of conflict. Using these maps, we were able, at a strategic level, to determine the distribution and nature of the conflict and

	attempt to resolve/rationalise them. This process was often assisted by simultaneously overlaying the land cover.
Next steps: Environmental Management Zones	The process of resolving/rationalising and visualising the land cover, provided the basis for delineating the Environmental Management Zones, which is presented in Section 6 of the EMF.

3.3 ELIDZs Current and Future Development Opportunities

The current layout of the ELIDZ is depicted in Figure 3-1, Figure 3-2 and Figure 3-3 below. Currently, the ELIDZ primarily services the automotive sector in terms of manufacturing as well as logistics. A list of existing tenants within the ELIDZ is attached in Appendix A.

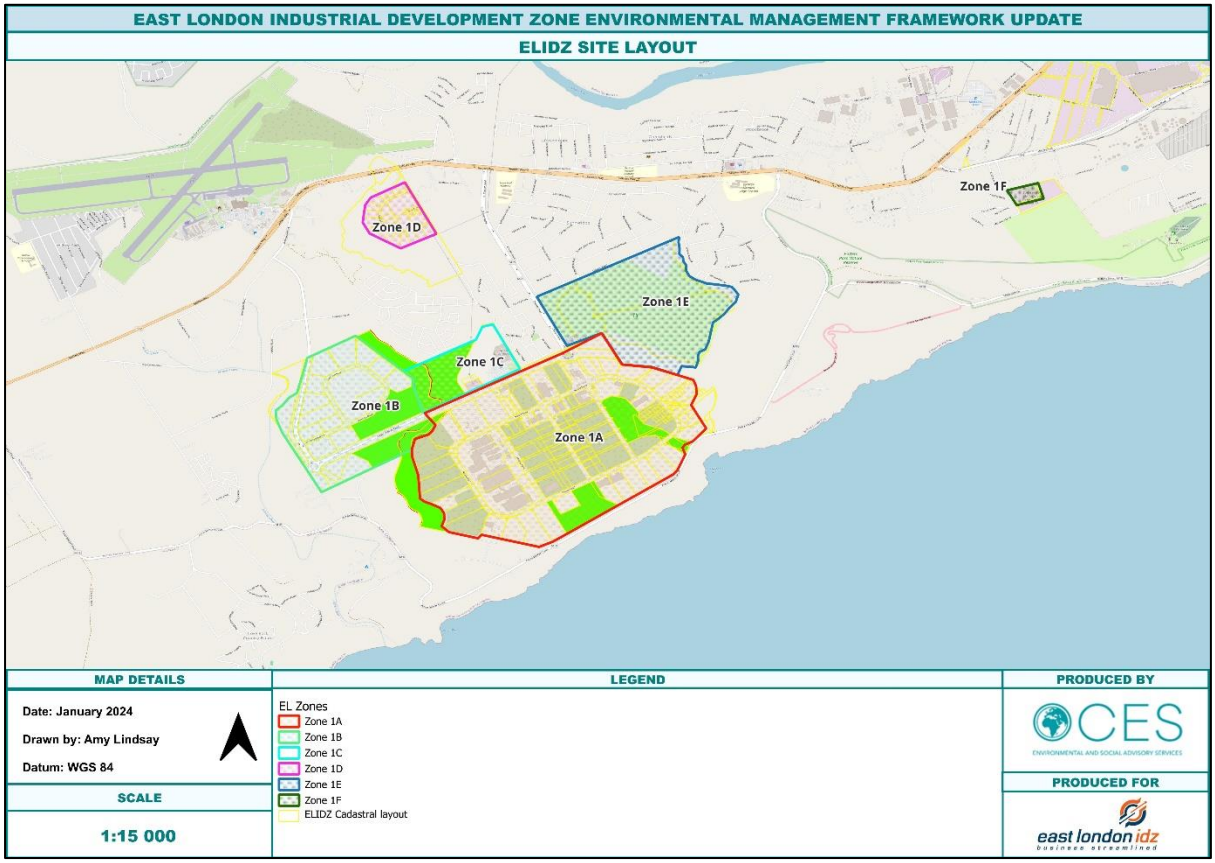


Figure 3-1: Site layout map for the East London Industrial Development Zone.

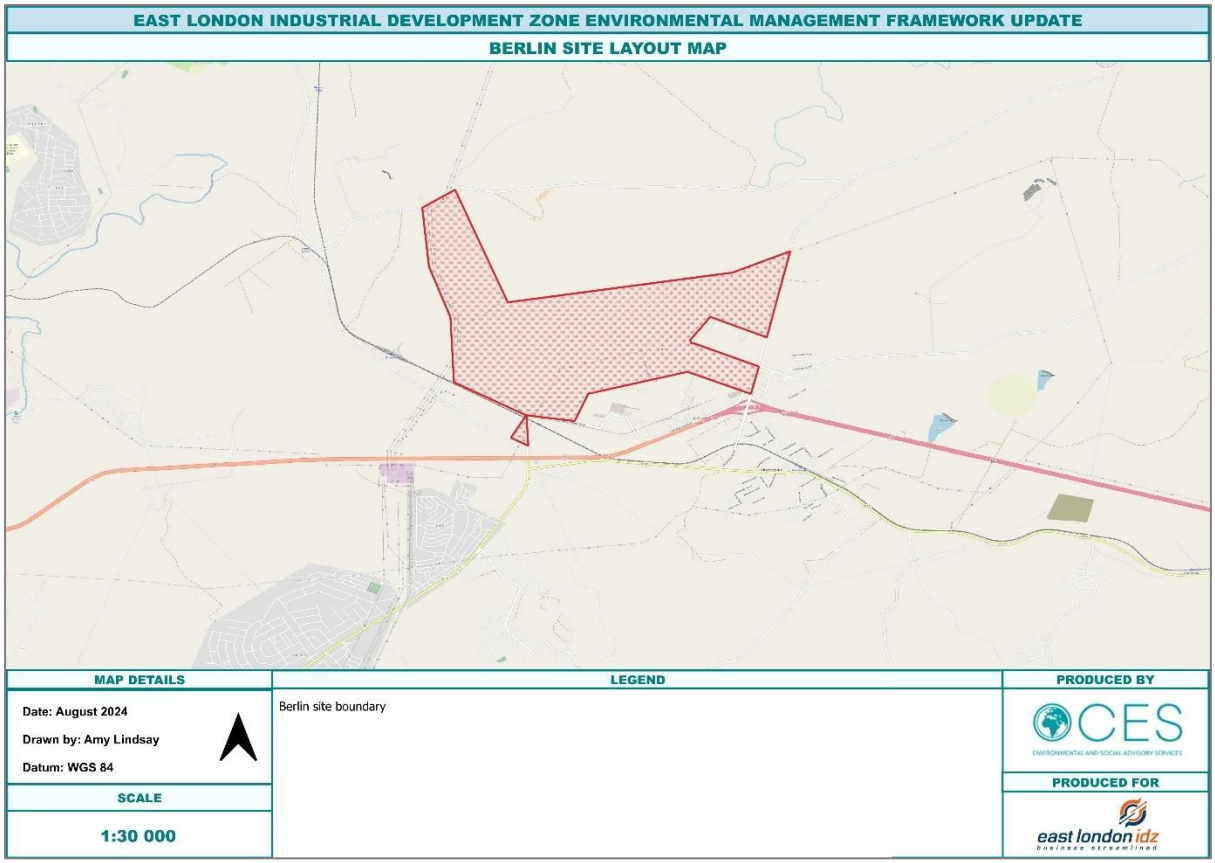


Figure 3-2: Site layout map for the Berlin site.

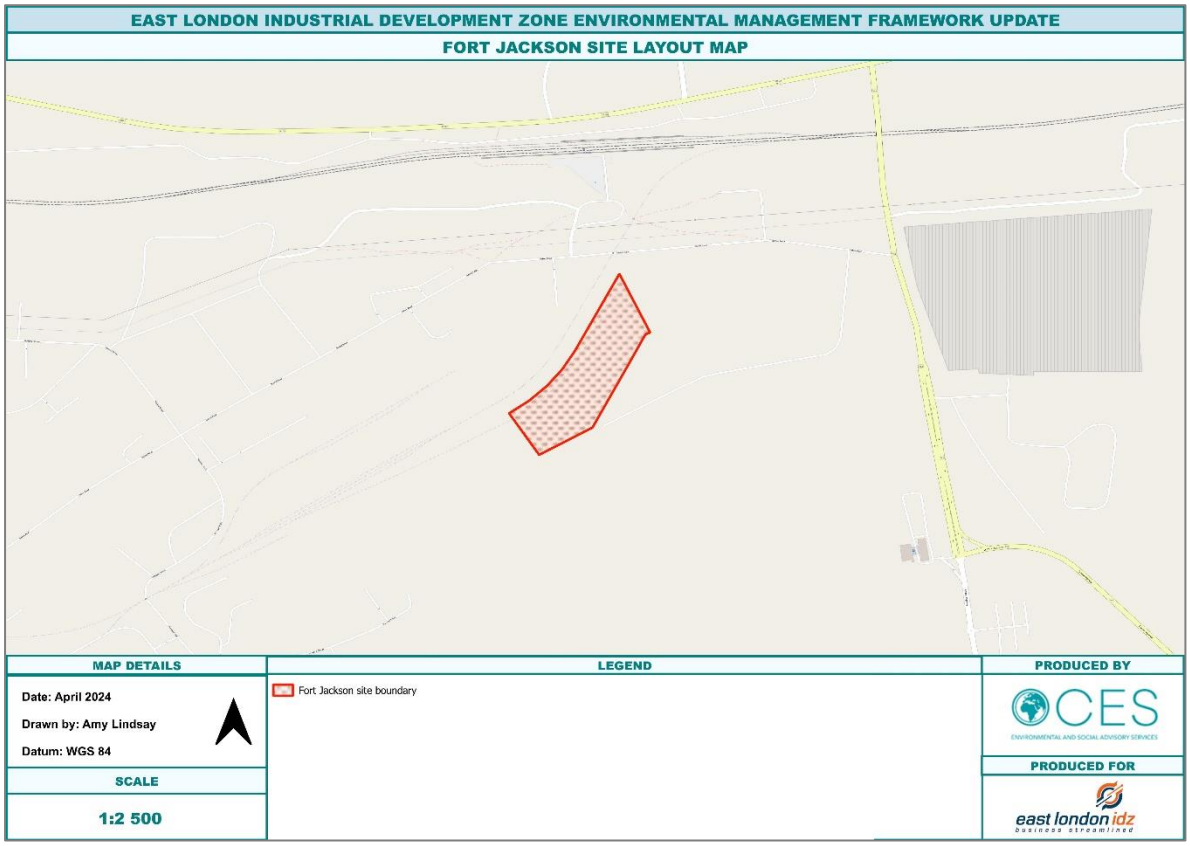


Figure 3-3: Site layout map for the Fort Jackson site.

The following existing infrastructure is in place at the ELIDZ East London site to support its existing and future tenants:

- Administration support.
- Three phase electrical supply to all sites.
- Security in terms of boundary fencing, electric fencing and a contracted security company that conducts security patrols and access control.
- Sewerage infrastructure that feeds into the municipal sewerage reticulation.
- Potable water supply infrastructure from the municipal water supply system.
- Stormwater infrastructure.
- Sea water abstraction and reticulation infrastructure.

Currently the ELIDZ's Berlin facility does not have any infrastructure installed on site and the site is currently not being utilised.

The Fort Jackson site consists of an empty warehouse structure and some offices that is fully serviced.

3.3.1 The ELIDZ's Current Industry Focus

The target industries that are currently being pursued by the ELIDZ include the following:

- Automotive (Original Equipment Manufacturing (OEM) and suppliers)
- Agro processing
- Aquaculture
- Pharmaceuticals
- Information and Communications Technology (ICT) and Business Process Outsourcing (BPO)
- Transport and logistics
- Renewable energy products and manufacturing
- Renewable energy generation
- General manufacturing
- Chemical processing
- Waste processing

Automotive sector (OEM and suppliers)

The ELIDZ developed the Automotive Supplier Park (ASP) to car component suppliers that offers Just in Sequence/Just in Time (JIS/JIT) supplier to the local original equipment manufacturer (OEM) and export markets. It boasts first class infrastructure and shared services that are essential for a company to be globally competitive.

Benefits to component manufacturers include:

- Dedicated utilities and other services that are designated to assist and stimulate auto sector industrial productivity, expansion and export competitiveness.
- Time and cost saving arising from shared logistical and supply chain arrangements.

- Comprehensive package of industry support assistance, including substantial national trade and export production incentives.
- Close proximity to local OEM's with easy access to road, rail and air transport.
- Established base of automotive skills in the Eastern Cape province.

The ELIDZ has set aside a zone in close proximity to the ASP to house 2-3 OEMs where learner operations can be realised as well as greater efficiencies and cost savings. Benefits for OEM's include:

- Multi-brand production with shared services thereby reducing costs.
- Focus on niche products with low volumes where applicable.
- Lowering of infrastructure investment and increased flexibility.
- Improved and stable supply chain processes.
- Decreasing inventory and holding cost as the ASP is within a kilometre of the set aside zone.

The term to 2025 does not offer a Mercedes Benz major model release (and so auto sector growth can be expected to be more modest than in the closing cycle; auto growth will be premised mainly on finalisation of the gear up for the current model change plus expansionary growth of the existing auto tenant community.

Currently there are 22 Automotive-related tenants occupying the ELIDZ, including vehicle storage and logistics.

Agro-processing sector

The Eastern Cape has vast potential for agro-processing activities. The province is suitable for a wide variety of agricultural processes due to its temperate climate and all-year rainfall.

The province is South Africa's main livestock producing province that provides 30% of SA's wool and 80% of SA's mohair. Dairy farming provides 20% of SAs milk production. The province has the only significant allocation of land suitable for plantations still available om South Africa (approximately 120,000ha). Sawmill activities account for 23% of SA's forestry and logging production. The extensive billion-rand investment buy Steinhoff furniture group in the Eastern Cape timber industry is further proof of the opportunities available within the sector.

The area also lends itself to excellent results with multi-span greenhouse production and is currently a leader in hydroponic tomato production. South Africa has an extensive natural environment and offers tremendous opportunities to process natural plants for cosmeceutical, nutraceutical and phytopharmaceutical and essential oil purposes. Opportunities include:

- Dairy production
- Red peppers
- Wheat
- Beef
- Chiccory
- Essential oils

Attractive features within the IDZ include:

- Close proximity to extensive forestry activities.
- Close proximity to mohair producing areas.
- Abundant availability of raw material supplies.
- A strategic government supported timber project.

The agro-processing sector has also produced a mixed success picture in the zone to date but there is a recognition that the new policy direction promoting the stronger integration of SEZs into regional development will offer extended opportunity for ELIDZ to influence primary production and the possibility of processing at primary production level. Currently there is one tenant related to the agro-processing sector within the ELIDZ.

Aquaculture

The ELIDZ is strategically positioned to develop a marine aquaculture cluster in an effort to contribute towards the growth of the sector. The ELIDZ has access to sea water as well as the opportunity to tap into existing municipal infrastructure for the delivery of sea water to potential land-based aquaculture facilities. The temperate waters off the coast of East London lends itself to good growth rates for marine fin fish. Some of the key features of the aquaculture cluster in the ELIDZ includes the following:

- Dedicated 32 ha marine aquaculture cluster focused on supporting recirculating aquaculture systems.
- Agricultural zoning of 11 fully serviced sites in place.
- Environmental Authorisation for the commercial production marine fish farming already granted for at least 10,000 tons annually in place.
- Environmental Authorisation for yellowtail kingfish, dusky kob, barramundi, rainbow trout and Atlantic salmon in place.
- Accessible bulk sea water supply at 185 litres/second and effluent handling at 85% water recirculation per site.
- Seawater Quality Monitoring Program in place.

In response to some of the challenges ELIDZ has experienced in the aquaculture sector, the focus for the development of the sector will be on piloting new technology for the sector, which is expected to lead to increased production efficiencies and improved success rate of aqua investors.

Pharmaceutical

The Eastern Cape is well supplied with pharmaceutical skills, with Rhodes University and Nelson Mandela Metropolitan University (Port Elizabeth) offering degrees in pharmacy and chemistry. This is being added to by bio-prospecting initiatives that draw on indigenous people's knowledge.

The Eastern Cape pharmaceuticals industry is small but strong, with the core of internationally respected names, including Johnson & Johnson, Aspen Pharmacare, Bodene, CliniSut and Condomi. Aspen Pharmacare has its manufacturing base in the Easten Cape and has become the largest South

African producer of generic drugs. The manufacture of generic drugs will continue to grow worldwide as patents expire and demand increases in South Africa and other developing countries.

Currently there are no pharmaceutical tenants within the ELIDZ.

ICT and Electronics includes Business Processing Outsourcing (BPO)

The Information and communication (ICT) sector is an increasingly important contributor to South Africa's Gross Domestic Profit (GDP). Economic activity relating to services is showing good dynamism, and ELIDZ expects to reap significant investment within the ICT and Electronics sector (with its related internationally tradable services offerings), on the back of the establishment of a sea cable terminal and related infrastructure.

Investment opportunities lie in the development of access control systems and security equipment, automotive electronic subsystems, systems and software development on the banking and financial services sector, silicon processing for fibre optics, integrated services as well as software and peripherals.

Commercial and economic activity in the Eastern Cape has been focussed around the Nelson Mandela Bay and Buffalo City Metropoles. Gqeberha and East London have a prosperous ICT hub. One example highlighted in the original EMF (2011) is a company called Freshmark Systems. Freshmark Systems has developed technology that focusses on supporting the fresh food market throughout South Africa through managing all trading, stock control, financial processing and supply chain management remotely from East London.

BPO involves relocating business processes that a company usually performs in-house to a third-party service provider, such as a customer care or call centre, to carry out on behalf of the company. Outsourcing becomes offshoring when the third-party service provider is located overseas. The BPO industry's focus sectors include financial services, insurance and telecommunications, with outsourced processes including after-sales services, data capture and conversion, accounting, benefits administration, human resource functions, and website design and development. Several factors which played a key role in establishing India as an outsourcing destination are already present in Africa, especially South Africa. A population fluent in spoken English (close to 5 million), cultural affinity and a sizeable talent churn from quality universities (160,000 graduates per annum and close to 410,000 personnel capable of working in the BPO sector annually), aided by time zone similarities, are helping South Africa become the next outsourcing frontier.

Outsourcing/Offshoring to South Africa by many European countries provides them with substantial cost savings. Outsourcing services delivered from South Africa are positioned as a desirable alternative to onshore delivery centres, while also offering revenue generating services to its clients. DTI has an incentive scheme specifically aimed for the benefit of international call centres establishing in South Africa. The incentives on offer include:

- A base incentive, which is a two-tier differential incentive for non-complex jobs and complex jobs. This is based on the Rand value per job determined by fully loaded costs. The base

incentive is a 5-year operational expenditure grant that tapers down over time.
- A graduated bonus incentive is also available for entities with higher job creation and sustainability figures.
- There is also the Monyetla Work Readiness Programme which was designed to support the growth of the industry though work-readiness training and placement for entry level agents.

The incentive programme is one of the elements of a holistic value proposition to position. The BPO&O Investment Incentive comprises an Investment Grant ranging between R37, 000 and R60, 000 per seat and Training Support Grant towards costs of company-specific training up to a maximum of R12, 000 per agent. The incentive is offered to local and foreign investors establishing projects that aim primarily to serve offshore clients.

BPO opportunities within the ELIDZ include the following:
- Call Centre
- Back Office Processing
- Share Corporate Services
- Enterprise solutions in service lines such as fleet management, knowledge management and asset management
- Science and Technology Park
- ICT incubation centre.

Currently there are nine tenants within the ICT and BPO sector that are located within the Science and Technology Park.

Transport and logistics

The freight system in South Africa and its links with the sub-region are a collection of networks that deliver a range of services. The growth of freight traffic has surpassed most of the 20-year growth forecasts made by Moving South Africa, at least 14 years before they were expected. The efficiency of inland transport in serving an increasing and often disputed hinterland is critical to the socio-economic development of South Africa. The ELIDZ is becoming a hub for supporting the transport and logistics sector in the area due to it locality to the airport, Port of East London and access to National Roads (N2 and N6).

Currently there are six tenants within the ELIDZ that fall within the transport and logistics sector.

Renewable Energy Sector

There is a major focus on developing the renewable energy sector in South Africa that is fuelled by the continuous problems that Eskom faces with the quality of coal supply, maintenance of infrastructure and the rising cost of electricity. The Independent Power Producers Office (IPPO) is working together with Eskom to facilitate the supplementation of electricity generated through renewable sources into the power grid. Currently, the following opportunities are available within the renewable energy sector:

- Manufacturing of components the feed to solar and wind projects.

- Generation of EIAs within starting projects.
- Servicing the solar and wind projects.
- Investing in the generation of green hydrogen projects.

The Renewable Energy sector has seen some stagnation particularly in relation to the renewable energy generation segment owing to challenges in the country's legislative enablement for this sector, access to markets and the viability of pioneer projects. However, there are prospects for a new investor who now has been approved by BCMM as an independent power producer and this is expected to activate the establishment of the first renewable energy generation facility (solar PV) in the ELIDZ's Berlin Precinct. There are also new opportunities for the development of energy storage facility in the zone (ELIDZ Strategic Plan, 2020-2025).

Currently there is one tenant within the ELIDZ that manufactures components that support the renewable energy sector.

General manufacturing

General manufacturing makes up a significant portion of the Provincial economy and is primarily driven by the needs of the automotive sector in the Eastern Cape. Although the automotive sector is the main driver, other sectoral activities are supported by the general manufacturing sector, in particular the agricultural sector.

There are currently two tenants within the ELIDZ that fall within the general manufacturing sector.

Chemical processing

Currently there is one chemical processing tenant within the ELIDZ.

Waste processing

Currently there are two waste processing tenants within the ELIDZ.

3.3.2 ELIDZ Development Plans

The ELIDZ is focussed on further developing each of its sectors in accordance with the corporate and strategic plans. The following potential development opportunities for the ELIDZ are currently being explored:

Energy Supply

- Opportunity for greener/cheaper energy sources.
- Development of technology for supporting waste to energy solutions.
- Bulk supply facility for LNG, biomethane and/or hydrogen.
- Opportunity in the low carbon and renewable energy value chains.
- Low carbon energy as an offering of the ELIDZ.
- Public Private Partnerships (PPPs) on energy security solutions.

- Smart infrastructure to increase energy use efficiencies.
- Renewable energy generation (e.g. roof solar PV, PV farm, energy storage).
- Hydrogen generation and energy storage.

Water supply

- Opportunity for desalination due to the close proximity of the ELIDZ to the sea.
- Developing technology to address wastewater reuses.
- Smart infrastructure to increase water use efficiencies.

Waste management

- Improvement of waste separation at source.
- Collaboration with Collect All and other waste companies to identify and development waste recycling.
- Include waste management and recycling requirements in contracts with tenant companies.
- Job creation through waste recycling (e.g. rebates for social projects).
- Bulk waste processing for industry.
- Develop waste to energy technologies.

Strategic infrastructure developments

- Incorporation of the East London prison site in the ELIDZ mandate (medium to long term opportunity).
- Opportunities for mixed used development on the golf course (e.g. residential, health, retail, education).
- Available infrastructures to develop the golf course.
- Leverage from Science & Technology Park established in the ELIDZ.
- Proposed call centre investor in the ELIDZ would result in 2400 workers to move in/out of ELIDZ on daily basis. Need to secure mass transportation options 24/7.
- Airport runway expansion and future development of airport precinct.
- Expected upgrade of electrical infrastructure.
- Creation of a future road link from ELIDZ to the port facilities.
- Expected upgrades of entrance points to the East London Port.
- Private sector rail slots proposed by Transnet for the Gauteng to East London line.
- Development of sea outfall infrastructure to accommodate flow-through aquaculture systems.

Buildings:

- Development of green buildings in ELIDZ Zone 1A and obtaining accreditation.
- Marketing of green buildings, highlighting their water, energy, materials savings.

3.3.3 Industrial Clustering

Industrial clusters and clustering theory have previously emerged as an important object of research and policy analysis. The benefits of industrial clustering are the localisation of economies, namely the availability of common suppliers-buyers, the formation of a skilled labour pool and the transfer on knowledge. It is theorised that industrial clustering improved access to specialised inputs and information and the rate of success of innovation. Industrial clustering also has the benefit of lowering

barriers to new business incubation, which results in the creation of an environmental that fosters creativity.

Initial Industrial Clustering Proposal

An Industrial Clustering exercise was undertaken as part of the development of the 2011 EMF. This Industrial Clustering analysis identified 11 "Industrial Fields" in which existing and prospective tenants would be classified into. Figure 3-4 to Figure 3-6 indicate the areas that were earmarked for each of the 11 identified "Industrial Fields".

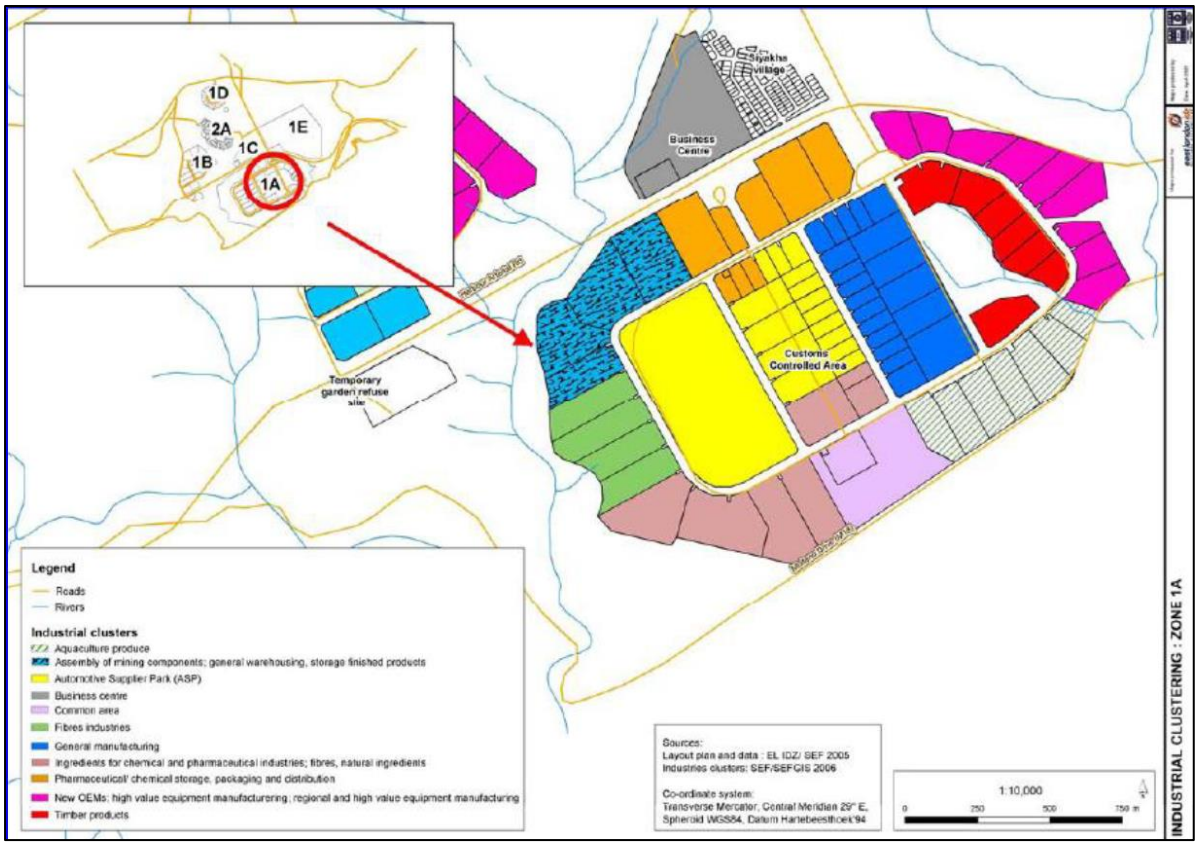


Figure 3-4: Clustered Industries for Zone 1A (ELIDZ EMF, 2011)

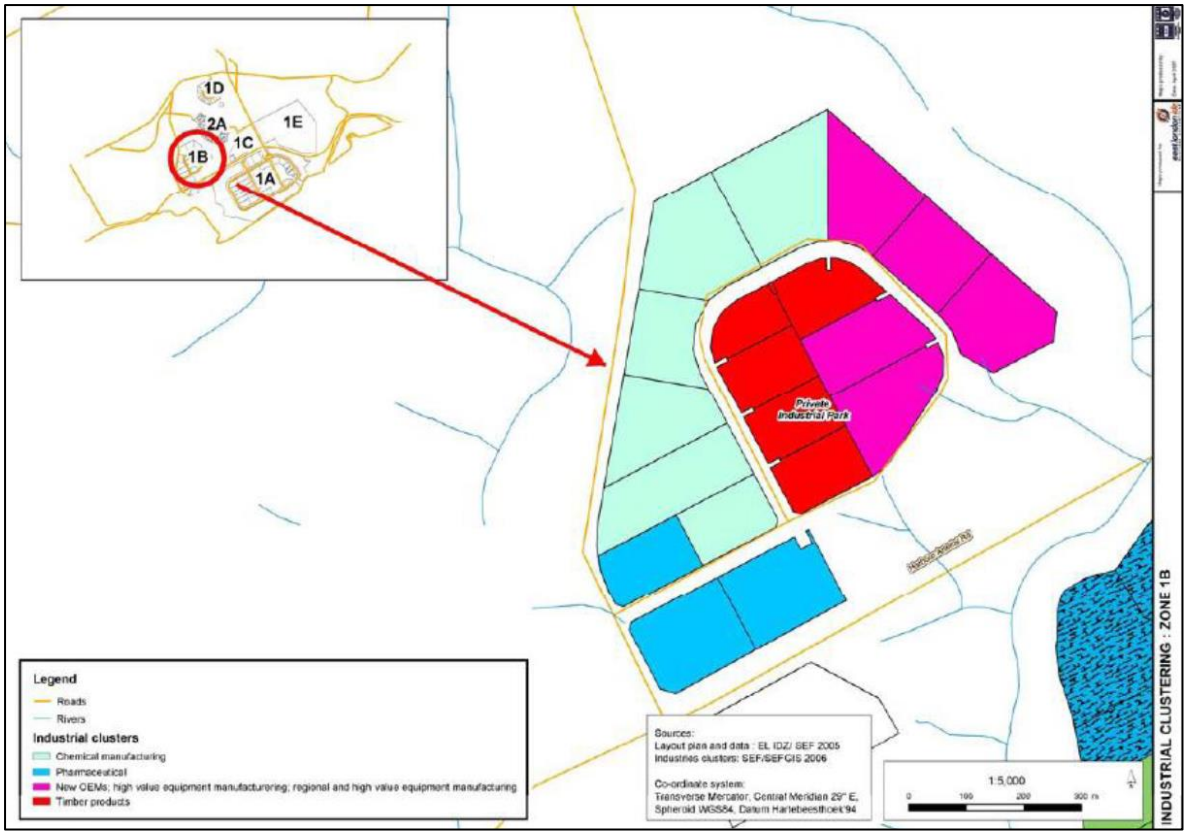


Figure 3-5: Clustered Industries for Zone 1B (ELIDZ EMF, 2011)

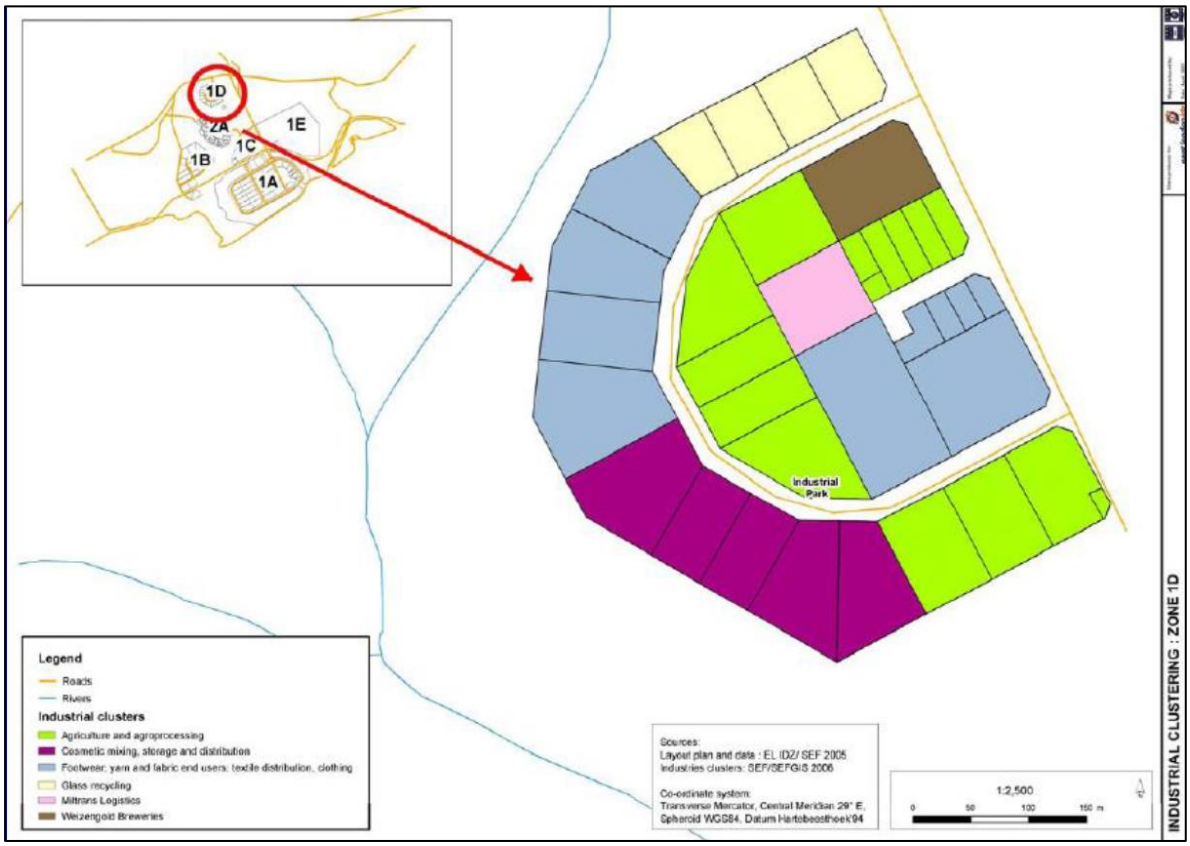


Figure 3-6: Clustered Industries for Zone 1D (ELIDZ EMF, 2011)

Environmental Implementation Plan Industrial Clustering Proposal (2021)

The ELIDZ have developed a Master Plan to assist in informing the development and placement of existing and potential tenants within the various sectors the IDZ. The master plan that has been developed is a comprehensive document that guides the planning and development of a specific industrial park/SEZ. Like other SEZs and industrial parks in South Africa, the ELIDZ is facing rapid developments affecting the industrial zone, which necessitates the restructuring of the Industrial Clustering plan that was developed as part of the 2011 EMF. Prospective investors and tenants are requesting access to greener solutions to development within the ELIDZ and well as more sustainability-focussed management practices within the IDZ, including:

- Requests for renewable energy supplies.
- Opportunities for reducing carbon emissions from the ELIDZ.
- Attracting new tenants which require sustainable water supplies.
- Assurance of positive impacts on society and local job creation.
- Maintaining existing tenants with international commitments.
- Pressure for ELIDZ and tenants to achieve zero waste to landfill.
- Identifying and implementing new technologies for future proofing the ELIDZ.

In response to this, the ELIDZ is adopting an approach that centres around the development of eco-industrial parks (EIP). The EIP approach is about creating more resource-efficient and cost-effective industrial parks and SEZs which are more competitive, attractive for investment and risk resilient. It provides economic, social and environmental benefits to industrial parks and their tenant companies. The EIP approach can strengthen the planning of industrial parks and their concept / master plans from economic, environmental and social perspectives, both technically and strategically.

The EIP concept and master planning approach has been applied to the ELIDZ in order to future proof the SEZ and support the ELIDZ with refining its Master Plan to cater for:

- Future tenant requirements.
- Ensure competitiveness and unique value proposition of ELIDZ on the short, medium and long-term.
- Ensure maximum flexibility in ELIDZ concept and master plans to allow different scenarios to happen over time.
- Increase resource efficiencies and industrial synergies of tenants and SEZ as a whole.
- Enhanced interactions with local municipality, communities, society and other regional and (inter)national stakeholders.

The proposed EIP concept plan for the ELIDZ with an indication of the proposed clustering and precincts is provided in Figure 3-7 below. The sites identified in the EIP concept plan have been carried forward into the sensitivity analysis for this EMF.

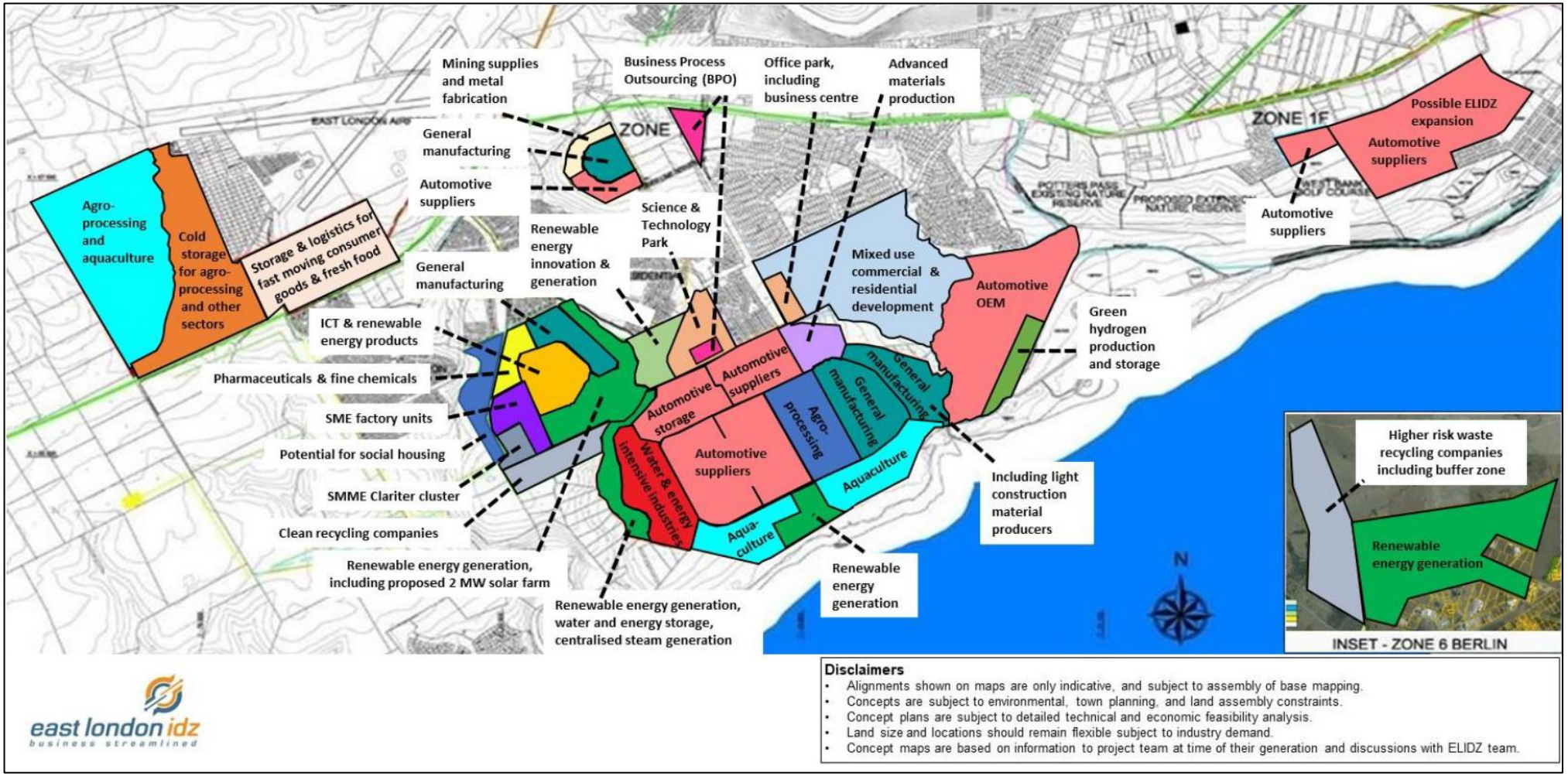


Figure 3-7: EIP concept plan with proposed industry clustering and precincts in the ELIDZ

4 DEVELOPMENT PRESSURES AND TRENDS

This section provides a description of the biophysical environment of the ELIDZ areas as well as the general BCMM area. Where relevant, the key pressures and threats of the biophysical environment to ELIDZ activities, is discussed.

4.1 CLIMATE CHANGE

Climate change refers to the rise in average surface temperatures on Earth, which can have a range of effects on climate and therefore ecosystems, including rising sea levels, severe weather events and droughts. These manifestations will render landscapes more susceptible to food shortages, disease, water shortages, flooding and wildfires and is a cross-cutting issue across all features and activities of the greater BCMM area. Various government departments, organisations and companies have endeavoured to implement plans which are aimed at two responses to Climate Change (CC), namely CC adaptation and CC mitigation.

Climate change can be considered as a long-term threat/pressure to ALL aspects of the landscape within the greater BCMM area. Spatial planning is an important mechanism necessary for the appropriate adaptation to climate change. Therefore, when developing the updated ELIDZ EMF, predicted climate change manifestations, where spatially relevant, will be used to inform environmental spatial planning.

From a biodiversity perspective, the anticipated changes in rainfall and temperature, complicated by geological and elevation constraints, will have affect the distribution of biomes and ecosystems. Ecosystems less resilient (e.g. Critically Endangered or endemic) may become extinct and replaced by other ecosystems. Examples of climate change impacts and adaptation responses are discussed in Table 4-1 below.

Table 4-1: Threats and measures for climate change adaptation relevant to the ELIDZ and greater BCMM area.

Climate change impact	Adaptation responses
Biome shifts: affects access to natural resources associated with current vegetation biomes AND all species associated with it (birds, small mammals, invertebrates).	Maintain and preserve: • CBAs and ESA corridors delineated in the ECBCP. • Biophysical climate refugia identified in the National Biodiversity Assessment (2018). • Biome modelling climate change “stable” areas (Guo et al, 2017). • Climate change vulnerable areas for increased adaptation resilience.
Storm surges and sea-level rise will flood and erode coastal development.	Coastal management lines (CMLs) must be determined and implemented. Service infrastructure located in the seaward side of these CMLs is at risk. No future infrastructure should be planned within these areas. If the construction of infrastructure in the coastal zone is unavoidable, infrastructure must be designed in such a way that its susceptibility to increase in storm surges and lea level rise are minimised.

Climate change impact	Adaptation responses
High intensity rainfall flood events will result in increased frequency of opening of temporarily open/closed estuaries, changing the ecology of these estuaries.	Upstream flood attenuation.
Sporadic rainfall events will have an impact on flow regimes of rivers and wetlands changing the availability of flow to meet ecological reserves.	Flood attenuation (capture and slow release) of rivers, drainage lines and stormwater channels and the conservation and rehabilitation of wetlands.
Extreme weather events (rainfall and temperature) caused by climate change, combined with soil exposure, will increase erosion potential of topsoil and adversely affect soil fertility.	Ongoing rehabilitation of cleared areas with locally appropriate indigenous vegetation types to prevent erosion of topsoil and the deterioration of soil condition.
Increases in sea surface temperatures will result in an increase in large storm events and, together with more intense UV from the sun, will increase the occurrence of algal blooms events.	Mitigation response: Reduce greenhouse gas emissions by adopting more eco-friendly technologies.
Ocean acidification affects the development of some marine organisms, in particular crustaceans and molluscs, which utilise calcium carbonate when forming the carapace or shell.	Ensure that any effluent being discharged into the coastal zone, including estuaries, is effectively treated and the pH checked before discharge.
Decrease in annual rainfall resulting in extended drought conditions.	Water conservation and recycling.

4.2 Palaeontological and Heritage Sensitivity.

In terms of palaeontological sensitivity of the greater East London area, the Befort Group (the primary geological type), was formed in the late Permian era (255 million years) to mid-Triassic era (237 million years). The main fossils found within this Group include fish, amphibians and reptiles with mammal-like reptiles (Therapsids) dominating. Other fossil finds include plant fossils (*Glossopteris*) with occasional invertebrate fossils (freshwater bivalves).

The paleo-sensitivity (fossil sensitivity) map provided by the South African Heritage Resources Agency (http://www.sahra.org.za/sahris/map/palaeo) provides the paleontological sensitivity of the whole of South Africa. It rates the sensitivity from zero/insignificant to very high and is used as a tool to guide developers and provide an indication of areas where there is a likelihood of impacting fossils. Consultation with the paleo-sensitivity map indicates that the majority of the ELIDZ area has VERY HIGH paleo-sensitivity.

Pressures/threats and impacts on the palaeontology and heritage features are summarised in Table 4-2 below:

Table 4-2: Main threats/pressures and associated impacts on palaeontology and heritage sensitivity.

Pressure/threat	Impacts
Loss of or damage to sensitive paleontological and heritage resources	• Loss of sensitive paleontological resources results in the loss of opportunity to contribute to the understanding of the local palaeontology and heritage in the area.

4.3 HYDROLOGY

A number if surface and groundwater sources are located within the East London site and surrounding the Berlin and Fort Jackson sites. However, a water quality monitoring programme has been developed by the ELIDZ where both quantity and quality of the water sources are being monitored.

Table 4-3: Key pressures/threats to rivers, wetlands and groundwater.

Pressure/threat	Impacts
Flow reductions caused by alien invasive plants in riparian areas.	• Reduced runoff and flow reductions impact available water for the ecological reserve reduce base flow and impact the amount of water available for downstream water users. • Physical barriers impact the natural migration of fish and other aquatic species, thus detrimentally impacting the health of the downstream aquatic ecosystem.
Physical barriers in rivers such as weirs and dams, which reduce runoff and act as a dispersal barrier to fish and other aquatic species.	
Increased runoff from urban and industrial areas, caused by the absence of water retaining vegetation. The result is an increase in storm water peak flow intensity as well as an increase in total annual stormwater runoff.	• This can result in erosion and excessive downstream sedimentation which may affect downstream aquatic biota and public health.
Surface water pollution caused by a variety of land uses, especially from diffuse pollution sources, mainly from human and industrial settlement areas.	• Water pollution affects public health, downstream aquatic biota.
Reduction in groundwater availability and quality as a result of overuse of groundwater resources and the leaching of pollutants into the groundwater resource.	• The overuse of groundwater resources impacts the availability of groundwater for other users in the area. Accidental spillages of pollutants may leach into groundwater sources, which negatively impacts the quality of the groundwater, affecting other users of the resource.

4.4 ESTUARIES

Despite the EFZs of the identified estuaries are not located within the boundaries of the ELIDZ, the tributaries of these estuaries can be found within the boundaries of the ELIDZ. Therefore, activities that occur within the ELIDZ could negatively impact on the health and functioning of these estuaries.

The threats and associated impacts experienced by estuaries surrounding the ELIDZ are summarised in Table 4-4.

Table 4-4: Main pressures/threats and associated impacts on estuaries.

Pressure/threat	Impacts
Pollution resulting from accidental spills or the mismanagement of waste from activities within the ELIDZ.	• Coastal pollution poses a risk to the health of marine ecosystems through increased eutrophication. • This can result in an increase in algal bloom events which in turn created anoxic conditions of marine organisms.
	• Many organisms bio-accumulate toxins and heavy metals that are found in many pollution discharges, which renders the organisms unsafe for human consumption.
Habitat loss within the catchment areas of the estuaries	• Rural and industrial development within the catchment area that feeds into the EFZ will result in the loss of habitat for fauna and flora found within the EFZ. This impacts on the health and functioning of the estuary as a result of flow modifications and the establishment of alien vegetation within the riparian areas.
Illegal activities	• Illegal activities such as illegal fishing and harvesting, illegal sand mining, removal of protected coastal tree species and illegal driving within the coastal zone negatively impacts both the ecological and physical characteristics of estuaries. It also places pressure on the long-term sustainability of these resources.

4.5 VEGETATION

The vegetation type within and surrounding the ELIDZ is classified as Hamburg Dune Thicket. Hamburg Dune Thicket typically occurs on flat to moderately undulating dunes in the coastal stretch from the Fish River Mouth to just east of Kei Mouth. It is characterised by dense thicket dominated by woody shrubs and stunted trees (usually 1 – 4 m in height), abundant lianas and vines, and a poorly developed understorey. These thickets are densest in dune slacks, while on exposed inland slopes they occur as small bush clumps in a matric of low coastal grassland characterised by the species (*Panicum deustum* and *Stenotaphrum secundatum*). Fynbos elements are common in areas with deep sandy soils, while savanna elements are common on richer soils (SANBI, 2018).

Hamburg Dune Thicket is classified as Least Concern but is considered poorly protected with a conservation target of 19%. Approximately 31.44% of the area has been transformed and invasion by alien species, particularly Psidium guava, threatens this vegetation type. (SANBI, 2018).

The main pressures on vegetation in the ELIDZ are focused on the loss of natural vegetation and the infestation of alien species. Significant portions of the ELIDZ are still in a natural state as a result of the ELIDZ Open Space Management plan. However, alien species infestation is an additional factor that results in loss of habitat.

In addition to Hamburg Dune Thicket, stretches of riparian forest associated with streams and slopes within private open space are present. Forest is protected by the National Forest Act, which requires that a permit

for forest destruction must be acquired before any tree is damaged/destroyed. Forest permits are only issued in exceptional circumstances, which must be proved in the permit application process.

A summary of the main pressures/threats to vegetation in the ELIDZ, and the associated impacts are described in the Table 4-5.

Table 4-5: Main threats/pressures and associated impacts on vegetation.

Pressure	Impacts
Clearing of vegetation for development and the resulting potential for the establishment of alien species.	Clearing of natural vegetation for development within the ELIDZ provides opportunity for the establishment of alien species if rehabilitation efforts are not undertaken in a thorough manner.
The clearing of riparian forest.	Important reptile, invertebrate, mammalian and bird species are support in the riparian forest. Clearing forest, which has been set aside for conservation, will result in the complete collapse of these ecosystems.

4.6 Eastern Cape Biodiversity Conservation Plan (2019)

The Eastern Cape Biodiversity Conservation Plan (ECBCP), also known as a Biodiversity Sector Plan, is a tool that guides and informs land use and resource-use planning and decision-making by a full range of sectors whose policies, programmes and decisions impact on biodiversity, in order to preserve long-term functioning and health of priority areas known as Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). A BCP is based on a systematic biodiversity planning approach, which is clearly outlined in the guidelines for bioregional planning (NEMBA Guidelines No 291 of 2009) and the technical guidelines for CBA maps (SANBI, 2017). The aim of a BCP is, very simply, to avoid further loss or degradation of biodiversity priority areas and ecological support areas.

The Berlin site and the Fort Jackson sites do not fall within a Protected Area, CBA or ESA while the East London site falls within CBA 1 and CBA 2 areas.

The main pressures for biodiversity in and around the ELIDZ include habitat loss and landscape fragmentation. Significant portions of the ELIDZ East London site are classified at CBA1 areas and the clearance of these areas for development within the ELIDZ can impact on the overall biodiversity conservation objectives outlined by the ECBCP. The loss of CBAs results in increased pressure on fauna and flora species related to the loss and fragmentation of habitats.

A summary of the main pressures/threats to biodiversity in the ELIDZ, and the associated impacts are described in the Table 4-6.

Table 4-6: Main threats/pressures and associated impacts on biodiversity.

Pressure	Impacts
Habitat loss due to transformation as a result of a range of land uses/land covers: • Settlement • Infrastructure • Industry • Alien plant invasion	Species extinctions and co-extinctions co-dependent species (parasites and mutualist species). These extinctions may result in the collapse in function of an ecosystem, especially if the species performs a crucial role in supporting communities that make up the ecosystem.
	Reduced vegetation cover.
	Exposed soil results in erosion and causes loss of fertile top soil.
Pollution of aquatic systems due to industrial applications.	The pollution of aquatic systems from industrial applications will affect all species dependent on the system. In addition, bioaccumulation of certain pesticides will have long-term effects on entire communities. Entire food chains that are either permanently integrated or intermittently linked to these systems will ultimately be affected.
Habitat fragmentation is the dissection of the landscape by anthropogenic activities, resulting in islands/patches of natural ecosystems that are isolated from other parts of the ecosystem.	Smaller patches of natural areas limit access to resources and in the case of some species, where movement is restricted; these resources may become so limiting as to cause localised extinctions. Restriction of movement may limit breeding potential with other populations and result in ever-reducing population sizes.
Faunal mortalities along road infrastructure.	Depletion of population numbers, which are most at risk of vehicle collisions, along transport routes.

4.7 Protected and Conservation Areas

East London Coast Nature Reserve is a cluster of Nature Reserves located along the coast and inland within East London. The East London Coast Nature Reserve cluster covers an approximate total hectarage of 3424 hectares and is made up of ten coastal reserves and two inland state forests. Notable sites along this strip include Cape Morgan, Double Mouth, Cape Henderson, Cintsa East and West, Kwelera, Blue Bend, Cove Rock/Igoda, Gulu, Kidd's Beach, Chalumna, Kiwane, Hamburg (including Forest 224), Umtiza and Fort Pato. Key species found in the reserve include the Knysna Woodpecker, Knysna Warbler, Red-headed Quelea, Magpie Mannikin, Knysna Turaco and the Red-capped Robin-chat.

Cove Rock Provincial Nature Reserve is located west of the ELIDZ East London site, while the Umtiza Provincial Nature Reserve is located about 3.5 km kilometres north of ELIDZ East London site. The Potter's Pass Local Authority Nature Reserve is located to the east of the East London site. This reserve is one of a few remaining grassland biomes in East London. The mainly moist coastal grassveld and six different soil types support a wide range of flora and fauna. The reserve faces threats from urban expansion, disturbance from a nearby sewage outlet and trampling n vegetation. Cognisance needs to be taken of the various ECPTA managed protected areas and East London Sunshine Coast High Priority Area when development proposals are being assessed within the framework of an EIA.

A threat is defined as any human activity or related process that has a negative impact on key biodiversity features, ecological processes or cultural assets within a protected area. The ELIDZ has identified a potential site for development within the Potters Pass Natures Reserve, directly impacting this protected area. The following key threats to protected and conservation areas in the ELIIDZ areas are listed in Table 4-7.

In 2000 an Environmental Impact Assessment was conducted for the ELIDZ and associated industries that may occupy the sub-divided erven. Sensitive vegetation identified was limited to the Coastal Grassland in Development Zone 1A. Nine erven were zoned as private open space and set aside as “no-development” areas which would act as green zones or green lungs for the ELIDZ. The basis for these zones is unclear, although they appear to be associated primarily with hydrology and riparian Thicket throughout the site. Wetland areas are not preserved by open space zoning. The allocation of these private Open Space Areas as “no-go” areas are also outlined in the Environmental Authorisation issued to the ELIDZ in 2001.

The ELIDZ has identified a potential site for development within the Potters Pass Nature Reserve. Recently, Environmental Authorisation was granted to develop an access road within the Potters Pass Nature Reserve (DEDEAT Ref No: EC/7/A/LN1/LN2/M/22-25). During the Application process, the Eastern Cape Parks and Tourism Agency (ECPTA) as the primary implementer of the Eastern Cape Protected Areas Expansion Strategy identified that the loss of land within the Potters Pass Nature Reserve associated with the proposed road development impacts on the ECPTAs expansion targets for the province. The holder of the Environmental Authorisation is required to compensate for the area loss through biodiversity offsetting. It is important that the ELIDZ is involved in the process to ensure that any future development plans are aligned with the implementable outcomes of the biodiversity offset.

Table 4-7: Main threats/pressures and associated impacts of protected and conservation areas.

Pressure	Impacts
Development and encroachment	Various developments (legal and illegal) pose threats to protected areas including infrastructure development such as roads and the establishment of a new development area. Loss of biodiversity in existing conservation areas as a result of encroachment, harvesting and poaching.
Human activities	Threats related to the development of industrial areas occurring within or immediately adjacent to protected areas. These include poaching of protected animals, removal of vegetation and encroachment by human settlements. These activities also lead to invasive alien infestation and are sources of waste and environmental pollution.
Invasive alien species	The encroachment and establishment of invasive alien species within protected areas as a result of clearing of vegetation in and around protected areas.
Modification of natural ecosystems, such as altered hydrological and fire regimes	Alteration of surrounding hydrological regimes (catchment areas, rivers and streams and wetlands).

4.8 FAUNA

The following key threats to fauna in the ELIDZ areas are listed in Table 4-8.

Table 4-8: Main threats/pressures and associated impacts on fauna.

Pressure	Impacts
Increase in human-faunal interactions as a result of increase in development and clearing of vegetation.	An increase in human-faunal interactions impact faunal populations due to an increase in faunal mortalities, fragmentation of faunal habitats and competition for space and resources resulting from an increasing rate of development within the ELIDZ.

4.9 Marine and Coastal Environment

The Easten Cape coastline extends for 820km, of which BCMM comprises 68km of coastline. The East London site is located adjacent to the coastline, which includes sandy beaches, rocky shores and mixed shores.

Maintaining the integrity of the coastline is important for the sustainability of coastal resources and also to maintain a sense of place. The coastline is especially vulnerable to anthropogenic activities such as development, pollution and over-exploitation. The coastline is a valuable asset that requires effective management in order to fully benefit from the services that the coast has to offer.

Table 4-9Table 4-9: Main threats/pressures and associated impacts on the coastal protection zone. identifies the main threats/pressures that the coastline directly experiences as well as a description of the impact of each on the coastline.

Table 4-9: Main threats/pressures and associated impacts on the coastal protection zone.

Pressure	Impacts
Water pollution from discharges and stormwater runoff into the coastal environment.	• Coastal pollution poses a risk to the health of marine ecosystems through increased eutrophication. • This can result in an increase in algal bloom events which in turn created anoxic conditions of marine organisms.
	• Many organisms bio-accumulate toxins and heavy metals that are found in pollution discharges, which renders the organisms unsafe for human consumption.
Development of infrastructure along the coastline.	• Development within the sensitive coastal environmental will also expose infrastructure to damage due to tidal surges. This will result in the loss or destruction of property and operational infrastructure, such as seawater abstraction infrastructure.

4.10 Air Quality

Ambient air quality is being monitored in and around the ELIDZ, which can be compared against the baseline air quality statistics. Industries entering the ELIDZ should supply information to ELIDZ regarding their processes and emissions that are generated from their production process. It is mandatory that all tenants within the ELIDZ comply with Air Quality Standards and all other applicable legislation. All tenants should implement plans/procedures to reduce or limit emissions during their production process.

In the ELIDZ and surrounds, the most significant threats to air quality and the respective broad-scale impacts are summarised in Table 4-10.

Table 4-10: Main threats/pressures and associated impacts relating to air quality.

Pressure	Impacts
Surrounding human settlement (burning for cooking and winter heating) Roads (traffic emissions) Particulate pollution from exposed soils and dust from construction and dirt roads. Manufacturing/Industry results in emissions of particulate matter, Total Reduced Sulphur (TRS), Nitrogen oxides (NOx) and Sulphur oxides (SOx), especially within the ELIDZ.	Poor air quality results in the following impacts: • Human health issues, including cardiopulmonary diseases. • Loss of biodiversity and degradation of ecosystems as a result of poor production potential due to acid rain and other polluting compounds that affecting biological processes.

4.11 Noise

There is currently no Noise Management Policy in place at the ELIDZ. However, noise monitoring has been conducted intermittently. These results indicate that the noise levels generated by activities within the ELIDZ do not exceed the recommended standard 70dBA during the day.

The ELIDZ should adopt a Noise Management Policy to establish enabling procedures to integrate the control of noise in the application of judicious and comprehensive planning and control of the development of the IDZ.

In the ELIDZ the most significant threats to noise and the respective broad-scale impacts are summarised in Table 4-11.

Table 4-11: Main threats/pressures and associated impacts relating to noise.

Pressure	Impacts
1. Intermittent construction activities that increase the noise pollution surrounding the ELIDZ.	Intermittent noise pollution that is generated by construction activities associated with development and operational activities within the ELIDZ negatively impacts surrounding landowners, businesses and recreational users. An increase in noise pollution could also negatively impact faunal behaviour in and around the ELIDZ area.

5 ENVIRONMENTAL CONSTRAINTS AND SENSITIVITY ANALYSIS

The environmental constraints and sensitivity analysis is the product of the integration of the various baseline information layers as defined in the status quo assessment, after assessing it on terms of current policies and discussions with the key stakeholders. The purpose of the environmental sensitivity of the study area is to provide an overarching view of the inherent environmental sensitivity of the study area. Functionally the sensitivity analysis contributes further downstream in the development of the EMF in the identification of Environmental Management Zones (EMZ's).

Environmental risks (coastal vulnerable areas, etc.) and sensitivity (CBAs, wetlands, etc.) can place constraints on development. The distribution of current and desired future development needs to be assessed against these environmental thresholds/constraints.

5.1 ENVIRONMENTAL CONSTRAINTS AND SENSITIVITY: DESIRED STATE

The constraints essentially represent the desired state for the natural features, be it a species or ecosystem. In addition to the desired state of natural resource plans, a cross-cutting desire across all natural resource management mandates is to improve the integration of natural resource considerations into spatial and development planning. An environmental sensitivity analysis was conducted using a land cover dataset that was specifically mapped for this project (using 2024 satellite imagery) and available desktop information on protected areas, priority areas for protected area expansion and terrestrial and aquatic biodiversity priorities, and paleontological sensitivity.

5.2 STUDY AREA

The study area for the environmental sensitivity analysis was obtained by applying a 500 m buffer to the cadastres that comprise the ELIDZ site, the Berlin and the Fort Jackson sites.

5.3 DATASETS CONSIDERED

South African Protected Areas Database (SAPAD, 2024)

The South African Protected Areas Database (SAPAD) contains spatial data for the protected area estate of South Africa. SAPAD is updated on a continuous basis, and it underpins the National Register of Protected Areas. Protected Areas included in SAPAD are:

- World Heritage Sites – are landmarks, areas, or structures that are recognized by the United Nations Educational, Scientific and Cultural Organization (UNESCO) as having outstanding cultural, historical, or natural significance to humanity. South Africa is a signatory of the World Heritage Convention and has enacted the World Heritage Convention Act (Act 49 of 1999) to regulate its obligations in this regard. World Heritage Sites are further recognised in the NEM: Protected Areas Act (Act 57 of 2003).
- National Parks – are areas declared as National Parks in terms of Section 20 of the NEM: Protected Areas Act. National Parks are managed by SANParks.

- Nature Reserve – are areas declared as Nature Reserves in terms of Section 23 of the NEM: Protected Areas Act. Nature Reserves may be declared on any land (state, private, communal). Nature Reserves declared on state land are normally managed by provincial departments or conservation agencies, while those declared on other land are managed by a management authority (which could be private or communal landowners or other entities).
- Protected Environment – are areas declared as Protected Environments in terms of Section 28 of the NEM: Protected Areas Act. Protected Environments are declared to regulate buffer zones of protected areas, to enable landowners to take collective action to conserve biodiversity, to protect areas that are sensitive to development, to protect specific ecosystems, to ensure sustainable use of natural resources, and to control change in land use in areas earmarked for declaration as National Parks or Nature Reserves.

The SAPAD was not utilised since protected areas were captured in the Eastern Cape Biodiversity Conservation Plan (2019).

The National Protected Areas Expansion Strategy (2018)

The National Protected Area Expansion Strategy presents a 20-year strategy for the expansion of protected areas in South Africa (DEA 2018). It was first published in 2008 and then reviewed and updated in 2018. Its goal is to achieve cost-effective protected area expansion to improve ecosystem representation, ecological sustainability, and resilience to climate change. The strategy sets protected area targets (how much of each ecosystem should be included in protected areas), maps priority areas for protected area expansion and makes recommendations on mechanisms to achieve this. The NPAES includes two categories of features:

- NPAES Priority Focus Area – priority areas for protected area expansion.
- NPAES Under Negotiation – areas pending declaration as protected areas.

This dataset was not utilised since there were no NPAES Priority Focus Areas or NPAES Under Negotiation areas within the study area.

Eastern Cape Biodiversity Conservation Plan (2019)

The Eastern Cape Biodiversity Conservation Plan (ECBCP) was first published in 2007 and was revised in 2019 (see Hawley et al. 2019). The ECBCP separately identified terrestrial and aquatic biodiversity priorities and developed Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) for each of these realms (see Table 5-1).

Table 5-1: Priority biodiversity areas in the Eastern Cape Biodiversity Conservation Plan

Category	Definition	Management Objective
CBA 1	Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure	Maintain in a natural state (or near-natural state if this is the current condition of the site) that secures the retention of biodiversity pattern and ecological processes: - Ecosystem and species must remain intact and undisturbed

Category	Definition	Management Objective
		- Since these areas demonstrate high irreplaceability, if disturbed or lost, biodiversity targets will not be met - Important: these biodiversity features are at, or beyond, their limits of acceptable change. If land use activities are unavoidable in these areas and, depending on expert opinion of the condition of the site, a Biodiversity Offset must be designed and implemented.
CBA 2	These biodiversity features are at risk of reaching their limits of acceptable change.	For areas classified as CBA2, the following objectives must apply: - Ecosystem and species must remain intact and undisturbed - There is some flexibility in the landscape to achieve biodiversity targets in these areas. It must be noted that the loss of a CBA2 area may elevate other CBA 2 areas to a CBA 1 category. If land use activities are unavoidable in these areas, and depending on the condition of the site, set-aside areas must be designed in the layout and implemented. If site specific data confirms that biodiversity is significant, unique and/or highly threatened or that a Critically Endangered or Endangered species is present, Biodiversity Offsets must be implemented.
ESA 1	These areas are not required to meet biodiversity targets, but they still perform essential roles in terms of connectivity, ecosystem service delivery and climate change resilience. These systems may vary in condition and maintaining function is the main objective.	Maintain ecological function within the localised and broader landscape. A functional state in this context means that the area must be maintained in a semi-natural state such that ecological function and ecosystem services are maintained. - Ecosystems still in natural/near natural state should be maintained - Ecosystems that are moderately disturbed/degraded should be restored
ESA 2	These areas have already been subjected to severe and/or irreversible modification. These areas are not required to meet biodiversity targets, but they may still perform some function with respect to connectivity, ecosystem service delivery and climate change resilience	Maintain current land use with no intensification. Objective is to maintain remaining function, therefore: - Areas should not undergo any further deterioration in ecological function. - Opportunities to change land use practices to improve ecological function (i.e., cultivation agriculture to livestock grazing agriculture) are desirable in ESA2 areas.

National Biodiversity Assessment – Red List of Ecosystems (2022)

The revised list of threatened ecosystems (Red List of Ecosystems; RLE) was published in 2022 in terms of the NEM: Biodiversity Act (SANBI 2022). It categorizes South Africa's ecosystems according to the IUCN Red List of Ecosystems Framework (Bland et al. 2017), which has eight categories: *Collapsed*, *Critically Endangered*, *Endangered*, *Vulnerable*, *Near Threatened*, *Least Concern*, *Data Deficient* and *Not Evaluated*. Threatened ecosystems are those that have been classified as *Critically Endangered*, *Endangered* or *Vulnerable*. In terms of Listing Notice 3 of the NEM: EIA Regulations, identified activities within threatened ecosystems require environmental authorisation. For the environmental sensitivity analysis, the "remnants" layer was used, which shows the remaining extent of each ecosystem, after transformed areas have been removed (using the national landcover layer). Due to the spatial resolution limitations and inaccuracies in the national land cover layer, this should be treated as a guide and ground-truthing is recommended to confirm the presence of ecosystems.

National Biodiversity Assessment – Inland Aquatic Realm (2018)

The Inland Aquatic component (Van Deventer et al. 2019) identified aquatic biodiversity priority areas for the country, building on the work done in National Freshwater Ecosystem Priority Areas project. The following spatial layer from the NBA Inland Aquatic assessment was included in the environmental sensitivity analysis:

- NBA Natural Wetlands – while the NBA classified wetlands according to their Ecosystem Threat Status, all natural wetlands identified in the NBA Inland Aquatic assessment were included. This is due to the ecological importance of wetlands due to their unique habitats, important ecological processes, and the ecological services that they provide. Wetlands features and a 500 m buffer of these features were used in the environmental sensitivity analysis.

National Biodiversity Assessment – Estuaries (2018)

The estuary dataset from the National Biodiversity Assessment was not utilised since the estuaries are captured in the NBA natural wetlands dataset.

National Biodiversity Assessment – Marine Realm (2018)

Marine ecosystems were assessed in the National Biodiversity Assessment according to the same criteria used for the Red List of Ecosystems.

South African 1:50,000 topographic series – vector data

Vector data from the 1:50,000 topographic map series for South Africa was used to capture rivers and drainage lines. This dataset was used since the fine-scale nature of our study did not allow for the use of larger-scale datasets, such as the NBA river dataset or the National Freshwater Ecosystem Priority Areas dataset (i.e., river features occurring within the study area do not reflect in these datasets).

DFFE Screening Tool – Palaeontology Theme

Data for the study area from the Palaeontology Theme was downloaded from the DFFE Screening Tool (https://screening.environment.gov.za/).

ELIDZ Private Open Space areas

Private Open Space areas were identified in the 2006 Environmental Management Framework for the ELIDZ. These areas were set aside as "no-development" areas which would act as green zones for the IDZ.

Landcover

Landcover was digitised from 2024 satellite imagery (GoogleEarth). The following classification was used for the purposes of the environmental sensitivity analysis:

- Degraded – medium density invasive alien plants, areas where solid waste has been dumped.
- Transformed – buildings, roads, mines, cleared land, and high-density alien plants.

5.4 INTEGRATION AND SCORING

The attributes within the datasets considered for the environmental sensitivity analysis were scored on four-point scale as having Low (0), Medium (1), High (2), Very High sensitivity (3) according to Table 5-2. The datasets were then combined using the Union function in QGIS 3.2. A cumulative sensitivity was obtained by summing the scores obtained for each of the input layers. The ELIDZ Private Open Space areas were then assigned the maximum sensitivity score obtained to elevate these areas in the final result.

Table 5-2: Datasets considered for the environmental sensitivity analysis.

Layer	Used	Feature / Comment	Score	
SAPAD (2024)	No	Protected areas captured in ECBCP.	–	–
NPAES (2018)	No	No NPAES priorities within study area.	–	–
ECBCP (2019) Terrestrial	Yes	PA, CBA1	Very High	3
		CBA2	High	2
		ESA1	Med	1
		ESA2	Low	0
ECBCP (2019) Aquatic	Yes	PA, CBA1	Very High	3
		CBA2	High	2
		ESA1	Med	1
		ESA2	Low	0
NBA Red List of Ecosystems (2022)	Yes	Critically Endangered	Very High	3
		Endangered	High	2
		Vulnerable	Med	1
		Least Concern	Low	0
NBA (2018) Inland Aquatic Realm – Natural Wetlands	Yes	All natural wetlands	Very High	3
		500 m buffer of natural wetlands	High	2

Layer	Used	Feature / Comment	Score	
NBA (2018) Estuaries	No	Features captured in NBA Wetlands	–	–
South African 1: 50,000 topographic series vector data –32 m buffer of drainage lines	Yes	All features within buffers	Very High	3
NBA (2018) Marine Threat Status	Yes	CR	Very High	3
		EN	High	2
		VU	Med	1
		LC / NT	Low	0
DFFE Screening Tool Palaeontology Theme	Yes	Features with Very High paleontological sensitivity	Very High	3
		Features with Medium paleontological sensitivity	Med	1
ELIDZ Private Open Space	Yes	ELIDZ Private Open Space areas		3
Digitised landcover from 2024 satellite imagery	Yes	Transformed	–	-5
		Degraded	–	-2
Areas previously authorised (for which the authorisation is still valid) for vegetation clearing.	Yes	Intentional development authorised.		-5

Error! Reference source not found., **Error! Reference source not found.** and **Error! Reference source not found.** bel ow provides the results of the Environmental Constraints and Sensitivity Analysis. The results of the Environmental Constraints and Sensitivity Analysis will be used to inform the development of Environmental Management Zones (EMZ) and the associated Management Guidelines for the EMZ's.

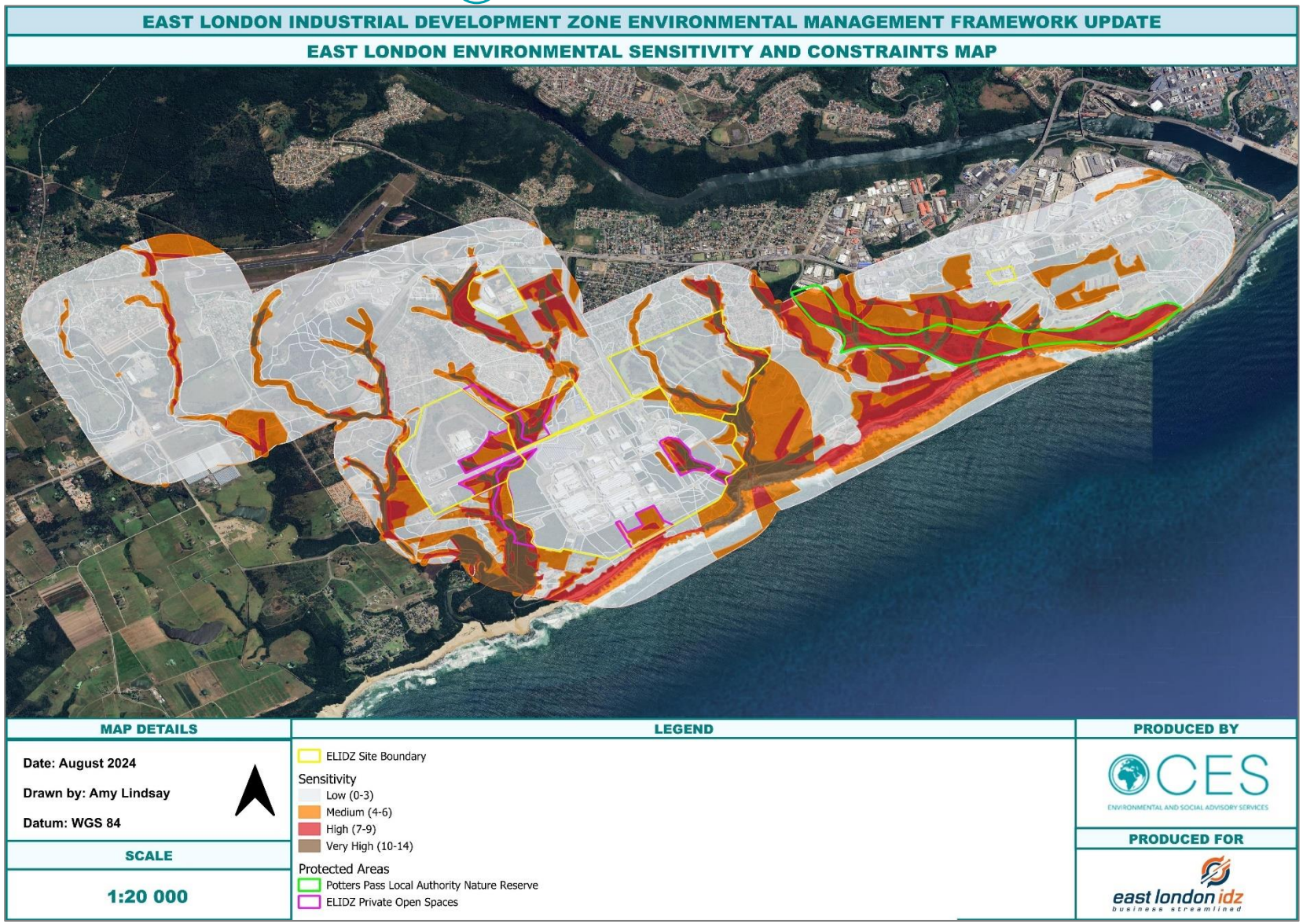


Figure 5-1: Environmental Constraints and Sensitivity Map for the ELIDZ site and indication areas of Very High, High, Medium and Low sensitivity

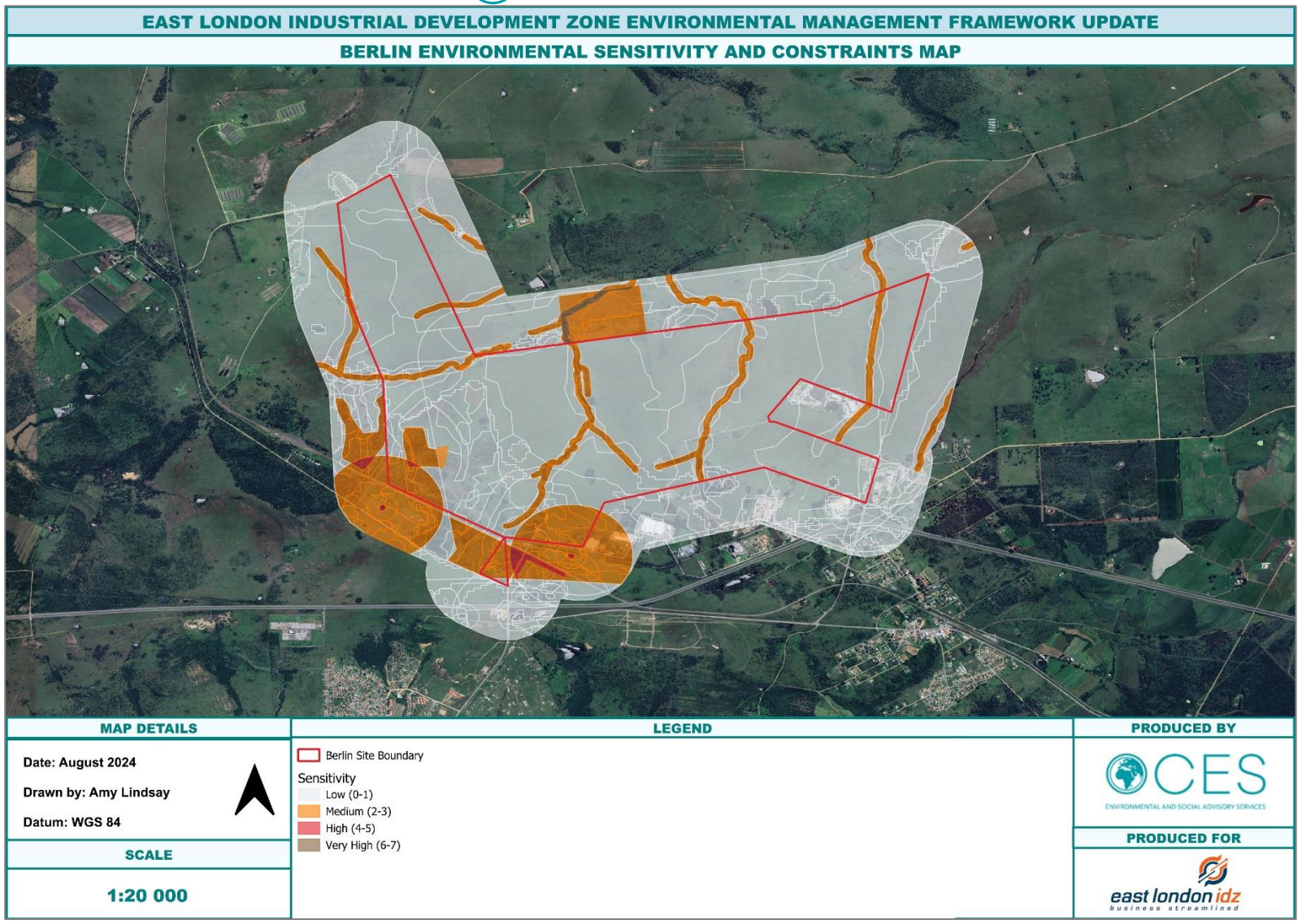


Figure 5-2: Environmental Constraints and Sensitivity Map for the Berlin site and indication areas of Very High, High, Medium and Low sensitivity

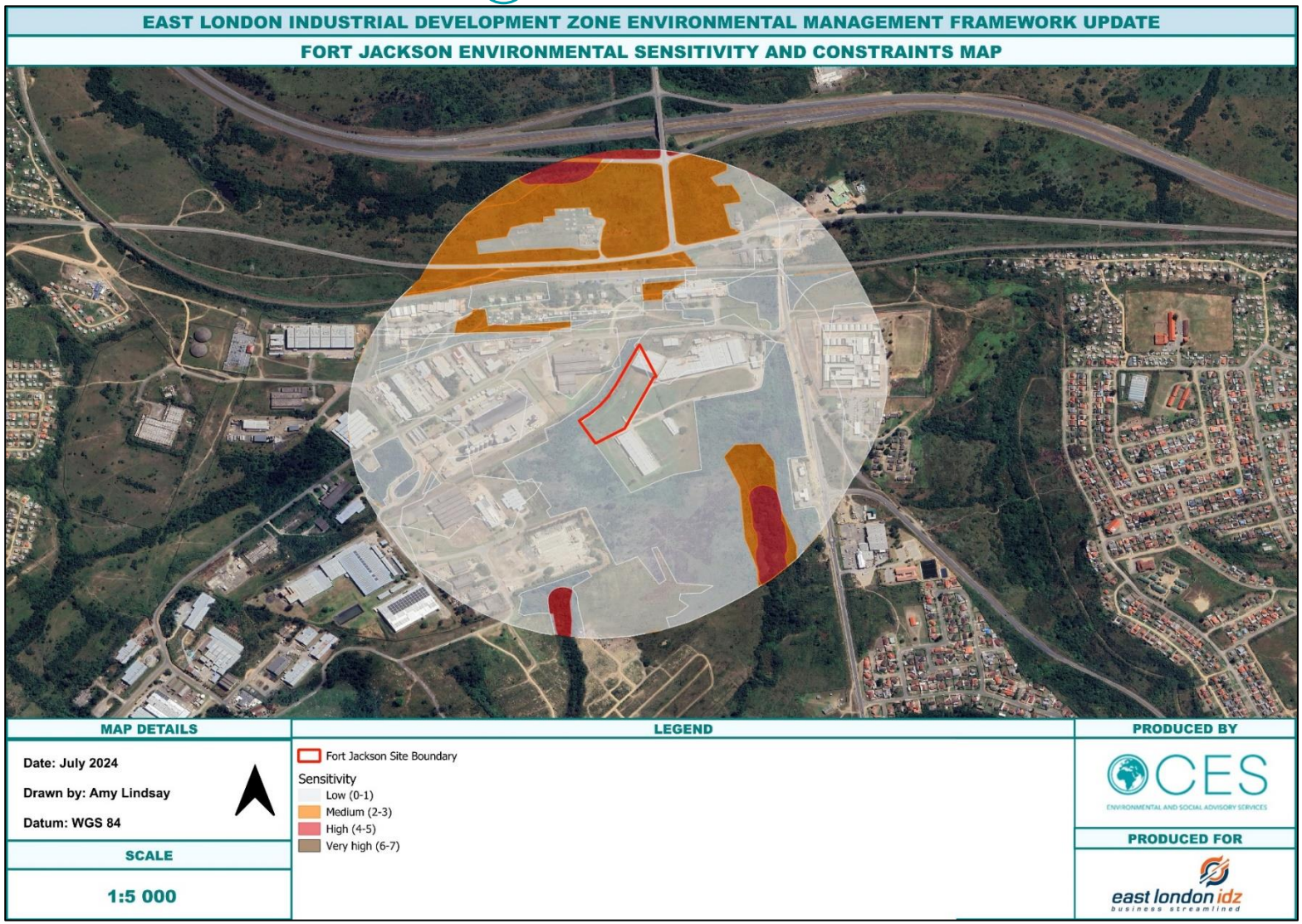


Figure 5-3: Environmental Constraints and Sensitivity Map for the ELIDZ site and indication areas of Very High, High, Medium and Low sensitivity

6 STRATEGIC ENVIRONMENTAL MANAGEMENT PLAN

6.1 OVERVIEW AND PURPOSE OF SEMP

In terms of ensuring sustainable management of the environment, natural attributes and human activities must be assessed in the context of the landscape in which they are located. Ecosystem services – the benefits that the natural environment provides to human wellbeing – are important to consider when managing the balance between conserving the natural environment and honouring the constitutional rights of people.

The purpose of the EMF is to consider the environmental attributes of an area and to use this information to provide guidance with respect to development and environmental management within the designated area. The Strategic Environmental Management Plan (SEMP) provides guidance to support environmental decision making that will benefit the management of important resources in the ELIDZ.

The purpose of the SEMP is as follows:

- To describe Environmental Protection Zones (EMZs) based on the environmental attributes of the area.
- To describe Environmental Protection Zones based on legislated conservation requirements (Environmental Authorisation and Protected Area proclamations)
- To provide management guidance for the EMZs that ensure sustainable land use development and protection of the environment.
- To establish a monitoring framework for 'on the ground' effectiveness of the EMF.
- To set out a mechanism to review and update the EMF.

Therefore, the SEMP that has been developed for the ELIDZ includes the following:

- Environmental management zones with management recommendations.
- Roles and responsibilities in respect of the EMF.
- Decision-making framework.
- Monitoring and evaluation framework.
- Revision/updating of the EMF.

The information in respect of each EMZ can be used to guide development/project proposals in terms of design and specialist assessments that need to be undertaken as part of the EIA process. In cases where specialist studies are not aligned with the information presented in the EMF (e.g., area identified as being sensitive in the EMF is not found to be sensitive in a specialist study), the onus is on the Applicant and the Environmental Assessment Practitioner (EAP) to ensure that the scientific analysis is rigorous, that findings have been discussed with relevant authorities and, that the study concerned has been subject to stakeholder review, if required by the competent authority. **The onus must be on the project proponent/applicant to demonstrate that a development proposal is aligned to the EMF.**

6.2 ENVIRONMENTAL MANAGEMENT ZONES

The ELIDZ EMF focuses on the nature and attributes of the receiving environment, the acceptable level of change and the level of mitigation that would be required of any activities or development that affects a group of attributes, in a defined area. The EMZs that have been identified for the ELIDZ are described in this section. There are three (3) EMZs that cover the entire ELIDZ area, that have been identified based on a combination of the biophysical and socio-economic attributes.

These EMZs could be regarded as a tool to assist applicants or developers in identifying appropriate locations within the ELIDZ for development proposals and for providing an initial identification of the issues that may need to be addressed in the application process (such as through specialist studies). The more responsive the application is to the EMZ information the lower the risk of conflict with stakeholders / I&APs and of authorisation being refused.

The EMZs provide the following (as set out in the 2010 EMF Regulations):

- Specifying the attributes of the environment in the ELIDZ study area, including the sensitivity, extent, interrelationship, and significance of those attributes.
- Mapping the ELIDZ study area in terms of those attributes.
- Identifying the environmental management priorities of the area.
- Indicating those areas with specific environmental and socio-cultural values and the nature of those values.

6.2.1 Environmental Management Zones for the ELIDZ

An environmental sensitivity and 'limit of acceptable change' approach has been used to delineate the ELIDZ EMZs. In addition, consideration has been given to the impact that development may have on the integrity and resilience of important ecosystems which sustain development, human wellbeing, and livelihoods, by degrading or causing deterioration or loss of:

- Biodiversity.
- Ecosystems that regulate and provide reliable supply of clean water (i.e., that meets relevant water quality standards), either groundwater and/or surface water.
- Air quality (i.e., air that meets relevant air quality standards).
- Natural areas known to provide ecological support corridors and connectivity between critical habitats.
- Features of heritage importance.

Any activity or development within the ELIDZ that would cause significant impacts to any of the abovementioned sensitive areas, would be considered 'undesirable'. Those impacts that are significant, irreversible, or could result in loss of irreplaceable unique resources, should be considered as a **"fatal flaw"** or "**very highly constrained**".

6.2.2 Description of ELIDZ EMZs

The most recent available spatial data that represents environmental constraints or risks, has been sourced for the ELIDZ study area. The assessment of the status, irreplaceability and vulnerabilities associated with the identified attributes have been important informants of the proposed identified Environmental Management Zones (EMZs). These identified EMZs include the following:

- Open Space Conservation EMZ
- Controlled Development EMZ
- Industrial Development EMZ

In addition to the EMZ's listed above, it is important to take note of two areas that have been delineated as legally designated conservation areas. These areas include the Private Open Space in the ELIDZ and Potters Pass Nature Reserve.

The legal obligations in terms of the NEM: Enviromental Regulations conditions of authorisation, that infer conservation management of the Private Open Space in the ELIDZ, and requirements of NEM: Protected Areas Act, place constraints on development in Protected Areas. Management of these areas should be directed according to an Open Space Management Plan and a Protected Area Management Plan, respectively. Therefore, guidelines have not been specifically designed for these areas in this SEMP.

There are small areas within these sites that have been mapped as medium sensitivity, which may be appropriate for low-impact controlled development, but which must be subjected to further specialist assessment, and for which permission for deviation from conservation land uses must be sought. Development in these areas may involve the consideration of biodiversity offsets, especially when associated with the loss of areas of HIGH biodiversity sensitivity, and development opportunities within these areas will require an application of departure from the current legal obligations.

Open Space Conservation EMZ areas: Areas where very high and high environmental constraints have been identified.

Controlled Development and Industrial Development EMZs areas: Areas identified as sustainable development areas, where moderate to low environmental constraints have been identified.

During development proposals, developers and their consultants must ensure that the latest spatial data is consulted and not rely solely on the maps published in the EMF. The various EMZs for each of the sites is presented in Figure 6-1, Figure 6-2 and Figure 6-3 below.

6.2.2.1 Open Space Conservation Environmental Management Zone

This zone is a compilation of the Very High and High environmental constraint areas. These two areas have been combined to form the Conservation EMZ as their sustainability objectives (desired state) and approach to management are similar. Further descriptions of each are provided below:

- Very High Constraint: Very High Constraint EMZs are natural areas of high ecological importance, such as forest, wetland or rivers, where the aspects of the receiving environment must be kept intact and maintained. The land use objective of this category is to maintain or enhance the biodiversity and ecological function of these areas. These are offset receiving areas, that must be consolidated and left intact as far as possible. Transformation of these areas must be avoided.
- High Constraint: High Constraint EMZs are natural areas of ecological importance, such as riparian areas, and must be maintained and enhanced to as they play an important role in the functioning of core biodiversity areas and protected areas and form a network of connectivity between habitats and CBAs. Low impact activities could be considered in these areas where these do not undermine the ecological function of these areas.

6.2.2.2 Controlled Development Environmental Management Zone

This zone is delineated by the medium constraint areas within the ELIDZ and is described in detail below:

- Medium Constraint: EMZ has been identified based on attributes and resources that fulfil an important supportive role in maintaining critical natural resources identified in Very High/High constraint zones by means of a buffer in some areas and maintaining ecological corridors in others. Furthermore, it contains resources that may be regarded as particularly sensitive to certain types of disturbance (i.e. high impact development that may have a more significant risk in terms of severity, duration, and extent) but also considered to be more resilient to low impact (i.e. impacts that are considered having lower risk in terms of severity, duration, and extent) developments. Therefore, controlled development would be allowed within this EMZ reducing the need for development in more vulnerable receiving environments.

6.2.2.3 Industrial Development Environmental Management Zone

This zone is delineated by the low constraint areas within the ELIDZ and is described in detail below:

- Low Constraint: This EMZ considers ELIDZs role as an Industrial Development Zone and the major role that the ELIDZ plays in the region to promote industrial development in less vulnerable areas to ensure sustainable economic development. These areas are located outside of areas that contain high or very high environmental constraints. However, shared resources, such as air quality, must be closely monitored in order to ensure that the cumulative impact of pollution emitters within these areas do not give rise to an environment that is harmful to the health of employees and neighbouring communities. Buffering between these areas and others, such as residential land uses, must be considered.

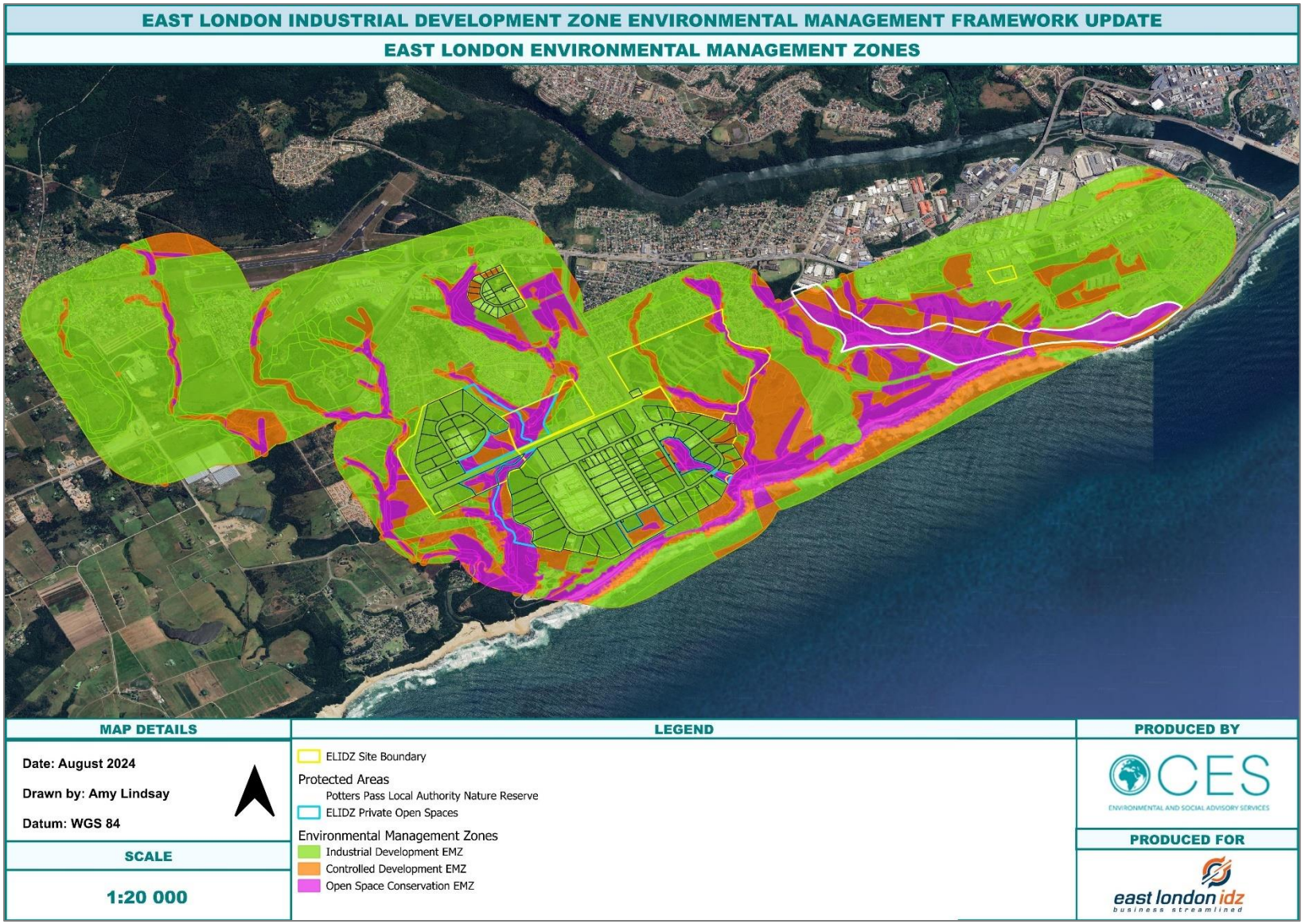


Figure 6-1: The Environmental Management Zones of the ELIDZ.

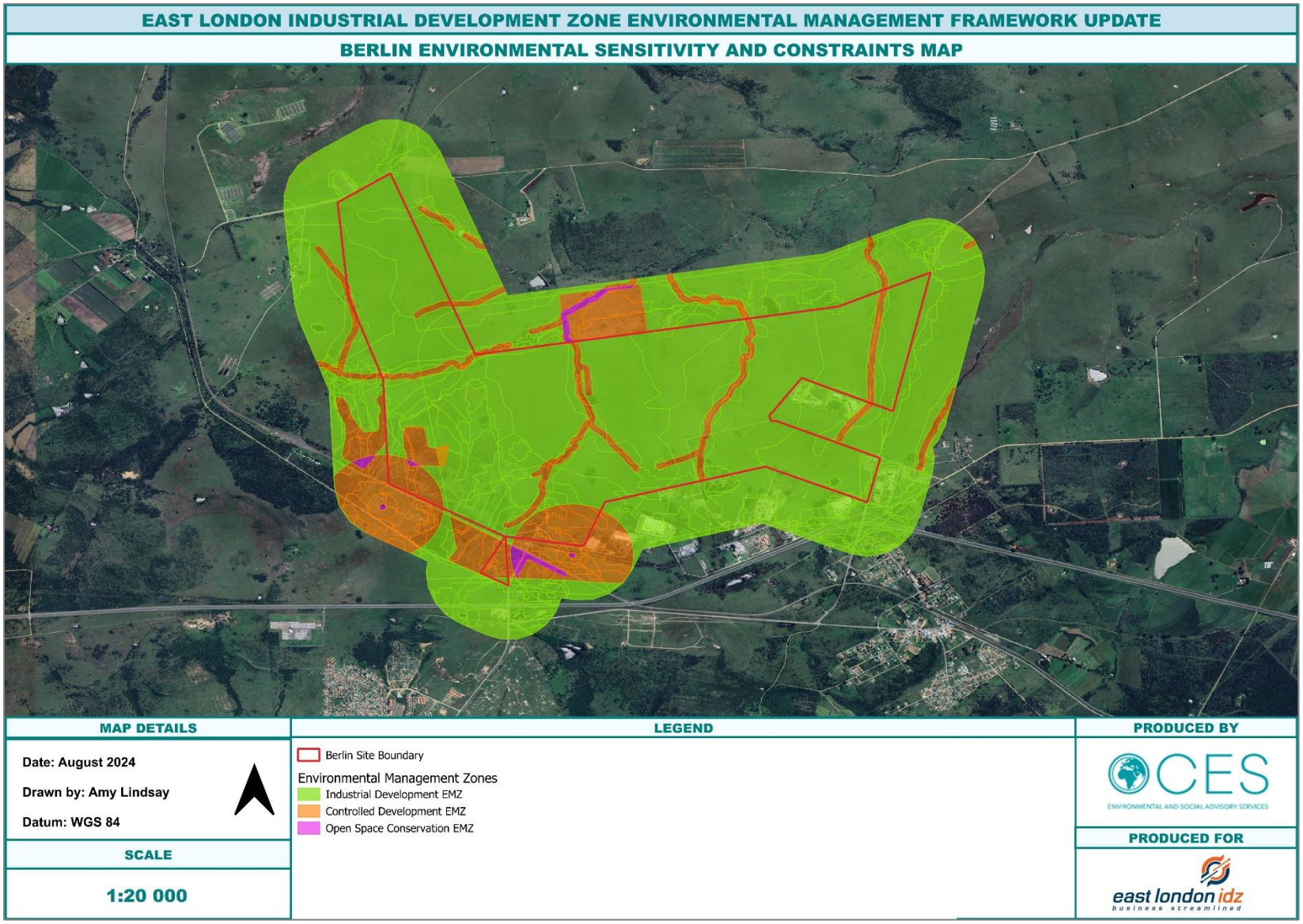


Figure 6-2: The Environmental Management Zones of the Berlin site.

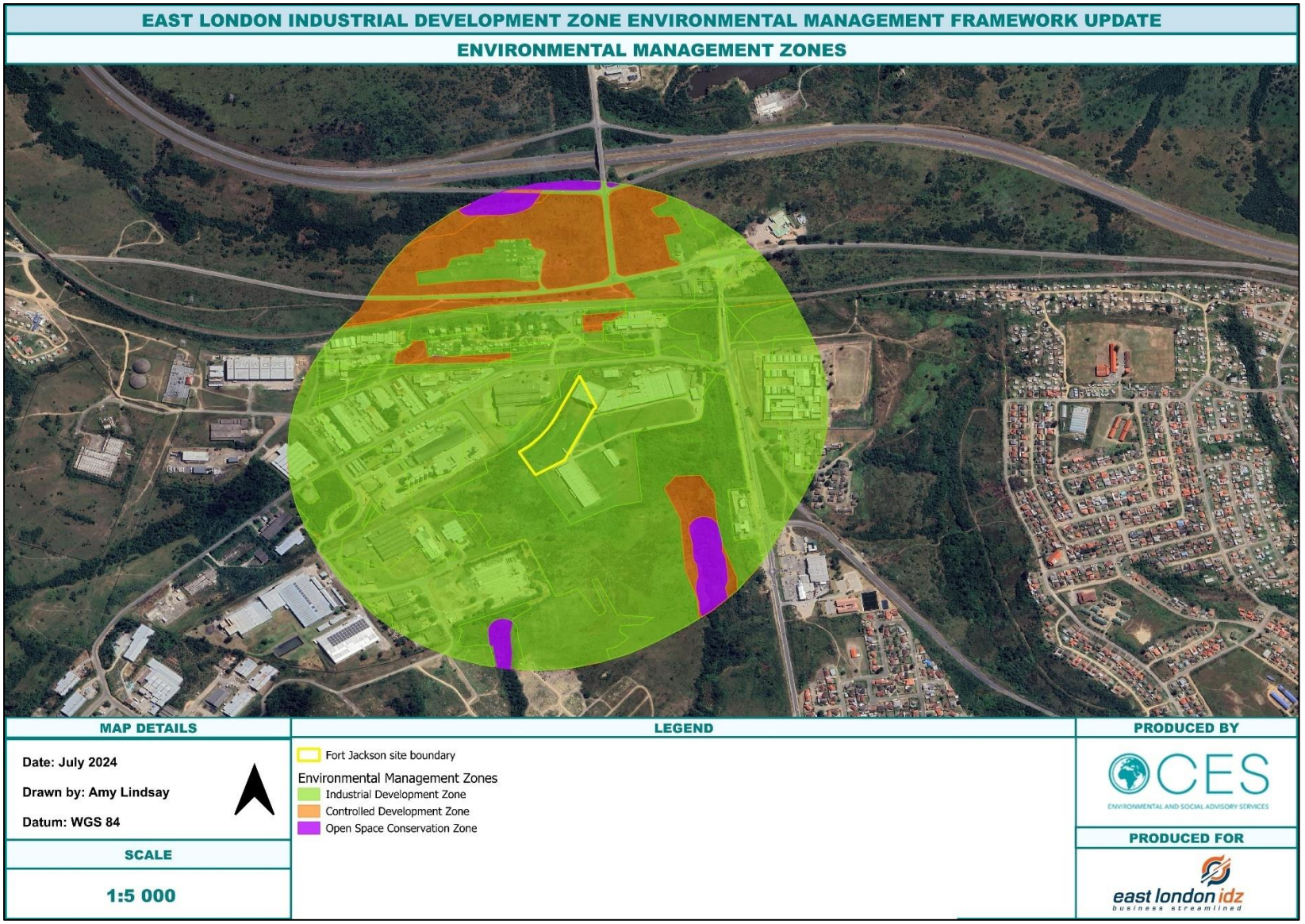


Figure 6-3: The Environmental Management Zones of the Fort Jackson site.

6.3 MANAGEMENT GUIDELINES FOR THE EMZS

The objective of the ELIDZ EMF is to achieve development proposals that are aligned with sustainability objectives. Therefore, the management objectives, desired outcomes, and limits of acceptable change outlined below should be considered in FUTURE decision-making. A management framework which should be used by development proposals for a proactive, objectives-led planning and design, has been developed. The management framework comprises the following:

- **General description of the attributes:** the zone is described in terms of its dominant land use pattern, areas of environmental sensitivity (constraint), and future socio-economic development plans.
- **Sustainability objectives and desired outcomes**: The overarching vision of what the zone intends to achieve is guided by sustainability principles and the collective environmental, social and economic needs of the area. Environmental sustainability is largely driven by limits of acceptable change that are thresholds that if exceeded can lead to potential loss or degradation of an irreplaceable resource. These limits are based on the best available scientific information.
- **Management actions and recommendations:** these outline management interventions that are required for existing development and future development proposals (which include appropriate mitigation in line with the mitigation hierarchy (i.e. avoid, mitigate, rehabilitate, offset).
- **Opportunities and Constraints:** these represent areas where social and/or economic and/or environmental opportunities could be realised and where sustainability constraints limit development options.

Each EMZ is described in terms of the above. All proposed developments in each EMZ should be evaluated to ensure that:

- It would meet the management objectives for the respective EMZs and preferably result in net benefit both for the ecological and social environment.
- Changes induced by proposals would not exceed limits of acceptable change.

6.3.1 Open Space Conservation Environmental Management Zone

The Open Space Conservation EMZ (Figure 6-4, Figure 6-5 and Figure 6-6) is mostly confined to the open space areas of the ELIDZ, Berlin and Fort Jackson sites. The management guidelines for this zone are provided in Table 6-1 below.

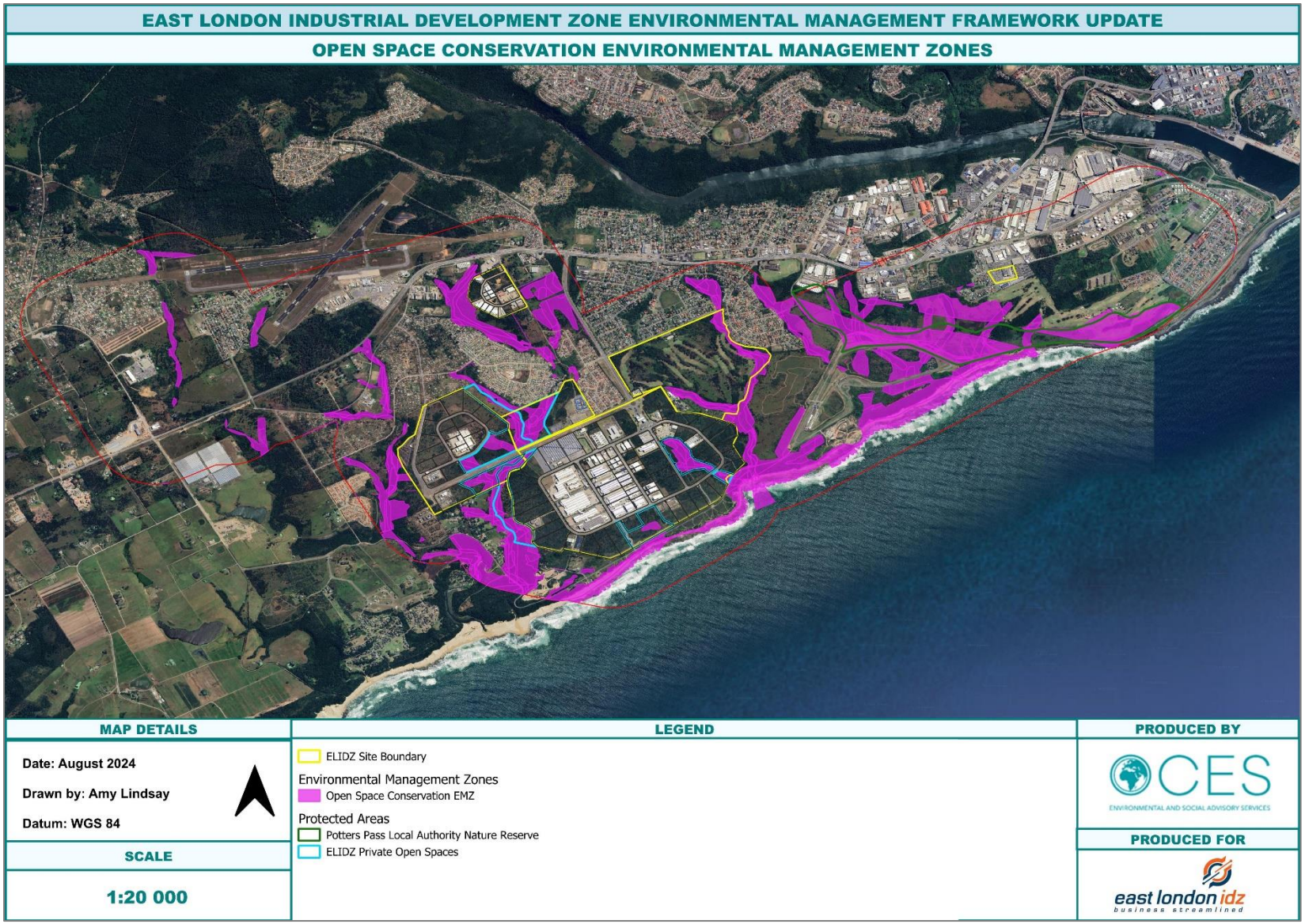


Figure 6-4: Open Space Conservation EMZ for the ELIDZ.

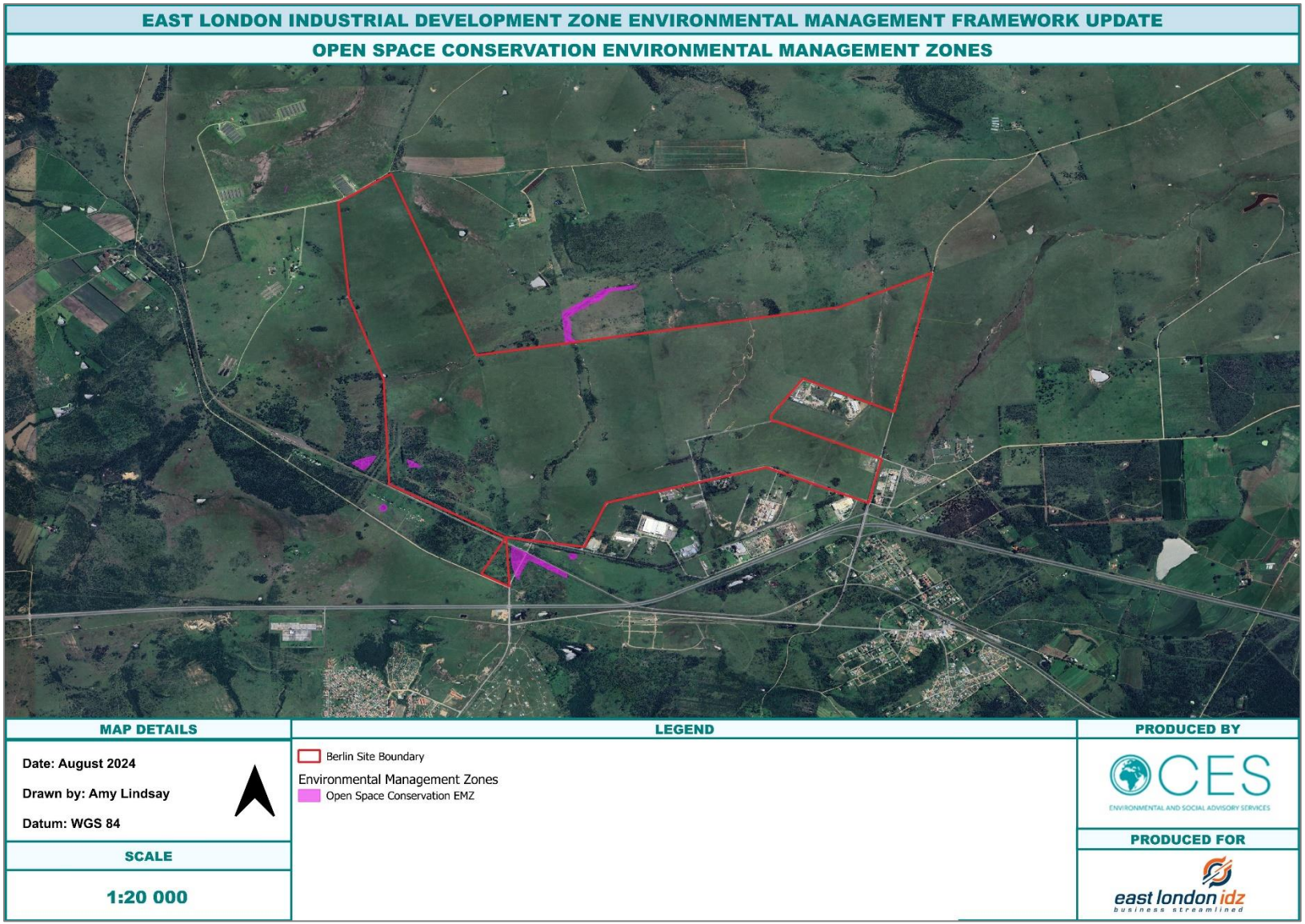


Figure 6-5: Open Space Conservation EMZ for the Berlin site.

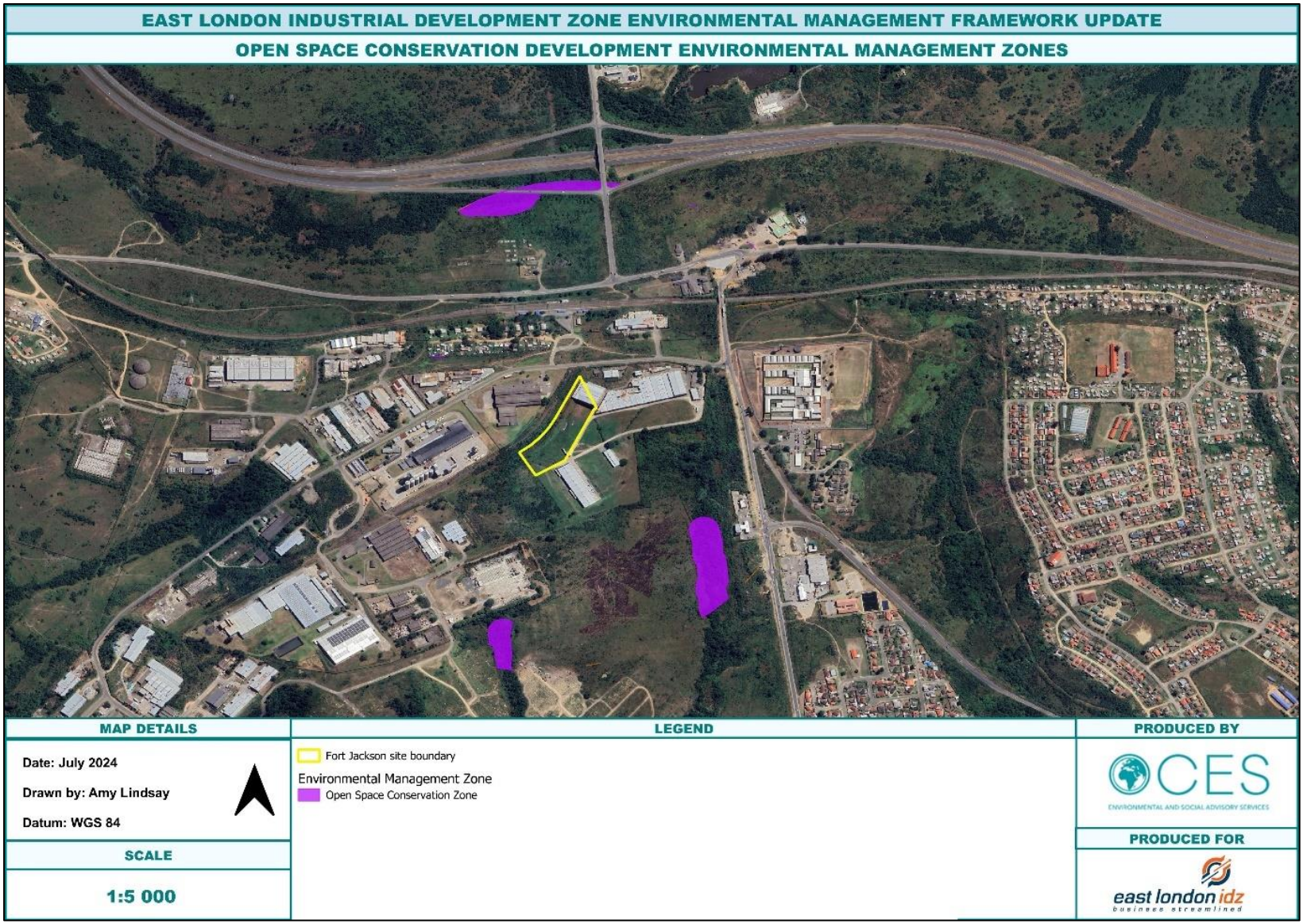


Figure 6-6: Open Space Conservation EMZ for the Fort Jackson site.

Table 6-1: Management guidelines for the Open Space Conservation EMZ

General description of attributes	This zone comprises areas of high conservation importance that must be protected from change and only non-consumptive land-uses may be allowed conditionally. These zones contain the following: Very High (at or exceeding limits of acceptable change) and High constraint areas (close to its limit of acceptable change) that are required to meet targets or thresholds for biodiversity patterns or ecological processes (i.e., Protected Areas and Critical Biodiversity Areas). These include habitats classified as highly irreplaceable, critically endangered, or endangered terrestrial (land), aquatic (rivers, wetlands, and estuaries) and marine habitats. These also include areas currently not yet exhibiting high levels of biodiversity loss (i.e. largely natural), and which should be protected and restored, to ensure biodiversity pattern and ecological process targets and ecosystem services can be met, in the most efficient way possible. These areas facilitate landscape connectivity, promote resilience to climate change, and buffer elements of the landscape including Protected Areas. It also includes essential biological corridors vital to sustain their functionality. Areas that are in a degraded condition should be rehabilitated and only low-impact, biodiversity-sensitive land-uses are appropriate.
Sustainability objectives (desired outcomes)	• Remaining extent of natural ecosystems are conserved. • Riparian forest and wetlands are protected. • Degraded areas are rehabilitated.
Management actions and recommendations	<u>Existing activities</u> Not applicable – there are currently no existing activities in these areas. <u>Future development</u> Development proposals must align with conservation outcomes and ensure minimal impact. Biodiversity offsetting will be required to mitigate against the loss of areas of high conservation significance (e.g.: Potters Pass Nature Reserve)
Opportunities	<u>Compatible land use activities</u> may include low impact (under specific, limited landscaping conditions, renewable energy such as solar PV development may be considered low impact development), nature-based uses for research and recreation.
Constraints	<u>Incompatible land use activities</u> include any built environment that is not compatible with biodiversity conservation. This extends to land use activities that discharge untreated wastewater into rivers.
Specific specialist assessment requirements	In the event that an activity should be proposed in any or selected areas within this EMZs the following specialist assessments must be undertaken as part of either a Feasibility or an Environmental Impact Assessment: 1. Wetland and Riparian delineation and sensitivity assessment.

	2. Biodiversity species assessment (faunal and floral themes), with particular attention to indigenous forest, threatened herpetofauna species and threatened ecosystems. 3. Terrestrial Biodiversity Assessment (Biodiversity Planning theme), with particular attention to population dynamics and network areas required for the maintenance of ecological processes. 4. Should the development result in the generation of pollution sources, then ground water and surface water risk and sensitivity assessments must be undertaken. 5. Activities within the coastal protection zone must include an assessment of coastal vulnerability and ecological sensitivity. 6. Biodiversity offsetting may be required where areas of high conservation value are required to be developed.
Key Management Actions	<u>Pristine natural areas</u> Active conservation of Very High constraint areas. Maintain appropriate development buffers around Very High constraint areas to minimise edge effects. <u>Degraded natural areas</u> Rehabilitation/restoration of High constraint areas by means proactive management and clearance of alien invasive plant species from riparian zones. <u>Aquatic environment</u> Maintain buffer zones and riparian corridors; and Monitor surface water quality and quantity.

6.3.2 Controlled Development Environmental Management Zone

The Controlled Development EMZ is located mostly in buffer areas around riparian and conservation areas (Figure 6-7, Figure 6-8 and Figure 6-9). The management guidelines for this EMZ can be found in Table 6-2 below.

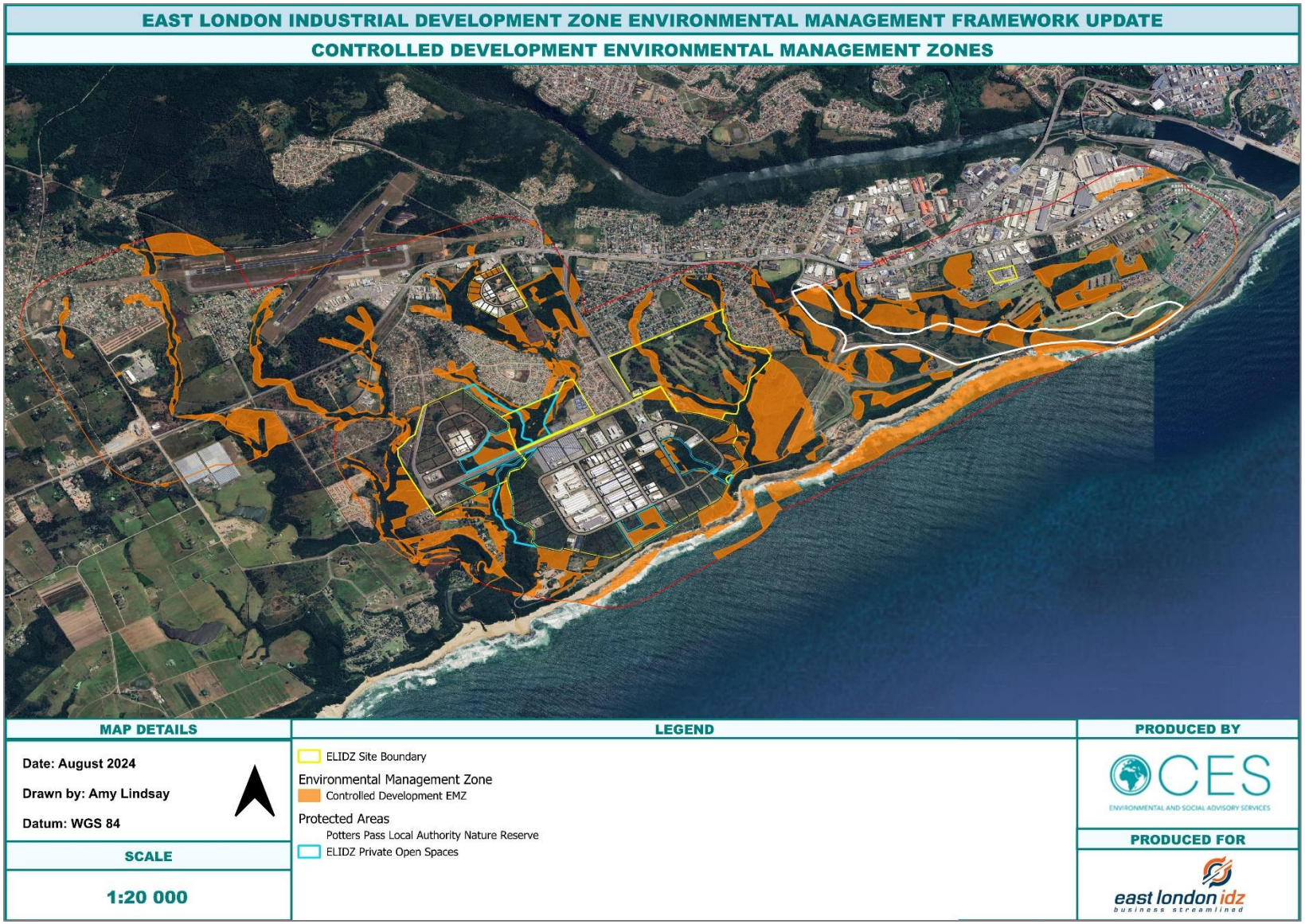


Figure 6-7: Controlled Development Conservation EMZ for the ELIDZ site.

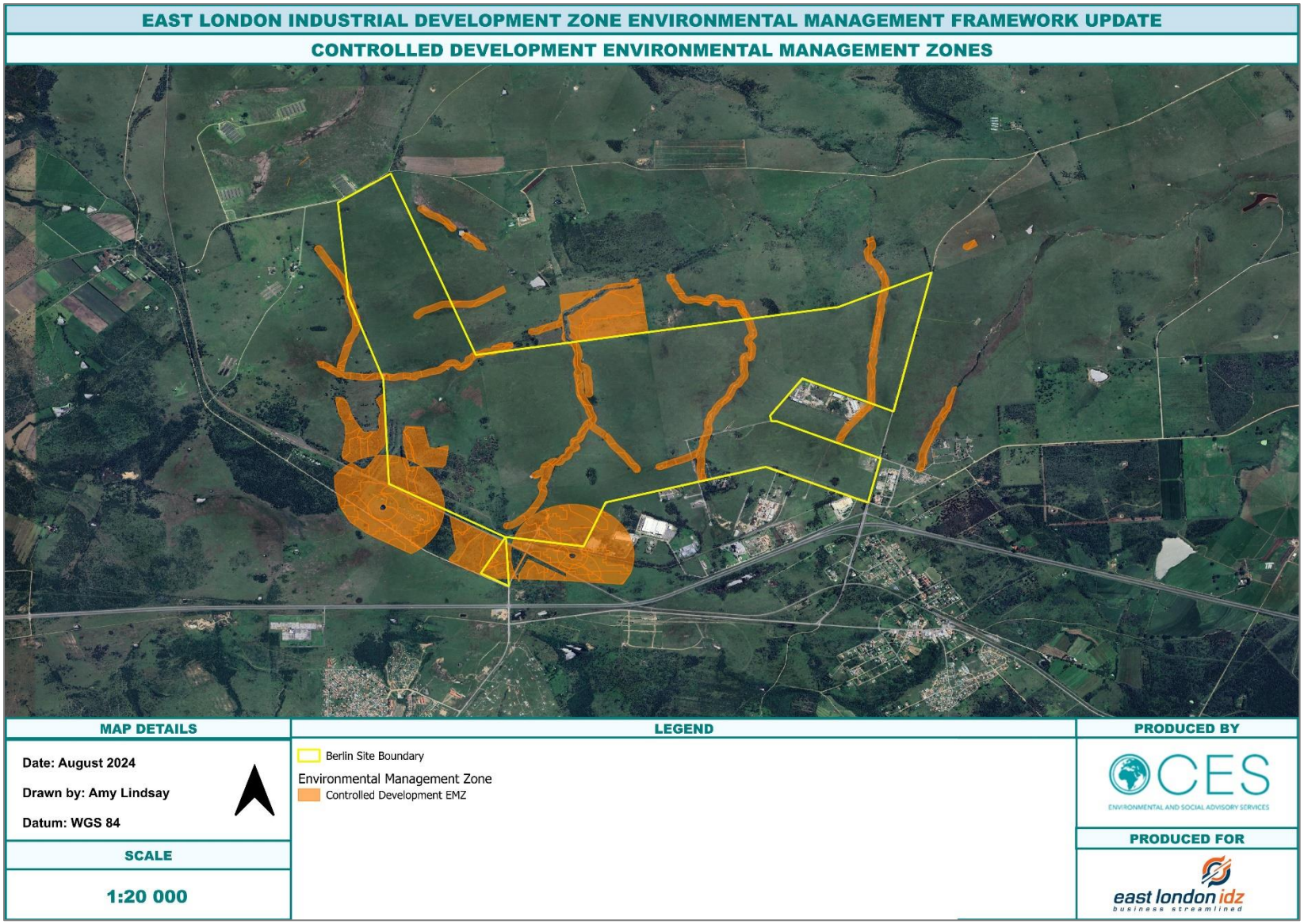


Figure 6-8: Controlled Development Conservation EMZ for the Berlin site.



Figure 6-9: Controlled Development Conservation EMZ for the Fort Jackson site.

Table 6-2: Management guidelines for the Controlled Development EMZ.

General description of attributes	Controlled Development Zone are natural areas that are associated with moderate environmental sensitivity/constraints. These areas can sustain moderate levels of disturbance.
Sustainability objectives (desired outcomes)	• The Controlled Development EMZ was established with the intention of ensuring sustainable development in landscapes that can withstand low-medium impact. • Ecological function is maintained and therefore ecosystem service delivery is conserved. • Water quantity and quality of freshwater systems in this zone is maintained/improved. • Proposed development continues to provide secure job opportunities for the Buffalo City Metropolitan Municipality.
Management actions and recommendations	<u>Existing activities</u> Not applicable – there are currently no existing activities in these areas. <u>Future development</u> Development proposals are acceptable if controlled and monitored in a sustainable manner.
Opportunities	<u>Compatible land use activities</u> such as light industrial activities may be considered if the associated spatial extent and longevity of the impact can be reduced. In addition, proposals should also consider design options that upon decommissioning, impacts may be reversed (e.g. temporary footprints vs hard concrete)
Constraints	<u>Incompatible land use activities</u> High impact industrial projects where: • More than 60% of the site is modified to hardstand/concrete infrastructure. • The development is a significant source of pollution (air, water, waste).
Specific specialist assessment requirements	In the event that an activity should be proposed in any or selected areas within this EMZ the following specialist assessments must be undertaken as part of either a Feasibility or an Environmental Impact Assessment: 1. Wetland and Riparian delineation and sensitivity assessment, including the consideration of buffers. 2. Application for a Water Use License in terms of Section 21 of the National Water Act if the development occurs within a 32m buffer of a watercourse. 3. Biodiversity species assessment (faunal and floral themes), with particular attention to indigenous forest, threatened herpetofauna species and threatened ecosystems and associated development buffers. 4. Terrestrial Biodiversity Assessment (Biodiversity Planning theme), with particular attention corridors in the layout that support ecological function. 5. Activities within the coastal protection zone must include an assessment of coastal vulnerability and ecological sensitivity.

Key Management Actions	• Implement recommended buffers around important ecosystems and ecological infrastructure. • Proactive management and clearance of alien invasive plant species from riparian zones. • Rehabilitation of temporarily disturbed areas must take place to restore areas to natural condition using indigenous plant species. • No alien plant species may be used in landscaping.

6.3.3 Industrial Development Environmental Management Zone

The Industrial Development EMZ is located mostly in areas that have already been modified by industrial develop or have been authorised for such land uses (Figure 6-10, Figure 6-11 and Figure 6-12). The management guidelines for this EMZ can be found in Table 6-3 below.



Figure 6-10: Industrial Development EMZ for the ELIDZ site.

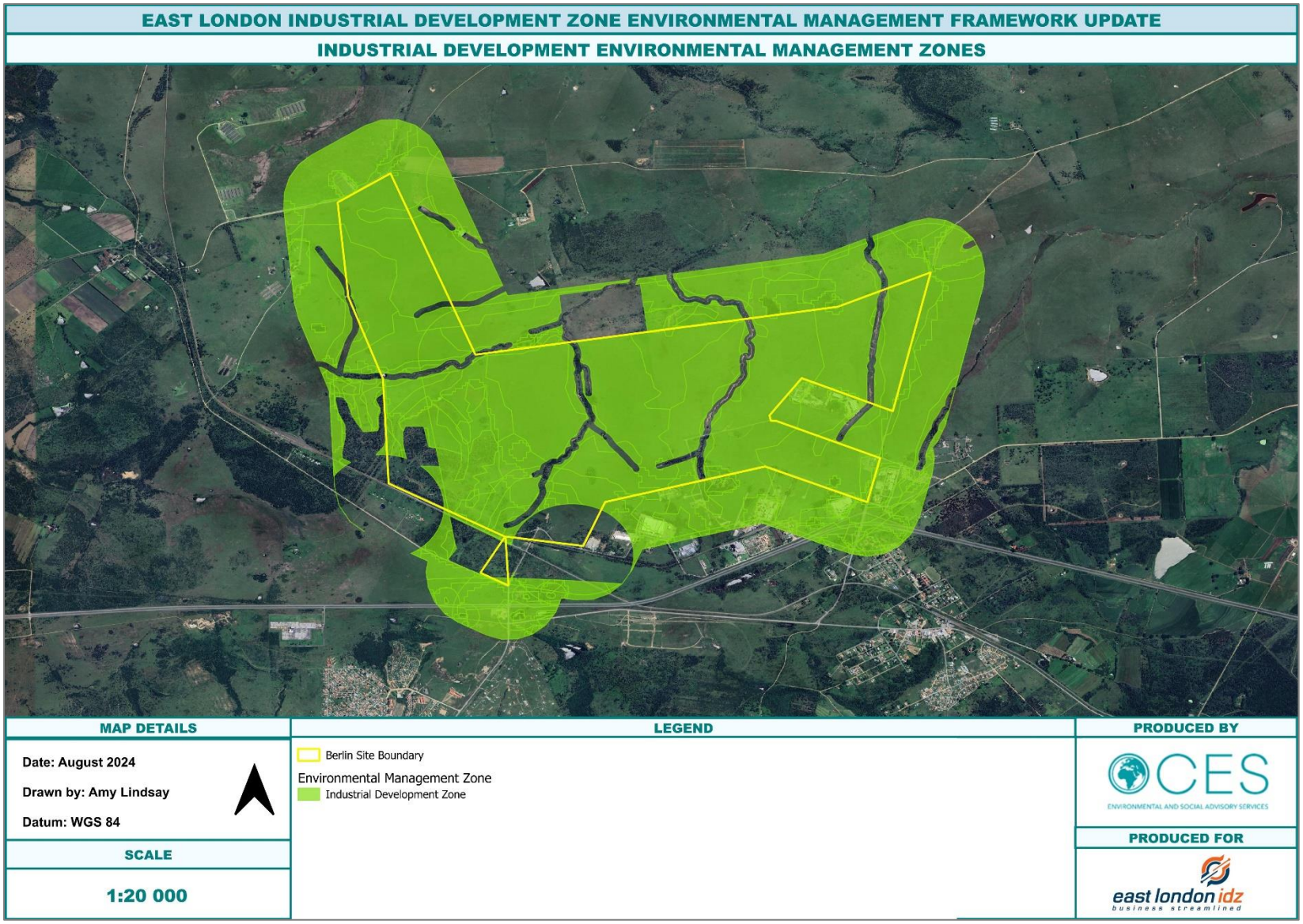


Figure 6-11: Industrial Development EMZ for the Berlin site.



Figure 6-12: Industrial Development EMZ for the Fort Jackson site.

Table 6-3: Management framework for Industrial Development EMZ.

General description of attributes	The industrial activity zone was mapped as areas that are already modified or have been environmentally assessed and authorised for future industrial development. The intent of this EMZ is to promote industrial development in areas that are less vulnerable to development pressures and areas that have the potential to support industrial development in a sustainable manner. This zone is a catalyst for sustainable economic development as well as job creation in the area.
Sustainability objectives (desired outcomes)	• Safe and sustainable industrial development that continues to support the economy by securing investment and job opportunities. • This zone is not a significant source of pollution (air, water, solid waste, noise or light) such that it results in the degradation of the environment within and beyond its development boundary.
Management actions and recommendations for	<u>Existing and future activities in the EMZ</u> Monitoring and management of: • Noise (regulated on a case-by-case basis, enforced by Environmental Authorisation conditions and SANS10103). • Air Quality (regulated by NEM: Air Quality Act). • Water Quality (monitored by the ELIDZ's on-going Water Quality Monitoring Programme) • Solid Waste (policy of reduce, reuse, recycling incorporated into lease agreements? Disposal?). • Landscaping (only indigenous species are to be used for landscaping incorporated into lease agreements). • Plant and animal diversity that may be moving through the IDZ (as deemed applicable on a case-by-case basis, enforced by Environmental Conditions. • Auditing of tenants' compliance with Environmental Authorisation conditions.
Opportunities	<u>Compatible land use activities</u> A range of industrial development options are compatible land uses in this zone.
Constraints	<u>Incompatible land use activities</u> Conservation activities.
Specific specialist assessment requirements	In the event that an activity should be proposed in any or selected EMZs the following specialist assessments should be undertaken as part of either a Feasibility or an Environmental Impact Assessment, as applicable: • Noise Impact assessment • Waste and Waste Water Management Plan • Air Quality Impact Assessment • Socio-economic Impact Assessment • Occupational Health and Safety (hazardous chemicals, etc) Management Plan

Key Management Actions	• Proactive management and clearance of alien invasive plant species where applicable • Auditing of compliance with Environmental Authorisation conditions.

7 GENERAL GUIDANCE FOR EIA PROCESS

This section provides guidance on the use of the EMF by the ELIDZ in respect of the EIA Regulations (2014 as amended) for future development proposals, as well as for the operational management of existing activities within the ELIDZ.

7.1 USE OF THE EMF BY THE ELIDZ

When using the EMF as an input in the pre-development phases (feasibility, design, EIA process) it is important to consider that different types of activities and development may result in different types and severity of impacts on the environment.

The EMF should be used in the pre-development phases as follows:

- As a screening tool to evaluate whether the proposed location for a project is appropriate or not. This should be done through consulting both the EMF document and the most up-to-date GIS spatial data. "Ground-truthing" is recommended to verify desktop-based information. Where more than one location is under consideration, the EMF could be used to establish which option would be the most suitable. Furthermore, the EMF could be consulted prior to acquiring land (e.g., prior to purchase), as part of the process of assessing its suitability for a particular use, purpose, or project.
- As a scoping tool to identify the issues that require investigation as part of the EIA process. Each attribute that is indicated as being present at a particular location and its surroundings would need to be considered and the relevant specialist input obtained. Note that a site should not be viewed in isolation since impacts can extend beyond cadastral or property boundaries. Therefore, sensitive areas within close proximity to the proposed development location must also be considered.
- As an impact assessment tool, where the acceptability of impacts could be compared against the sustainability objectives and limits of acceptable change described in these tables.

The earlier the EMF is consulted in the project planning and design process, the greater the potential for formulating a development proposal that is appropriate and that meets important sustainability criteria. Used in this way, the EMF flags high risk projects that may have significant potential of having environmental authorisation refused. The more the development proposal responds to the sensitivity of environmental features (e.g., through avoiding adverse impacts), the greater the potential for it to be accepted and to make a positive environmental and social contribution.

In addition, the EMF should be used to enhance and support continued management of industrial development operations. This includes policy development regarding sustainable waste management energy consumption, and extends to the development, implementation and auditing of monitoring programmes for integrated environmental management of open spaces, alien plant clearing, noise and light pollution, environmental authorisation compliance, and pollution prevention.

7.2 RELEVANT LEGISLATION AND GUIDELINES

There is various legislation that needs to be considered when undertaking an environmental application. In addition, environmental and land use authorities or agencies may have published guidelines that need to be considered. Authorities and environmental organisations should always be consulted to determine the availability of guidelines: There may also be useful guidelines available through professional organisations.

7.2.1 Legislation

Legislation that may be relevant to an environmental application is shown in Table 7-1. This table summarises key information in respect of national legislation. There may be applicable provincial and local legislation that also requires consideration. In particular, municipalities may have legislation that relates to effluent discharge, water conservation and fire and safety requirements. It is the responsibility of the applicant/proponent and the appointed Environmental Assessment Practitioner (EAP) to ascertain which legislation needs to be considered in the planning and design of the project and in the assessment of impacts.

Table 7-1: Relevant legislation to be considered in environmental applications

Legislation	Description
National Environmental Management Act 107 of 1998 (NEMA)	In addition to the NEMA principals, which form the foundation for environmental management in South Africa, section 24(3) makes provision for the Minister or MEC with the concurrence of the Minister to: "compile information and maps that specify the attributes of the environment in particular geographical areas, including the sensitivity, extent, interrelationship and significance of such attributes which must be taken into account by every competent authority."
NEMA Environmental Impact Assessment (EIA) Regulations of 2014	"The purpose of these Regulations is to regulate the procedure and criteria as contemplated in Chapter 5 of the Act relating to the preparation, evaluation, submission, processing and consideration of, and decision on, applications for environmental authorisations for the commencement of activities, subjected to environmental impact assessment, in order to avoid or mitigate detrimental impacts on the environment, and to optimise positive environmental impacts". In terms of the South African environmental legislative framework, there may be some projects associated with the implementation of the PDFPs that will be subject to an environmental authorisation (EA) process, which is governed by the EIA Regulations of 2014. The EA process entails undertaking either a basic assessment (BA) or scoping and environmental impact reporting (S&EIR) process, as prescribed in the EIA Regulations (published in GNR. 982 on 4 December 2014 as amended from time to time. EIA Regulations Listing

Legislation	Description
	Notices 1 and 2 of 2014 (contained in GNR. 983 and GNR. 984 of 4 December 2014 as amended from time to time respectively) contain activities that is subject to a BA and S&EIR process respectively. Listing Notice 3 of 2014 (contained in GNR. 985 of 4 December 2014 as amended from time to time) lists activities that would require an EA through a BA process if carried out in specified geographical areas.
National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)	NEMBA provides for the management and conservation of South Africa's biodiversity and the protection of species and ecosystems that warrant national protection. The objectives of this Act are to provide, within the framework of the NEMA, for the: • management and conservation of biological diversity within the Republic; and • promotion of the use of indigenous biological resources in a sustainable manner. The NEMBA also provides for, amongst others, the: • Conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (as indicated in the revised national list of threatened terrestrial ecosystems, as published in GN 2747 on 18 November 2022). Some activities contained in the EIA Regulations Listing Notice 3 of 2014 are triggered if they are proposed in a threatened ecosystem. Spatial planners at provincial, district and municipal level also make use of the list to identify areas that are a priority for conservation or areas where development can take place with minimal impact on threatened ecosystem types. • Application of appropriate environmental management tools in order to ensure integrated environmental management of activities thereby ensuring that all developments within the area are in line with ecological sustainable development and protection of biodiversity; and • Limitation of further loss of biodiversity and conserve endangered ecosystems. The revised Regulations pertaining to Threatened or Protected Terrestrial Species and Freshwater Species came into effect on 1 April 2023. The Alien and Invasive Species Regulations, 2020 (gazetted in GNR. 1020 on 25 September 2020) and Alien and Invasive Species Lists, 2020 (gazetted in GN. 1003 on 18 September 2020) also contain various categories of invasive species and prescribe certain restricted activities in relation to such species. The developer must not cause a threat to any endangered ecosystems and must protect and promote biodiversity. The applicant must assess the impacts of the proposed development on endangered ecosystems. The applicant must not remove or damage any protected species without a permit.

Legislation	Description
	The applicant must ensure that the site is cleared of alien vegetation using appropriate means.
National Environmental Management: Integrated Coastal Management Act 24 of 2008 (ICMA)	The ICMA coordinates and consolidates aspects of coastal management including, but not limited to, the definition of the components of the coastal zone, procedures for the demarcation of coastal boundaries and estuary management. Of particular relevance to the Port of Mossel Bay is capital and maintenance dredging, release of ballast water and discharge of effluent into coastal waters. The developer must ensure that measures to protect the coastal environment by mitigating impacts and responding to emergency incidents are implemented and contained in the site specific EMPr. With regards to discharging effluent into the sea, it is the developer's responsibility to ensure that discharge quality conforms to the current guideline, the South African Water Quality Guidelines for Coastal Marine Waters, Volume 1, Natural Environment and Mariculture Use (2018). A Coastal Waters Discharge Permit application in terms of section 69 of the ICMA will have to be submitted to DFFE for the discharge of process water into the port.

National Environmental Management: Air Quality Act 39 of 2004 (NEMAQA)	The NEMAQA is the principal legislation regulating air quality in South Africa. The objects of the NEMAQA are to:
	
	• give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and well-being of people;
	• protect the environment by providing reasonable measures for:
	  ○ protection and enhancement of the quality of air in the Republic;
	  ○ prevention of air pollution and ecological degradation; and
	• secure ecologically sustainable development while promoting justifiable economic and social development.
	
	The NEMAQA empowers the Minister to establish a national framework for achieving the objects of this Act. The said national framework was published in 2018 and binds all organs of state. The said national framework will inter alia have to establish national standards for municipalities to monitor ambient air quality and point, non-point and mobile source emissions.
	
	If a proposed development triggers an activity listed and associated minimum emission standards identified in terms of section 21 of NEMAQA, an application for an atmospheric emissions license must be submitted with the relevant licensing authority as stipulated in Chapter 5 of the NEMAQA. Additionally, developers must be mindful of the potential impact associated with dust generation as a result of vegetation clearance during construction.

Legislation	Description
National Environmental Management: Waste Act 59 of 2008, as amended (NEMWA)	The NEMWA gives legal effect to the government's policies and principles relating to waste management in South Africa, as reflected in the National Waste Management Strategy (NWMS). The objects of the NEMWA are (amongst others) to protect health, well-being and the environment by providing reasonable measures for: • minimising the consumption of natural resources; • avoiding and minimising the generation of waste; • reducing, re-using, recycling and recovering waste; • treating and safely disposing of waste as a last resort; • preventing pollution and ecological degradation; and • securing ecologically sustainable development while promoting justifiable economic and social development. EIA processes must identify impact assessment outcomes and actions which, where relevant, could include waste management measures to ensure that: • all reasonable measures are taken to avoid the generation of waste and where such generation cannot be avoided, minimise the toxicity and amounts of waste that are generated; reduce, re-use, recycle and recover waste; where waste must be disposed of, ensure that the waste is treated and disposed of in an environmentally sound manner; • waste is managed in such a manner that it does not endanger human health or the environment or cause a nuisance through noise, odour or visual impacts; • The Act is not contravened and waste is not used for an unauthorised purpose. Additionally, any developer who requires a waste management licence must ensure that all activities associated with the proposed project address waste related matters in compliance with the requirements of the NEMWA and that local municipalities are included in consultation to ensure that waste is disposed of at a registered landfill site.
National Water Act 36 of 1998 (NWA)	The NWA provides for fundamental reform of the law relating to water resources in South Africa. The purpose of the NWA amongst other things is to: • ensure that the national water resources are protected, used, developed, conserved, managed and controlled in ways which consider amongst other factors; • promote equitable access to water; • promote the efficient, sustainable and beneficial use of water in the public interest; • facilitate social and economic development;

Legislation	Description
	• protect aquatic and associated ecosystems and their biological diversity; and • reduce and prevent pollution and degradation of water resources. The NWA is concerned with the overall management, equitable allocation and conservation of water resources in South Africa. To this end, it requires registration of water users and licenses to be obtained for water use except for certain limited instances set out in the Act. These instances include domestic use, certain recreational use, where the use occurs in terms of an existing lawful use or where the department responsible for water and sanitation has issued a general authorisation that obviates the need for a permit. *Water use for which a permit is required* For the purposes of the NWA, water uses for which a permit is required are defined in Section 21 and include amongst others the following: • taking water from a water resource; • storing water; • impeding or diverting the flow of water in a watercourse; • discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; • disposing of waste in a manner which may detrimentally impact on a water resource; and • altering the bed, banks, course or characteristics of a watercourse.
National Heritage Resources Act 25 of 1999 (NHRA)	Section 3(1) of the NHRA states "For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities". Section 38 of the Act describes construction activities and developments which require a heritage impact assessment and/or prior notification of the heritage resources authority of the proposed activity. SAHRA/Eastern Cape Provincial Heritage Resources Agency (ECPHRA) must be informed of the project when an Environmental Authoristion is required for the implementation of any of the PDFPs. The NHRA also stipulates that: No person may alter or demolish any structure or part of a structure, which is older than 60 years or disturb any archaeological or paleontological site or grave older than 60 years without a permit issued by the relevant provincial heritage resources authority; and No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter or deface archaeological or historically significant sites. A Notification of Intent to Develop (NID) in terms of Section 38(1) of the NHRA is often required to be submitted to the relevant heritage resources authority.

7.2.2 Guidelines and norms and standards

There are numerous guidelines, exclusions and norms and standards that are available to assist applicants and EAPs in addressing environmental issues and thresholds in project planning and design. A list of guidelines is given below – this list is not exhaustive.

- The National Biodiversity Offset Guideline as per GN. 3569.
- Renewable Energy Development Zones (REDZs) and Strategic Transmission Corridors as per GN 114.
- Strategic Transmission Corridors for Electricity Grid Infrastructure (EGI) as per GN 113.
- Standard for the Development and Expansion of Powerlines and Substations within Identified Geographical Areas and the Exclusion of this Infrastructure from the Requirement to Obtain an Environmental Authorisation as per GNR 2313.
- Identification of procedures to be followed when applying for or decisions on an Environmental Authorisation application for the development of electricity transmission and distribution infrastructure when occurring in REDZ as per GN 145.
- Strategic Corridors for Gas Transmission Pipelines as per GN 143.
- National Environmental Management Act No.107 of 1998: adoption of the battery storage exclusion norm and exclusion of identified activities associated with the development and expansion of battery storage facilities from the requirement to obtain an environmental authorisation as per GN 4557.
- National Environmental Management Act: Waste Act No. 59 of 2008: Industry Waste Tyre Management Plan as per GN 4542.
- National Environmental Management Act No. 107 of 1998: adoption of the solar exclusion norm and exclusion of the development and expansion of solar photovoltaic facilities from the requirement to obtain an environmental authorisation as per GN 4558.
- Strategic Infrastructure Projects (SIPs) as described in the National Development Plan, 2011.
- DWAF Water Quality Guidelines of 1996. These guidelines comprise several volumes relating to different water uses, with the objective of ensuring water resources remain fit for use.
- NFEPA: Management Guidelines for wetland and river FEPAs (Implementation Manual for FEPAs (Driver et al 2011).
- DWAF Minimum Requirements relating to waste management (4 volumes) of 1998.
- Department of Environmental Affairs (DEA) Integrated Environmental Management Information Series. This comprises a series of documents that deal with various aspects of the EIA process.
- SANS 241 – South African Drinking Water Standard.
- SANS 1929 – Ambient Air Quality – limits for common pollutants.
- SANBI: National Biodiversity Assessment, 2018.

8 ROLES AND RESPONSIBILITIES

The roles and responsibilities in respect of the EMF are concerned with its implementation. There are various parties that have a role to play in giving effect to the EMF. These are:

- The environmental decision-making authorities (competent authority or CA in respect of environmental authorisations under Section 24 of NEMA)
- Commenting authorities
- Authorities responsible for natural resources management
- Authorities responsible for spatial planning, development planning and land use
- Environmental Assessment Practitioners (EAPs)
- Applicants
- Interested and Affected Parties

Table 8.1 below describes the respective roles and responsibilities for the above-mentioned parties.

Table 8.1: Roles and responsibilities with regards to the implementation of the ELIDZ EMF.

ROLE	RESPONSIBILITY
DEDEAT, DFFE	• Take the EMF into account: Cognisance must be taken of the EMF when considering environmental applications in the area covered by the EMF. This is a requirement of regulation 2(1)(c) of the 2010 EMF Regulations and of section 24(3) of NEMA. • Measure performance: The competent authorities should include performance indicators in their Annual Performance Plans to track the extent to which environmental decisions are aligned / not aligned with the EMF. • Maintain the EMF: Ensure that the EMF is kept up to date in accordance with an appropriate review period schedule. In doing so, cognisance must be taken of policy and legal developments as well as information pertinent to environmental trends including (but not limited to) the provincial and municipal State of Environment Report / Environmental Outlook Report, water resource management plans, biodiversity plans, waste management plans and AQMPs.
DEDEAT/ECPTA/ SANBI	• Keep track of transformation of biodiversity: This applies in general and in particular to CBAs / Ecological Support Areas and listed threatened ecosystems. Monitoring of levels of illegal conversion of natural areas also needs to be monitored. • Monitor remaining areas of natural, indigenous vegetation: It is essential that remaining areas of natural vegetation are monitored in relation to conservation targets and that a reliable record of areas formally protected for conservation is maintained. • Revise biodiversity plans: It is important that any erosion of CBAs/CESAs/ FEPAs triggers a revision of associated biodiversity plans and re-assessment of areas needed to meet conservation targets.

ROLE	RESPONSIBILITY
BCMM	• Take the EMF into account: Although there is no specific regulatory obligation placed on the BCMM to consider the EMF in decision-making, it must be borne in mind that an obligation is placed on all organs of state to consider the NEMA principles in respect of any activity for which they are responsible, where the activity could have significant environmental consequences. Decisions that involve land use and spatial planning would fall into this category. The EMF has taken cognisance of the NEMA principles and thus provides a mechanism for the BCMM to meet this legal obligation. Similarly, the EMF offers support to the BCMM in giving effect to the Environmental Right in the Constitution. • Participation in the review and updating of the EMF: The EMF would require revision on a regular basis (Refer to Section 14). The municipality map participate in this process and make relevant information available such as the SoER / Environmental Outlook Report, IWMP and the AQMP to ensure that there is consistency and synergies between these different environmental management tools.
Other authorities	• Take the EMF into account: Consider the EMF in decision-making as it is a requirement to consider the NEMA principles in any activity that could have significant environmental consequences. The EMF has taken cognisance of these principles and thus provides a mechanism for the authority concerned to meet this legal obligation. • Use the EMF for commenting purposes: Clearly, the comments from authorities would be made in the context of their role and mandate. The EMF should be considered in drawing up comments on environmental applications. In particular, the EMF could be of assistance to authorities in providing a context and framework for their comments.
Environmental Assessment Practitioners and specialists	• Take the EMF into account: Consider the EMF when conducting BA or S&EIR processes. The EMF serves as a guide for the location of development proposals. It also provides assistance in the identifying potentially significant impacts and risks upfront. In this regard, impacts should be evaluated within the context of the management objectives and the limits of acceptable change detailed in the EMF. The objective of this approach would be to determine whether impacts are within acceptable levels or not. Finally, the EMF provides an early indication of specialist studies that may be required. EAPs should bear in mind that the competent authority is obliged to consider the EMF in its decision-making process. Thus, if the EMF is not considered in a BA or S&EIR process, there is a high probability that these reports will be rejected.

9 DECISION-MAKING FRAMEWORK

In the context of determining how land should be used (i.e. development planning) strategic decisions, are primarily concerned with defining the direction over the long-term. Thus, a strategy would reflect the "desired future state" of an area or region, for example. Strategic decisions range from the adoption of international agreements, the formulation of national policies and plans (which become gazetted as White Papers) and the preparation of Spatial Planning Frameworks (SDFs), such as the Provincial SDF and Municipal SDFs. Similarly, an EMF can be regarded as a strategic-level document and its endorsement or adoption by the Minister or MEC responsible for environmental matters amounts to a strategic-level decision.

Implementation decisions relate specifically to the management or control of development on a particular site or area. Decisions at this level (site specific) need to be aligned with the strategy for the area. If they are not, they have the potential to undermine the strategy and its vision and goals. This in turn means that it would be highly unlikely that the "desired future state" put forward in the strategy would be achieved. Thus, given that a sustainable future is generally acknowledged to be desirable, decisions about development and economic growth must be taken with sustainability principles in mind.

9.1 DECISION-MAKING (SUSTAINABILITY) CRITERIA

The Constitution and NEMA provide a foundation for sustainability that has guided the preparation of this EMF. Section 24 of the Constitution of South Africa, the 'environmental right', states that everyone has the right to an environment that is not harmful to health or wellbeing, and to have the environment protected for the benefit of present and future generations, through reasonable measures that:

- Prevent pollution and ecological degradation.
- Promote conservation.
- Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The NEMA principles underline the fact that the environment is 'held in public trust', to be safeguarded as 'the people's heritage'. These principles acknowledge the dependence of human wellbeing on natural systems and resources. The NEMA principles emphasise conservation of biodiversity and ecological integrity (paying particular attention to sensitive, vulnerable, highly dynamic, or stressed ecosystems subject to development or use pressure), conservation of heritage landscapes and sites, and avoiding or minimising and remedying pollution and environmental degradation.

In addition, a 'risk averse and cautious' approach is encouraged, that considers limits of current knowledge about decisions and actions. Importantly, the principles include an expanded 'polluter pays' requirement, that requires Applicants to take account of the potential of their proposed project/development to cause adverse environmental impacts (e.g., pollution, environmental degradation, adverse human health effects) upfront. In effect, this means that the Applicant's project would carry the costs of avoiding negative environmental and social impacts, and where these cannot

be fully avoided to minimise such impacts. This is in accordance with the mitigation hierarchy, which is encompassed in the NEMA principles. In circumstances where adverse impacts involve threatened resources (natural or social), impact mitigation might include compensation for or offsetting of the residual negative impact. In essence, this approach deals with equity and environmental justice concerns, preventing private enrichment at the cost of loss or deterioration in public resources.

The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. The Agenda for Sustainable Development has identified 17 Sustainable Development Goals (SDGs), which serve as a call for action by all countries - developed and developing - in a global partnership. These SDGs recognize that ending poverty and other deprivations must go hand-in-hand with strategies that improve health and education, reduce inequality, and spur economic growth while attempting to address the impacts of climate change. A summary of the SDG's has been provided below. The ELIDZ should ensure that sustainability goals are being met within their operation and planning directives.



Goal 1. End poverty in all its forms everywhere



Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture



Goal 3. Ensure healthy lives and promote well-being for all at all ages



Goal 4. Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all



Goal 5. Achieve gender equality and empower all women and girls



Goal 6. Ensure availability and sustainable management of water and sanitation for all



Goal 7. Ensure access to affordable, reliable, sustainable and modern energy for all



Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all



Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation



Goal 10. Reduce inequality within and among countries



Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable



Goal 12. Ensure sustainable consumption and production patterns



Goal 13. Take urgent action to combat climate change and its impacts



Goal 14. Conserve and sustainably use the oceans, seas and marine resources for sustainable development



Goal 15. Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss



Goal 16. Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels



Goal 17. Strengthen the means of implementation and revitalize the Global Partnership for Sustainable Development Finance

9.2 USING THE EMF TO INFORM ENVIRONMENTAL DECISION-MAKING

The significance of impacts caused by development depends on:

- The nature of the proposed development (e.g., heavy industry is generally associated with high pollution potential and health hazard) and the extent to which potential impacts can be effectively mitigated.
- The attributes of the receiving environment (e.g., scarce water resources, sensitive, vulnerable, or threatened ecosystems, fertile soil / productive agricultural area, sensitive cultural resources).

Where the characteristics and value of the receiving environment are unique or considered to be irreplaceable, almost any type of development would cause significant impacts. This situation is represented by the "Open Space Conservation" EMZ. Where the receiving environment is less sensitive in that there are important attributes, but these are not irreplaceable, the nature of the development would determine the significance of impacts. The "Controlled Development" EMZ is of relevance to this situation.

Development proposals that would lead to environmental impacts inconsistent with the recommendations of the EMZs and associated limits of acceptable change should not be authorised unless there are unique and/or exceptional circumstances. These 'exceptional circumstances' would be associated with over-riding public good issues such as meeting basic needs and the equitable distribution of resources.

The management guidelines relating to the EMZs provide criteria in the form of management objectives and Limits of Acceptable Change which should be applied in the environmental decision-making process. There is no uniform definition or description of a good environmental decision. Gibson et al (2005) note that decisions should be aimed at achieving net gains from a sustainable development perspective. In this regard, decision-making criteria need to be clarified and the trade-offs between criteria that are applied by decision-makers must be open. Generally, attributes of a good decision are considered to include the following:

- That it provides for protection of natural resources.
- That the social costs are not borne solely or primarily by vulnerable groups or communities.
- That it is in the interests of the "public good" particularly in respect of access to resources.
- That it does not result in Limits of Acceptable Change being exceeded.
- That it takes cognisance of the NEMA principles.
- That it is technically sound.
- That it is based on a defensible rationale.

- That it reduces risk at a reasonable cost.
- That it is consistent with other similar decisions.
- That it meets legal obligations or requirements.
- That it takes account of limitations in knowledge, adopting a precautionary approach where warranted.
- That it is based on input from all parties.
- That it addresses a clearly defined problem.
- That it provides a solution and does not transfer the problem from one place or time to another place or time.
- That it is widely accepted.

In order to communicate in a simple manner, how the EMF is to be used, a decision-tree (Table 9-1) has been developed. The decision-tree requires the user to answer questions, which then provides guidance on how to use the EMF with respect to processes that need to be followed, which reports to reference and what assessments/engagement is needed in order to comply with the EMF.

Table 9-1: ELIDZ EMF user decision-tree

Are you a planner?			Are you an authority?			Are you an EAP?		
Have I overlaid my plan with the EMF? (This answer should be YES)			Has the proposed development or plan been overlaid onto the EMF to determine if the proposed development is sustainable? Have the guidelines been integrated into the impact assessment? (This may be requested upon receipt of the development application)			Has the proposed development or plan been overlaid onto the EMF to determine if the proposed development is sustainable? Have the guidelines been integrated into the impact assessment?		
Yes		No	Yes		No	Yes		No
What EMZ does my plan fall within and does my plan comply with the recommendations for this EMZ?		Please acquire the ELIDZ EMF and overlay it with your planning products.	What EMZ is relevant to the development application/plan? Does the development application or plan comply with the recommendations for this EMZ contained in the SEMP?		Request the planner or EAP to overlay the proposed development or plan onto the ELIDZ EMF.	Where is the development or plan located? What do the guidelines recommend in terms of general and EMZ specific management for sustainability? Is the proposed development/plan aligned with these recommendations?		Overlay the proposed development or plan with the ELIDZ EMF
Yes	No		Yes	No		Yes	No	
No conflict	Potential conflict: is this plan sustainable?		No conflict	Potential conflict: is this development sustainable?		No conflict	Potential conflict: is this development sustainable?	
	Interrogate the EMF to determine which environmental constraints are present by referring to the EMZ and the SEMP.			Interrogate the EMF to determine which environmental constraints are present by referring to the EMZ and the SEMP.			Interrogate the EMF to determine which environmental constraints are present by referring to the EMZ and the SEMP.	
	If required, undertaken an exercise to resolve conflicts with relevant authority to prevent future project level delays.			Request specialist studies as outlined in the relevant guidelines contained in the SEMP and any additional specialist studies deemed necessary to provide further insight into the resolution of the conflict.			Commission specialist studies as outlined in the relevant guidelines contained in the SEMP and any additional specialist studies deemed necessary to provide further insight into the resolution of the conflict.	

10 MONITORING AND EVALUATION FRAMEWORK

The EMF highlights environmental attributes and their limits of acceptable change in relation to specific management objectives. The EMF strives to instil a proactive approach to environmental management by directing development to areas that could support such development, thereby striving to avoid or prevent significant negative effects and optimise potential benefits. In addition, the EMF sets explicit objectives and limits of acceptable change for environmental attributes; the onus being on the proponent of development to demonstrate reliably that these limits would not be exceeded.

However, for the EMF to be effective, it is essential that these attributes be monitored and evaluated considering the objectives, and that negative trends are brought to the attention of the ELIDZ, other responsible authorities, and the public. Only in this way can decision makers take due notice of potential problem areas and build in relevant safeguards to halt negative trends.

10.1 INDICATORS – DELIVERING SUSTAINABILITY THROUGH THE EMF

The purpose of the indicators is to provide a basis for measuring performance. In the case of the EMF, the indicators are focused on primarily on the EIA Regulations, with a view to assessing the performance of this system against policy goals and priorities and in relation to objectives and desired outcomes described in this EMF. Indicators are provided for each of the EMZs and are listed below:

Open Space Conservation EMZ:

- Remaining extent of natural ecosystems are conserved.
- Riparian forest and wetlands are protected.
- Degraded areas are rehabilitated.

Controlled Development EMZ:

- The Controlled Development EMZ was established with the intention of ensuring sustainable development in landscapes that can withstand low-medium impact.
- Ecological function is maintained and therefore ecosystem service delivery is conserved.
- Water quantity and quality of freshwater systems in this zone is maintained/improved.
- Proposed development continues to provide secure job opportunities for the Buffalo City Metropolitan Municipality.

Industrial Development EMZ:

Monitoring and management of:

- Noise (regulated on a case-by-case basis, enforced by Environmental Authorisation conditions and SANS10103).
- Air Quality (regulated by NEM: Air Quality Act).
- Water Quality (monitored by the ELIDZ's on-going Water Quality Monitoring Programme)
- Solid Waste (policy of reduce, reuse, recycling incorporated into lease agreements? Disposal?).
- Landscaping (only indigenous species are to be used for landscaping incorporated into lease agreements).
- Plant and animal diversity that may be moving through the IDZ (as deemed applicable on a

case-by-case basis, enforced by Environmental Conditions.

- Auditing of tenants' compliance with Environmental Authorisation conditions

10.2 Updating the EMF

It is common amongst various planning tools to revisit and revise plans on a 5-year basis. It is suggested that the same approach be considered for the ELIDZ. However, it may be deemed necessary to undertake a revision sooner in response to management needs or large changes in information which necessitate an update. Alternatively, this period may also be extended if the ELIDZ EMF is still relevant as considered by relevant stakeholders.

APPENDIX A – EXISTING ELIDZ TENANTS

Tenant	Zone
Yanfeng International Automotive Technology South Africa	1A
One Logix VDS	1A
Molan and Pino	1A
Linde & Wiemann	1A
ZF LEMFORDER	1D
Seraphim	1A
Feltex-Fehrer	1A
Feltex Trim	1A
Feltex Caravelle	1A
Feltex Tufting	1A
Sundale	1A
RG Brose Automotive Components	1A
Automold	1A
MSC	1A
BSA Exhausts System	1A
Ebor	1A
Voestalpine	A1
Auria	1A
King Fisher Enterprise	A1
Collectall	1B
Techniplas	1A
TI Fluid Systems(Fuel Tank Supply)	1A
TIFS	1A
CLARITER	1B
ALSO	1A
Dailmer	1A
Miltrans	1A
Valeo	1A
Wheel Assemblers	1A
DSV	1A
BIG Foot	1D
Fox tech Ikhwezi	1F
Drager	1A
Bushveld electrolyte	1A
RSC	1D
IAC	1A
Afrocentric IP	Science and Technology Park
Khula Technologies	Science and Technology Park
Royal Heirs	Science and Technology Park
Blaqtronics	Science and Technology Park
Zizi Consulting/ Pokopela	Science and Technology Park
ELIDZ 3D Design Lab	Science and Technology Park
ELIDZ STP Training Venue	Science and Technology Park
RICATA	Science and Technology Park
CISCO	Science and Technology Park

Tenant	Zone
EC Internet	Science and Technology Park
Schubart Park	Science and Technology Park
BCMM	Science and Technology Park
Mfura Trading	Science and Technology Park
ABET	Science and Technology Park
Loomee	Science and Technology Park
Afrika Mayivuke Development Media Corporation	Science and Technology Park
PAICTA	Science and Technology Park
ELIDZ CAS lab	Science and Technology Park
Master Artisan / Renewable Energy Centre	Science and Technology Park