ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) FOR THE WESTERN CAPE WIND ENERGY FACILITY, LOCATED SOUTHWEST OF THE TOWN OF SWELLENDAM, WESTERN CAPE PROVINCE

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IMPORTANT NOTE: ALL READERS TO PLEASE FAMILIARIZE THEMSELVES WITH THE RELEVANT TERMINOLOGY CONTAINED IN THE GLOSSARY (ANNEXURE A) PRIOR TO READING THIS DOCUMENT.

Appendix 4 Regulation 1 of GN No. R. 982 of the NEMA EIA Regulations (2014) stipulates that an Environmental Management Programme (EMPr) must comply with Section 24N of the NEMA and must include the following:

Regulation		Content of Environmental Management Programme (EMPr)	Reference
A4 R1 (a)		**Details of:**	
	(i)	*The EAP who prepared the report; and*	Annexure G
	(ii)	*The expertise of the EAP, including a curriculum vitae*	Annexure G
A4 R1 (b)		***A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;***	Section 1 and 4
A4 R1 (c)		***A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;***	Section 1
A4 R1 (d)		***A description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-***	Section 4
	(i)	*Planning and design;*	Section 1 and 4
	(ii)	*Pre-construction activities;*	Section 4
	(iii)	*Construction activities;*	Section 4
	(iv)	*Rehabilitation of the environment after construction and where applicable post closure; and*	Section 4
	(v)	*Where relevant, operation activities;*	Section 4
A4 R1 (e)		***a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);***	Section 4
A4 R1 (f)		***a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to -***	Section 4 and Annexures
	(i)	*Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;*	Section 4
	(ii)	*Comply with any prescribed environmental management standards or practices;*	Section 4
	(iii)	*Comply with any applicable provisions of the Act regarding closure, where applicable; and*	Section 4
	(iv)	*comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;*	Section 4
A4 R1 (g)		***The method of monitoring the implementation of the impact management actions contemplated in paragraph (f);***	Section 6
A4 R1 (h)		***The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);***	Section 6
A4 R1 (i)		***An indication of the persons who will be responsible for the implementation of the impact management actions;***	Section 6
A4 R1 (j)		***The time periods within which the impact management actions contemplated in paragraph (f) must be implemented;***	Section 6
A4 R1 (k)		***The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);***	Section 6
A4 R1 (l)		***A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;***	Section 6
A4 R1 (m)		***An environmental awareness plan describing the manner in which-***	Section 6
	(i)	*The applicant intends to inform his or her employees of any environmental risk which may result from their work; and*	
	(ii)	*risks must be dealt with in order to avoid pollution or the degradation of the environment;*	
A4 R1 (n)		***Any specific information that may be required by the competent authority.***	Section 1

1 INTRODUCTION

1.1 EXECUTIVE SUMMARY

The Western Cape Wind Energy Facility ("WCWEF") is located Southwest of the town of Swellendam within the jurisdiction of the Overberg District Municipality, in the Western Cape Province (Figure 1.1 below). The Project (as described undercover) was approved on 12 December 2021 (DFFE Ref:14/12/16/3/3/1/2437). As per **Condition 14** of the EA, the Environmental Management Programme (EMPr) was not approved. Conditions 13, to 19 must be complied with in order for the Competent Authority to approve this EMPr and which have accordingly been satisfied with a Part 2 Amendment Process of which this EMPr forms a part of and is submitted for Public consultation in August 2024. **This EMPr** was compiled to **comply with Conditions 13, 14 15 and 16 of the EA**. This EMPr accommodates the final layout design dated (02 August 2024), all conditions specified within the EA, all mitigation measures to be implemented on site as well as all specialist recommendations to ensure practicable feasible and environmentally suitable implementation of the project components.

Western Cape Wind Farm (Pty) Ltd has been selected as the **Preferred Bidder** in a tender submitted for a large industrial private off-taker. The project thus forms part of a private procurement programme in the commercial and industrial (C&I) sector. The project, under a private Power Purchase Agreement (PPA) will contribute electricity, which is intended to be 'wheeled' via the National Eskom Grid.

The WEF is located within a **Renewable Energy Development Zone** (REDZ)[1], specifically the Overberg REDZ (please refer to Figure 1.3 below), which dictated that the original permitting process for the WEF was subject to a Basic Assessment Process ("BAR") and not a full Scoping and EIA (S&EIA) process, which is typically the case. This REDZ qualification also allows for a shortened decision-making timeframe of **57 calendar days** (instead of 107 days). The reason for this is REDZ are strategically designed and demarcated by the Competent Authority to encourage this type of development in these specific areas for a range of strategic considerations.

The approximate coordinates of the WEF:
Northern Boundary: 34°05'44.66"S, 20°17'42.66"E
Eastern Boundary: 34°11'05.33"S, 20°26'26.06"E
Middle Point: 34°9'47.49"S, 20°22'9.03"E
Southern Boundary: 34°12'35.70"S, 20°25'35.77"E
Western Boundary: 34°08'39.34"S, 20°19'45.39"E

[1] A Strategic Environmental Assessment (SEA) was completed for Southern Africa for the identification of Renewable Energy Development Zones (REDZs) for the development of potential wind and solar projects, which would be of national strategic importance in terms of green energy in support of the country's electrical demand and economy. The proposed development is located entirely within the Overberg Renewable Energy Development Zone (REDZ) (namely REDZ 1), as defined and in terms of the procedures laid out in Government Notices No. 113 and No. 145 which were formally gazetted on 16 February 2018 and 26 February 2021, respectively.

The full list of Listed Activities triggered by the proposed WEF are given below:

Table 1.2: Summary table of the listed activities proposed for the Western Cape WEF upgrades.

GNR (LN)	GNR Date	Activity	Theme
GNR 327 (LN1)	2017	Activity 11	Transmission and Distribution of Electricity.
		Activity 12	Development within or within 32 metres of a watercourse.
		Activity 19	Infilling or depositing of any material within watercourse.
		Activity 24	Road Development.
		Activity 28	Industrial development of Agricultural Land.
		Activity 56	Widening or lengthening of existing Roads.
GNR 325 (LN2)	2017	Activity 1	Generation of Electricity (Renewable).
		Activity 15	Clearance of vegetation.
GNR 324 (LN3)	2017	Activity 4	Road Development. (Within the Western Cape)
		Activity 12	Clearance of vegetation. (Within the Western Cape)
		Activity 14	Development of infrastructure greater than $10m^2$ within 32m of a watercourse, outside an urban area and within a CBA. (Within the Western Cape)
		Activity 18	Widening or lengthening of existing Roads. (Within the Western Cape)

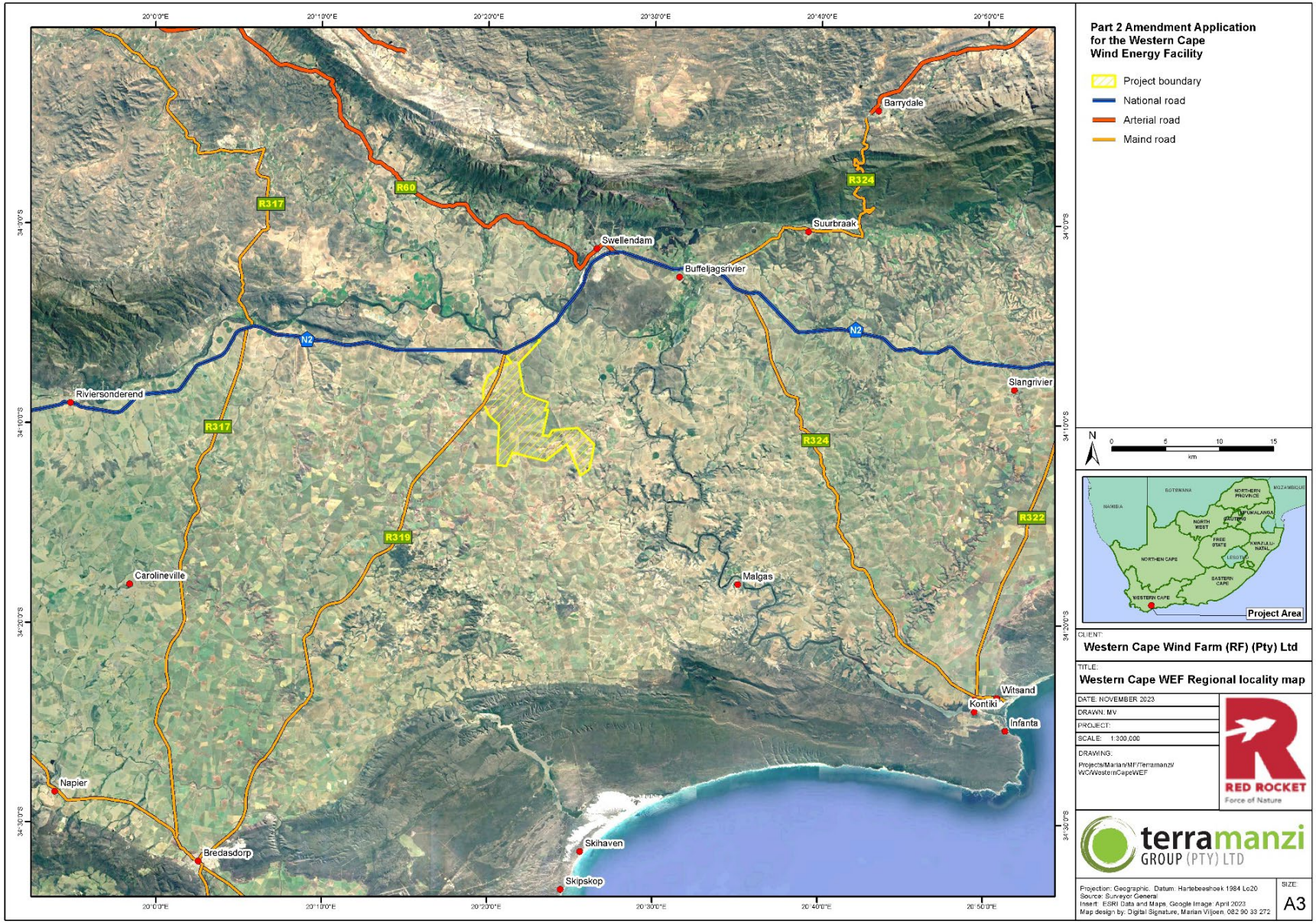

Figure 1.1: This figure shows the location of the proposed Western Cape WEF within a broad geographical context.

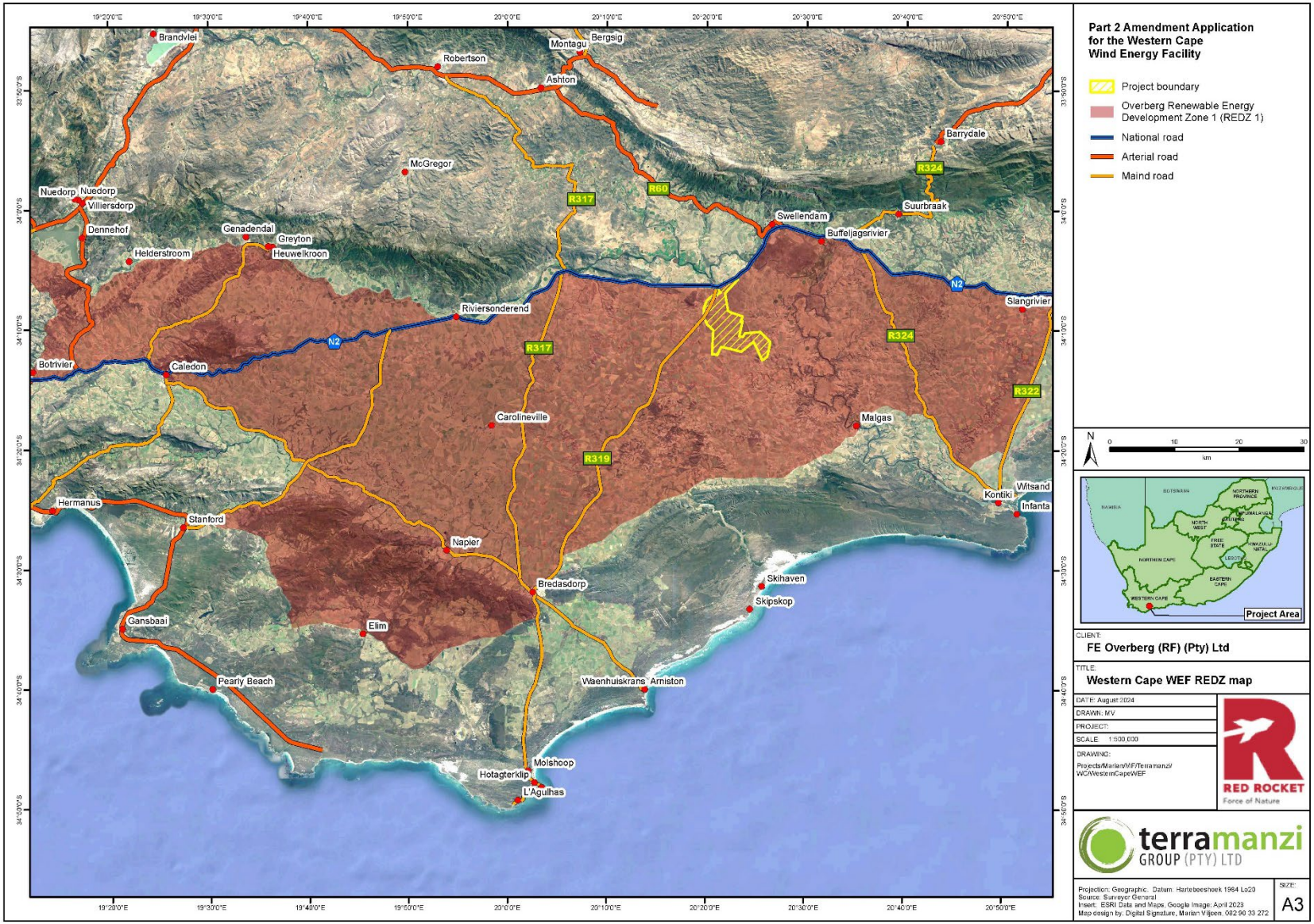

Figure 1.2: Western Cape Wind Energy Facility (indicated in yellow) falls within the Overberg REDZ1 (indicated in red).

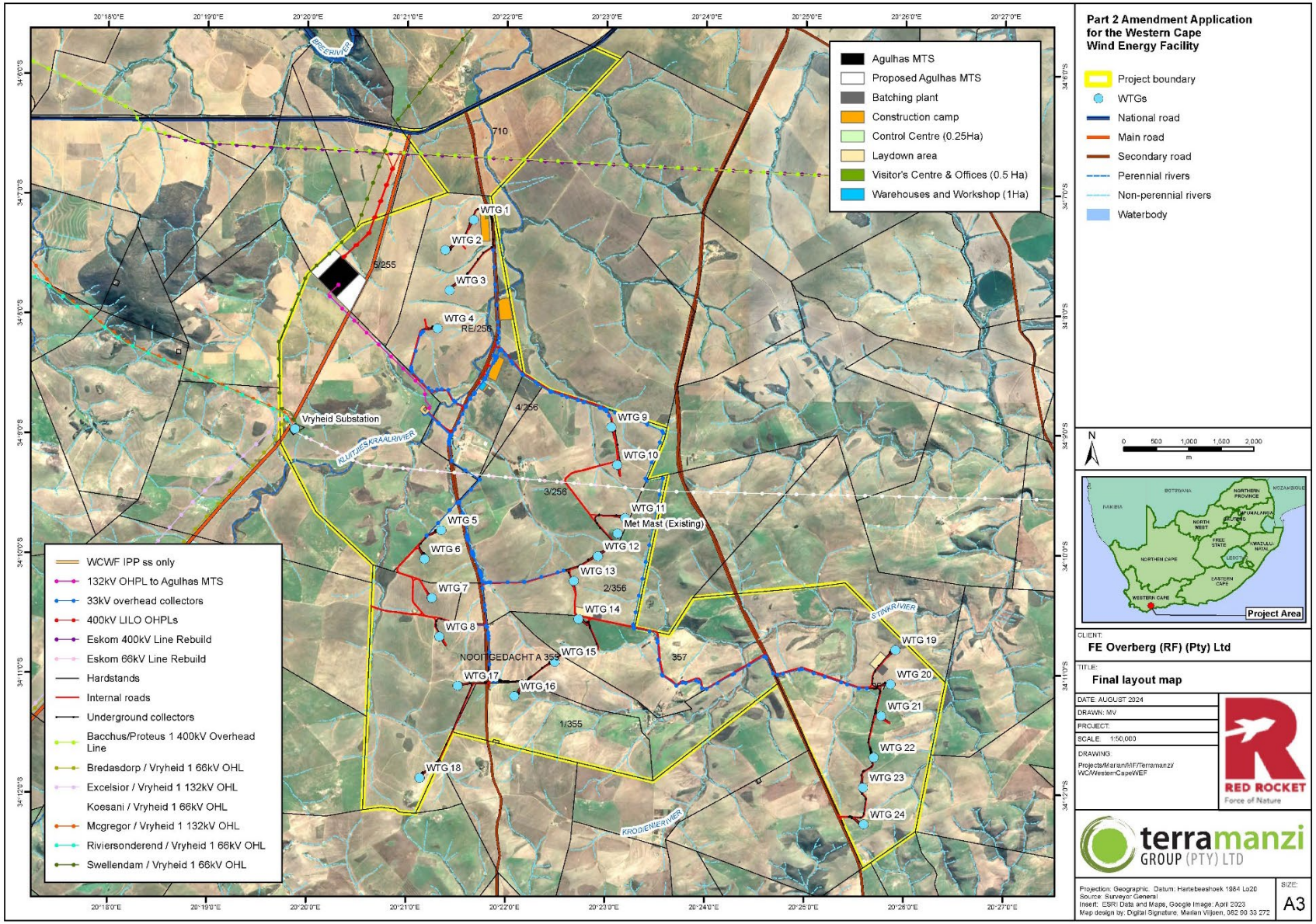

Figure 1.1 Final site layout plan for the Western Cape Wind Energy Facility, substation and all associated infrastructure (dated 02 August 2024).

1.2 PROJECT COMPONENTS

The main components of the WEF and associated infrastructure includes *inter alia*:

- Up to 24 WTGs
- Total Generation Capacity of up to 149.9MW
- Generation Capacity of up to up to 8.2MW each
- Each WTG will consist of a transformer, steel tower, hub, nacelle (gearbox), and three rotor blades
- Maximum hub height of up to 150m
- Rotor length of up to 100m
- A rotor diameter of up to 200m
- Ground Clearance (lower swept blade tip height) 40m
- A 33/132kV WCWF IPP on-site substation (0.7ha)
- Associated Balance of Plant Areas which will include:
    - i). Temporary laydown areas,
    - ii). Construction camps, laydowns, and temporary concrete batching plants
    - iii). Operation and Maintenance buildings which will include control centre, warehouses, workshops, visitor's centre and offices
    - iv). Concrete turbine foundations and turbine hardstands areas of up to 7500m2
    - v). 132kV overhead power lines which will facilitate the connection of the WEF to the National Eskom Grid at the planned Agulhas Main Transmission Substation (MTS) from the WC WEF IPP Sub Station
    - vi). Up to 33kV overhead or underground cabling between the turbines and substation, to be laid underground and along roads where technically feasible
    - vii). Access roads to the site and between project components with a width of up to 12m and a servitude of up to 20m. The main access points will be up to 12m wide.
    - viii). Perimeter fencing, fencing of all buildings and substation

Updated Site Matrix (Opportunities and Constraints Mapping)

An updated set of spatial matrices were produced for all components of the Project and which include updated specialist spatial information which was used to guide detailed design parameters on the site to arrive at the final layout design (dated *"02 August 2024"*) for approval.

Terms of Reference:

1. Specialists were requested to provide a site matrix based on the requirements of Appendix 1 Regulation 3(h) (ix); of GN No. R. 326 of the NEMA EIA Regulations (2014, as amended).
2. Specialist were requested to provide a matrix for each component of The Project to **ensure optimal accuracy and positioning for each specific component of the facility**, as follows:
    a. **Wind Turbine Generators** (WTG) **Matrix:** this matrix is designed to target the specific potential impacts and influences that WTGs have on the site.
    b. **Associated infrastructure Matrix:** this matrix is designed to target the specific potential impacts and influences of the associated infrastructure. The infrastructure includes the substation facility, operations and maintenance buildings (which includes gate houses, a security building, a control centre, offices, warehouses, workshops and visitor's centre) as well as the internal roads (up to 12m wide with a servitude of up to 20m wide).and the powerlines which includes the 132kV Overhead Powerline ("OHPL") and the 33kV cabling between the turbines (overhead or underground cabling).

3. The site maps were informed by expert assessment and consolidated by a GIS specialist and are presented as a **consolidated component site matrix**, for each component and which is presented below.
4. The matrices maps provided have guided the final layout design (dated 02 August 2024) to ensure a practical and environmentally acceptable solution for the site.
5. These matrices maps indicate the consolidated sensitivity features from each specialist input on each component.
6. All sensitive features e.g., Important Bird Areas, Critical Biodiversity Areas, Ecological Support Areas, heritage sites, wetlands, pans and drainage channels. All "no-go" and buffer areas that will be affected by the components undercover; have been identified and included within these maps as a set of matrices.

Description of the areas (colour coded for ease of reference):

- **Developable** means areas that are not sensitive and accordingly do not have any development constraints
- **Acceptable / Developable with mitigation** means areas that have some sensitivity but development can proceed with specified mitigation measures which have either reduced or removed the identified risk to acceptable levels
- **No-Go / Not Developable** means areas that have sensitivity of a nature that are either not mitigatable or would represent a fatal flaw should design extend into these areas, traditionally known as a ''no-go'' areas.

Developable Area	Acceptable Area	Not Developable

Opportunities and Constraints Map for the WTG's (Figure 1.4 below)

Within the final layout design (dated 02 August 2024) of the WEF, each WTG has been strategically positioned to avoid the red, No-Go areas in accordance with the principles of practicability and feasibility (Figure 7.6). WTGs situated within the yellow areas mean that their locations are deemed acceptable, provided that the prescribed mitigation measures outlined in Section 7.1 and the EMPr (Appendix E), as articulated by the Professional Team are implemented. Both the Professional Team and the EAP are satisfied with the placement and micro-siting of the WTGs as proposed within the final layout dated 02 August 2024.

Opportunities and Constraints Map for associated infrastructure (Figures 1.5 below)

Substation and permanent infrastructure

The design of the substation component and operations and maintenance buildings (which includes control centre, warehouses and workshops, and visitor's centre and offices) has been optimised based on its proximity to the planned Eskom Agulhas Main Transmission Substation (MTS) and has also been designed to avoid the No-Go red areas.

Internal roads

The design of internal roads within the Western Cape WEF prioritises avoidance of the No-Go areas. To optimise the road network, many of the internal roads have been aligned with existing routes. In certain areas, however, some internal roads will require widening or construction to accommodate various necessary elements, such as cut and fill requirements, side drains, stormwater control

measures, turning areas, and adequate vertical and horizontal turning radii to ensure the safe transportation of WTG components.

Powerlines

The powerline components have been designed to avoid no-go areas. There are two aspects to this component, as follows:

a) The 132kV Overhead Powerline (OHPL) to the Agulhas MTS is placed within an acceptable area and appropriate mitigations measures area detailed to ensure low impact to the environment.
b) The 33kV WTG collectors between the turbine components (**specifically the above-ground design**) is considered **sensitive primarily from an avifaunal perspective**. Where the proposed 33kV OHPL crosses any No-Go areas, it is a specialist requirement that the cabling in these areas needs to go underground to ensure that potential impacts here are mitigated to acceptable levels. **Therefore, a combination of above-ground OHPL and underground OHPL cabling for the 33kV routing will take place as aligned with the matrix undercover**.

The associated permanent infrastructures (Substation, Internal Roads and Powerlines) are within areas acceptable locations, provided that the prescribed mitigation measures outlined in the EMPr, as articulated by the Professional Team are strictly implemented. Both the Professional Team and the EAP are satisfied with the placement of the associated permanent infrastructure within this finalised layout.

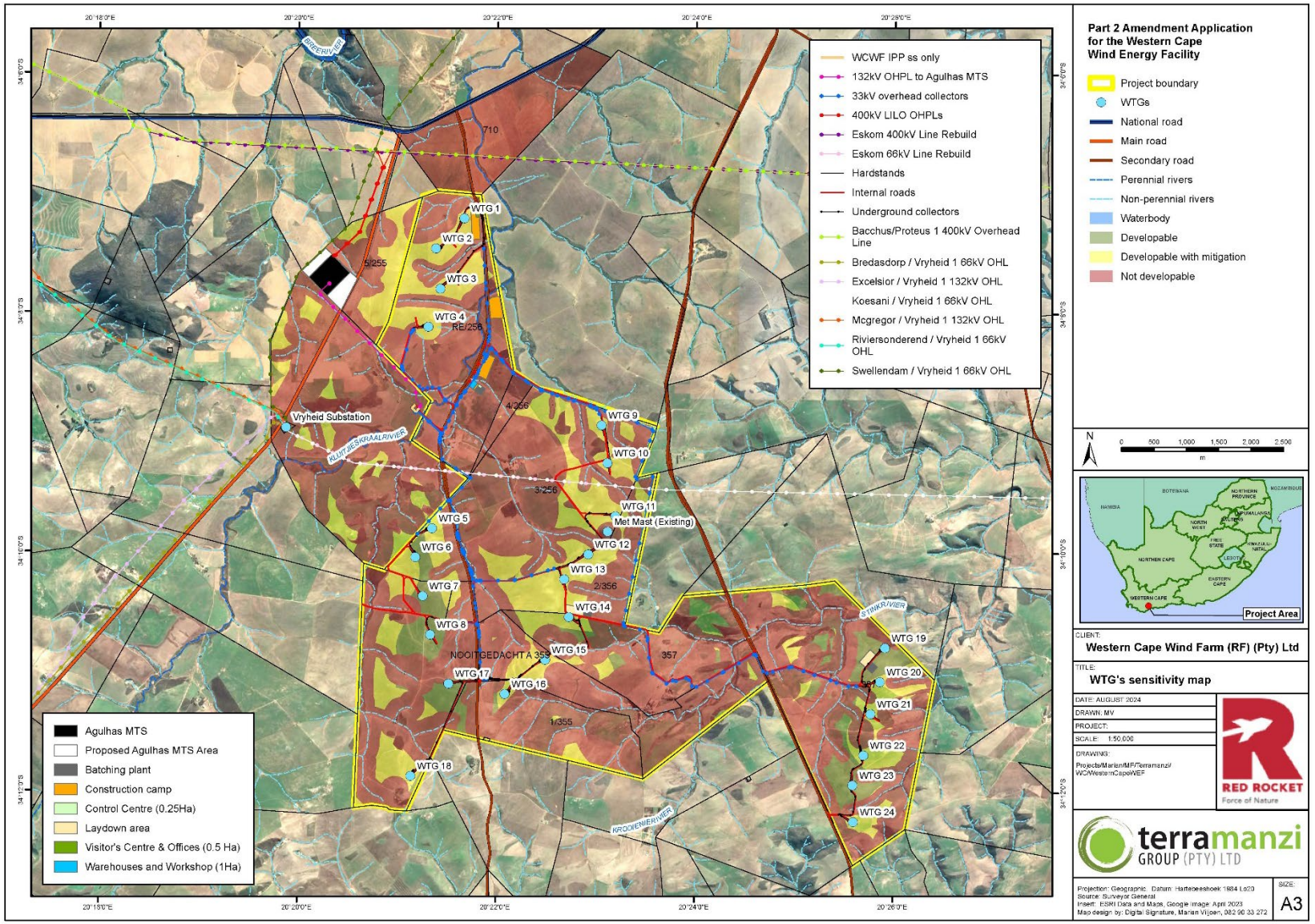

Figure 1.4. Opportunities and Constraints in comparison to the WTG's final positioning (dated 02 August 2024).

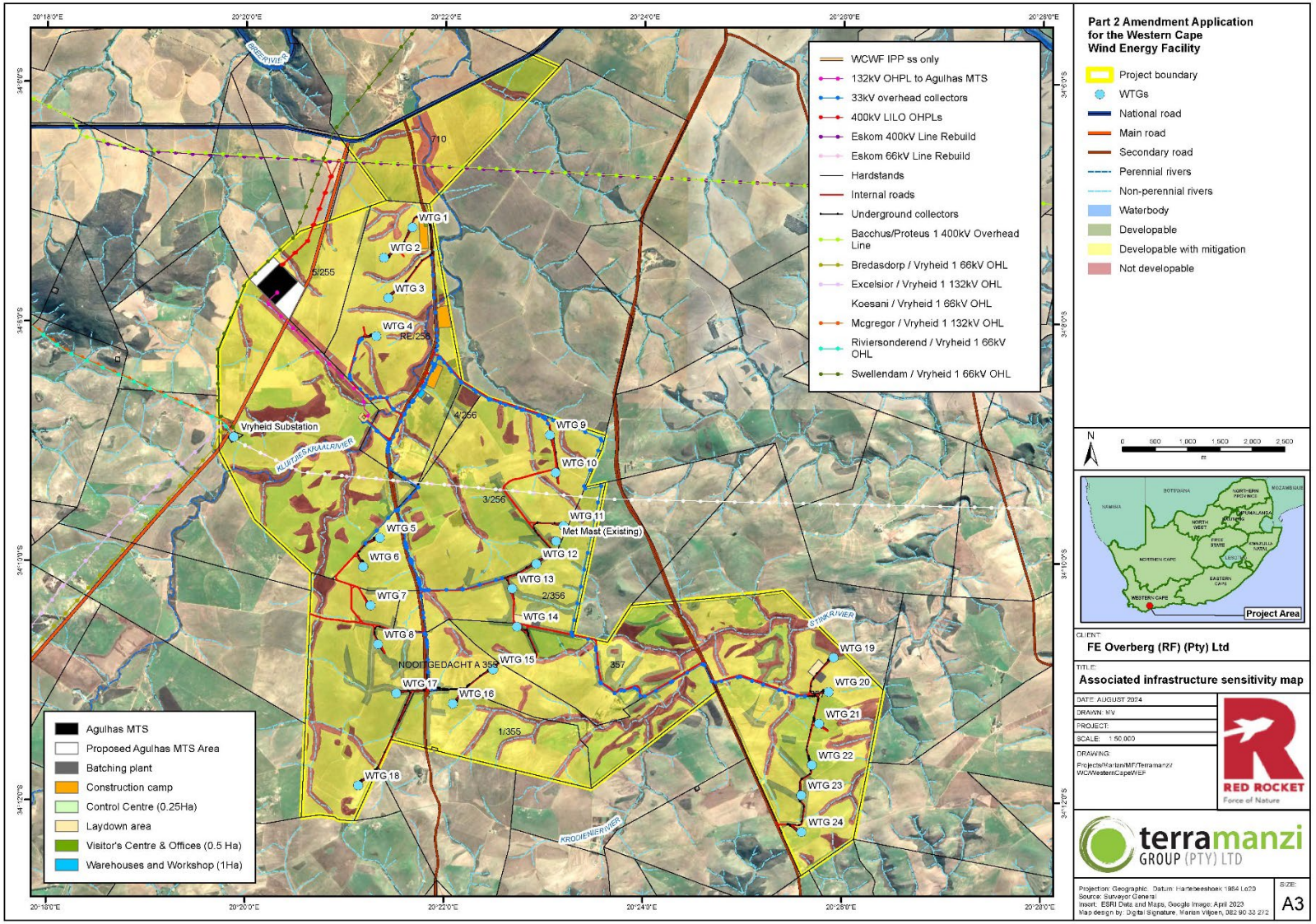

Figure 1.5. Opportunities and Constraints in comparison to the associated infrastructure final positioning (dated 02 August 2024).

Table 1.3 The GPS coordinates of the WEF and associated infrastructure are presented in the table below:

POINT OF INTEREST	LATITUDE	LONGITUDE
WTG 1	34° 7'12.92"S	20°21'40.01"E
WTG 2	34° 7'28.14"S	20°21'22.87"E
WTG 3	34° 7'48.36"S	20°21'25.57"E
WTG 4	34° 8'7.41"S	20°21'18.46"E
WTG 5	34° 9'48.28"S	20°21'20.99"E
WTG 6	34°10'2.72"S	20°21'10.99"E
WTG 7	34°10'22.19"S	20°21'15.49"E
WTG 8	34°10'41.64"S	20°21'20.04"E
WTG 9	34° 8'56.56"S	20°23'3.21"E
WTG 10	34° 9'15.31"S	20°23'6.80"E
WTG 11	34° 9'41.89"S	20°23'11.64"E
WTG 12	34°10'1.06"S	20°22'55.41"E
WTG 13	34°10'13.52"S	20°22'40.97"E
WTG 14	34°10'32.57"S	20°22'43.79"E
WTG 15	34°10'54.04"S	20°22'29.60"E
WTG 16	34°11'11.30"S	20°22'5.25"E
WTG 17	34°11'6.20"S	20°21'31.21"E
WTG 18	34°11'52.45"S	20°21'8.48"E
WTG 19	34°10'47.51"S	20°25'54.80"E
WTG 20	34°11'4.62"S	20°25'51.87"E
WTG 21	34°11'20.65"S	20°25'46.31"E
WTG 22	34°11'41.44"S	20°25'42.06"E
WTG 23	34°11'56.48"S	20°25'35.61"E
WTG 24	34°12'14.92"S	20°25'36.02"E
WC WEF IPP Substation	***Latitude***	***Longitude***
Centre Point	34° 8'48.33"S	20°21'10.90"E
Corner 1 of Substation	34° 8'47.98"S	20°21'8.64"E
Corner 2 of Substation	34° 8'46.28"S	20°21'10.61"E
Corner 3 of Substation	34° 8'48.30"S	20°21'13.11"E
Corner 4 of Substation	34° 8'50.00"S	20°21'11.14"E
132kV Overhead Powerline from WEC WEF IPP Substation to Agulhas MTS	***Latitude***	***Longitude***
Start Point	34° 8'48.32"S	20°21'12.58"E
Bend Point 1	34° 8'46.47"S	20°21'14.59"E
Bend Point 2	34° 8'43.94"S	20°21'11.41"E
Bend Point 3	34° 8'38.16"S	20°21'10.72"E
Middle Point	34° 8'16.45"S	20°20'44.10"E
Bend Point 4	34° 7'50.52"S	20°20'12.35"E
End Point	34° 7'45.51"S	20°20'18.92"E
Warehouse & Workshop, Control centre and Batching Plant Area	***Latitude***	***Longitude***
Centre Point	34° 8'37.68"S	20°21'47.88"E
Corner 1	34° 8'33.69"S	20°21'45.74"E

Corner 2	34° 8'38.40"S	20°21'53.17"E
Corner 3	34° 8'41.56"S	20°21'50.30"E
Corner 4	34° 8'36.85"S	20°21'42.99"E
Visitor's Centre & Offices	***Latitude***	***Longitude***
Centre Point	34° 7'10.87"S	20°21'47.91"E
Corner 1	34° 7'9.20"S	20°21'48.81"E
Corner 2	34° 7'9.09"S	20°21'48.82"E
Corner 3	34° 7'12.25"S	20°21'49.03"E
Corner 4	34° 7'12.34"S	20°21'47.06"E
Construction Camp & Laydown Area 1	***Latitude***	***Longitude***
Centre Point	34° 7'17.14"S	20°21'46.82"E
Corner 1	34° 7'9.31"S	20°21'43.96"E
Corner 2	34° 7'9.09"S	20°21'48.83"E
Corner 3	34° 7'23.35"S	20°21'49.72"E
Corner 4	34° 7'23.57"S	20°21'44.84"E
Construction Camp & Laydown Area 2	***Latitude***	***Longitude***
Centre Point	34° 7'57.93"S	20°21'59.15"E
Corner 1	34° 7'53.86"S	20°21'55.06"E
Corner 2	34° 7'53.32"S	20°21'55.39"E
Corner 3	34° 7'52.26"S	20°21'57.36"E
Corner 4	34° 7'52.07"S	20°22'1.51"E
Corner 5	34° 8'2.70"S	20°22'3.87"E
Corner 6	34° 8'3.13"S	20°21'56.07"E
Construction Camp & Laydown Area 3	***Latitude***	***Longitude***
Centre Point	34° 8'27.33"S	20°21'53.11"E
Corner 1	34° 8'20.43"S	20°21'53.22"E
Corner 2	34° 8'22.74"S	20°21'58.83"E
Corner 3	34° 8'33.67"S	20°21'53.62"E
Corner 4	34° 8'31.41"S	20°21'47.82"E
Construction Camp & Laydown Area 4	***Latitude***	***Longitude***
Centre Point	34° 8'37.74"S	20°21'48.02"E
Corner 1	34° 8'33.71"S	20°21'45.73"E
Corner 2	34° 8'38.44"S	20°21'53.18"E
Corner 3	34° 8'41.58"S	20°21'50.27"E
Corner 4	34° 8'36.86"S	20°21'42.99"E
Temporary laydown Area 5	***Latitude***	***Longitude***
Centre point	34°10'29.22"S	20°22'47.54"E
Corner 1	34°10'26.23"S	20°22'42.05"E
Corner 2	34°10'28.11"S	20°22'53.54"E
Corner 3	34°10'31.93"S	20°22'52.64"E
Corner 4	34°10'30.36"S	20°22'43.07"E
Corner 5	34°10'29.30"S	20°22'42.12"E
Temporary Laydown Area 6	***Latitude***	***Longitude***
Centre point	34°10'53.01"S	20°25'44.37"E

Corner 1	34°10'48.36"S	20°25'45.88"E
Corner 2	34°10'50.87"S	20°25'49.44"E
Corner 3	34°10'57.07"S	20°25'43.11"E
Corner 4	34°10'54.54"S	20°25'39.55"E
Batching Plant 1	***Latitude***	***Longitude***
Centre Point	34° 8'38.93"S	20°21'49.68"E
Corner 1	34° 8'36.01"S	20°21'49.32"E
Corner 2	34° 8'38.42"S	20°21'53.14"E
Corner 3	34° 8'41.56"S	20°21'50.27"E
Corner 4	34° 8'39.10"S	20°21'46.46"E
Batching Plant 2	***Latitude***	***Longitude***
Centre Point	34°10'30.48"S	20°22'55.39"E
Corner 1	34°10'28.14"S	20°22'53.56"E
Corner 2	34°10'28.78"S	20°22'58.30"E
Corner 3	34°10'32.71"S	20°22'57.29"E
Corner 4	34°10'31.94"S	20°22'52.67"E
Batching Plant 3	***Latitude***	***Longitude***
Centre Point	34°10'57.35"S	20°25'47.04"E
Corner 1	34°10'54.46"S	20°25'46.90"E
Corner 2	34°10'57.03"S	20°25'50.43"E
Corner 3	34°11'0.08"S	20°25'47.22"E
Corner 4	34°10'57.49"S	20°25'43.72"E

1.3 ENVIRONMENTAL MANAGEMENT PROGRAMME

The project was initially granted EA on 12 December 2021 with DFFE Reference number: 14/12/16/3/3/1/2437. As per Condition 14 if the EA, the EMPr was **not approved**. Conditions 13 to 19 must be complied with in order for the Competent Authority to approve the EMPr, which have accordingly been satisfied with this Part 2 Amendment Process of which this EMPr forms part of. The following conditions apply as per the EA:

13. *A final site layout plan for the 140MW Western Cape Wind Energy Facility, substation and all associated infrastructure, as determined by the detailed engineering phase and micro-siting of the wind turbine positions, and all mitigation measures as dictated by the final site layout plan, must be submitted to the Department for approval prior to construction. A copy of the final site layout map must be made available for comments to register Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the final development layout map must be submitted to the Department for written approval prior to commencement of the activity. All available biodiversity information must be used in the finalisation of the layout map. Existing infrastructure must be used as far as possible e.g., roads. The layout map must indicate the following:*
    - *13.1 The position of wind turbines and associated infrastructure;*
    - *13.2. Internal Roads indicating width;*
    - *13.3. Wetlands, drainage lines, rivers, stream and water crossing of roads and cables;*
    - *13.4. All sensitive features e.g., Important Bird Areas, Critical Biodiversity Areas, Ecological Support Areas, heritage sites, wetlands, pans and drainage channels that will be affected by the facility and associated infrastructure;*
    - *13.5. The BESS, substation(s) inverters and/or transformer(s) sites including their entire footprint;*
    - *13.6. Connection routes (including pylon positions) to the distribution/transmission network;*
    - *13.7. All existing infrastructure on the site, such as roads;*
    - *13.8. Soil heaps (temporary for topsoil and subsoil and permanently for excess material);*
    - *13.9. Buildings, including accommodation; and*
    - *13.10.All "no-go" and buffer areas*
14. *The Environmental Management Programme (EMPr) submitted as part of the BAR dated October Is not approved and must be amended to include measures as dictated by the final site lay-out map and micro siting, and the provisions of this Environmental Authorisation. The EMPr must be made available for comments by registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such commen1B. Once amended, the final EMPr must be submitted ID the Department for written approval prior to commencement of the activity.*
15. *The EMPr amendments must Include the following:*
    - *15.1.All recommendations and mitigation measures recorded In the BAR and the specialist reports as included in the BAR dated October 2021.*
    - *15.2.The requirements and conditions of this authorisation.*
    - *15.3.An effective monitoring system to detect any leakage or spillage of any hazardous substances during their transportation, handling, use and storage. This must include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems.*
    - *15.4.A transportation plan for the transport of turbine components, main assembly cranes and other*

large equipment.

15.5. An environmen1BI sensitivity map Indicating environmentally sensitive areas and features Identified during the EIA process.

15.6. Measures to protect hydrological features such as mams, rivers, pans. wetlands., dams and their

catchments, and other environmentally sensitive areas fr.om construction impacts Including the direct or indirect spillage of pollutants.

16. *Part C (Site Specific Environmental Attributes) of the generic EMPrs (Annexure Land Annexure M) for the Overhead Line and Substation and all associated infrastructure, submitted as part of the BAR dated October 2021, is not approved. Part.C must be amended to include measures as dictated by the final site layout map and micro siting and the provisions of this Environmental Authorisation. Part C of the generic EMPrs must be made available for comments to registered Interested and Affected Parties and the holder of this Environmental Authorisation must consider such comments. Once amended, the generic EMPrs must be submitted to the Department for written approval of Part C prior to commencement of the activity.*

    Part C of the generic EMPRs must be amended to include the following:

    16.1. The requirements and conditions of this Environmental Authorisation

    16.2. Measures as dictated by the final site layout map and micro-siting

    16.3. All recommendations and mitigation measures recorded In the BAR and the specialist reports as included In the BAR dated October 2021

    16.4. An effective monitoring system to detect any leakage or spillage of any hazardous substances during their transportation, hand ling, use or storage. This must Include precautionary measures to limit the possibility of oil and other toxic liquids from entering the soil or storm water systems

    16.5. A fire management plan to be implemented during the construction and operation of the facility;

    16.6. A re-vegetation and habitat rehabilitation plan. The plan must provide for restoration to be undertaken as soon as possible after completion of construction activities, to reduce the amount of habitat converted at any one time and to speed up the recovery to natural habitats.

    16.7. An aquatic Rehabilitation and Monitoring plan, particularly for watercourse features that will be infilled and/or excavated;

    16.8. A stormwater management plan: and

    16.9. The final site layout map.

17. *The EMPrs must be Implemented and strictly enforced during all phases of the project. It shall be seen as a dynamic document and shall be Included In all contract documentation for all phases of the development once approved.*

18. *Changes to the approved EMPrs must be submitted in accordance with the EIA Regulations applicable* at the time.

19. The Department reserves the right to amend the approved EMPrs should any impacts that ware not anticipated or covered in the BAR be discovered.

Please note that the Applicant is not applying for an EMPr Amendment, but rather the **EMPr is being updated (as a new EMPr) to ensure compliance with the above-mentioned Conditions of Authorisation.**

Please note that this EMPr addresses the construction and operation of the WEF and all associated infrastructure. Additionally Generic EMPrs are required to be approved for the proposed power lines and the substation and are appended to this EMPr (Annexure O and P respectively), as follows:

1. Generic Environmental Management Programme (EMPr) for the Development and Expansion for Overhead Electricity Transmission and Distribution Infrastructure.
2. Generic Environmental Management Programme (EMPr) for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity

2 STRUCTURE OF THIS EMPR

Section 1 provides an introduction to the Project.

Section 2 details the structure of this EMPr.

Section 3 deals with the terms of reference for this EMPr as well as identifies environmental risks and opportunities.

Section 4 and 5 documents the environmental objectives, targets and measures for each environmental risk identified.

Section 6 deals with the implementation of the EMPr including the assignment of roles and responsibilities, visits by the ECO/ESCO, documented procedures and handling of complaints related to the Project.

Annexure A contains the Glossary

Annexure B contains the generic Method Statement

Annexure C contains relevant permits applicable to the proposed development (Environmental Authorizations as applicable to this Project)

Annexure D contains design and planning documentation.

Annexure E contains a detailed copy of the recommended Roles and Responsibilities of the Environmental Control Officer (ECO/ESCO)

Annexure F contains the Specialists Reports associated with the Western Cape Wind Energy Facility

Annexure G contains the EAP's Curriculum Vitae

Annexure H contains the Environmental Authorisation (once available)

Annexure I contains the Aquatic Rehabilitation Management Plan

Annexure J contains the Traffic and Transportation Management Plan

Annexure K contains the Stormwater Management Plan

Annexure L contains the Fire Management Plan

Annexure M contains the Re-vegetation and Habitat Rehabilitation Plan

Annexure N contains the Chance Fossil Finds Procedure

Annexure O contains the DFFE Generic EMPr for Overhead Electricity Transmission and Distribution Infrastructure

Annexure P contains the DFFE Generic EMPr for the Development and Expansion of Substation Infrastructure for the Transmission and Distribution of Electricity

3 TERMS OF REFERENCE

This EMPr was designed and produced in accordance with the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations 2014, as amended. This EMPr also includes the best practice provisions which are recognised as International Best Practice and based on the ISO 14001 system, as well as any applicable statutory environmental requirements.

Terramanzi Group (Pty) Ltd ("TMG"), is the consulting firm appointed to undertake this Application for Environmental Authorisation on behalf of the Applicant.

3.1 EAP DETAILS, EXPERTISE AND INDEPENDENCE

*In accordance with **Appendix 4 of the NEMA EIA Regulations (2014, as amended)**:*

Details of-

i. The EAP that prepared the report, and
ii. The expertise of the EAP, including curriculum vitae

Ludwig van der Merwe is a Senior Environmental Consultant at the Terramanzi Group (Pty) Ltd who compiled this report. Ludwig holds a BSc (with Hons) in Conservation Ecology from the University of Stellenbosch and a Master of Environmental Management and Development from the Australian National University. He has experience doing environmental management, environmental compliance, water use license applications and specialist report writing. Ludwig is registered as a EAP (2020/2817) with the Environmental Assessment Practitioners Association of South Africa (EAPASA), a Natural Scientist in the field of Environmental Science (Pr.Sci.Nat) (133969) and is a member of the International Association for Impact Assessment (IAIAsa). Ludwig was assisted by the following Team members.

This Report was peer-reviewed by Fabio Venturi, whose career spans over 20 years in the industry, across both the government and private sectors of the green economy. Fabio's entrepreneurial drive to innovate and influence has resulted in multiple industry firsts and awards. Fabio is an Accredited Professional with the GBCSA, a Certified Environmental Scientist, served on the South Africa Environmental Industry Body, that being the Western Cape Committee Branch of the South African Affiliate of the International Association for Impact Assessment (IAIAsa), and sat on the National Executive Committee (NEC) of IAIAsa, is a founding member of the Environmental Assessment Practitioner's Association of South Africa (EAPASA, #2021/4088), and is a Certified Carbon Footprint Analyst and Energy Efficiency Auditor.

Tarryn Frankland is an Environmental Consultant for the Terramanzi Group (Pty) and holds a a BSc Honours in Geography and Environmental Management, and an MSc in Environmental Science. She has accumulated experience in the fields of environmental management, health and safety, air quality and renewable energy. Tarryn is registered as a Candidate EAP (2022/6205) with the Environmental Assessment Practitioners Association of South Africa (EAPASA), and is a member of the International Association for Impact Assessment (IAIAsa).

Bryan Cloete is an Environmental Consultant for the Terramanzi Group (Pty) Ltd and holds a BSc (with Hons) in Biodiversity and Conservation Biology and an MSc in Biodiversity and Conservation Biodiversity. He has accumulated experience in the fields of environmental management, environmental compliance and specialist report writing. Bryan is registered as a Candidate EAP with the Environmental Assessment Practitioners Association of South Africa (EPASA) and is a member of the International Association for Impact Assessment (IAIAsa).

Ana Mosse is a Junior Environmental Consultant for the Terramanzi Group (Pty) Ltd and holds a Diploma in Environmental Management from the Cape Peninsula University of Technology (CPUT), with experience in field assessments, collecting and analysing data, environmental checklists and carbon footprint. Ana has worked in diverse projects aimed at sustainability, conservation and environmental stewardship and is a member of the International Association for Impact Assessment (IAIAsa).

Chane Olckers is Operations Manager for the Terramanzi Group (Pty) Ltd and holds a BSc in Law (LLB) from the University of South Africa (UNISA). Chane has experience with environmental authorisation applications, basic assessment reports, scoping and environmental impact assessment reports, environmental management programmes, executing the public participation process, environmental compliance audits, environmental control officer (ECO) services, environmental screening, due diligence assessments as per project specifications.

TMG hereby declares that they have no conflicts of interest related to the work of this Report. Specifically, TMG declares that they have no personal financial interests in the property and/or activity being assessed in this report, and that they have no personal or financial connections to the relevant property owners, developers, planners, financiers or consultants of the property or activity, other than fair remuneration for professional services rendered for this Report to the Competent Authority. TMG declares that the opinions expressed in this Report are independent and a true reflection of their professional expertise.

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Please refer to Annexure G for the EAP's Curriculum Vitae

3.2 DEVELOPMENT CONSENT CONDITIONS

Please refer to Annexure B.

3.3 POLLUTION CONTROL APPROVALS

Not applicable.

3.4 STATUTORY OBLIGATIONS

The applicant should incorporate the following statutory and best practice requirements as part of any contract documentation related to the construction, operation and decommissioning of the proposed development:

- The National Environmental Management Act, Act 107 of 1998 (NEMA)
- National Environmental Management: Biodiversity Act 10 of 2004 (as amended)
- National Water Act, 1998 (Act No. 36 of 1998) (as amended)
- National Heritage Resources Act, Act 25 of 1999 (as amended)
- The National Environmental Management: Waste Act (March 2008)
- Relevant SANS codes

3.5 CONTRACT OBLIGATIONS

It is understood that all contract documentation related to the construction, operation and decommissioning (if required) of the proposed development will include the conditions of this EMPr. It is important to note that the contract obligations must include the recording of any complaints on the project in the environmental register (defined below). Further, it is incumbent on the ECO/ESCO to keep an accurate audit trail showing compliance with the EMPr during construction phase.

3.6 ENVIRONMENTAL RISKS

The following environmental risks have been identified based on the available information:

Potential Impact	EMP reference
PRE-CONSTRUCTION	
Bulk Services Identification	Refer to Section 4.1
Permits	Refer to Section 4.1
Site Boundaries	Refer to Section 4.1
"No-Go" Areas	Refer to Section 4.1
Health Awareness (COVID-19)	Refer to Section 4.1
Safety Considerations	Refer to Section 4.1
Contractor's SHE Officer	Refer to Section 4.1
Emergency Awareness	Refer to Section 4.1
Waste Management Control	Refer to Section 4.1
Stormwater and Erosion Control	Refer to Section 4.1
Pollution Control	Refer to Section 4.1
Training	Refer to Section 4.1
Construction Phase Site Layout	Refer to Section 4.1
Working Hours	Refer to Section 4.1
Heritage Management	Refer to Section 4.1

Wet Environments Management	Refer to Section 4.1
Bat Management	Refer to Section 4.1
Agricultural Management	Refer to Section 4.1
Noise Management	Refer to Section 4.1
Turbine Micro-siting	Refer to Section 4.1
Transportation of Wind Turbine Infrastructure	Refer to Section 4.1
CONSTRUCTION PHASE	
Site Establishment	Refer to Section 4.2
Site Maintenance	Refer to Section 4.2
Monitoring and Record Keeping	Refer to Section 4.2
Community relations (Social disruption)	Refer to Section 4.2
Working times	Refer to Section 4.2
Work Stoppage and Temporary Site Closure	Refer to Section 4.2
Existing Services and Infrastructure	Refer to Section 4.2
Prevention of damage to surrounding infrastructure	Refer to Section 4.2
Socio-economic Management	Refer to Section 4.2
Appropriate Machinery Management	Refer to Section 4.2
Waste Management	Refer to Section 4.2
Trenching and excavations	Refer to Section 4.2
Excavations and stockpiling	Refer to Section 4.2
Sanitation	Refer to Section 4.2
Health Awareness (COVID-19)	Refer to Section 4.2
Environmental Awareness	Refer to Section 4.2
Safety and First Aid Management	Refer to Section 4.2
Emergency preparedness	Refer to Section 4.2
Air Quality (Dust Impacts) Management	Refer to Section 4.2
(Wastewater and Contaminated) Water Quality Management	Refer to Section 4.2
Hazardous Material / Substance (Bitumen Oils and Lubricants) Management	Refer to Section 4.2
Hazardous Material (Fuels, Oils and Others) Management	Refer to Section 4.2
Workshop, Equipment Maintenance and Storage Management	Refer to Section 4.2
Noise Pollution Management	Refer to Section 4.2
Blasting/Drilling/Demolitions Management	Refer to Section 4.2
Concrete Mixing (Batching) Management	Refer to Section 4.2
Establishment of Construction Lay Down Area	Refer to Section 4.2
Fire Management	Refer to Section 4.2
Traffic Control Management	Refer to Section 4.2
Wet Environments Management	Refer to Section 4.2
Stormwater and Erosion Management	Refer to Section 4.2
Flora and Fauna Management	Refer to Section 4.2
Heritage Resources Management	Refer to Section 4.2
Avifaunal Mitigation Measures	Refer to Section 4.2
Bat Mitigation Measures	Refer to Section 4.2
Visual Management	Refer to Section 4.2
Topsoil Management	Refer to Section 4.2
Agricultural Management	Refer to Section 4.2
OPERATIONAL PHASE	
Hazardous Material (Fuels, Oils and Others) Management	Refer to Section 4.3
Solid waste management	Refer to Section 4.3

Wet Environments Management	Refer to Section 4.3
Stormwater and Erosion Management	Refer to Section 4.3
Access and Signage	Refer to Section 4.3
Maintenance	Refer to Section 4.3
Flora and Fauna Management	Refer to Section 4.3
Heritage Resource Management	Refer to Section 4.3
Avifaunal Management	Refer to Section 4.3
Bat Management	Refer to Section 4.3
Visual Management	Refer to Section 4.3
Agricultural Management	Refer to Section 4.3
Noise Management	Refer to Section 4.3
Emergency Management	Refer to Section 4.3
Fire Management	Refer to Section 4.3
DECOMMISSIONING PHASE	
Please refer to the Construction Phase Impacts	

3.7 ENVIRONMENTAL OPPORTUNITIES

It would be responsible of the applicant to implement the principles below to minimise environmental risks defined above.

Sustainable development is best summarised by an extract from the United Nations World Commission on Environment and Development and reads as follows:

"*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs… As such it requires the promotion of values that encourage consumption standards that are within the bounds of the ecologically possible and to which all could reasonably aspire.*" (Our Common Future, WCED, 1987)[1].

The NEMA Principles state that sustainable development requires the consideration of all relevant factors including the following:

- *That the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- *that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied;*
- *that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied;*
- *that waste is avoided, or where it cannot be altogether avoided, minimised and re-used or recycled where possible and otherwise disposed of in a responsible manner;*
- *that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource;*
- *that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised;*
- *that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and*
- *that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.*

In this regard, **sustainable technology alternatives** that are technologically and environmentally superior to “standard” technologies must be promoted at all times which will assist in meeting compliance with the above Principles. All recommendations relating to the above and as contained in this EMPr must therefore be implemented.

4 ENVIRONMENTAL OBJECTIVES, TARGETS AND MEASURES

4.1 PRE-CONSTRUCTION PHASE IMPACTS

4.1.1 Bulk Services Identification

Objectives: To minimise any possible damage to bulk services as a result of pre-construction and construction related activities.

Targets: To comply with any local authority by-laws regarding bulk services and to avoid additional costs and potential project delays due to damage to these services.

Measures:

- If any bulk services are required to be relocated and/or re-routed, then the appropriate permits/approvals must be sought.
- The location of existing bulk services must be determined to prevent accidental damage to these facilities.

4.1.2 Permits

Objectives: To ensure that the necessary permits regarding any activities related to construction activities are in place prior to construction starting.

Targets: To ensure that the construction works can proceed without possible delays and/or legal repercussions during building works as a result of outstanding permits and/or non-compliance with permits.

Measures:

- The client shall issue a list of applicable permitting conditions together with the respective permits/authorisations to the ECO/ESCO prior to the start of construction works.
- Permits are to be acquired from the relevant authorities should protected or Red Data List (RDL) floral species be removed or relocated.

4.1.3 Site Boundaries

Objectives: To ensure that site boundaries are agreed to by the ECO/ESCO, Principal Agent and Contractor prior to the start of the site operations.

Targets: To contain construction activities to the development site/s and prevent unauthorised access (pedestrian or vehicular) and to demarcate potentially sensitive areas and or vegetation.

Measures:

- The Contractor must fence or clearly demarcate the area where construction activities are taking place.
- Access to the site must be restricted, to ensure that members of the public are not able to gain access other than via the designated, controlled access points.

4.1.4 Site Layout

Objectives: Determine and define layout on site

Measures:

- Determine the site for the construction camp in collaboration with the Project Manager and ECO/ESCO before the moving onto site, such that it takes into consideration:
    - The need to be more than 50 meters from a water body in a position that will facilitate the prevention of storm water runoff from the site from entering a water body.
    - The risk of public nuisance through, for example, noise generation, visual intrusion, light pollution or disruption to access.
    - Security implications.

- The construction camp must also be of sufficient size to accommodate the needs of all Sub Contractors that may work on the project.
- Submit to the engineer for his/her approval a site layout plan at least seven days before construction can begin.
- Provide the graphical representation with detailed notes of the location, layout and method of establishment of the construction camp, including the following:
    - The extent of the Contractors site camp, and other required areas if not located within the site camp
    - All Contractor's buildings, and/or offices
    - Lay down areas
    - Vehicle and plant storage areas, including wash areas
    - Workshops and drip trays
    - Fuel storage areas (including filling and dispensing from storage tanks)
    - Cement/concrete batching areas (including the methods employed for the mixing of concrete and particularly the containment of runoff water from such areas and the method of transportation of concrete)
    - Other infrastructure required for the running of the project.

4.1.5 "No-Go" Areas

Objectives: To minimise any potential impacts to identified sensitive areas.

Targets: To prevent possible impacts to any identified sensitive areas on site.

Measures:

- Before any work commences on site, sensitive areas must be demarcated by the Contractor's Environmental Officer (EO) in conjunction with the ECO/ESCO.
- All Renosterveld remnants must be treated as strict no-go areas.
    - Provision for penalties for transgressions, in particular for encroachment into natural vegetation must be included in the Construction Environmental Management Plan (CEMP), and in this EMPr.

- A construction site layout plan must be compiled and approved by the ECO/ESCO, clearly stipulating where the ablutions, equipment, machinery, etc. are required to be placed, thereby not allowing any encroachments on the sensitive areas on site.
- Should additional working space be required at a later date, this must be agreed between the Principal Agent, Contractor, and ECO/ESCO.
- Authorisation from the Principal Agent must only be given once the potential impacts have been assessed by the ECO/ESCO.
- Any construction activities taking place prior to the above will constitute a serious violation of this EMPr and are liable to a fine as detailed within this EMPr.
  No vehicles must be allowed to drive through designated sensitive areas. The Contractor's EO to monitor the fences and signage on the No Go areas on a monthly basis and keep records of such monitoring.

4.1.6 Safety considerations

Objectives: Ensure safety of staff on site as well as general public.

Measures:
Provide details identifying what safety precautions will be implemented to ensure the safety of all staff, and the general public at large, on site during the life of the project. This will include protective clothing requirements for all types of construction activities on site, e.g. protection against dust, noise, falling objects, work in trenches, work at heights, etc.

4.1.7 Contractor's SHE Officer

Objectives: Appointment of the Contractors SHE Officer.

Measures:
The name and letter of appointment of the Contractors SHE Officer must be given to the ECO/ESCO and the terms of reference for the work to be undertaken must be detailed including time on site, roles and responsibility, interaction with the Contractor and environmental offices, etc.

- Implementation of safety measures, work procedures and first aid must be implemented on site.
- Workers should be thoroughly trained in using potentially dangerous equipment.
- Contractors must ensure that all equipment is maintained in a safe operating condition.
- A safety officer must be appointed.
- A record of health and safety incidents must be kept on site.
- Any health and safety incidents must be reported to the project manager immediately.
- First aid facilities must be available on site at all times.
- The contractor must ensure that all construction workers are well educated about HIV/ AIDS and the risks surrounding this disease. The location of the local clinic where more information and counselling are offered must be indicated to workers.
- Material stockpiles or stacks, such as, pipes must be stable and well secured to avoid collapse and possible injury to site workers / local residents.
- Personal Protective Equipment (PPE) must be made available to all construction staff and their usage must be compulsory. Hard hats and safety shoes must be worn at all times and other PPE worn were necessary i.e., dust / masks, ear plugs etc.

4.1.8 Emergency procedures

Objectives: Compile emergency procedures to be implemented on site.

Measures:
Provide details regarding all relevant emergency procedures that will be implemented for fire control and accidental leaks and spillages of hazardous substances (including fuel and oil). Detail the risk reduction measures to be implemented including firefighting equipment, fire prevention procedures and spill kits.

4.1.9 Waste management control

Objectives: Correct handling of solid and liquid waste on site.

Measures:
Provide details regarding how solid and liquid waste generated on the construction site and site camp will be collected, stored, transported and disposed of. Details of any service provider(s) appointed to manage this task must also be provided.

4.1.10 Stormwater and erosion control

Objectives: Adequate stormwater management on site.

Measures:
Provide details of how stormwater emanating within or adjacent to the construction site may impact on construction activities. Details on how the Contractor will deal with stormwater runoff and potential erosion within the construction footprint must further be provided. Details of any service provider(s) appointed to manage this task must also be provided.

Please refer to Annexure K for the Stormwater Management Plan

4.1.11 Pollution control

Objective: Effective pollution control implemented on site.

Measures:
Expected solid waste types, quantities, methods and frequency of collection and disposal as well as location of disposal sites must be identified and stated in a Method Statement. The Method Statement shall further include methods of minimising, controlling, collecting and disposing of contaminated water, and details of any hazardous substances/materials to be used, together with the transport, storage, handling and disposal procedures for the substances.

4.1.12 Training

Objectives: To ensure that all staff working on site are adequately trained on the requirements of this EMPr and are legally compliant with relevant legislation.

Targets: To ensure that the requirements of this EMPr are understood and implemented by all staff (as and when required) on site.

Measures:

- The ECO/ESCO will provide induction training to all on-site personnel before being allowed to work on site. It is the duty of the Contractor's EO to provide weekly toolbox talks to their teams on site and keep records of these in the form of attendance registers.
- An interpreter should be provided as required.

4.1.13 Construction phase site layout

Objectives: To designate areas on site for various types of construction related activities.

Targets: To ensure an efficient and orderly layout that promotes safe access.

Measures:

- The location of the Contractor's camp, toilet facilities and storage areas must be agreed to by the ECO/ESCO, Principal Agent and Contractor prior to the commencement of work at the site.
- A sketch diagram of the above is required by the ECO/ESCO.
- These areas must all be kept tidy, litter-free, sanitary and in good condition throughout the project.
- Any construction activities taking place prior to the above will constitute a serious violation of this EMPr and are liable to a fine as detailed within this EMPr.
- All development footprint areas must remain as small as possible and must not encroach onto no-go areas. It must be ensured that these areas are off-limits to construction vehicles and personnel unless these personnel are involved in rehabilitation activities. Very strict control of edge effects must be practiced.

4.1.14 Working Hours

Objectives: To designate working hours for construction related activities.

Targets: To ensure that the hours of operation shall be restricted to those stipulated by the local authority.

Measures:

- The Contractor shall at all times ensure that working hours are restricted to those stipulated by the local authority.
- Modifications to the above may only take place through the local authority and the ECO/ESCO must be notified in writing.

4.1.15 Heritage Management

Objectives: To aid in the conservation of heritage (including archaeological) resources and promote the enhancement and good management of such features on site.

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to management of such resources.

Measures

- A no-go development buffer of 500m for wind turbine infrastructure must be implemented around the farm werfs within the development area.
- To maintain the character of the landscape, the remaining areas of endemic and endangered natural vegetation must be conserved. Development of the wind turbines should not be allowed within these areas.
- Should any previously undocumented heritage resources be identified during the course of the construction, operation or decommissioning of the project, work must cease in the area of the find and HWC must be contacted regarding a way forward.
- Should any substantial fossil remains (e.g. vertebrate bones and teeth, shells, peat horizons or lenses) be encountered during development, such as within fresh excavations, these must be safeguarded, if possible in situ. These fossil finds must then be reported by the responsible ECO/ESCO to Heritage Western Cape for recording, sampling and any appropriate further mitigation by a professional palaeontologist. Refer to the Chance Fossil Finds Procedure (Annexure K).
- If human remains are encountered during construction, they must left in place and nothing removed, the area must be cordoned off and the project archaeologist informed, HWC and the South African Police Services must be notified and, if exhumation is required, a permit must first be obtained from HWC.
- All the access roads to each wind turbine site, the temporary site camp and the permanent on on-site substation must be aligned along existing roads as far as possible and in a pattern that fits the field configuration. The reason is to reduce rapid surface water runoff which will likely cause erosion but importantly to conform to the visual pattern of the fields.
- All access roads will be planned and no ad hoc or temporary short cuts will be permitted to be developed without approval of the Engineer's Representative (ER).

4.1.16 Wet Environments Management

Objectives: To aid in the conservation of wet environment resources and promote the enhancement and good management of such features on site.

Targets: To ensure compliance with the statutory requirements relating to management of natural freshwater resources.

Measures:

- Encroachment into freshwater ecosystems and their recommended buffer areas must be avoided as far as possible.
- Alter the layout plan to minimise encroachment into wetlands and river corridors as far as possible (following the recommended changes outlined in this freshwater ecology impact assessment report) and, where encroachment into wetlands of moderate conservation importance is unavoidable, rehabilitate degraded portions of these wetlands and/or degraded portions of nearby wetlands of high and moderate conservation importance that are of a similar type.
- The crossing or infilling of freshwater ecosystems of high conservation importance (such as FEPA wetlands and CBA wetlands) by WEF-related structures and infrastructure would potentially result in negative impacts of high significance and must thus be specifically avoided at all costs.
- No water must be taken from a water resource for any purpose without authorisation in terms of the National Water Act, 1998 (Act 36 of 1998) (NWA).
- No waste or water containing waste may be disposed without authorisation in terms of the NWA and National Environmental Management: Waste Act, 2008 (Act 59 of 2008).
- All relevant sections and regulations of the NWA regarding water use must be adhered to.
- No pollution of surface water or groundwater resources may occur.
- Effective measures must be designed for the management of stormwater runoff from new roads and other hardened surfaces (including the bases of the wind turbines), so as to minimise the hydrological changes to freshwater ecosystems in the study area as far as possible.
- Stormwater management must be addressed both in terms of flooding, erosion and pollution potential.
- No stormwater runoff from any premises containing waste, or water containing waste emanating from industrial activities and premises may be discharged into a water resource. Polluted stormwater must be contained.
- Where the crossing of rivers by infrastructure such as roads and underground services is necessary, this must be located at existing road crossings as far as possible.
- Land that has already been substantially disturbed and/or transformed from its natural state (e.g. through extensive, long-term farming activities) must be targeted for the establishment of structures and infrastructure associated with the proposed WEF, as far as possible, because this would lower the risk of impacting on freshwater ecosystems that are in a good present ecological condition.
- Underground cabling must preferably be directionally drilled under freshwater ecosystems and not trenched.

- Overhead cabling must, as much as practically feasible, span the width of the applicable freshwater ecosystem to avoid placement of monopoles directly within the freshwater ecosystem. A minimum of a 10m buffer from the wetland boundary should also be maintained from the monopoles.
- Construction areas within 50 m of any freshwater ecosystem must have clearly defined, approved work areas / footprints, which must be clearly demarcated on site, to limit the risk of potential edge effect impacts. At crossing points of roads / powerlines, a construction right of way (ROW) of 5 m on either side of the crossing may be implemented and the reaches of the freshwater ecosystem up- and downstream of the construction ROW must be designated 'no-go' areas.
- As far as possible, the use of hard engineering techniques such as gabions, reno mattresses and so forth to manage erosion and sedimentation must be avoided. Where feasible, employment of 'soft' techniques such as biodegradable hessian sheeting with coir logs, brush cutting stabilised with additional cobbles and soil, or step-cutting and revegetation with indigenous flora is preferred for bank stabilisation. Further detail in this regard is provided in the freshwater rehabilitation and management plan (FEN, 2023).
- Further to the above, Acacia spp. were noted to occur within several drainage systems within the Western Cape WEF project boundary. Removal of these trees is recommended albeit not within the duty of care of the proponent; however, felled tree trunks and larger branches without and roots (to avoid perpetuating growth of these species) could be utilised in slope and bank stabilisation.
- Vegetation cleared from construction areas is to be limited to the approved development footprint. Indigenous vegetation which is viable for replanting is to be retained for utilisation in disturbed areas post-construction. Alien vegetation must be removed to a licensed waste facility and may not be stockpiled, mulched, composted or burnt on site, with the exception of trunks and sturdy branches which are to be used for erosion control as above.
- Accumulated sediment and debris within freshwater ecosystem crossings is to be removed manually or by the lightest equipment possible to minimise disturbances to soil and hydraulic patterns within the freshwater ecosystems.
- Management of potential sources of contamination within the batching areas is extremely important, given that the sites are upgradient of freshwater ecosystems. A clean and dirty water separation trench and berm must be developed between these sites and the downgradient watercourses, which must be restored to pre-development topography and rehabilitated during decommissioning of the batching sites.
- Concrete and cement-related mortars can be toxic to aquatic life. Proper handling and disposal should minimise or eliminate discharges into the freshwater ecosystems. High alkalinity associated with cement can dramatically affect and contaminate both soil and ground water. The following measures are specific to concrete works within the batching sites and must be adhered to: Fresh concrete and cement mortar must not be mixed near the freshwater ecosystems. Mixing of cement may be done within the batching site, on an impervious surface only, and must be within a lined, bound or bunded portable mixer. Consideration must be given to the use of ready mix concrete if possible.
- No mixed concrete maybe deposited directly onto the ground within the freshwater ecosystems, outside of the designated area (e.g. at road crossings, no closer than 5 m to the

freshwater ecosystem). All concrete for any works within the freshwater ecosystems must be brought in via a cement mixing truck which must remain 5 m from the crossing, and cement must be piped down to the construction site. Any areas that require manual application of cement require that mixed cement be placed on a batter board or other suitable platform/mixing tray until it is deposited.

- A washout area must be designated outside of the freshwater ecosystems, and wash water must be treated on-site or discharged to a suitable sanitation system.
- At no point may batter boards/mixing trays or cement trucks be rinsed off on site and run-off water be allowed into the freshwater ecosystems.
- Cement bags (if any) must be disposed of in the demarcated hazardous waste receptacles and the used bags must be disposed of through the hazardous substance waste stream.
- Spilled or excess concrete must be disposed of at a suitable landfill site. Chain of custody documentation must be provided.
- Water is planned to be abstracted from existing boreholes within the Western Cape WEF project boundary as far as possible but further groundwater development may be needed to supply sufficient water for the project. Abstraction must be carefully managed according to the recommendations made by the geohydrologist, to ensure that groundwater levels are maintained and the sustainable yield of the aquifer is not exceeded and that dewatering of freshwater ecosystems does not occur.
- As far as possible, underground cabling must be installed across freshwater ecosystems by means of directional drilling. If trenching cannot be avoided, the following measures must be taken: Trenching must, as far as practically possible, be undertaken during the dry, summer low-flow period, to contain the impacts from the construction phase.
- The construction footprint must be limited to the width of the trench and a construction ROW (to allow for the temporary stockpiling of soil and movement of personnel). The area must be rehabilitated after the completion of the construction phase, including revegetation thereof with indigenous vegetation.
- The stockpiles must remain as small as possible and may not exceed 2 m in height to prevent excessive dust generation that could smother wetland vegetation and impact the downstream reach of the freshwater ecosystem.
- The duration of open trenching through any freshwater ecosystem must be kept as short as possible.
- Trenching will potentially result in bank destabilisation, and cause bank incision and sedimentation of the freshwater ecosystem therefore, sediment control devices (such as geotextile sediment traps - Figure 4.1) must be installed prior to trenching activities downgradient of the construction works to limit any sediment from entering the downstream reach. Sediment traps should allow for surface runoff should a rainfall event occur.

Figure 4.1: Examples of sediment/silt traps to be used during the construction phase, to limit additional sediment from entering downstream reach of the floodplain wetland; during (Left) instream activities; (Right) activities directly adjacent to the freshwater ecosystem.

- During trenching through the freshwater ecosystem, soil may be stockpiled on the upgradient edges of the excavation in order to limit potential sedimentation of the freshwater ecosystem (Figure 4). In cases where the space does not allow for the stockpiling of excavated material, then protective sheeting must be used to stockpile soil on the downgradient edges (Figure 4.2). Mixture of the lower and upper layers of the excavated soil should be kept to a minimum

Figure 4.2: (Left) Excavation for pipe trenching with stockpiles alongside; (Right) Backfilling of the trench with the construction vehicle remaining on one side of the disturbance footprint. Note the use of bog mats to limit impact on wetland soils.

- During trenching activities, seepage water may be present within the trench - invariably this will be filled with silt and have high suspended solid loads. Therefore, any seepage must not directly into the downstream reach of the freshwater ecosystem but must rather dewatered and pumped into a small stilling basin first before being released to the receiving environment.
- The stockpiled soil must be used to backfill the trench, immediately after constructing the pipeline.
- Material used as bedding material (at the bottom of the excavated trench) should be stockpiled outside of the delineated boundary of the freshwater ecosystem. Once the trench has been excavated, the bedding material should directly be placed within the trench rather than stockpiling it alongside the trench.
- The bedding layer (such as clean gravel) must be spread evenly and compacted uniformly to the required density using a hand tamper (one-man operator) in order to minimise the use of large machinery within the defined extent of any watercourses. Depending on the substrate

of the active channel, the same channel bed material must be returned - i.e., if cobbles, cobbles must be replaced.

- Once the cabling has been installed, the stockpiled soil must be used as backfill for the trench, while keeping the disturbance footprint to a minimum – no indiscriminate movement of construction machinery by personnel (Figure 4.2 above). The trench must be filled with soil in the same sequence as it was removed. It is imperative that topsoil be reinstated to ensure suitable rehabilitation of vegetation.
- The trench must be compacted to natural soil compaction levels to prevent the formation of preferential surface flow paths and subsequent erosion and the upper 300 mm must be ripped for reestablishment of vegetation. However, consideration must be given to accounting for subsidence of the soil level over time by allowing for a slightly higher soil level in the trench (depending on the soil type). Therefore, monitoring post construction is required. Conversely, areas compacted as a result of construction activities (within the 5 m construction ROW must be loosened to natural soil compaction levels.
- Proliferation of alien vegetation must be monitored and controlled.
- Unused excavated soil/sediment must be utilised as part of the open space area or be removed from site to a registered landfill.

Please refer to Annexure I for the Aquatic Management Plan

4.1.17 Bat Management

Objectives: To minimise or prevent, where possible, the disturbance, displacement or destruction of bats and bat roost areas.

Targets: To ensure compliance with the statutory requirements relating to management of bat resources.

Measures:

- The turbine layout must adhere to the bat sensitivity buffers. Turbines must be sited outside of buffer areas such that blade tips do not encroach into buffer zones.
- The height of the lower blade swept height must be maximised, and should not be lower than 50m if possible, to minimise collisions with low flying species
- Preconstruction monitoring in combination with bat mortality monitoring during the operational phase is recommended for this site. This will improve and determine the effectiveness of mitigations applied.
- The final selection of the deterrent measures and curtailment/shut down on demand system to be implemented (Aligned for Birds and Bats) must be determined, as informed by the pre-construction monitoring and input from an Independent Bat Specialist, and submitted to the Competent Authority for approval before construction can commence.
- Implementation of real-time minimisation mitigation for bats through the initial use of four (04) Smart Systems (or similar) to automate Shut-Down on Demand and prevent collision by bat species when their level of activity is high
- Adaptive mitigation based on bat and avifauna fatality monitoring to manage the requirements for number of Bioseco and Smart System units, their locations and their thresholds (Smart System only) to allow for fatality minimisation to within acceptable limits

4.1.18 Avifauna Management

Objectives: To minimise or prevent the disturbance, displacement and direct mortality of avifaunal Species of Conservation Concern (see Annexure A for a definition).

Targets: To ensure compliance with the statutory and EMPr requirements relating to management of avifaunal resources.

Measures:

- The Developers or the Client shall appoint an Avifaunal Specialist where required or where obliged to do so in terms of the EMPr.
- Disturbance and Displacement of avifaunal Species of Conservation Concern
    - The footprint within Avifaunal Sensitive 'No-Go' areas should be avoided;
    - Laydown and other temporary infrastructure to be placed within very low sensitivity areas, preferably previously transformed areas, wherever possible;
    - Appropriate run-off and erosion control measures are to be implemented where required;
    - Existing roads and farm tracks should be used where possible;
    - The minimum footprint areas of infrastructure should be used wherever possible, including road widths and lengths;

- The Developers will employ an Avifaunal Specialist for nest surveying and monitoring of the Project site in accordance with applicable guidelines.
- If any new breeding location for avifaunal Species of Conservation Concern are confirmed (e.g. if a nest site is found which has not yet already been determined), pre-construction activities within 500m of the breeding site must cease, and an Avifaunal Specialist shall be appointed by the Developer for further assessment of the situation and instruction on how to proceed.
    - Should a new nest be confirmed, within one day (24 hours) following its discovery the Developer and/or Avifaunal Specialist is required to inform BLSA and ORCT.
- The results following the outcome of the assessment provided by the Avifaunal Specialist may inform the final construction schedule in close proximity to the specific nest location / breeding area, including abbreviating construction time, scheduling activities around breeding activity, and lowering levels of associated construction noise disturbance as far as reasonably practicable.
- Maximum use of existing access road and servitudes;
- Existing and novel access roads are to be suitably upgraded or constructed to prevent damage and erosion resulting from increased vehicular traffic and construction vehicles
- The appointed Environmental Officer (EO) and Environmental Site Compliance Officer (ESCO) must be trained to identify the potential Red Data species as well as the signs that indicate possible breeding by these species. Training is to be conducted prior to construction.

4.1.19 Agriculture Management

- All laydown and construction areas, to be fully rehabilitated after construction.
- No permanent hard standing area for cranes, post construction.
- Where existing farm roads does not provide access to turbines, the access road will be rehabilitated to a farm type track after construction.
- All cable trenches will follow access roads where possible and will be sufficiently deep to allow for normal farming activities at the surface.
- Turbine foundations to be well below the surface, effectively limiting the above ground footprint of the turbine base to less than 30m².
- Ensure that as much as possible of the planned infrastructure is confined to transformed land, or non-arable areas.
- Ensure that use is made of existing roads, servitudes, etc where at all possible
- Ecological corridors occur predominantly along the rivers, drainage lines and seep areas, so design must be such that it does not impede these corridors unnecessarily.
- Every care must be taken before, during and after the construction and future maintenance of the renewable energy structure, supporting infrastructure or access routes to protect the vegetation and veld condition against deterioration and destruction.
- It is the responsibility of the owner of the renewable energy project to ensure that suitable soil conservation works is established on the site to limit or restrict the loss of soil.

- No renewable energy structure, supporting infrastructure or access routes shall in any manner divert any run-off water from a water course to any other water course or obstruct the natural flow pattern of runoff water, except with the permission from DAFF.
- All access routes, existing or newly constructed and utilised during the construction and/or maintenance of the renewable energy structures must be restore to its original state after completion of the establishment of the structures.
- Every care must be taken not to damage or degrade the status of the natural resources base of the farm during the construction phase of the mentioned or to impact negatively on the farming or production practices on the farm.
- All service routes that will be used to gain access to the renewable energy structures for maintenance purposes have to be covered in gravel, tarred or compressed in order to limit the possibility of degradation and erosion.
- The installation of the underground power cables must not negatively impact on the resource base of the site. During the installation no soil conservation structure is to be disturbed, the soil texture must be restored, the work area should not be wider than 5 m, should not be directed through existing or future cultivated land nor impact negatively on existing farming infrastructure or any farming activity.
- The lease agreement must be transferred to the new land owner, should the farmer decide to sell the property during the time period of the current lease agreement. DAFF needs to be informed of the transfer of the lease agreement upon which a new approval number will be issued. Supporting documentation must be provided that the new land owner concurs with the specifications of the existing lease agreement.

4.1.20 Turbine Micro-siting

- After an authorisation is issued, a team of relevant specialists must perform a detailed "walk down" assessment of the site for **micro-siting** of turbines. This assessment must investigate, in detail, the recommended location of wind turbines and associated infrastructure, as well as all elements of the construction site.
- Plan the layout of the wind turbines and the elements of construction infrastructure placed on site based on the findings of the micro-siting assessment to ensure that environmental impacts are minimised.
- Micro-siting of footprints should ensure all turbines remain wholey outside of no-go buffer zones.

4.1.21 Transportation of wind turbine infrastructure and access routes

Details, including a drawing, showing where and how the access points and routes will be located and managed must be provided in a Method Statement. The time of day and route from the relevant port of arrival of the components to the development site must be clearly indicated and adhered to by the transport service provider, as far as is reasonably practicable.

4.1.22 Noise Management

Objectives: Ensure compliance with Western Cape Noise Control Regulations, 2013.

Targets: Ensure noise from each WTG is below the recommended noise level of 45.0 dBA.

Measures:

- When the final selection is done on the type of wind turbine to be used this must be taken into consideration and an assessment be made of the technical specifications of the type of wind turbine, to ensure that the recommended noise level of 45.0dBA and noise spectrum of the turbines on an individual and cumulative basis will be in line with the Western Cape Noise Control Regulations, 2013.
- This must be verified by an approved environmental noise specialist before the installation of the turbines

4.2 CONSTRUCTION PHASE IMPACTS

4.2.1 Site Establishment

Objective: Identify, establish and produce a Site Layout Plan

Site Identification

- Produce a Site Layout Plan illustrating the location and layout of the proposed site camp in each cluster and the working areas. This plan must be approved by the PM.
- Ensure that the site camp is fenced and provided with a lockable access gate to prevent vandalism, theft and unauthorised entry by the public, where necessary.
- Obtain approval from the landowner prior to establishing the site camp in the event that the site camp is to be situated on private land.
- Produce a photographic record of the area earmarked for the site camp prior to site establishment. This will serve as the benchmark against which rehabilitation will be measured and shall be kept in the site environmental file.
- Ensure that the site camp is reinstated to its original agricultural condition once the project has been completed.
- Do not use the land for the site camp for any purpose other than for the proper carrying out of the works under the contract.

Site Demarcation

- Prior to construction commencing, the ECO/ESCO, Contractor, and/or PM shall inspect the site and identify any sensitive environments.
- All Renosterveld remnants must be treated as strict no-go areas.
- Where necessary, demarcate the construction footprint areas using materials as specified by the PM. These may include fencing, rope, hazard tape, wire mesh, or other approved materials or means.
- The Contractor will be required to maintain all demarcation fencing and other demarcating materials for the duration of construction activities or as otherwise instructed by the PM.

Vegetation Clearance

- Vegetation clearance shall take place strictly in accordance with the Site Layout Plan developed by the Contractor.
- Collection or wilful damage to any plants outside of the areas demarcated for clearing is not allowed.
- Only trees and shrubs directly affected by the works may be felled or cleared, subsequent to approval from the ECO/ESCO or PM in writing.

Protection of natural features

- The Contractor shall not deface, paint, damage or mark any natural features situated in or around the Site for survey or other purposes unless agreed beforehand with the ECO/ESCO. Any features affected by the Contractor in contravention of this clause shall be restored/rehabilitated to the satisfaction of the ECO/ESCO.
- The Contractor shall not permit his employees to make use of any natural water sources (e.g. springs, streams, and open water bodies) for the purposes of swimming, personal washing, drinking and the washing of machinery or clothes.

Protection of archaeological and paleontological sites

- Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the national Heritage Resources Act 25 of 1999 (NHRA).
- If at any stage during construction any semblance of a fossil were to be observed, it must be reported to the authorities so that it can be removed safely.
- Should any archaeological or cultural heritage resources as defined and protected by the NHRA and not reported on in this report be identified during the course of construction, the developer should immediately cease operation in the vicinity of the find and report the site to Heritage Western Cape or SAHRA.

Topsoil

- Topsoil can only be stripped from the following areas in or adjacent to the construction site or site camp:
  - Areas which is to be used for temporary storage of soil and/or materials.
  - Areas which could be polluted by any aspect of the construction activity.
  - Areas within the footprint of the proposed infrastructure to be constructed.
- Undertake the stripping of topsoil in a manner that minimises erosion by wind or runoff.
- Topsoil will be stripped to a depth not exceeding 300 mm from the original ground level, unless greater depth is required during the execution of the construction phase of the project.
- Clear areas from which the topsoil is to be removed of any foreign material which may come to form part of the topsoil during removal including bricks, rubble, any waste material, litter, excess vegetation and any other material which could reduce the quality of the topsoil.
- Ensure that subsoil and topsoil are not mixed during stripping, excavation, reinstatement and rehabilitation.
- Subsoil can be used – if suitable – for road construction.
- Soils must be exposed for the minimum time possible once cleared.
- Topsoil will be temporarily stockpiled, separately from (clay) subsoil and rocky materials.
- Topsoil will be stockpiled in areas designated by the ECO/ESCO.
- Topsoil (300 mm) should be stored at an appropriate site on each farm for future rehabilitation after decommissioning.
- Soil must not be stockpiled on drainage lines or near watercourses without proper risk assessment conducted and prior consent from the ECO/ESCO.
- Stockpiles will either be vegetated with indigenous vegetation, covered by a suitable fabric or maintained in some other suitable way approved by the PM and ECO/ESCO to prevent erosion and invasion of weeds.
- Stockpiles must be monitored for weed infestation and cleared of weeds when necessary.
- Stockpiled topsoil will not be compacted and shall not exceed 2m in height.

4.2.2 Site Maintenance

Objective: Adequate maintenance of site.

Measures:

Workshop

- If an on-site workshop is to be established for the duration of construction, obtain the approval of the PM prior to commencing activities and confine maintenance activities to the identified workshop area.

- Ensure that there is no contamination of the soil or surface water from the on-site workshop.
- Maintain a spill control kit and staff appropriately trained to utilise it.

Equipment Maintenance and Storage

- Keep all vehicles and equipment in good working order in the site camp or an area approved by the PM.
- Inspect all vehicles and plant daily for leaks and spills. Log and sign off maintenance checks a in a site maintenance file after each inspection.
- Repair or remove leaking equipment from the site immediately, where practicable.
- Stationary plant must be supplied with drip trays to prevent soil contamination after hours and when not in use.

Cooking Facilities

- Designate an all-weather cooking and eating area, subject to the approval of the PM.
- Any cooking on site shall be done on either well-maintained gas cookers or by contained fires (e.g. in a drum or braai place), located away from flammable vegetation or construction materials in designated areas. No fires for heating purposes shall be allowed on site.
- Keep the cooking and eating areas tidy and clean at all times to prevent the luring of vermin, domesticated or wild animals.
- Provide sufficient bins with vermin and wind proof lids for waste disposal, within a 5m radius of the cooking/eating area at all times.

Water for human consumption

Water for human consumption must be available at the site offices and at other convenient locations on site at all times.

4.2.3 Monitoring and Record Keeping

Objective: Maintain an environmental site file containing necessary documentation

Measures Monitoring and record keeping on site

- Inspect the site on a daily basis to ensure that the environmental specifications of the EMP are adhered to.
- Provide the PM with a written report, at least fortnightly, detailing compliance with the EMP as well as environmental performance.
- Maintain a record of incidents (spills, impacts, complaints, legal transgressions, etc.) as well as corrective and preventive actions taken, for submission to the PM at the scheduled project meetings.
- Maintain an environmental site file containing at a minimum the following documents:
    - Final Environmental Impact Assessment Report compiled for the Western Cape WEF;
    - Latest version of EMPr;
    - Final design documents and diagrams issued to and by the Contractor;
    - All communications detailing changes of design/scope that may have environmental implications;
    - Site monitoring reports;
    - Complaints register;
    - Training manual;
    - Training attendance registers;
    - Incident and accident reports;
    - Emergency preparedness and response plans;
    - Disciplinary procedures;

- Monthly site construction meeting minutes;
- All relevant permits;
- Letters or legal documents authorising identified site staff to act in a specified authoritative capacity relating to the protection and preservation of the environment, and on behalf of the Contractor;
- Environmental Authorisation and Amendments on the EIA; and
- All method statements from the Contractor for all phases of the project.

4.2.4 Community relations (Social disruption)

Objective: Ensure good relations with surrounding community

Measures:

- Erect and maintain information boards in the positions, quantities, designs and dimensions required by municipal specifications. Such boards shall include contact details for complaints by members of the public in accordance with details provided by the ECO/ESCO.
- Keep a Complaints Register on site, containing contact details of complainants, the nature of the complaint, details on the complaint itself, as well as the date and time that the complaint was made and resolved.
- The Contractor, or if required the ECO/ESCO, shall be responsible for responding to queries and/or complaints and may request assistance from the Contractor's Management Staff.
- All abutting neighbours (or as required) must be notified of the proposed construction phase activities at least two weeks before they commence.
- The Contractor must record and repair any damage that the construction works may cause to neighbouring properties, to the satisfaction of the ECO/ESCO.
- The ECO/ESCO must be notified in writing of any incidents relating to the above.
- Staff shall in no way be a nuisance to residents or clients seeking the services of the established businesses in the area. Any complaints received by the PM will be investigated, addressed and, if deemed necessary, the relevant persons will be suspended from the project.
- Give at least seven days' notice to the residents in the vicinity of the construction activities of his intention to begin construction activities in their area.
- The PM may request a representative of the Contractor to be available to discuss issues raised by residents and make information available to them on construction activities.

4.2.5 Working times

Objective: Establish clear daily working times

Measures:

- Daily timeframes for construction works is to be agreed to by the Contractor, ECO/ESCO and landowners.
- For any deviation from the ordinary working hours the written approval of the PM must be obtained before such works commences.

4.2.6 Work Stoppage and Temporary Site Closure

Objective: Determine when work stoppage and site closure is required

Measures

The Project Engineer, in consultation with the ECO/ESCO, shall have the right to order work to be stopped in the event of significant infringements of the Project Environmental Specifications until the situation is rectified in compliance with the specifications. In this event, the Contractor shall not be entitled to claim for delays or incurred expenses.

4.2.7 Existing Services and Infrastructure

Objective: Note position of existing services and infrastructure on development site

Measures:

- Take cognisance of the position of existing services and infrastructure (e.g. roads, pipelines, power lines and telephone services) that may get damaged due to construction activities.
- Ensure that existing services are not damaged or disrupted unless required by the contract and with the permission of the PM.
- The repair and reinstatement of any infrastructure that is damaged or services that are interrupted during construction will be done at the expense of Contractor's and shall receive top priority over all other activities.
- Adhere to the time limit for the repairs as stipulated in consultation with the PM.

4.2.8 Prevention of damage to surrounding infrastructure

- Be extra vigilant, during the construction activities, to prevent damage from occurring to any buildings, road furniture and motor vehicles located in the vicinity of the construction site.
- The Contractor shall be responsible, at his own cost, for the repair and reinstatement of any damages to existing structures resulting from the construction works.
- Investigate any complaints received from the public regarding any of the listings above. If substantiated, the above listings may result in a fine, or suspension or dismissal of the guilty party.

4.2.9 Socio-economic Management

Objective: To maximise impacts on employment in the area during the construction phase.

Targets: To ensure that employment for local people is ensured during the construction phase.

Measures:

- *Creation of employment and business opportunities* - Guidelines should be prepared for the implementation of a Procurement Strategy that includes the following:
    - Initiate the procurement strategy during the first phase of the project after which the implementation of the strategy becomes the responsibility of the contractor(s) collectively under the guidance of the developer.
    - Develop a database of local contractors who are competitive and possess the required skills and capacity to obtain contracts.
    - Local contractors should be invited to tender for work in the context of the terms and conditions that should be included in Request for Proposal documentation.
- *Impact associated with presence of construction workers* - To avoid and or minimise the potential impact of construction workers on the local community. This can be achieved by

maximising the number of locals employed during the construction phase and minimising the number of workers housed on the site.

- Local people skilled in earth moving and building activities can be employed during the construction phase, whilst cleaning, security and maintenance services during operations could employ low- or semi-skilled workers. In the event of a shortage of labour from the Swellendam area, the developer should undertake to employ contractors from other areas of the Overberg. The Developer should consider this as one of the pre-qualification requirements for tendering.
- A Communication Strategy should be prepared to inform locals about opportunities together with the terms and conditions applicable to procurement and employment.

- *Safety, poaching, stock theft and damage to farm infrastructure*- The housing of construction workers on the site must be limited to security personnel, as far as possible.
  - The site will be fenced and patrolled 24/7.
  - Increase in local crime On-site security measures, such as perimeter fencing, controlled access and security guards and patrols will minimise the risk.

- *Increase risk of fires* - Ensure that open fires on the site for cooking or heating are not allowed except in designated areas. Provide adequate firefighting equipment onsite. Provide fire-fighting training to selected construction staff. Approval from site management e.g. construction manager, ECO/ESCO, safety officer must be gained before cooking in designated areas and the fire must be controlled and monitored by the party responsible for the activity (namely the Contractor Safety Officer/EO).

- *Impact of dust and noise due to heavy vehicles and damage to roads* – Dust and noise emissions during the construction period should be minimised by employing a Construction Environmental Management Plan (CEMP).

  - Site construction roads and excavated materials should be sprayed with an eco-friendly dust suppression liquid during dry periods to mitigate the formation of dry dust particles.
  - If water is used for dust suppression purposes, non-potable water as must be used.
  - Ensuring that vehicles used to transport sand and building materials are fitted with covers.
  - Ensure that all vehicles are road-worthy, drivers are qualified and are made aware of the potential noise, dust and safety issues.
  - Ensure that drivers adhere to speed limits. Vehicles should be fitted with recorders to record when vehicles exceed the speed limit or installation of cameras to limit speed on site.
  - Ensure that damage to roads is repaired before completion of construction phase.

- *Impact on farming activities* - Minimise the footprint of the wind energy facility and the associated infrastructure. Rehabilitate disturbed areas on sections already constructed or on completion of the construction phase. Details of the rehabilitation programme are to be contained in the EMP.

4.2.10 Appropriate Machinery Management

Objectives: To minimise possible nuisance effects and environmental damage through the use, storage and/or handling of machinery during the construction works.

Targets: To ensure that impacts and damage to the environment are minimised via the responsible use of appropriate machinery on site.

Measures:

- The Contractor shall ensure that any delivery drivers are informed of all procedures and restrictions (no-go areas) required to comply with the specifications. The Contractor shall ensure that these delivery drivers are supervised during off loading and made well aware of the specification of the site.
- The Contractor shall at all times carefully consider what machinery is appropriate to the task in the context of this EMPr while minimising the extent of environmental impact.
- Materials shall be appropriately secured and/or covered to ensure safe transportation between destinations.
- Loads containing but not limited to, sand, stone, fine vegetation, chips, paper cement sand and waste, will be appropriately covered (i.e. with tarpaulin) to ensure that such materials do not spill during the transportation of such materials. The Contractor in charge will be responsible for any required “clean-ups” resulting from failure to by his/her employees or suppliers to properly cover the required materials.
- Construction machinery must be located away from sensitive areas when parked for extended periods of time.
- A dedicated parking and equipment storage area must be defined, and metal drip trays placed beneath any equipment to contain any spilled liquids. Contractor must maintain a register to monitor the condition of the drip trays on site and make it available on request to the ECO/ESCO.
- These materials must be replaced regularly to prevent over-saturation and potential spillage of free phase product. This material must be disposed of as hazardous waste and be collected by an approved/licensed Contractor/delivered to a licensed suitable waste site.
- Chain of custody documentation must be provided as proof of final end recipient.
- All spills are to be recorded in the Environmental Register, including any clean-up actions taken to remediate the spillage. Such actions are to be agreed with the ECO/ESCO prior to taking place.
- In the event of a major spillage on site, the ECO/ESCO should contact the municipality to determine whether the spillage constitutes a NEMA Section 30 incident
- For any event resulting in the spill or leak of hazardous substances into the ground and/or water courses must be reported to all relevant authorities, including the Directorate: Pollution and Chemicals Management, within 14 (fourteen) days. This requirement is in terms of section 30(10) of the NEMA, 1998 that pertains to the control of incidents and include the reporting, immediate containment and clean-up procedure of such incident and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes.

4.2.11 Waste Management

Objectives: To minimise possible environmental damage through inappropriate waste management on site or related to the site.

Targets: To ensure that the handling of waste is in accordance with the statutory requirements of the local authority by laws and the NEM: Waste Act (2008).

Measures:

1) Liquid Waste:
   - Storage areas that contain hazardous substances must be covered and bunded with an approved impermeable liner or have some form of secondary containment.
   - The Contractor shall keep a manufacturer specific Material Safety Data Sheet (MSDS) on-site for all potentially hazardous materials used.
   - Suitably trained personnel shall be available on the site during working hours so that in the event of human exposure to any hazardous materials that the correct first aid actions are taken. This training should also include environmental spill containment procedures. Training must be provided by an accredited institution (i.e. for first aid, firefighting, handling of hazardous substances and storage).
   - Spills in bunded areas must be cleaned up, removed and disposed of safely from the bunded area as soon after detection as possible to minimize pollution risk and reduced bunding capacity.
   - Contractor will maintain a register and have waste manifests and safe disposal certificates for all hazardous waste that has been disposed of.
   - Safe disposal certificates for general, hazardous and recycled waste should be retained for a minimum period of five years in accordance with the provisions of the National Waste Information Regulations promulgated in Government Notice ("GN") No. R. 625 of 13 August 2012.
   - All hazardous waste must be transported and disposed of at a registered landfill site. The Contractor must keep a valid permit of the landfill site on their records. Moreover, the Contractor must keep an agreement letter with the waste contractor on their files.
   - No discharge of pollutants such as cement, concrete, chemicals, fuels or oils will be allowed into any water resource
   - The areas around fuel tanks will be bunded.
   - Only above ground temporary storage tanks will be allowed on site.
   - Contaminated or potentially contaminated water will be kept separated from unpolluted storm water.

2) Solid Waste:
   - Prepare and submit a Method Statement on waste control and management at the site.
   - No burning, burying or dumping of any waste materials, vegetation, litter or refuse shall be permitted.
   - Remove, or appoint a suitable service provide to remove solid waste from site on a weekly or fortnightly basis.

- Solid waste must be recycled where possible and the remainder spoiled at an approved municipal land fill site or waste disposal service provider.
- Disposal certificates for each waste removal event shall be issued and kept in the site environmental file for auditing purposes.
- Safe disposal certificates for general, hazardous and recycled waste should be retained for a minimum period of five years in accordance with the provisions of the National Waste Information Regulations promulgated in Government Notice ("GN") No. R. 625 of 13 August 2012.
- Waste must be categorised by the Contractor and disposed of in a suitable manner into separate waste streams (this includes general and hazardous waste).
- The Contractor must provide an adequate number of waste receptacles for general waste at points around the construction site, and a single collection point for hazardous waste.
- The frequency of collections/emptying of waste receptacles will be at least once per week or at such a frequency that waste receptacles do not overflow.
- Particular care shall be taken with the disposal of materials that could be wind-borne or waterborne to ensure that the release of these materials is minimised (the latter is a requirement for hazardous waste). Alternatively, bins with weighted lids must be used.
- The use of netting covers or similar sealed containers must be implemented as and when required by the ECO/ESCO.
- Areas demarcated for specific activities including food consumption must have suitable waste receptacles provided.
- General waste to be further categorized to ensure recycling is implemented (eg. glass, paper, plastic, metal etc.)
- No dumping within the surrounding area (within and offsite) is to be permitted.
- No burning of solid waste is allowed.
- All material used by the Contractor during the construction phase shall be managed in such a way that it does not cause pollution, or that minimises pollution.
- Do not allow burning of cleared vegetation on site. Chipping or composting of vegetation shall be allowed where viable.

- Should any general and hazardous waste be generated during the construction phase, these must be stored and handled separately. Should these waste streams be mixed, the entire volume should be viewed as hazardous and handled accordingly

3) <u>Hazardous Waste:</u>

- All hazardous waste must be stored in a demarcated area and disposed of using registered and licensed waste disposal contractors. All documents relating to volumes and type of waste must be kept on site for inspection (eg. waste registers and manifests).
- In the event of a spillage, the Contractor should have suitably trained personnel who can correctly clean up any spillage in an efficient and environmentally sound manner.
- Storage areas that contain hazardous substances must be covered and bunded with an approved impermeable liner or have some form of secondary containment.
- The Contractor shall keep manufacturer specific MSDS on-site for all potentially hazardous materials used.

- Suitably trained personnel shall be available on the site during working hours so that in the event of human exposure to any hazardous materials, the correct first aid actions are taken. This training should also include environmental spill containment procedures.
- Any spills occurring on site must be cleaned up, removed and disposed of safely as soon after detection as possible to minimize pollution risk.
- Chain of Custody documentation must be provided for any hazardous substances disposed of as proof of end recipient.
- All significant spills of harmful product/waste into the soil or water resources that might lead to environmental degradation must be reported to all relevant authorities. This requirement is in terms of Section 30 (10) of the National Environmental Management Act, No. 107 of 1998 (NEMA).
- For any event resulting in the spill or leak of hazardous substances into the ground and/or water courses must be reported to all relevant authorities, including the Directorate: Pollution and Chemicals Management, within 14 (fourteen) days. This requirement is in terms of section 30(10) of the NEMA, 1998 that pertains to the control of incidents and include the reporting, immediate containment and clean-up procedure of such incident and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes.

4) Ablution Facilities

- Chemical toilet facilities are to be supplied and managed by the Contractor. These are to be located in specific areas agreed to by the ECO/ESCO prior to placement and to be used by all personnel.
- The number of chemical toilets required on site (i.e. the ratio of persons working on site to number of toilets) must be determined by the Contractor in conjunction with the Competent Local Authority prior to works starting on site.
- These toilets are to be secured (e.g. held down with four separate cables, r guy ropes or staked down) to ensure that they are not knocked over or blown over by the wind.
- Ablution facilities provided will include shelter, toilets and hand washing facilities/hand sanitizer.
- Toilets will be provided as required.
- Sanitation facilities shall be located within 100m of any point of work, but not closer than 50m from any water body, storm water channels and no-go areas; or according to the customer EMPr.
- All temporary/portable toilets will be secured to the ground to prevent them toppling due to wind or any other cause.
- Entrances to toilets will be adequately screened from public view. The height and width of the screen must be able to cover the entire entrance.
- Ablution facilities provided will be maintained in a hygienic state and serviced regularly to ensure proper operation.
- Toilet paper will be supplied at ablutions.
- No spillage will be allowed when the toilets are cleaned or serviced.
- The contents of chemical toilets will be removed by a registered and licensed contractor to a registered disposal site. The Contractor must provide a valid disposal permit for the landfill/treatment site and keep it on file.

- The toilets will be serviced at least twice a week or as required. The Contractor to maintain a waste register for all the services and have waste manifests for all the waste collected.
- Waste disposal certificates for mobile chemical toilets must be retained for a minimum of five years.

4.2.12 Trenching and excavations

Objectives: Adequate topsoil and subsoil management during trenching.

Measures

- Topsoil and subsoil excavated during trenching may be stockpiled next to the trench, but must be set back from the edge of the trench by a minimum distance of 1m.
- Subsoil can be used – if suitable – for road construction.

4.2.13 Excavations and stockpiling

Objectives: Correct excavation and stockpiling protocol implemented on site.

Measures:

- The movements of the construction vehicles must be confined to the immediate vicinity of each tower location.
- All construction activities (i.e. vehicle movement) in cultivated fields should be minimised and contained within clearly demarcated areas.
- Topsoil is to be stockpiled upslope of the excavation where possible.
- Rocks and debris are to be stockpiled separately within the immediate construction site and used as fill where necessary.
- Rocks can be stacked as walls to prevent the loss of top and subsoil on cut or fill banks.
- Banks should not be steeper than 1:3 and cut back where the ECO/ESCO deems necessary.
- Berms may be specified on sloped sites, depending on the gradient and length of slope affected.
- Any stockpiling of gravel, cut, fill or any other material including spoil shall be in areas approved by the ECO/ESCO within the defined working area.
- Ensure that stockpiled material is not lost due to exposure to the elements. If the stockpiled material is in danger of being washed or blown away, cover it with a suitable material, such as hessian or plastic. Do not cover stockpiles of topsoil with plastic.
- Do not allow stockpiling of any material within the 100m of any residential areas or 20m of any no-go area.

4.2.14 Sanitation

Objectives: Ensure adequate sanitation for staff on site

Measures

- Provide adequate washing and toilet facilities at the construction site camp.
- Provide portable chemical toilets at a ratio of one toilet per 15 workers.
- The toilet facilities must be easily accessible.
- All temporary/portable toilets shall be secured to the ground to the satisfaction of the PM to prevent them from toppling over or being blown over by wind.

- The type and exact location of the toilets shall be approved by the PM prior to establishment. No septic tanks are to be established.
- Ensure maintenance of all toilets in a clean sanitary condition to the satisfaction of the PM. Toilets are to be serviced at least once per week and toilet paper shall be provided.
- Ensure that no spillage occurs when the toilets are cleaned or emptied and that the contents are removed from the site to an appropriate location/facility. The Contractor/service provider is to provide proof that the toilet contents are disposed of at an appropriate facility.
- Discharge of waste from toilets into the environment and burial of toilet waste is strictly prohibited.
- Waste disposal certificates for mobile chemical toilets must be retained for a minimum of five years.

4.2.15 Environmental Awareness

Objectives: Provide adequate environmental training

Measures

- Provide adequate environmental training.
- Ensure that all employees undergo project induction on environmental awareness.
- Provide evidence that the environmental awareness induction courses have been presented.
- Place emphasis on any (potential) environmental impacts relating to the construction activities on site and to the related environmental precautions taken to avoid or mitigate these impacts.

  The environmental training should, as a minimum, include the following: The importance of conformance with all environmental policies; The significance of environmental impacts, actual or potential, as a result of their work activities; Their roles and responsibilities in achieving conformance with the environmental policy and procedures, including emergency preparedness and response requirements; The mitigation measures required to be implemented when carrying out their work activities; The importance of not littering; The need to use water sparingly; Details of, and encouragement to, minimise the production of waste and re-use, recover and recycle waste where possible; Details regarding archaeological and/or historical sites which may be unearthed during construction and the procedures to be followed should these be encountered; The procedures which must be followed should a grave or any significant archaeological finding be encountered, or unearthed during the construction phase; Details regarding fauna and flora of special concern, including protected/endangered plant and animal species, and the procedures to be followed should these be encountered during the construction phase.
- Conduct a training needs analysis in consultation with the ECO/ESCO, to identify the appropriate environmental and health training programmes, and the appropriate target groups amongst the employees of the Contractor.
- File the results of the environment and health training needs analysis with the environmental records.
- Environmental awareness training programmes should contain the names, positions and responsibilities of personnel to be trained, the framework for appropriate training plans, and a schedule for the presentation of the training courses.
- Maintain records of all training interventions. The ECO/ESCO shall monitor the records and undertake regular follow ups.

4.2.16 Safety and First Aid Management

Objectives: To minimise any potential safety or health related incidents on site.

Targets: To ensure compliance with the local authority by-laws and any other statutory requirements relating to health and safety on a construction site.

Measures:

- All people working on site are responsible for their own safety on site. Contractors and Principal Agent/s shall at all times comply with the relevant statutory requirements including the Occupational Health and Safety Act (Act 85 of 1993).
- A comprehensive site specific first aid kit must be available on site at all times.
- At least one person trained in safety and first aid and familiar with the first aid equipment on site must be present on the site at all times.
- Emergency procedures must also be established prior to the start of construction operations on site and appended to this EMPr.
- First Aider/Safety Officer to ensure that there is a bin for medical waste were all the bandages, plasters etc are disposed
- Safety precautions must be taken to ensure that residents in the area do not come to harm. The construction site shall be off limits to the general public at all times during the construction period and during site clean-up.
- Clearly demarcate construction areas, open sewers, trenches and other potential construction-related danger areas with hazard tape and/or appropriate fencing.
- Erect hazard warnings and maintain in good condition warning signs in the relevant languages and at appropriate positions, warning traffic of construction activities ahead and at problem sites.
- Ensure that all staff is compliant with the relevant safety regulations on site and wear applicable safety clothing and gear at all times while on site.

4.2.17 Emergency preparedness

Objectives: Compile and maintain environmental emergency procedures

Measures:

- Compile and maintain environmental emergency procedures to ensure an appropriate response to unexpected or accidental incidents that may cause environmental impacts.
- Activities that may be addressed in the environmental emergency procedures include, for example, accidental exposure of employees to hazardous substances, veld fires and accidental spillage of hazardous substances.
- Ensure that the necessary materials and equipment for dealing with the spills and leaks are available on site at all times.
- The site shall have a supply of absorbent material readily available to absorb any accidental hydrocarbon spills. The quantity of such material shall be able to absorb/deal with a minimum of 200 litres of spill.
- Contain any spill using sand berms, sandbags, sawdust or absorbent materials.
- The area shall be cordoned off and secured.
- Notify the ECO/ESCO, PM and relevant authorities of any spills that occur.

- Assemble and clearly list the relevant emergency telephone contact numbers for staff and brief staff on the required procedures. These contact details shall be listed in English, and any other relevant language, in the site office, construction camp and any other suitable areas.
- The treatment and remediation of areas affected by emergencies shall be undertaken to the satisfaction of the PM and ECO/ESCO at the cost of the Contractor where his staff have been proven to be responsible for the emergency.

- The environmental emergency procedures plan should include the following:
  - A list of key personnel
  - Details of emergency services applicable to the various areas along the route that turbine components will need to be transported and for the site itself (e.g. the fire department, spill clean-up services, etc.)
  - Internal and external communication plans, including prescribed reporting procedures where required by legislation; Actions to be taken in the event of different types of emergencies; Incident recording, progress reporting and remediation measures required to be implemented.
  - Information on hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.
  - Training plans, testing exercises and schedules for effectiveness.
  - Comply to emergency preparedness and incident and accident-reporting requirements, as required by the Occupational Health and Safety Act, 1993 (Act No 85 of 1993), the National Environmental Management Act, 1998 (Act No 107 of 1998), the National Water Act, 1998 (Act No 36 of 1998) and the National Veld and Forest Fire Act, 1998 (Act No 101 of 1998) as amended and/or any other relevant legislation.
  - Maintain an environmental incident register to record incidents that occur on site as a result of the activities associated with the contract. Environmental incidents constitute all those activities and incidents that may have a negative impact on the surrounding natural environment.
  - Ensure that each environmental incident is investigated by the ECO/ESCO and forward an environmental incident report to the Contractor, Proponent and relevant authority, including details on the manner in which the incident was remedied.
  - Ensure that each environmental incident report contains as a minimum, a description of the incident, a statement on the severity and significance of the impact, and actions taken to remediate the resultant damage.

4.2.18 Air Quality (Dust Impacts) Management

Objectives: To minimise potential air quality impacts during construction related activities.

Targets: To ensure compliance with the National Dust Control Regulations (GN No. R. 827) of 1 November 2013, promulgated in terms of National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004)) relating to air quality These regulations prohibit a person from conducting any activity in such a way as to give rise to dust in such quantities and concentrations that the dust, or dust fallout, has a detrimental effect on the environment.

Measures:

- Ensure that all vehicles and plant used are maintained in good working order to help reduce air emissions.
- The burning of substances that may emit foul smelling smoke or vapour, e.g. oil rags, tar paper, etc. is not permitted.

- Wind-blown dust and sand may generate considerable negative impacts (e.g. reduced visibility for vehicles travelling along adjacent roads and nuisance to neighbours/adjacent erven). Therefore, the following is required to be taken into account:
  - The use of water bowsers and wetting down of loose soil areas (preferably with non-potable water), as well as the erection of shade netting screens to prevent off-site movement of dust.
  - The use of straw stabilisation or mulching of exposed sandy areas must also be considered in consultation with the ECO/ESCO.
  - Speed limits for vehicles on unpaved roads and minimisation of haul distances must be implemented on site.
  - All material loads need to be properly covered during the transportation process.
  - Avoid the excavation, handling and transport of erodible materials under high wind conditions.
  - Soil stockpiles shall be wetted and/or sheltered from the wind, as required.
  - Location and treatment of material stockpile must take into consideration the prevailing winds direction and location of sensitive receptors.
  - Adherence to ear duct loads and protective gear which is stipulated in the Occupational Health and Safety Act (Act No. 85 of 1993).
- In particular, no potable water may be used for dust suppression purposes.
- During the dry season and during the wind season, a water bowser must be present on site at all times to ensure that all dust is wetted and managed appropriately.
- Dust reduction techniques must be used before and during surface clearing, excavation, or blasting activities.
- Appropriate dust suppression techniques must be implemented on all exposed surfaces during periods of high wind. Such measures may include wet suppression, chemical stabilisation, the use of a wind fence, covering surfaces with straw chippings and re-vegetation of open areas.
- Should a need arise, dust monitoring must be conducted on site.

4.2.19 (Wastewater and Contaminated) Water Quality Management

Objectives: To minimise any potential impacts on the water quality of the site and off site through direct and indirect impacts.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to water quality.

Measures:

- Prepare a Method Statement on the control and management of wastewater on site, including providing for the appropriate disposal of contaminated water.
- No grey water runoff or uncontrolled discharges from the site/working areas (including wash down areas) to adjacent or nearby water bodies shall be permitted.
- Discharge water containing environmental pollutants into a conservancy tank, where appropriate, for removal from site.
- Prevent runoff loaded with sediment and other suspended materials from the site/working areas from discharging to adjacent watercourses and/or stormwater infrastructure.

- Potential pollutants of any kind and in any form shall be kept, stored and used in such a manner that any escape can be contained.
- Wash down areas must be approved by the PM and ECO/ESCO and shall not pollute the surrounding environment.
- Notify the PM and ECO/ESCO of any pollution incidents on site.
- Site staff shall not be permitted to use any stream, river, open water body or natural water source adjacent to or within the designated site for the purposes of bathing, washing of clothing, drinking or for any construction or related activities.
- Bowser water (or another source approved by the Principal Agent and ECO/ESCO) should instead be used for all activities such as washing of equipment, dust suppression, concrete mixing, compaction, etc. with the latter taking place well outside any identified sensitive areas and within a demarcated area approved by the ECO/ESCO.
- In particular, no potable water may be used for dust suppression purposes.
- Before an operation occurs near a waterbody, vehicles must be checked for leaks, to reduce soil and water contamination from vehicle fluids.
- Re-fuelling areas for vehicles must be bunded and located away from water resources and sensitive environments to prevent any accidental spillage contaminating soil or seeping into groundwater aquifers. All servicing area run-off must be directed towards a fully contained collection sump for recovery and appropriate disposal.
- Old engine oil must NOT be thrown on the ground or down a stormwater drain but rather collected in containers and recycled.
- If soil contamination occurs (such as due to a spill), the soil must be removed from the site and legally disposed of appropriately.
- Any spills that occur during all phases of the development must be recorded in the Environmental Register. All clean-up actions must also be recorded that was used to remediate the spillage. All actions need to be agreed in conjunction with the ECO/ESCO prior to commencing any work.

4.2.20 Hazardous Material / Substance (Bitumen Oils and Lubricants) Management

Objective: To minimise any potential hazardous material from causing environmental damage through the use, storage and/or handling of such hazardous material during the construction works.

Targets: To ensure compliance with all legal requirements, including local authority by laws and other statutory requirements relating to hazardous materials.

Measures:

- All potentially hazardous materials are to be handled by the Contractor's trained staff and stored on site in accordance with manufacturer's instructions and legal requirements.
- Clearly label products and provide symbolic safety/hazard warning signs (MSDSs).
- The Contractor shall ensure that all hazardous materials are stored within a bunded area.
- All hazardous material containers are required to be inspected regularly to ensure that no leaks occur.
- When hazardous materials are required to dispensed, proper dispensing equipment must be used and made available on the site for such activities.
- The dispensing equipment is required to be stored in a waterproof container when not in use.

- Hazardous material must be used in moderation and dispensed at designated areas, which are controlled appropriately.
- Ensure that areas for the storage of fuel and other flammable materials comply with standard fire safety regulations.
- Provide appropriate training for the handling and use of such materials as necessary. This includes providing for any spills and pollution threats that may occur.
- The Contractor shall take all reasonable and necessary precautions to prevent accidental and incidental spillage during the use of such materials.
- In the event of a hazardous material spill, the Contractor must isolate and contain the hazardous material spillage.
- The Contractor shall clean up the spill, either by removing the contaminated soil and/or by the application of absorbent material in the event of a larger spill.
- Treatment and remediation of the spill will be undertaken to the reasonable satisfaction of the Engineer.
- The Contractor must advise that Engineers and the ECO/ESCO of where any Bitumen is being stored.
- The storage area of hazardous waste should comprise of a smooth impermeable floor (concrete and/or 250um plastic cover).
- A spill kit is required to be present on the site at all times.
- The Contractor must develop a spill kit checklist and maintain it to ensure that the contents of the spill kit are complete at all times
- Locate fuel and chemical depot(s) at least 100m from any water body.
- Retain the relevant MSDS on site. Procedures detailed in the MSDS shall be followed in the event of an emergency situation.
- Where hazardous substances are removed from site for disposal, proof of disposal for auditing purposes shall be kept in the form of disposal certificates.
- Safe disposal certificates for general, hazardous and recycled waste should be retained for a minimum period of five years in accordance with the provisions of the National Waste Information Regulations promulgated in Government Notice (“GN”) No. R. 625 of 13 August 2012.
- For any event resulting in the spill or leak of hazardous substances into the ground and/or water courses must be reported to all relevant authorities, including the Directorate: Pollution and Chemicals Management, within 14 (fourteen) days. This requirement is in terms of section 30(10) of the NEMA, 1998 that pertains to the control of incidents and include the reporting, immediate containment and clean-up procedure of such incident and the remediation of the affected area. All necessary documentation must be completed and submitted within the prescribed timeframes.

4.2.21 Hazardous Material (Fuels, Oils and Others) Management

Objective: To minimise any hazardous fuel and oil material from causing environmental damage through the use, storage and/or handling of such hazardous material during the construction works.

Targets: To ensure compliance with all legal requirements, including local authority by laws and other statutory requirements relating to hazardous materials.

Measures:

- Obtain all necessary approvals regarding storage and dispensing, where fuel is to be stored on site, from the appropriate authorities.
- Fuel may be stored on site in an area which was been approved by an Engineer and the ECO/ESCO.
- Ensure that all liquid fuels and oils are stored in tanks with lids and that these are kept firmly locked at all times. The design and construction of the storage tanks shall be in accordance with a recognised code and as approved by the PM.
- A chemical register must be placed on the entrance of the hazardous store to identify all the chemicals in the store.
- The tanks or bowsers are required to be located / stored on smooth impermeable surfaces (concrete or plastic) with an earth bund.
- Where reasonably practical, plant shall be refuelled at a designated refuelling area or at the workshop as applicable. If it is not reasonably practical then the surface under the temporary refuelling area shall be protected against pollution to the reasonable satisfaction of the PM prior to any refuelling activities.
- The impermeable lining shall extend to the crest of the bund and the volume of the bund will be 130% of the total of the storage tanks and/or bowsers located on the site.
- The bunded area is required to be sheltered from the rain.
- Provisions shall be made for refuelling at the fuel storage area, by protecting the open soil with bunding.
- If fuel will be dispensed from 200l drums, only empty clean drums will be able to be stored on the bare ground.
- All empty dirty drums must be stored on a bunded area.
- Should the use of a 200l drum be required, proper dispensing mechanisms are required to be used and the drum will not be allowed to be tipped in order to dispense the fuel.
- The dispensing mechanism for the fuel drums will be stored in a waterproof container when it is not in use.
- The Contractor will be required to prevent unauthorised access to the fuel storage area. Keep fuel under lock and key at all times.
- The Contractor must ensure that adequate fire-fighting equipment is readily available at the fuel storage area.
- Where practical, the plant shall be refuelled at the fuel storage area or at the workshop as applicable. If it is not possible then the surface under the refuelling area must be bunded with plastic and/or wooden pallets.
- The Contractor must obtain the Engineer's and ECO/ESCO's approval for any refuelling or maintenance activities.
- All hazardous material containers are required to be inspected regularly to ensure that no leaks occur.
- The storage of general waste in excess of 100m³ and/ or the storage of hazardous waste in excess of 80m³, excluding the storage of waste in lagoons or the temporary storage (i.e. less than 90 days) of such waste, requires the applicant to comply with GN No. 926 of 29 November 2013: National Norms and Standards for the Storage of Waste.
- Remove storage tanks on completion of the works.

- No smoking shall be allowed in the vicinity of the fuel storage area. Erect at least one no-smoking warning sign, which is clearly visible at the fuel storage area, to warn all staff of associated dangers.
- The Contractor to ensure that there is always a supply of absorbent material readily available to absorb/break down any hydrocarbon spillage. The quantity of such materials shall be able to handle a minimum of 200l of hydrocarbon liquid spill. This material must be approved by the PM prior to any refuelling or maintenance activities.
- In the case of a spill, contaminated material must be removed from the site immediately and disposed of at an appropriate hazardous waste facility.

4.2.22 Workshop, Equipment Maintenance and Storage Management

Objective: To minimise any potential dangerous material from causing environmental damage through the use, storage and/or establishment of such areas during the construction works.

Targets: To ensure compliance with all legal requirements, including local authority by laws and other statutory requirements relating to such storage and/or workshop and/or equipment maintenance areas.

Measures:

- Should any leaking equipment be present on this site, this equipment is required to be removed from the site immediately.
- All maintenance of equipment and vehicles on site should ideally be repaired off site or at a designated workshop area, which is appropriately bunded. Contractor to provide a method statement for such servicing.
- Should emergency maintenance work be undertaken outside of the workshop area then this emergency work is required to be bunded appropriately and further such works must be approved by the Engineer and ECO/ESCO prior to commencement.
- The Contractor must ensure that the workshop and/or any other maintenance areas (such as emergency maintenance areas) do not result in the contamination of the soil and/or vegetation.
- The workshop must have a smooth impermeable floor (concrete and/or plastic).
- The floor of the workshop is required to be angled towards an oil trap and/or sump to ensure that any dangerous spills are contained in the workshop area.
- Should servicing of equipment be required to be undertaken on the site then drip trays are required to be used to contain any waste oil and other lubricants.
- Drip trays are required to be used for all stationery equipment such as generator sets and compressors and all parked equipment such loaders, scrapers and vehicles on the construction site.
- All drip trays must be monitored and emptied on a daily basis.
- During rainy days and/or the rainy season the drip trays are required to be monitored continuously to ensure that they do not overflow. Where possible the Contractor is encouraged to place the drip trays and equipment during the rainy periods in sheltered areas, which will ensure that the drip trays do not overflow.
- The washing of any equipment on the site must be limited to urgent and/or preventative maintenance requirement only.

- As washing of any equipment must be undertaken off site and/or in the workshop area if necessary.
- The use of detergents for washing equipment must be restricted to detergents that have a low phosphate and nitrate content.
- The store man will be responsible for stacking and storage of material in the storage area at the site camp.
- Bricks, sandstone blocks, building sand, plaster sand and stone will be stored "open" on site but with special care that materials are not contaminated i.e. that different types of sand are not mixed.
- Cement will be stored in a lockable and waterproof container and will be stacked. Otherwise, cement bags to be covered and placed on a protective sheet.
- Not more than 13 pockets high. Cement will be used, as far as possible, on a first-in first-out basis;
- Reinforcing bars will be stored in the open but will be placed on timber poles to avoid "contamination" by mud or soil.
- Steel door and window frames will be stored in the open but within a fenced-off secure area;
- Paint will be stored in a ventilated lockable store.

Natural Materials: Sourcing

- Materials must be sourced in a legal and sustainable way to prevent off-site environmental degradation.
- Where possible, a signed document from the supplier of natural materials must be obtained confirming that they have been obtained in a sustainable manner and in compliance with relevant legislation (legitimate source).
- Where materials are borrowed (mined), permit must be provided of authorization to mine these materials.

Stockpile Areas

- Sites for stockpile areas are to be agreed with the Principal Agent and ECO/ESCO.
- Materials are not permitted to be stockpiled underneath or against the trunks of trees, on streams, riverbanks or within floodplains.
- No material will be permitted to be stockpiled in drainage lines or where there is a potential for the stockpiled material to be washed away.
- Stockpiles must not obstruct natural water pathways.
- Stockpiles must not exceed 2m in height.
- Stockpiles to be kept clear of alien invasive weeds.

4.2.23 Noise Pollution Management

Objectives: To minimise any potential noise impacts related to the construction operations on site.

Targets: To ensure compliance with all legal requirements, including the local authority by laws and any other statutory requirements relating to noise impacts.

Measures:

- Construction staff must be trained to minimise noise impacts.
- All wind turbines must be located at a setback distance of 500m from any homestead and a day/night noise criteria level at the nearest residents of 45.0dBA should be used to locate the turbines. The 500m setback distance can be relaxed if local factors; such as high ground between the noise source and the receiver, indicates that a noise disturbance will not occur;
- *Grading and building of new internal roads* - Construction equipment to comply with the standards for construction vehicles as explained in the IFC's Environmental Health and Safety Regulations.
- *Preparation of the footprint area, earthworks & construction* - Construction equipment to comply with the standards for construction vehicles as explained in the IFC's Environmental Health & Safety Regulations.
- *Construction of the wind turbines* - Construction of wind turbines to take place during daytime only, where possible.
- *Additional traffic* - Roads to be kept in a good state at all times and all potholes to be repaired.
- Keep noise level within acceptable limits in compliance with all relevant guidelines and regulations.
- The (contractor) holder of the authorisation must ensure that all vehicles, equipment and machinery are well maintained and equipped with silencers;
- Reverse hooters of heavy earthmoving vehicles must be set at such a level that the beeping sound does not create a nuisance to residents of nearby houses.
- The use of all plant and machinery shall be appropriate to the task required in order to reduce noise levels and/or environmental damage.
- The applicant must provide a prior warning to the community when a noisy activity e.g. blasting is to take place. Notify affected community and ECO/ESCO, should the PM approve any noisy construction activities outside of normal working hours, least 5 days in advance of the event.
- The Contractor must use modern, appropriate equipment, which produces the least noise.
- Any unavoidably noisy equipment must be identified and located in an area where it has least impact.
- The use of noise shielding screens must be considered and the operation of such machinery restricted to when it is actually required.
- The applicant must ensure that the National Noise Control Regulations and SANS 10103:2008 are adhered to and reasonable measures to limit noise from the work site are implemented.
- The applicant must ensure that the construction staff working in areas where the 8-hour ambient noise levels exceed 75dBA must wear ear protection equipment.
- The applicant must ensure that all equipment and machinery are well maintained and equipped with silencers.
- In order to prevent noise impacts resulting from construction activities, working hours are to be limited

- If certain construction requires work outside of these hours, all adjacent landowners have to be informed prior to any construction outside of the specified hours.
- Preventative measures will be taken, where required, to minimise noise and vibration nuisance from sources such as power tools.
- Design and implement a noise monitoring programme, as indicated below:
    - Twice annual noise monitoring during construction period by an Acoustic Consultant or Approved Noise Inspection Authority, during the winter and the summer periods, with all information to be kept on record.

4.2.24 Blasting/Drilling/Demolitions Management

Objectives: To minimise impacts associated with blasting/drilling/demolition on site during construction.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to blasting and/or drilling and/or demolitions and to minimise nuisance impacts.

Measures:

- The following recommendations will be implemented in addition to normal health and safety requirements as stipulated in the Occupational Health and Safety Act (Act No. 85 of 1993).
- These activities will only take place via a competent and appropriately qualified and legally compliant Contractor.
- The Contractor shall take all necessary precautions to prevent damage to special features and the general environment, which includes the prevention of any fly rock.
- Environmental damage caused by the above activities shall be repaired and/or rehabilitated at the Contractor's expense to the satisfaction of the ECO/ESCO and Principal Agent.
- None of the above activities may be carried out on Sundays or Public Holidays without the approval of all relevant authorities.
- Careful sealing off of the site and surrounding area will be carried out to ensure that all personnel are removed from the site and its immediate surrounds.
- Adequate notification and warning of blasting activities must be provided to all adjacent and or affected parties.
- Borrow materials must be obtained only from authorised and permitted sites.
- Appropriate anti-erosion measures such as silt fences must be installed in disturbed areas.

4.2.25 Concrete Mixing (Batching) Management

Objectives: To ensure that appropriate and efficient measures are undertaken on site to manage concrete mixing areas during the construction phase.

Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to concrete mixing.

Measures

- Batching plants are to be located in areas of low environmental sensitivity.

- The batching plant area shall be operated in a way that prevents contaminated water run-off from the batching site and polluting nearby water bodies.
- Suitable measures, such as diversion berms, to be installed to direct the wastewater to a suitable catchment area.
- Suitable screening and containment must be in place to prevent wind-blown contamination from cement storage, mixing, loading and batching operations.
- Topsoil must be cleared from the area demarcated for the batching plant prior to establishment and stockpiled for later rehabilitation purposes.
- Topsoil (300 mm) should be stored at an appropriate site on each farm for future rehabilitation after decommissioning.
- No batching / mixing activities may occur on the ground or on any permeable surface.
- Protect the batching plant on the up-slope side (where applicable) with an earth berm or sandbags to deflect clean surface run-off water away from the plant.
- Cleaning of equipment and flushing of mixers must occur in designated wash bays (with contaminated water collected, stored/contained) to ensure that contaminated wash water does not enter the environment.
- Aggregates (Stone, Crusher Sand and River Sand) will be stored in dedicated "bins". The bins will have three walls each to contain the aggregates.
- All visible remains of excess concrete and aggregate must be removed from site and disposed of in an appropriate manner.
- Cement bags must not become litter after use. They must be disposed of in bins/skips (see waste management).
- Concrete Truck Drivers to adhere to the following:
  - Appropriate License Code
  - Competence certificate
  - Medical Examination
  - Training given on daily checklists etc.

4.2.26 Establishment of Construction Lay Down Area

Objectives: To minimise impacts associated with the establishment and operation of construction site lay down area.

Targets: To ensure proper management of the construction site from a centralised point

Measures:

Establishment of Construction Sites:

- The contractor shall not locate the site camps in any areas in which vegetation is pristine (as defined by each contract's specifications), nor within 100m of any watercourse, nor in any area that could cause nuisance or safety hazards to surrounding landowners, inhabitants or the general public unless otherwise instructed by the Engineer and ECO/ESCO.
- The site camp/office is to be clearly signposted and no unauthorised access is permitted. Relevant contact details are to be made easily visible and available to the public for the purposes of complaints/concerns or emergencies.

- A plan showing the construction site layout, including the positions of all buildings, fuel storage and hazardous materials storage areas, stockpiles, storm water management infrastructure, access points for deliveries and services, the position of site offices and ablutions and other infrastructure must be prepared and submitted to the Engineer and ECO/ESCO for approval and a copy kept on site.
- The plan will detail all pollution control measures. The sites are demarcated by means of a security fence
- Access to the sites will be limited to authorised persons and will be security controlled
- The placement of buildings and equipment will be done to minimise the footprint and visual impact of the sites
- Locate Materials and soil stockpile areas, fuels and chemical storage areas and batching areas away from environmentally sensitive areas.
- Down lighting will be used and it will be ensured that lighting on site does not interfere with road traffic or cause a reasonably avoidable disturbance to the surrounding community or other users of the area
- Smoking areas to be provided and these areas must have a fire extinguisher. Fire extinguishers to be monitored (i.e. for expiry) and a register for this monitoring to be made available by the EO.
- Workers will be instructed to dispose of cigarette butts in designated areas.

Demarcation and Access Control:

- Sound environmental principles must be followed whilst establishing access to the site.
- The construction sites will be properly identified and demarcated.
- The selected accesses must consider minimising nuisance impacts on neighbours.
- Any new access tracks must be approved by the Customer/Engineer and ECO/ESCO prior to construction. No roads or access tracks may be created on an ad-hoc basis.
- The utility and safety of any exiting access shall not be compromised by use for the construction work or construction-related activities, nor shall spillage, littering, accelerated erosion, or other environmental impact, occur.

Clearing and Grubbing:

- Prior to clearing the ECO/ESCO must be notified in order to identify and demarcate any indigenous trees or plants, nesting sites or heritage sites that require protection or translocation.
- Areas of the construction site requiring clearance shall only be cleared immediately prior to construction activities commencing e.g. at the last practical stage.
- No indigenous trees or shrubs may be felled, lopped, pruned or removed without the prior permission of the ECO/ESCO.
- Pruning of branches of indigenous trees will be completed under direct competent supervision and sealant will be applied to cut surfaces in excess of 50mm in diameter.

4.2.27 Fire Management

Objectives: To ensure that fire as a result of the construction related activities are controlled and managed appropriately. Please refer to Appendix L for fire management plan.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to fire management.

Measures

- Take all reasonable and precautionary steps to ensure that fires are not started as a consequence of construction activities.
- Contractor to provide adequate firefighting equipment on-site. Fire-fighting equipment must be in working order and serviced to date.
- Contractor to provide fire-fighting training to selected construction staff. Appoint a Fire Officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedures to be followed. Forward the name of the Fire Officer to the ECO/ESCO for his approval within seven days of being on site.
- Flammable materials must be stored under conditions that will limit the potential for ignition and the spread of fires.
- Smoking shall not be permitted in those areas where there is a fire hazard, e.g. fuel storage areas and areas susceptible to the rapid spread of fires.
- Hold fire prevention talks with staff to create an awareness of the risks of fire.
- Preferentially no fire will be lit on the site, however if required, fires must be limited to use for cooking and heating use only within a designated area. This area will be suitable distance from any fuel source.
- No burning of waste will be permitted on site.
- Suitable precautions will be taken when working with welding or grinding equipment near potential sources of combustion.
- The proponent should enter into an agreement with the local farmers in the area whereby damages to farm property etc. during the construction phase will be compensated for. The agreement must be signed before the construction phase commences.
- The option of establishing a fire-break around the perimeter of the site prior to the commencement of the construction phase should be investigated.
- Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas.
- Contractor to ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care must be taken during the high risk dry, windy summer months.
- No construction staff, with the exception of security staff, to be accommodated on site over night.
- As per the conditions of the Code of Conduct, in the advent of a fire being caused by construction workers and or construction activities, the appointed contractors must compensate farmers for any damage caused to their farms. The contractor should also compensate the firefighting costs borne by farmers and local authorities.
- The Applicant must establish a 30-meter firebreak around the proposed WEF.
- No open fires will be allowed on site under any circumstances.
- No Smoking except in designated safe smoking areas which include cleared area with no combustible vegetation or materials and approved butt receptacles.

- The contractor shall take all reasonable & active steps to avoid increasing the risk of fire through their activities on Site.
- The contractor shall ensure that the basic firefighting equipment is to the satisfaction of the ECO/ESCO.
- The contractor shall take precautions when working with welding, "hot" work or grinding equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher and fire beaters immediately at hand and the use of welding curtains.
- The contractor is to provide the ECO/ESCO with a list of equipment and location of all firefighting equipment.
- The contractor to provide the ECO/ESCO with a list of names of designated firefighting teams.
- The contractor will ensure awareness of fire seasons, and particular controls required, by the posting of the daily FDI on notice boards.
- The contractor will provide relevant staff with firefighting training.
- The contractor will maintain vegetation to manageable levels in the project area.
- All site staff must know the fire drill procedure

Please refer to Annexure L for the Fire Management Plan

4.2.28 Traffic Control Management

Objectives: To ensure that traffic impacts as a result of the construction related activities are minimized. Please refer to Appendix J for Transportation management plan

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to construction traffic. To ensure that the impacts on current traffic flows in the vicinity of the site are minimised and that complaints relating to traffic associated with the site's activities are minimised.

Measures:

- Access to the site is proposed via the existing farm access roads.
- During construction, existing farm access roads might require regular maintenance to prevent permanent damage to the road structure.
- It is recommended that once the construction phase has been completed the farm access roads needs to be inspected and repaired where necessary.
- All deliveries with abnormal loads (for the transport of turbine components, main assembly cranes and other large pieces of equipment) will operate under an approved transportation plan with the necessary traffic routes and traffic accommodation plans in place.
- Implementation of a traffic management plan for the site access roads to ensure that no hazards would result from the increased truck traffic and that traffic flow would not be adversely impacted. This plan must include measures to minimise impacts on local commuters e.g. limiting construction vehicles travelling on public roadways during the morning and late afternoon commute time and avoid using roads through densely populated built up areas so as not to disturb existing retail and commercial operations.
- These measures are included in the Transport Management Plan

- Abnormal and heavy load vehicles should not be allowed on the public road network during the typical weekday a.m. and p.m. peak hours.
- Abnormal load vehicles should be escorted by traffic officials to control traffic and limit possible conflicts at intersections.

Please refer to Annexure J for the Traffic Management Plan

4.2.29 Wet Environments Management

Objectives: To ensure that the best practice is followed with regards to wet environments rehabilitation, management and operations.

Targets: To ensure that the wetland and rivers areas on site are not impacted during the establishment of the proposed development.

Measures:

- The existing road infrastructure must be utilised as far as possible to minimise the overall disturbance created by the proposed project.
  - New roads must be rationalised and any unnecessary temporary roads decommissioned and rehabilitated to reduce the disturbance of the area and within the river beds.
  - For new roads to the turbines, these must be located at least 50m outside of the drainage/riverbeds, if possible.
  - Where access routes need to be constructed through the watercourses, the disturbance of the channels should be limited.
  - Wetland areas should be avoided and any road adjacent to a wetland feature should also remain outside of the 50m buffer zone.
- All crossings over watercourses must be such that the flow within the drainage channel is not impeded and should be constructed perpendicular to the river channel, where possible based on the contours.
- Road infrastructure and cable alignments should coincide as far as possible to minimise the impact.
- Any indigenous vegetation clearing within or adjacent to the watercourses must occur in a phased manner to minimise erosion and/or run-off. An Environmental Control Officer or a specialist with knowledge and experience of the local flora must be appointed during the construction phase to be able to make clear recommendations with regards to the revegetation of disturbed areas.
- Extra care must be taken that structures of the proposed WEF development are not placed within drainage lines and do not obstruct the flow of runoff water.
- Construction camps. including fuel storage, chemical toilets, refuelling, vehicle maintenance or vehicle depots, temporary laydown areas, washing of machines and vehicles, and stockpiles (spoil materials and stripped topsoil) must be located at least 30m from freshwater ecosystems identified to be of low or moderate conservation importance and 50m from freshwater ecosystems identified to be of high conservation importance.

- No spoil material, including stripped topsoil, may be temporarily stockpiled within 30m of freshwater ecosystems identified to be of low or moderate conservation importance and 50m of freshwater ecosystems identified to be of high conservation importance.
- If construction areas are to be pumped of water (e.g. after rains), this water must be pumped into an appropriate settlement area, and not allowed to flow into any rivers or wetland areas.
- No discharge of effluents or polluted water shall be allowed into any rivers or wetland areas.
- Wetlands, rivers and riparian areas within which no wind turbines or access roads are to be established must be treated as "no-go" areas and appropriately demarcated as such. No vehicles, machinery, personnel, construction material, fuel, oil, bitumen or waste is to allowed into these areas without the express permission of and supervision by the ECO/ESCO, except for rehabilitation work in these areas.
- Workers must be made aware of the importance of not destroying or damaging the vegetation along rivers and in wetland areas, and this awareness must be promoted throughout the construction phase.
- Workers must be made aware of the importance of not killing or harming any animals that they encounter, and this awareness must be promoted throughout the construction phase.
- There must be as little disturbance to surrounding vegetation as possible when construction activities are undertaken, as intact vegetation adjacent to construction areas will assist in the control of sediment dispersal from exposed areas.
- Freshwater ecosystems located in close proximity to the site must be inspected on a regular basis (but especially after rainfall) by the ECO/ESCO for signs of disturbance, sedimentation and pollution – these inspections should form part of every site inspection carried out by the ECO/ESCO. If signs of disturbance, sedimentation or pollution are noted, immediate action must be taken to remedy the situation and, if necessary, a freshwater ecologist is to be consulted for advice on the most suitable remediation measures.
- Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them. Bunds must be sufficiently high to ensure that all the fuel kept in the area will be captured in the event of a major spillage.
- The BESS must be appropriately bunded and regularly inspected in case of leak or spillage.
- Sediment trapping measures (e.g. silt curtains, cut-off trenches and/or settlement sumps) must be placed down-slope of areas that are cleared, to minimise sediment runoff into freshwater ecosystems. The use of sediment-trapping measures is particularly important for construction activities undertaken during the wet season (i.e. May – October). A Method Statement must be drawn up before construction begins, setting out the exact measures that are proposed to be used. This Method Statement is to be subject to the approval of the ECO/ESCO and must be implemented under the guidance of the ECO/ESCO.

Please refer to Annexure I for the Aquatic Management Plan

4.2.30 Stormwater and Erosion Management

Objectives: To ensure that erosion and storm water are controlled and managed.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to management of storm water and erosion.

Measures:

- During the construction phase, site management must be undertaken at the laydown area, batching plant and the individual turbine construction areas. This should specifically address

on-site stormwater management and prevention of pollution measures from any potential pollution sources during the construction activities such as hydrocarbon spills. Any stormwater that does arise within the construction sites must be handled suitably to trap sediments and reduce flow velocities.

- The implementation of a sloped turbine foundation rather than a flat surface is preferred, to assist soil water drainage after decommissioning.
- The establishment of a ground cover (vegetation) on disturbed land soon after construction is essential to reduce the risk of water erosion. Sowing of oats at the onset of the winter rainfall is suggested.
- Extra care should be taken that structures of the proposed WEF development are not placed within these drainage lines and do not obstruct the flow of runoff water.
- Slow stormwater, and in such a way lessen erosion on the site.
- The local material such as the rocks found within the area could be applied to the stormwater runoff from the road to prevent erosion.
- Take all reasonable measures to control storm water and the erosive effects thereof and provide a Method Statement for approval by the PM and ECO/ESCO.
- Areas affected by construction related activities and/or susceptible to erosion must be monitored regularly for evidence of erosion. Ongoing monitoring must be carried out on the interventions that have been proposed to deactivate the existing erosional features to ensure that they are successful in terms of meeting their objectives. Modifications to the interventions may be required if it is found that the interventions are not entirely meeting their objectives in terms of stabilising the existing erosional features.
- As it is relatively unclear at this stage to fully understand what impact the proposed development is going to have in terms of erosion, it is recommended that the drainage lines be monitored on a regular basis to ensure that any erosion is adequately managed.
- In general, the areas where concentrated flows develop as a result of the proposed development must be monitored for erosion and corrective measures implemented accordingly. Areas of particular concern would include, but are not limited to, the discharge points from the laydown and WEF footprint areas.
- The farm road network must be monitored regularly to determine areas where stormwater may be concentrated or diverted which may lead to erosion. In addition, the crossing points at the drainage lines must be monitored for signs of erosion.
- In general, the site must be monitored following any large-scale storm event as well as periodically on an annual basis.
- A monitoring program must be developed during the final design stage to ensure that impacts, both during the construction phase, are managed.
- Protect streams, rivers, pans, wetlands, dams, and their catchments from erosion, direct or indirect spillage of pollutants such as refuse, garbage, cement, concrete, sewage, chemicals, fuels, oils, aggregate, tailings, wash water, organic materials and bituminous products.
- Inspect storage containers regularly to prevent leaks into the aquatic system.
- On any areas where the risk of erosion is evident, special measures may be necessary to stabilise the areas and prevent erosion. These may include, but not be restricted to:
    - Confining construction activities
    - Using cut-off berms

  - Using mechanical cover or packing structures such as geo-fabric to stabilise steep slopes or hessian, gabions and mattress and retaining walls
  - Straw stabilising
  - Brush cut packing
  - Constructing anti-erosion berms.
- The erosion prevention measures must be implemented to the satisfaction of the PM and ECO/ESCO.
- Where erosion does occur on any completed work/working areas, reinstate such areas and areas damaged by the erosion at the expense of the Contractor and to the satisfaction of the PM and ECO/ESCO.
- Restrict and control traffic and movement over stabilised areas.
- Repair and maintain any damage to the stabilised areas to the satisfaction of the PM and ECO/ESCO.
- The Contractor shall be liable for any damage to downstream property caused by the diversion of overland storm water flows.

Please refer to Annexure K for the Stormwater Management Plan

4.2.31 Flora and Fauna Management

Objectives: To aid in the conservation of floral and fauna habitat, floral biodiversity and protected floral species within the subject property as well as to promote the enhancement and good management of natural environmental features on site.

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to natural environment management.

Measures:

- Vegetation clearing to be kept to a minimum. No unnecessary vegetation to be cleared.
- All no-go areas must be clearly demarcated.
- Where roads and other infrastructure cross sensitive features such as drainage lines, caution must be exercised to ensure that impact to these features are minimised.
- All construction staff should undergo an environmental induction from the ECO/ESCO or other suitably qualified persons.
- Any fauna directly threatened by the construction activities must be removed to a safe location by the ECO/ESCO or other suitably qualified person.
- The collection, hunting or harvesting of any plants or animals at the site must be strictly forbidden. Personnel should not be allowed to wander off the construction site.
- Fires should only be allowed within fire-safe demarcated areas.
- No fuelwood collection is to be allowed on-site.
- No dogs are to be allowed on site.
- All hazardous materials must be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site must be cleaned up in the appropriate manner as related to the nature of the spill.
- No unauthorised persons are to be allowed onto the site.
- All construction vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.

- All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk.
- Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance.
- All erosion problems observed must be rectified as soon as possible, using the appropriate erosion control structures and revegetation techniques.
- Cleared areas which are not surfaced or required for construction must be revegetated with seed or plants of locally occurring species.
- Regular monitoring for alien plants within the development footprint during construction

Vegetation management

- Rehabilitation is to begin as individual turbines are erected and not left until the end of the construction phase.
- Rehabilitation shall be undertaken in line with the Rehabilitation plan developed for the project during the final design phase.
- Rehabilitation shall be required for all specified areas disturbed by the works and site camp.
- Rehabilitation shall ensure that all specified areas disturbed by the works are returned to a similar or better state than before the construction works commenced.
- The Contractor shall rehabilitate all disturbed areas to the satisfaction of the PM and the ECO/ESCO.
- Implement a programme of progressive rehabilitation, i.e. rehabilitation and/or re-vegetation must commence once works are complete in a particular area with acceptable regrowth being achieved after 3 months.
- A programme of progressive rehabilitation will provide an opportunity to assess whether or not the methods employed are suitable and successful. Where rehabilitation of an area is not successful, the Contractor will rehabilitate these areas at no additional cost to the Developer.
- Rehabilitation includes, but is not limited to, the following activities:
- Clearance of rubble associated with construction, including removal of surplus materials, excavation and disposal of consolidated waste concrete and concrete wash water, litter etc.
- Removal of all soil/sand contaminated by hydrocarbons by excavation to the depth of contaminant penetration and removal to an appropriate landfill site.
- Backfilling and contouring using stockpiled subsoil removed during site clearing. Finishing and grading of final levels of all disturbed areas shall be consistent with the master plan for the site.
- Rehabilitation of all drainage lines affected by construction to approximately their original profile. Where this is not feasible due to technical constraints, the profile is to be agreed upon by the PM.
- Ripping along the contour of compacted disturbed areas, including stockpile areas, to a depth of 300mm prior to the replacement of topsoil, except where otherwise specified by the PM.
- The eradication of young invasive/alien species that may have grown up during the construction period in impacted and rehabilitated areas.
- The removal of visually detracting or environmentally unacceptable piles of blast rock and boulders to an approved spoil site.
- Areas compacted by vehicles during construction must be scarified to allow penetration of plant roots and the regrowth of natural vegetation.

- Excess subsoil shall be spoiled in a pre-identified location or be used, where possible, as infill material or building material, in conjunction with the ECO/ESCO's approval.

Please refer to Annexure M for the Revegetation &Habitat Management Plan

4.2.32 Heritage Resources Management

Objectives: To aid in the conservation of heritage (including archaeological) resources and promote the enhancement and good management of such features on site.

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to management of such resources.

Measures:

- Palaeontology: no mitigation required.
- Archaeology (pre-colonial and colonial): no mitigation required, except if new sites and archaeological material are encountered during construction. This area must be cordoned off and the archaeologist and Heritage Western Cape (HWC) be notified by the environmental officer or senior person on site.
- If human remains are encountered during construction, they must be left in place and nothing removed, the area must be cordoned off and the project archaeologist informed, HWC and the South African Police Services must be notified and, if exhumation is required, a permit must first be obtained from HWC.
- Should any previously undocumented heritage resources be identified during the course of the construction, operation or decommissioning of the project, work must cease in the area of the find and HWC must be contacted regarding a way forward.
- The HWC Chance Fossil Finds Procedure (Annexure K) must be implemented for the duration of construction activities

4.2.33 Avifaunal Management

Objectives: To minimise or prevent, where possible, the disturbance and displacement of avifaunal Species of Conservation Concern. To avoid the mortality of avifaunal Species of Conservation Concern where practicably possible.

Targets: To ensure compliance with the statutory requirements and obligations in the approved EMPr relating to management of avifaunal resources.

Measures:

- Habitat Destruction
    - Laydown and other temporary infrastructure to be placed within very low sensitivity areas, preferably previously transformed areas, wherever possible;
    - Appropriate run-off and erosion control measures are to be implemented where required;
    - All contractors are to adhere to the EMPr and should apply good environmental practice during construction;
    - All hazardous materials should be stored in the appropriate manner to prevent contamination of the site and downstream environments. Any accidental chemical, fuel and oil spills that occur at the site should be cleared as appropriate for the nature of the spill;
    - Existing roads and farm tracks should be used where possible;
    - The minimum footprint areas of infrastructure should be used wherever possible, including road widths and lengths;
    - No off-road driving should be permitted in areas not identified for clearing;
    - An Environmental Site Officer (ESO) must form part of the on-site team to ensure that the EMPr is implemented and enforced and an Environmental Control Officer (ECO)/ ESCO must be appointed to oversee the implementation activities and monitor compliance for the duration of the construction phase.

- Disturbance and Displacement of avifaunal Species of Conservation Concern
    - Infrastructure to avoid Avifaunal sensitive 'No Go' areas
    - Existing and novel access roads are to be suitably upgraded or constructed to prevent damage and erosion resulting from increased vehicular traffic and construction vehicles;
    - No off-road driving in undesignated areas;
    - Speed limits (30km/h) should be strictly enforced on site to reduce unnecessary noise;
    - Construction camps should be lit with as little light as practically possible, with the lights directed downwards where appropriate;
    - The movement of construction personnel should be restricted to the construction areas on the project site;
    - No dogs or cats other than those of the landowners should be allowed on site;
    - The appointed Environmental Officer must be trained to identify the avifaunal

Species of Conservation Concern as well as the signs that indicate possible breeding by these species;

- The Environmental Site Control Officer (ESCO) must then, during audits/site visits, make a concerted effort to look out for such breeding activities of avifaunal Species of Conservation Concern (e.g. Black Harrier, cranes, bustards), and such efforts may include the training of construction staff (e.g. in Toolbox talks) to identify Red Data species, followed by regular questioning of staff as to the regular whereabouts on site of these species.

- Direct Avifauna Mortality
  - The Developers will employ an Avifaunal Specialist for nest surveying and monitoring of the Project site in accordance with applicable guidelines.
  - If any new breeding location for avifaunal Species of Conservation Concern are confirmed (e.g. if a nest site is found which has not yet already been determined), construction activities within 500m of the breeding site must cease, and an Avifaunal Specialist shall be appointed for further assessment of the situation and instruction on how to proceed.
    - Should a new nest be confirmed, within one day (24 hours) following its discovery the Developer and/or Avifaunal Specialist is required to inform BLSA and ORCT.
  - The results following the outcome of the assessment provided by the Avifaunal Specialist may inform the final construction schedule in close proximity to the specific nest location / breeding area, including abbreviating construction time, scheduling activities around breeding activity, and lowering levels of associated construction noise disturbance as far as reasonably practicable.
  - Appropriate (Eskom approved) Bird flight diverters (BFDs) to be affixed to the entire length of novel above-ground overhead power lines;
  - The type of bird flight diverter (BFD) and spacings of the BFDs must be optimised for Denham's Bustards and Blue Cranes in consultation with an avifauna specialist prior to their fitment;
  - Internal power lines must be buried, unless it is not ecologically, technically or financially feasible;
  - Fatalities of avifaunal Species of Conservation Concern are to be appropriately recorded and reported by the ESCO to the Developers and/or the Client and Avifaunal Specialist as soon as reasonably practicable after first being detected or observed on-site during operational monitoring whereby appropriate and/or feasible measures will be taken, as per the recommendation of the Avifaunal Specialist, if applicable. These reports must be made available to relevant stakeholders each quarter. Any fatality of avifaunal Species of Conservation Concern must be reported to BLSA and ORCT within 24 hours.
  - Maximum use of existing access road and servitudes;
  - No off-road driving in undesignated areas;
  - Speed limits (30 km/h) should be strictly enforced on site to reduce probability of vehicle collisions;
  - The movement of construction personnel should be restricted to the

construction areas on the project site;
- No dogs or cats other than those of the landowners should be allowed on site;
- Any holes dug e.g. for foundations should not be left open for extended periods of time to prevent entrapment by ground dwelling avifauna or their young and only be dug when required and filled in soon thereafter;
- If double layers of fencing are required for security purposes they should be positioned at least 2 m apart to reduce the probability of entrapment by larger bodied species that may find themselves between the two fences;
- Temporary fencing must be suitably constructed, e.g. if double layers of fencing are required for security purposes they should be positioned at least 2 m apart to reduce the probability of entrapment by larger bodied species that may find themselves between the two fences;
- Roadkill is to be reported to the ECO and removed as soon as possible.
- The installation of cattle grids should be done in such a manner as to allow the escape of chicks should they fall in;

4.2.34 Bat Mitigation Measures

Objectives: To aid in the conservation of bats

Targets: To ensure compliance with the local authority and national statutory requirements relating to conservation and management of bats.

Measures:

- The placement of turbines within areas identified as having a High Bat Sensitivity is to be avoided.
- The height of the lower blade swept height must be maximised, and should not be lower than 50m if possible, to minimise collisions with low flying species.
- Laydown areas and temporary access roads must be kept to a minimum in order to limit direct vegetation loss and habitat fragmentation. Construction should, where possible, be situated in areas that are already disturbed.
- The removal of vegetation, particularly trees, must be kept to a minimum, and should also not occur in the no-go areas of the Bat sensitivity map.
- Following construction, rehabilitation of all disturbed areas (e.g. temporary access tracks and laydown areas) must be undertaken as per the habitat restoration plan, developed in conjunction with a botanical specialist (Annexure I).
- Implementation of real-time minimisation mitigation for bats through the initial use of four (04) Smart Systems (or similar) to automate Shut-Down on Demand and prevent collision by bat species when their level of activity is high
- Adaptive mitigation based on bat and avifauna fatality monitoring to manage the requirements for number of Bioseco and Smart System units, their locations and their thresholds (Smart System only) to allow for fatality minimisation to within acceptable limits

4.2.35 Visual Management

Objectives: To ensure that appropriate and efficient measures are put in place on site in order to mitigate visual impacts to an acceptable level.

Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to Visual Management.

Measures:

- Construction camp and laydown areas to be adequately screened off.
- All the access roads to each wind turbine site, the temporary site camp and the permanent on-site substation must be aligned along existing roads as far as possible and in a pattern that fits the field configuration. No ad hoc short cuts. The reason is to reduce rapid surface water runoff which will likely cause erosion but importantly to conform to the visual pattern of the fields.
- All access roads will be planned, and no ad hoc or temporary short cuts will be permitted to be developed without approval of the Engineer's Representative (ER).
- Screen site camp with shade cloth on surrounding fence. To reduce the visibility of the internal clutter of the site, the fence must be clad with a neutral-coloured shade cloth or similar. The length of the fence that is covered will be determined by the position of the most sensitive receptor, for instance a road or homestead.
- The length of the site camp fence that is covered will be determined by the position of the most sensitive receptor, for instance a road or homestead.
- The limitation of dust generation is to be controlled preferably by using a dust binding emulsion that is sprayed over the entire road surface. An alternative is to spray the road surface with water at time intervals to ensure that dust does not become a visual intrusion, health hazard or crop growth retardant.
- Working hours will generally be restricted to daylight hours.
- If working hours are required outside of daylight hours, notification will be provided to relevant neighbours.
- If working hours are required outside of daylight hours, sufficient lightning plants will be provided.
- Security lights are directed from the perimeter wall towards the centre of the camp with a down angle.
- Keep the construction site neat and tidy at all times during the life of the project.
- Locate the construction camp(s) inconspicuously in the landscape to reduce visual impact severity.
- Keep signage and other infrastructure to a minimum.
- Minimise new road construction and existing roads where possible.
- Minimise night lighting of the construction sites within requirements of safety and efficiency.
- Contain and store general and construction related waste, upon approval by the PM, as prescribed by relevant specifications.
- Maintain good housekeeping on site to avoid litter and minimise waste.
- Ensure that any lighting installed on site for his activities does not interfere with road traffic or cause an unreasonable disturbance to the surrounding community.
- The site perimeter shall be fenced with robust material and be at least 2m high.
- No advertising will take place on the turbine structures.

4.2.36 Topsoil Management

Objectives: To ensure that appropriate and efficient measures are put in place on site in order to manage topsoil storage.

Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to Topsoil Management.

Measures

- Topsoil can only be stripped from areas as indicated below:
  - Any area which is to be used for temporary storage of materials
  - Areas which could be polluted by any aspect of the construction activity
  - Areas designated for the dumping / stockpiling of soil
  - or as instructed by the Customer's Representative or ECO/ESCO.
- Where topsoil (300 mm) stripping forms part of the contract requirement the Contractor will store the excavated topsoil in an appropriate windrow or stockpile which shall be discernibly separate from wind rows or stockpiles of any other excavated materials, for future rehabilitation after decommissioning.
- Subsoil can be used – if suitable – for road construction.
- Stripping of topsoil will be undertaken in such a manner as to minimize erosion by wind or runoff.
- Topsoil shall not be disturbed more than is absolutely necessary.
- Topsoil stripping will only take place as the area becomes necessary for works to commence.
- Topsoil will not be contaminated with anything that might impair its plant-support capacity (e.g. aggregate, cement, concrete, fuels, litter, oils, domestic and industrial waste).
- Topsoil stockpiles will not be situated such that they obstruct natural water pathways.
- Stockpiles will not exceed 2m in height.
- Stockpiles will be kept clear of weeds and alien vegetation growth by regular weeding.
- After the completion of the backfilling, re-contouring and erosion control works, the Contractor shall spread the topsoil evenly at uniform depth over the areas from which it was removed, where this is a requirement of the contract specifications.

4.2.37 Agricultural Management

Objectives: To ensure that appropriate and efficient measures are put in place on site in order to manage agriculture impacts on site

Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to agricultural management
Measures:

- All construction activities (i.e. vehicle movement) in cultivated fields should be minimised and contained within clearly demarcated areas.
- Ensure that as much as possible of the planned infrastructure be confined to transformed land, or non-arable areas.
- Ensure that use is made of existing roads, servitudes etc where at all possible.

- Topsoil (300 mm) should be stored at an appropriate site on each farm for future rehabilitation after decommissioning.
- Subsoil can be used – if suitable – for road construction.

- It is the responsibility of the owner of the renewable energy project to ensure that suitable soil conservation works be established on the site to limit or restrict the loss of soil.
- No renewable energy structure, supporting infrastructure or access routes shall in any manner divert any run-off water from a water course to any other water course or obstruct the natural flow pattern of runoff water, except with the permission from DAFF.
- All access routes, existing or newly constructed and utilised during the construction and / or maintenance of the renewable energy structures must be restored to its original state after completion of the establishment of the structures. Every care must be taken not to damage or degrade the status of the natural resources base of the farm during the construction phase of the mentioned or to impact negatively on the farming or production practices on the farm.
- All service routes that will be used to gain access to the renewable energy structures for maintenance purposes have to be covered in gravel, tarred or compressed in order to limit the possibility of degradation and erosion.
- The installation of the underground power cables should not negatively impact on the resource base of the site. During the installation, no soil conservation structure may be disturbed, the soil texture must be restored, the work area should not be wider than 5m, should not be directed through existing or future cultivated land nor impact negatively on existing farming infrastructure or any farming activity.
- The lease agreement must be transferred to the new landowner, should the farmer decide to sell the property during the time period of the current lease agreement. DAFF needs to be informed of the transfer of the lease agreement upon which a new approval number will be issued. Supporting documentation must be provided that the new landowner concurs with the specifications of the existing lease agreement.
- The implementation of a sloped turbine foundation rather than a flat surface is preferred, to assist soil water drainage after decommissioning.

4.3 OPERATIONAL PHASE IMPACTS

4.3.1 Hazardous Material (Fuels, Oils and Others) Management

Objective: To minimise any hazardous fuel and oil material from causing environmental damage through the use, storage and/or handling of such hazardous material during the operational phase

Targets: To ensure compliance with all legal requirements, including local authority by laws and other statutory requirements relating to hazardous materials.

Measures:

- Fuel may be stored on site in an area which was been approved by an Engineer and the ECO/ESCO.
- The Contractor shall ensure that all liquid fuels (petrol and diesel) are stored in tanks with lids, which are firmly shut and/or in bowsers.
- The tanks or bowsers are required to be located on smooth impermeable surfaces (concrete or plastic) with an earth bund.
- The impermeable lining shall extend to the crest of the bund and the volume of the bund will be 130% of the total of the storage tanks and/or bowsers located on the site.
- The bunded area is required to be sheltered from the rain.
- Provisions shall be made for refuelling at the fuel storage area, by protecting the open soil with bunding.
- If fuel will be dispensed from 200 litre drums, only empty clean drums will be able to be stored on the bare ground.
- All empty dirty drums must be stored on a bunded area.
- Should the use of a 200l drum be required, proper dispensing mechanisms are required to be used and the drum will not be allowed to be tipped in order to dispense the fuel.
- The dispensing mechanism for the fuel drums will be stored in a waterproof container when it is not in use.
- The Contractor will be required to prevent unauthorised access to the fuel storage area.
- No smoking will be allowed within the vicinity of the fuel storage areas.
- The Contractor must ensure that adequate fire-fighting equipment is readily available at the fuel storage area.
- Where reasonably practical the plant shall be refuelled at the fuel storage area or at the workshop as applicable. If it is not possible then the surface under the refuelling area must be bunded with plastic and/or wooden pallets.
- The Contractor is required to ensure that absorbent materials are readily available in the vicinity of the refuelling areas to absorb and/or breakdown and where possible be designed to encapsulate minor hydrocarbon spills.
- This absorbent material must be able to absorb a minimum spill of 200l of hydrocarbons.
- The Contractor must obtain the Engineer's and ECO/ESCO's approval for any refuelling or maintenance activities.
- All hazardous material containers are required to be inspected regularly to ensure that no leaks occur.

- Damaged solar panels are classified as hazardous waste and must be stored in a covered, impermeable area. These panels must be returned to the supplier for repairs or recycling or supplied to a licensed recycling facility or licensed hazardous waste disposal facility where no recycling or re-use is possible.
- The storage of general waste in excess of 100m³ and/ or the storage of hazardous waste in excess of 80m³, excluding the storage of waste in lagoons or the temporary storage (i.e. less than 90 days) of such waste, requires the applicant to comply with GN No. 926 of 29 November 2013: National Norms and Standards for the Storage of Waste.
- Hazardous materials (if any) which may be generated during the operation phase must be disposed of at approved hazardous waste landfill site.
- The Proponent or Contractor acting on his behalf shall ensure that an emergency preparedness plan is in place for implementation in the case of a spill.

4.3.2 Solid waste management

Objective: Adequate solid waste management on site

Measures:

During the operation phase, the area of the development must be cleared of litter on a regular basis. Once collected, this litter shall be disposed of at an approved waste disposal site.

4.3.3 Wet Environments Management

Objectives: To ensure that the best practice is followed with regards to wet environments (rivers and wetlands), management and operations.

Targets: To ensure that the wet areas (rivers and wetlands) on site are not impacted during the operational phase of the facility.

Measures:

- Formalisation of road crossings over rivers and drainage lines using structures that minimise the alteration of flows (e.g. box culverts with a wide span).
- The implementation of a sloped turbine foundation rather than a flat surface is preferred, to assist soil water drainage after decommissioning.
- The establishment of a ground cover (vegetation) on disturbed land soon after construction is essential to reduce the risk of water erosion. Sowing of oats at the onset of the winter rainfall is suggested.
- Ensure that roads that run through or adjacent to wetlands, if any, have multiple cross-drains, to prevent the concentration of flows into the wetlands at a limited number of points along the roads.
- The BESS must be regularly inspected for leak or spillage.

4.3.4 Stormwater and Erosion Management

Objectives: To ensure that erosion and storm water are controlled and managed.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to management of storm water and erosion.

- The implementation of a sloped turbine foundation rather than a flat surface is preferred, to assist soil water drainage after decommissioning.
- The establishment of a ground cover (vegetation) on disturbed land soon after construction is essential to reduce the risk of water erosion. Sowing of oats at the onset of the winter rainfall is suggested.

- Monitoring of the site be carried out, both during and after construction, to identify potential impacts on the natural systems as a result of altered flow patterns. It is proposed that features on site be monitored after large storm events.
- The natural drainage lines, diversion channel and dam walls must be monitored for signs of erosion and scouring which may be brought about by alterations to the natural hydrological characteristics of the site in the post development scenario. Increased sediment loads entering the dams should also be monitored for in the post development scenario. In addition, the discharge points from the laydown and substation areas, as well as the areas under and around the PV panels must be monitored for signs of concentrated flows and erosion.
- The road network must be monitored regularly to determine areas where stormwater may be concentrated or diverted which may lead to erosion. In addition, the crossing points at the drainage features must be monitored for signs of erosion.
- Should signs of erosion and alterations to the natural flow patterns be identified, a suitably qualified engineer must be appointed to design appropriate interventions to address the issues as they arise.
- The various protective measures that were installed during the construction phase must be properly maintained, e.g. the vegetation of road verges and cut faces must be inspected and maintained on a regular basis.

Please refer to Annexure K for the Stormwater Management Plan

4.3.5 Access and Signage

Objectives: Access control and signage on site

Measures:

- All access requirements must be identified and detailed by the Contractor. Communities, landowners and/or developers within the turbine site will be required to apply for access to the Operator. The Operator must consider each application and consult with each applicant in this regard.

- Avoid signs near wind turbines unless they serve to inform the public about wind turbines and their function. Advertising billboards must be avoided.

4.3.6 Maintenance

Objectives: Adequate maintenance on site

Measures:

- The components of the turbines and associated infrastructure shall be maintained so in a good working order so as to minimise impacts associated with the malfunctioning of a wind turbine.
- Scheduled repairs must be carried out during daylight working hours during the working week.
- Road maintenance must be conducted on the service roads within and around the development site by the Developer as and when necessary.
- Spinning rotor is perceived as being useful but stationary rotor when the wind is blowing is seen as not fulfilling its purpose and a negative impression is created.

4.3.7 Flora and Fauna Management

Objectives: To aid in the conservation of floral and fauna habitat, biodiversity and protected floral species within the subject property

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to natural environment management.

Measures:

- All maintenance and operations staff should undergo environmental training which highlights the sensitive features of the site and the major risks posed by the development such as unplanned fires.
- Any vegetation management which occurs as part of operational and maintenance activities at the site, should ensure that listed plant species are not impacted.
- On-site lighting must be kept to a minimum, with only lighting essential for operation of the facility.
- Where necessity, such as for security purposes, only lighting with a low attractiveness for insects should be used. These include low-pressure sodium and warm white LED lights. High pressure sodium and white mercury lighting should not be used as far as possible.
- Lighting should be fitted with movement sensors to limit illumination and light spill, and the overall lit time. In addition, the spread of light should be directed downward (below the horizontal plane) to minimise light trespass and sky glow.
- Spacing between lights, and the height of light units, should be maximised where possible to reduce the intensity and volume of the light, and to minimise the area illuminated.
- All hazardous materials must be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site must be cleaned up in the appropriate manner as related to the nature of the spill.
- No unauthorized persons are to be allowed onto the site.
- All maintenance vehicles should adhere to a low speed limit to avoid collisions with susceptible species such as snakes and tortoises.
- Regular maintenance of erosion control features at the site, not only on the roads themselves but also in those areas which receive runoff from the roads and other hardened surfaces of the facility.
- Regular monitoring for erosion after construction to ensure that no erosion problems have developed as result of the disturbance. All erosion problems observed must be rectified as

soon as possible, using the appropriate erosion control structures and revegetation techniques.

- Regular monitoring for alien plants within the site as a whole and not just within the development footprint.
- Regular alien clearing must be conducted using the best-practice methods for the species concerned. The use of herbicides must be avoided as far as possible.
- Alien management plan must be developed as part of the EMPr for the development, it should aim to address alien plant problems within the whole site, not just the development footprint.
- The establishment of a ground cover (vegetation) on disturbed land soon after construction is essential to reduce the risk of water erosion. Sowing of oats at the onset of the winter rainfall is suggested.

Please refer to Annexure M for the Revegetation &Habitat Management Plan

4.3.8 Heritage Resource Management

Objectives: To aid in the conservation of heritage (including archaeological) resources and promote the enhancement and good management of such features on site.

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to management of such resources.

Measures:

- Should any archaeological or cultural heritage resources as defined and protected by the NHRA 1999 and not reported on in this report be identified during the course of operation, it must be reported to Heritage Western Cape.
- If human remains are encountered during operational or maintenance actives, they must left in place and nothing removed, the area must be cordoned off and the project archaeologist informed, HWC and the South African Police Services must be notified and, if exhumation is required, a permit must first be obtained from HWC.

4.3.9 Avifaunal No-Net Loss

Objectives: To identify and mitigate any losses of avifaunal Species of Conservation Concern occurring as a direct result of the facility's operations.

Targets: 'No-net Loss' of avifaunal Species of Conservation Concern in connection with the facility's operations.

Measures:

- Implement the avifauna mitigation measures as stipulated in this EMPr as a key component of the No-Net Loss of avifaunal Species of Conservation Concern approach.
- Should any fatalities of avifaunal Species of Conservation Concern occur within the facility boundaries then the Avifaunal Specialist shall investigate the likely cause of such fatalities and evaluate whether the avifauna mitigation measures stipulated in this EMPr should be adjusted (with input from the Developer) or if some other mechanism is feasible eg an Offset Programme (designed by an Avifaunal Specialist).

4.3.10 Avifaunal Management

Objectives: To aid in the conservation of avifauna and ensure no net loss of Species of Conservation Concern (Black Harrier and Verreaux's Eagle).

Targets: No net loss of Species of Conservation Concern (Black Harrier and Verreaux's Eagle).

Measures:

- A Three-tiered mitigation approach will be implemented on site comprising blade painting, Observer-Led Shut Down On Demand (OLSDOD) and Automated Shut Down On Demand (ASDOD) during daylight hours, seven days a week, including public holidays from the moment blades are turning.

- Results comparing the effectiveness of OLSDOD and ASDOD will be assessed annually for the three (03) years of the operational phase of the WEF and systematically adjusted by the qualified and appropriately experienced Avifaunal Specialist appointed to the Project and made available to BLSA, ORCT and EWT prior to adjustments, if any, being made. The Client reserves the right to reduce tiers of mitigations as determined and advised by an Avifaunal Specialist, in consultation with BLSA and ORCT.
- The Developers will install and implement automated shutdown on demand (ASDOD) technologies, in addition to other mitigation measures identified, to be operational from the date each such turbine firsts starts operation. The Developers will determine the most suitable ASDOD technology for the species of concern on the site in consultation with qualified service providers, including an Avifaunal Specialist. The turbines on which ASDOD technology will be installed are identified in this section of the EMPr.
- The Developers will consult with BLSA and ORCT regarding the proposed ASDOD technology that will be implemented on the project turbines.
- All contractors are to adhere to the environmental management programme and should apply good environmental practice during all operations;
- A livestock carcass management plan to be implemented in collaboration with other operational WEFs (where possible) to reduce the likelihood of attracting vultures
- Livestock carcasses must be removed or covered within 8 hours of being located.
- Surveys for breeding avifaunal Species of Conservation during the correct breeding season must be undertaken by appropriately trained/experienced people. This includes monitoring of the known SCC nest sites in close proximity to the WEF.
- Operational phase bird monitoring and reporting in line with the latest available guidelines, must be implemented for the lifespan of the facility due to the risk of significant impacts.

- Direct mortality of avifaunal Species of Conservation Concern:
  - Fatalities of avifaunal Species of Conservation Concern are to be appropriately recorded and reported by the ESCO to the Avifaunal Specialist, the Developers and/or the Client as soon as reasonably practicable after first being detected or observed on-site during operational monitoring whereby appropriate and/or feasible measures will be taken, in consultation with an Avifaunal Specialist, if applicable. These reports must be made available to relevant stakeholders on quarterly basis (within 15 days of the completion of monitoring).
  - Any Black Harrier fatalities are to be reported to the ORCT within 24 hours.

- Monitoring:
  - Prior to operations, an OLSDOD monitoring programme is to be designed and established for the project and is required to be included in the avifaunal monitoring programme established for the project. The OLSDOD programme is to be developed by an Avifaunal Specialist, in collaboration with the Applicant.

The purpose of the OLSDOD is to ensure that the ASDOD is working efficiently and to assist in the mitigation of risk and impact to the Avifauna on site.

- As a **first-tier of mitigation**, all 24 WTGs will be manufactured with one painted (or patterned) blade to increase the visibility for birds.
- The Developers will consult with the ORCT and BLSA (including with reference to any guidance from the South Africa Wind Energy Association) regarding the blade painting required terms of the EA that is in accordance with the best available Science and the South Africa Civil Aviation Authority (CAA) requirements.
    - The Developer will determine the appropriate blade patterning based on South Africa Civil Aviation Authority's (SACAA) requirements. The best applicable patterning is it to be presented and discussed with BLSA, ORCT and the South African Wind Energy Association.
- Standard aviation stripes will not be implemented on the Project turbines as a means of satisfying the blade painting specifications required from an avifaunal mitigation perspective.
- A system of Shutdown on Demand (SDoD) should be implemented for all turbines at the WEF, modelled on the system which is currently operational at the nearby Excelsior Wind Farm.
- WTGs 4, 5, 9 and 13 are to be fitted with ASDOD technology as a means of **second-tier mitigation,** and enables detection of an approaching bird where it is required for a turbine to automatically shut down (or drastically reducing the speed of) the spinning turbine blade that will enable the approaching bird to travel through the wind farm safely. WTGs 4,5,9 and 13 were selected by the avifaunal specialist as these are closest to the avifauna No-Go areas. This technology should be used on a year-round basis.
- OLSDOD will be implemented during daylight hours for at least the first 12 months of operation on WTG 4, 5, 9 and 13 including on weekends and public holidays.
- The Developers will notify BLSA and EWT should any collisions with a Black Harrier and Verreaux's Eagle occur, and if the monitoring data generated during the first 12-month period indicates that the ASDOD systems proves unsuitable for smaller avifaunal Species of Conservation Concern (Black Harriers), the possibility of implementing additional management or mitigation measures shall be assessed and investigated by the Developers together with an Avifaunal Specialist. Based on the monitoring data, the possibility of implementing an additional tier of mitigation (including the possibility of ASDOD on additional turbines or a suitable habitat and conservation mechanism) will be assessed by the Developers at the relevant time, if required, in response to the aforesaid monitoring data.
- The Developers will employ an Avifaunal Specialist for nest surveying and monitoring of the Project site in accordance with applicable guidelines.
- Should it become apparent that avifaunal Species of Conservation Concern (e.g. Black Harrier and Martial Eagle) are utilising the site for breeding at any time during the operational lifespan of the development, WTGs within at least 2 km

of nest positions will be required to have an additional tier of mitigation. The appointed Avifaunal Specialist is to be notified to determine the appropriate additional mitigation measures, this will include i) additional observer- led shut-down-on-demand if it is not already in place, or ii) temporary curtailment during daylight hours during the breeding period or other high-risk periods, as per local specialist studies.

- If any new breeding location for avifaunal Species of Conservation Concern are confirmed (e.g. if a nest site is found which has not yet already been determined) the Avifaunal Specialist is to be appointed for further assessment of the situation and instruction on how to proceed, and BLSA, HWI and ORCT are to be notified within 24 hours.
- The results following the outcome of the assessment provided by the Avifaunal Specialist may inform the final construction schedule in close proximity to the specific nest location / breeding area, including abbreviating construction time, scheduling activities around breeding activity, and lowering levels of associated construction noise disturbance as far as reasonably practicable.

- Develop and implement an avifaunal carcass search and activity monitoring programme for Species of Conservation Concern to be conducted for the lifespan of the facility in-line with the latest applicable guidelines (recognising that the intensity of monitoring required could be adapted (increasing or decreasing in intensity) in future based on the recommendations of an Avifaunal Specialist (e.g.. for example by adjusting monitoring frequency and spacing of transects) having due regard to the efficacy and cost implications of the monitoring);
- Reviews of operational phase monitoring data (activity and carcass) and results to be conducted and reported on by the Avifaunal Specialist for the Project who will then make recommendations regarding the intensity and duration of the monitoring programme. Monitoring report(s) can be made available to stakeholders upon request provided that the reports shall be made available to BLSA, HWI, EWT and/or ORCT.
- The frequency of the review of operational phase monitoring data is to be determined by the Avifaunal Specialist, and will be conducted in accordance with the applicable guidelines and regulations at the time;
- The above reviews should strive to identify sensitive locations including WTGs and areas of increased collisions that may require additional mitigation;
- Funding should be made available to contribute to further ongoing research on the Potberg Cape Vulture Colony and Black Harrier by recognised institutions/ organisations through consultation with those institutions/organisations already involved in these activities.
- Bird Flight Diverters to be checked at least once a year and if necessary replaced when required.

4.3.11 Bat Management

Objectives: To aid in the conservation of bats

Targets: To ensure compliance with the local authority by laws, and any other statutory requirements relating to management of bats.

Measures:

- Monitoring of Bat Mortalities (morning searches) as part of the bird monitoring process.
- Any retrieved carcasses should be sent frozen to bat specialists for analysis, together with the circumstances of their finding.
- Apply blade feathering to prevent unnecessary free-wheeling of blades below generation cut-in speed at operation commencement.
    - Curtailment is an operational phase mitigation measure that can be implemented to lessen bat mortalities caused by direct collisions with turbine blades. Curtailment is the practice of maintaining the turbine blades as stationary or 'locked' at low wind speeds, and once the wind exceeds a specified speed the blades are then allowed to rotate normally. The theory behind curtailment is that there exists a negative correlation between bat activity and wind speed, causing bat activity to decline as wind speed increases. Another strategy involved altering blade angles to reduce rotor speed in low wind speed conditions, such that the blades were near motionless.
- On-site lighting must be kept to a minimum, with only lighting essential for operation of the facility.
- Where necessity, only lighting with a low attractiveness for insects should be used. These include low-pressure sodium and warm white LED lights. High pressure sodium and white mercury lighting should not be used as far as possible.
- Lighting should be fitted with movement sensors to limit illumination and light spill, and the overall lit time. In addition, the spread of light should be directed downward (below the horizontal plane) to minimise light trespass and sky glow.
- Spacing between lights, and the height of light units, should be maximised where possible to reduce the intensity and volume of the light, and to minimise the area illuminated.
- Bats must be prevented from entering any possible artificial roost structures (e.g. roofs of buildings, road culverts and wind turbines) by ensuring that they are sealed in such a way as to prevent bats from entering.
- If bats colonise Wind Farm infrastructure, a suitably qualified bat specialist must be consulted before any work is undertaken on that infrastructure or attempting to remove bats.
- Ongoing maintenance and inspections of buildings and road culverts must be carried out to ensure access by bats is prevented and for the safe handling of actively roosting bats.
- Operational acoustic monitoring and carcass searches for bats must be performed, based on best practice, to monitor mortality and bat activity levels.
    - An Independent Bat Specialist must provide input into the design and implementation of the Bat monitoring programme.
    - Operational monitoring must be done for the first two years initially according to the guidelines. Depending on these findings, additional monitoring may be needed but must be determined by an appropriate bat specialist using the operational data. Thereafter, a year of impact monitoring is required in the fifth year of operation and every five years after that. Acoustic monitoring should include monitoring at height (from more than one location i.e. such as on turbines) and at ground level.

    - Apply curtailment based on a curtailment plan formulated by an appropriate bat specialist using weather and bat activity data from the site if mortality occurs beyond threshold levels (i.e. 141 bats) as determined based on applicable guidance (MacEwan et al. 2018). The threshold calculations must be done at a minimum of once a quarter (i.e. not only after the first year of operational monitoring) so that mitigation can be applied as quickly as possible should thresholds be reached.
- A further mitigation measures involves the use of ultrasonic deterrent devices to repel bats from wind turbines.
- Implementation of real-time minimisation mitigation for bats through the initial use of four (4) Smart Systems (or similar) to automate Shut-Down on Demand and prevent collision by bat species when their level of activity is high. The Smart Systems are recommended to be installed on WTGs 04, 05, 16 and 24.
- Adaptive mitigation based on bat and avifauna fatality monitoring to manage the requirements for number of Bioseco and Smart System units, their locations and their thresholds (Smart System only) to allow for fatality minimisation to within acceptable limits

4.3.12 Visual Management:

Objectives: To ensure that appropriate and efficient measures are put in place on site in order to mitigate visual impacts to an acceptable level.
Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to Visual Management.

Measures:

- On-going light spillage control during operation of the WEF.
- Use low key lighting around buildings and operational areas that is triggered only when people are present.
- Plan to utilise infra-red security systems or motion sensor triggered security lighting.
- Ensure that lighting is focused on the development with no light spillage outside the site; and
- Keep lighting low, no tall mast lighting should be used.
- Monitor homesteads for the effects of shadow flicker through regular discussion with residents over a minimum period of 12 months.
- Should shadow flicker be reported ensure that the turbine / turbines causing the shadow flicker is / are programmed to turn off during the periods when shadow flicker is reported.
- No advertising will take place on the turbine structures.

4.3.13 Agricultural Management

Objectives: To ensure that appropriate and efficient measures are put in place on site in order to manage agriculture impacts on site

Targets: To ensure compliance with the local authority by laws, independent specialist recommendations and any other statutory requirements relating to agricultural management
Measures:

- The implementation of a sloped turbine foundation rather than a flat surface is preferred, to assist soil water drainage after decommissioning.
- The establishment of a ground cover (vegetation) on disturbed land soon after construction is essential to reduce the risk of water erosion. Sowing of oats at the onset of the winter rainfall is suggested.

4.3.14 Noise Management

Objectives: To control and reduce noise impact during the WEF operation
Measures

- To address wind turbine mechanical noise, all turbines should have acoustic insulation on the inside of the turbine housing, acoustic insulation curtains and ant-vibration support footing.
- Cyclic maintenance programme of the wind turbines should take place to address normal wear and tear problems.
- Turbines must be withdrawn from services should it create excessive noise due to wear and tear or poor maintenance.
- Service vehicles to adhere to the speed limits at all times.
- Maintenance Equipment to comply with the IFCs Health and safety requirements.
- Design and implement a noise monitoring programme, as indicated below:
    - Monthly noise monitoring conducted by an Acoustic Consultant or Approved Noise Inspection must commence as soon as the Wind Energy Facility becomes operational.
    - As soon as the noise monitoring results are stable, the frequency of monitoring can be reduced to quarterly noise surveys.
    - The following noise results must be kept on record:
        - Leq – values of each measuring point in dBA;
        - Spectrum analysis of the results;
        - Any physical characteristics in and next to the measuring points which may change the noise regime of the area;
        - Any other details such as the instrument, competent person etc. will be compiled and made available.

4.3.15 Emergency Management

Objectives: To ensure that an appropriate and efficient response is triggered in the event of an emergency situation arising. This should include incidents such as medical, fire, security and environmental disaster scenarios on the site.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to emergency response.

Measures:

- The Proponent or Contractor acting on his behalf shall compile and maintain environmental emergency procedures during the operational phase of the project to ensure that there will be an appropriate response to unexpected or accidental environment-related incidents, e.g. during routine maintenance and servicing.
- An environmental emergency procedure plan should include:

- A list of key personnel, including responsibilities, accountability and liability.
- Details of emergency services applicable to the various areas along the route that the turbine components will need to be transported as well as for the site itself.
- Internal and external communication plans, including prescribed reporting procedures where required by legislation.
- Actions to be taken in the event of different types of emergencies.
- Incident management plans for the site. Incident recording, progress reporting and remediation measures required to be implemented.
- Information on hazardous materials, including the potential impact associated with each and measures to be taken in the event of accidental release.
- Firefighting strategy.
- Training plans and testing exercises and schedules for effectiveness.

4.3.16 Fire Management

Objectives: To ensure that fire as a result of the operational activities are controlled and managed appropriately.

Targets: To ensure compliance with the local authority by laws and any other statutory requirements relating to fire management. Please refer to Appendix E for fire management plan.

Measures

- The Applicant must maintain the 30-meter fire break.
- The 30-meter fire break must be kept clear of any vegetation throughout the lifecycle of the WEF.
- Weekly checks of the 30-meter firebreak must be undertaken during the operational phase of the WEF, thus ensuring that this fire break is maintained correctly.
- During the dry season the fire break must be compacted and wetted when it is in use.
- The 30-m fire break must be brush cut.
- The 30-m fire break should have significant reduced fuel loads and the height of the vegetation must be kept as low as possible.
- Waste material from the fire break preparation must be disposed off into the veld approximately 5m above the fire break or removed completely from site – by cutting, chipping stacking or burning with the required permission.
- A line fire breaks to avoid no populations of rear or endangered species, sensitive habitats such as wetlands and highly erodible areas.
- No open fires will be allowed on site under any circumstances.
- No Smoking except in designated safe smoking areas which include cleared area with no combustible vegetation or materials and approved butt receptacles.
- The contractor shall take all reasonable & active steps to avoid increasing the risk of fire through their activities on Site.
- The contractor shall ensure that the basic firefighting equipment is to the satisfaction of the ECO/ESCO.
- The contractor shall take precautions when working with welding, “hot” work or grinding equipment near potential sources of combustion. Such precautions include having a suitable, tested and approved fire extinguisher and fire beaters immediately at hand and the use of welding curtains.

- The contractor is to provide the ECO/ESCO with a list of equipment and location of all firefighting equipment.
- The contractor to provide the ECO/ESCO with a list of names of designated firefighting teams.
- The contractor will ensure awareness of fire seasons, and particular controls required, by the posting of the daily FDI on notice boards.
- The contractor will provide relevant staff with firefighting training.
- The contractor will maintain vegetation to manageable levels in the project area.
- All site staff must know the fire drill procedure.

Please refer to Annexure L for the Fire Management Plan

5 DECOMMISSIONING IMPACTS

Please note, that the Decommissioning Impacts are equivalent to those of the construction impacts because decommissioning will entail the same type of activities. Therefore, these have not been reproduced in this Section. Please kindly refer Section 4.2 for the Decommissioning Impacts.

Further decommissioning activities would need to be applied for in a separate Environmental Permitting Process as per the requirements of the Competent Authority.

6 IMPLEMENTATION OF THE EMPR

6.1 ENTITY RESPONSIBLE FOR DEVELOPMENT OF THE PROJECT

Table 6.1: This table depicts the Project Administrative Details.

PROJECT ADMINISTRATION DETAILS	
DEVELOPMENT ENTITY	
Applicant Name (The proponent)	Western Cape Wind Farm (RF) (Pty) Ltd
Responsible Person	Matteo Giulio Luigi Maria Brambilla
Address	14th Floor, Pier Place Building Heerengracht Street Foreshore CAPE TOWN 8001
Contact Details	Tel: +27(0)72 212 1531 Email: m.logan@redrocket.energy

6.2 ROLES AND RESPONSIBILITIES

Formal responsibilities are necessary to ensure that key environmental management measures/procedures are executed. The Holder of the EA, will be responsible for the overall control of the facility during the pre-construction, construction, operation, decommissioning and rehabilitation phases of the project. The responsibilities will include the following:

1. Appointing an independent environmental control officer (ECO) for the duration of the Construction phase and to notify the DFFE of the ECOs qualifications and contact details;
2. Appointing and Environmental Site Compliance Officer (ESCO) for the duration of the construction phase of the project.
3. Understanding the EIA Report, the requirement of the conditions of the Environmental Authorisation (EA) and the EMPr;
4. Applying for an amendment of the EA from the DFFE in the event that the approved scope changes in line with the prevailing legislation;
5. Overall implementation of the EMPr;
6. Ensuring compliance, by all parties, and the imposition of penalties for non-compliance;
7. Implementing corrective and preventive actions, where required;
8. Preventing pollution and actions that will harm or may cause harm to the environment;
9. Ensuring the activity does not commence prior to issuance of the EA;
10. Notifying the DFFE within 14 days that construction activity will commence;
11. Notifying the DFFE in writing within 24 hours if any condition in the EA cannot be or is not adhered to;
12. Notifying the DFFE should minor changes to the layout be required (as confirmed by the ECO and ESCO);
13. Notifying the DFFE 14 days prior to commencement of the operational phase.

Throughout the lifespan of this project, several individuals and entities will fulfil various roles and responsibilities to ensure the effective implementation of this EMPr. The key roles and responsibilities are defined in the table below and the Organogram is presented Figure 6.1**.**

While the term ECO/ESCO is referenced in Specialist Reports, the ESCO is an independent function, reporting to the DFFE. The term used in this EMPr for the Permit Holder's onsite compliance management function is Environmental Site Compliance Officer (ESCO).

Table 6.2 Roles and Responsibilities regarding the implementation of the EMPr

RESPONSIBLE PERSON	RESPONSIBILITIES
Environmental Authority – Department of Forestry, Fisheries and the Environment.	Role: The Department of Forestry, Fisheries and the Environment (DFFE) is the Competent Authority responsible for compliance with the relevant environmental legislation, namely the National Environmental Management Act and other Specific Environmental Management Acts (SEMA's) Responsibilities: • Ensure overall compliance with the Environmental Authorisation (EA) & EMPr. • Review this document and any revisions thereof. • Undertake site audits at their discretion. • Review ECO Reports. • Review Audit Reports • Review Incident Reports. • Enforce legal mechanisms for contraventions of this EMPr and EA.
The Proponent - Holder of the EA - FE Overberg (RF) (Pty) Ltd	Role: The Proponent is ultimately responsible and legally liable for ensuring compliance with all statutory requirements relating to the facility. Responsibilities: • Be fully conversant with the BAR and Motivation Report the conditions of EA and the EMPr; • Be fully conversant with all relevant environmental legislation and ensure compliance thereof; • Approve method statements (co-approval with Site Manager); • Take appropriate action if the specifications contained in the EMPr and conditions of the environmental authorisation are not followed; • Monitor and verify that environmental impacts are kept to a minimum, as far as possible; and • Ensure that activities onsite comply with all relevant environmental legislation • Ensuring compliance with the conditions set out in the Environmental Authorisation issued in terms of the NEMA, as well as those prescribed by other relevant legislation and guidelines.

RESPONSIBLE PERSON	RESPONSIBILITIES
	• Compliance with the requirements set out in this EMPr. • Ensuring all other permits, permissions and licences from all other statutory departments are in place.
Project Manager	Role: • The Employer's representative role is likely to be fulfilled by the project engineer and assumes overall delegated responsibility for compliance with this EMPr, the EA, the conditions of the Planning Approval, Conditions of the WULA and all applicable legislation for the duration of the construction phase. Responsibilities: • Issue site instructions to the contractor based on the advice of the ECO. • Ensure that all detailed design incorporates the requirements of the EMPr and EA. • Ensure that the EMPr is included in all tender documents issued to prospective contractors and sub-contractors. • Ensure the EMPr is included in final contract documents. • Ensure that the Tenderers/Contractors adequately provide for compliance with the EMPr in their submissions. • Ensure that the EMPr is fully implemented by the relevant persons. • Ensure the contractor provides the necessary method statements. • Be accountable, to the competent authority for any contravention or non-compliance by the Contractor. • Assist the contractor with input from the ECO in finding environmentally responsible solutions to problems. • Undertake regular site audits, site visits and inspections to ensure that the requirements of the EMPr are implemented • Give instructions on any procedures and corrective actions on advice from the ECO. • Report environmental incidents or non-compliance with the EA or EMPr to the environmental authority. • Issue spot fines, penalties or 'stop-work' orders for contravention of the EMPr and give instructions regarding corrective action.
Site Manager	• Be fully conversant with the BAR, the conditions of EA and the EMPr; • Approve method statements (co-approval with ESCO); • Provide support to the EO and ESCO; • Be fully conversant with all relevant environmental legislation and ensure compliance thereof;

RESPONSIBLE PERSON	RESPONSIBILITIES
	• Be responsible for the implementation of the EMPr and conditions of the EA; • Ensure that audits are conducted to monitor compliance to the EMPr and conditions of the EA; • Liaise with the Project Manager or his delegate, the ESCO and others on matters concerning the environment; • Prevent actions that will harm or may cause harm to the environment, and take steps to prevent pollution and unnecessary degradation onsite; and • Confine construction activities to demarcated areas.
Environmental Officer (EO)	• The EO must be appointed by the Contractor and is responsible for managing the day-to-day onsite implementation of the EMPr, and for the compilation of weekly environmental monitoring reports. In addition, the EO must act as liaison and advisor on all environmental and related issues, seek advice from the ESCO and ESCO when necessary, and ensure that any complaints received from I&APs are duly processed and addressed and that conflicts are resolved in an acceptable manner and timely manner. The EO shall be a full-time dedicated member of the Contractor's team and must be approved by FE Overberg (RF) (Pty) Ltd . • The following qualifications, qualities and experience are recommended for the individual appointed as the EO: o A relevant environmental diploma or degree in natural sciences, as well as experience in construction site monitoring, excluding health and safety; o A level-headed and firm person with above-average communication and negotiating skills. The ability to handle and address conflict management situations will be an advantage; and o Relevant experience in environmental site management and EMPr compliance monitoring. • The EO's responsibilities include: o Monitoring, on a daily basis, environmental specifications on site and compliance with the conditions of the EA, environmental legislation and EMPr; o Keeping a register of compliance / non-compliance with the environmental specifications; o Identifying and assessing previously unforeseen, actual or potential impacts on the environment; o Ensuring that a brief weekly environmental monitoring report is submitted to the ESCO;

RESPONSIBLE PERSON	RESPONSIBILITIES
	○ Conducting site inspections during the defect's liability period, and bringing any environmental concerns to the attention of the ESCO and Contractor; ○ Advising the Contractor on the rectification of any pollution, contamination or damage to the construction site, rights of way and adjacent land; ○ Attending site meetings (scheduled and ad hoc); ○ Presenting the environmental awareness training course to all staff, Contractors and Sub contractors, and monitoring the environmental awareness training for all new personnel on-site, as undertaken by the Contractor; ○ Ensuring that a copy of the EA and the latest version of the EMPr are available on site at all times; ○ Ensuring that the Contractor is made aware of all applicable changes to the EMPr; ○ Assisting the Contractor in drafting environmental method statements and/or the Environmental Policy where such knowledge/expertise is lacking; ○ Undertaking daily environmental monitoring to ensure the Contractor's activities do not impact upon the receiving environment. Such monitoring shall include dust, noise and water monitoring; and ○ Maintaining the following on site: ▪ A weekly site diary. ▪ A non-conformance register (NCR). ▪ An I&AP communications register, and ▪ A register of audits. • The EO will remain Employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is handed over to the Holder of the EA.
Environmental Site Compliance Officer (ESCO)	Role: To assist the ECO with the day to day implementation and monitoring of the environmental management actions that are taking place on site. Responsibilities: • A suitably qualified ESCO must be appointed by the Holder of the EA to monitor the project compliance onsite on a full time basis. • Responsibilities of the ESCO include: ○ Be fully conversant with the BAR, the conditions of EA and the EMPr; ○ Be fully conversant with all relevant environmental legislation and ensure compliance thereof; ○ Approve method statements (co-approval with Site Manager);

RESPONSIBLE PERSON	RESPONSIBILITIES
	○ Remain employed until the completion of the construction activities; and ○ Report to the Project Manager, including all findings identified onsite. • In addition, the ESCO will: ○ Undertake monthly inspections of the site and surrounding areas to audit compliance with the EMPr and conditions of the environmental authorisation; ○ Take appropriate action if the specifications contained in the EMPr and conditions of the environmental authorisation are not followed; ○ Monitor and verify that environmental impacts are kept to a minimum, as far as possible; and • Ensure that activities onsite comply with all relevant environmental legislation. • Day to day environmental control of contractors on site during the construction phase. • Monitoring of construction management activities during the construction phase. ○ Weekly reporting to the ECO.
Environmental Control Officer (ECO)	Role: • The ECO fulfils an advisory role to monitor, guide and report compliance with the EMPr. Responsibilities: • A suitably qualified external ECO must be appointed by the Holder of the EA to audit the project compliance in terms of the EMPr and conditions of the EA on a monthly basis, during the construction phase, in line with Condition 21 of the EA. • The costs of the ECO shall be borne by the Holder of the EA (proof of appointment must be maintained onsite). • Revise, update and amend the EMPr if necessary and submit the amendments to the competent authority for consideration. • Ensure all relevant persons have a copy of the EMPr and any amendments thereof. • Advise the employer's representative on any additional environmental authorisations and permits that may be required. • Facilitate the Environmental Education / Induction Training with the contract staff.

RESPONSIBLE PERSON	RESPONSIBILITIES
	• Review and comment on Method Statements relevant to environmental management and make recommendations to the employer's representative. • Report any non-compliance with the EMPr or EA to the employer's representative and competent authority if necessary. • Undertake regular site inspections in compliance with this EMPr. • Monitor, audit and verify that all works comply with the EA and the EMPr. • Keep record of EMPr implementation, monitoring and audits, including a full photographic record of works. • Comply and submit regular Environmental Control Reports to the competent authority, as well as employer's representative &/ holder of the authorisation. • Report any environmental incidents or environmental impacts immediately to the employer's representative and the competent authority if necessary. • Report any environmental incidents or environmental impacts immediately to the employer's representative and the competent authority if necessary. • Assist the contractor and employer's representative planning for and implementing environmentally sensitive problem solving. • Advise the employer's representative on suggested "stop work orders.
Contractors, Staff and Service Providers	• Complying with the Holder of the EA's environmental management specifications; • Be conversant with all EMPr and conditions of the EA, and ensure compliance thereto; and • Adhering to any environmental instructions issued by the Site Manager/Project Manager on the advice of the ESCO.

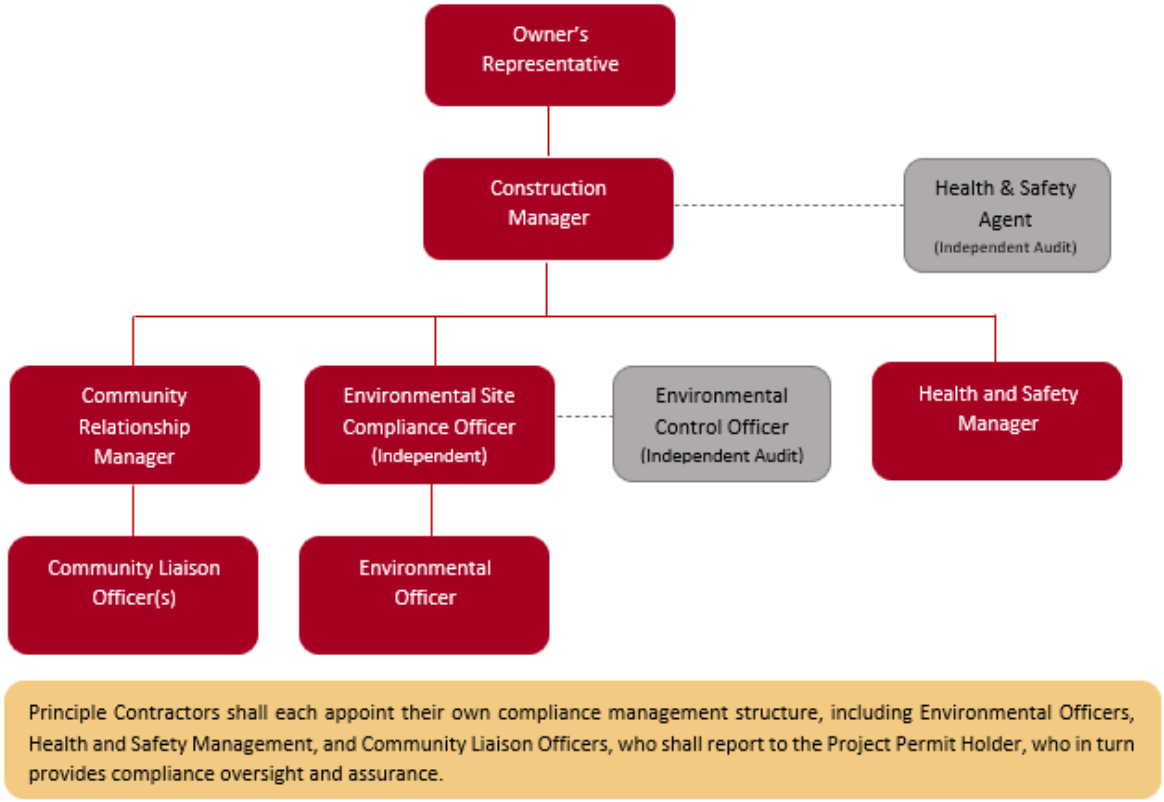


Figure 6.1. Holder of the EA Construction Phase management structure

6.3 AUDITING OF THE EA AND THE EMPR

Compliance with the Conditions of the EA and EMPr for the construction and post- construction monitoring phases must be monitored regularly by an independent environmental auditor. Compliance Reports must be submitted to the Competent Authority monthly (within 21 working days of the end of each month) for the duration of construction and quarterly (within 21 working days of the end of each quarter) for post construction operations.

The results of the audit must be recorded in an environmental audit report and any non-compliance must be formally recorded, along with the response-action required or undertaken. Each non-compliance incident report must be issued to the relevant person(s), so that the appropriate corrective and preventative action is taken within an agreed upon timeframe.

Appendix 7 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Audit Report. The table below shows the legislated requirements of an audit reports, and all relevant environmental audits undertaken as part of this development (during construction and operation) should comply with these requirements.

Table 6.3 Content of an Audit Report

1) An Environmental audit report prepared in terms of these Regulations must contain:
(a) Details of – (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report.

(b) Details of – (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report.
(c) A declaration that the independent auditor is independent in a form as may be specified by the competent authority.
(d) An indication of the scope of, and the purpose for which, the environmental audit report was prepared.
(e) A description of the methodology adopted in preparing the environmental audit report.
(f) An indication of the ability of the EMPr, and where applicable the closure plan to – (i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis; (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.
(g) A description of any assumptions made, and any uncertainties or gaps in knowledge.
(h) A description of a consultation process that was undertaken during the course of carrying out the environmental audit report.
(i) A summary and copies of any comments that were received during any consultation process.
(j) Any other information requested by the competent authority.

6.4 FREQUENCY OF VISITS BY THE ECO/ESCO

1. The ESCO is required to be on site daily for the duration of the Project, unless the determined otherwise by the ECO, taking into consideration the performance and compliance of the Contractor on site and with the EMPR respectively.
2. An independent ECO will work along-side the ESCO to conduct the required inspections of the construction activities and EMPr implementation throughout the construction phase. After each monthly inspection, the ECO will produce a monitoring report that will be submitted to the Developer / Applicant, the DFFE, and any other person(s) if required. Relevant sections of the minutes of customary (monthly) site meetings will be attached to the monitoring report.
3. The ECO/ESCO should conduct on going Basic Environmental Awareness Training sessions with the Contractor, his staff and sub-contractors prior to any work taking place. The Contractors are required to provide a facility and interpreter (if required).
4. The ECO is responsible in ensuring that daily / weekly (depending on the extent of construction activities, at any given time) monitoring of site activities take place by the ESCO to ensure adherence to the specifications contained in the EMPr
5. An initial meeting with the ECO/ESCO, local authority representative, Principal Agent and Contractor must be held to familiarise each of the parties with each other, the site, the EMPr and to confirm communication methods.

6. The frequency of subsequent meetings and ECO/ESCO visits must be agreed, depending on the performance of the Contractor. If required, the Principal Agent may introduce some form of penalty system if compliance with the EMPr proves problematic.
7. A brief summary of the findings and any recommendations made by the ECO/ESCO per visit must be emailed to all parties including the Principal Agent and Contractor. This report should also include photographs for additional information.

6.5 DOCUMENTED PROCEDURES

Method Statements (a template for these purposes is appended to this EMPr) will be required for activities that may result in significant impacts according to the ECO/ESCO.

These must address the following aspects:

- What – a brief description of the work to be undertaken
- How – a detailed description of the process of work, methods and materials
- Where – a description of the location of the work (if applicable)
- When – the sequencing of actions with commencement and completion date estimates

All Method Statements (MS) must be in place at least 5 working days prior to the relevant construction activities taking place and must be approved by the ECO/ESCO and Principal Agent prior to being implemented.

The following MS must as a minimum be made available to address the following construction related impacts:

- Erosion Management;
- Waste Management;
- Traffic Management; and
- Freshwater Management
- Road Management and construction

6.6 HANDLING OF COMPLAINTS RELATED TO THE PROJECT

A complaints or communication register must be developed and maintained by the EO and ECO/ESCO All forms of complaint must be forwarded to the EO and ECO/ESCO in writing. These must be entered into the environmental register and all responses and actions taken to address these must also be recorded. All issues raised must be addressed. It is important that the complainant feels that their concerns have been listened to and that appropriate action (within reason) has been taken to address these.

6.7 CONDUCT OF EMPLOYEES ON SITE

The following restrictions will be placed on all staff operating on the site in general:

- Adherence to relevant health and safety standards and municipal by laws
- Use of appropriate Personal Protective Equipment (PPE) at all times
- No alcohol or illegal substance use may occur on site

- No illegal disposal of rubble;
- No littering of the site or surrounding areas;
- No collection of firewood;
- No interference with any fauna or flora;
- No use of toilet facilities other than the chemical toilets provided on site;
- No lighting of open fires; and
- No burning of any waste on site.

6.8 MATTERS PERTAINING TO NON-CONFORMANCE ON SITE

"Non-conformances" would occur when there are deviations from any of the construction requirements of this EMPr. This may also include non-compliance with the relevant environmental regulations.

The Contractor is responsible for the implementation of the conditions stipulated in the EMPr on the site. The ECO/ESCO in collaboration with the Contractor's EO must undertake the following activities:

- The ECO/ESCO to investigate and identify the cause of non-conformances on the project site.
- The ECO/ESCO to report matters of non-conformance to the national Department of Environmental Affairs within a suitable timeframe, dependant on the severity of the incident.
- The EO to implement suitable corrective action as well as prevent recurrence of the problem.
- The EO to assign responsibility for corrective and preventative action.
- Any corrective action taken to eliminate the cause/s of non-conformance shall be appropriate to the magnitude of the problems and commensurate with the environmental impact encountered.

Records

The Contractor must maintain and update the environmental register at all times regarding non-conformance issues. The record shall specifically contain and list the instances of non-conformances found in the EMPr, the date of their occurrence, date of corrective action, and date of completion of preventive action. In addition, matters of non-conformance and corrective action must be included within the audit reports. Records must be are legible, identifiable, protected and easily retrieved for review.

Fine and Penalties relating to non-conformance/contraventions

The Contractor must comply with the environmental requirements of the construction phase requirements of this EMPr on an on-going basis and any failure on his part to do so will entitle the ECO/ESCO and Principal Agent to impose a fine subject to the details set out below. Money from fines/penalties will be managed and allocated at the discretion of the Principal Agent.

1) Spot fines

Spot fines will be issued per incident in addition to any remedial costs incurred as a result of non-conformance with the EMPr, at the discretion of the Principal Agent and ECO/ESCO. The ECO/ESCO may *recommend* the imposition of fines and penalties but the Principal Agent will be responsible for imposing such fines or penalties against the account of the Contractor. Fines may be imposed on the Contractor for contraventions of the EMPr by individuals or operators employed by the Contractor

and/or any sub-Contractors. The Principal Agent will inform the Contractor of the EMPr contravention and the amount of the fine. These monies will be recovered by the Principal Agent from the Contractor.

Failure by the Contractor to pay fines imposed by the Principal Agent within 14 days of the fine being imposed may result in a "Stop Works" order being issued by the Principal Agent until the matter is resolved. Any costs incurred as a result of the "Stop Works" order will be for the account of the Contractor.

The following spot fines are recommended for contraventions (plus any rehabilitation costs if applicable):

a) Any individual/s littering on site: R50 on first offence and R250 on further offences.
b) Any individual/s burning waste on site: R250 on first offence and R1 000 on further offences.
c) Any individual/s dumping waste on site: R250 on first offence and R1 000 on further offences.
d) Any violation of a Method Statement: R250 for first offence and R1 500 on further offences.
e) Any individual causing avoidable disturbance to fauna and flora on site: R250 on first offence and R1 000 on further offences.
    - This notably includes any presence, activity or disturbance of the Renosterveld remnants which must be treated as strict no-go areas.

2) Penalty fines

Penalty fines will be implemented where the Contractor repeatedly fails to comply with the specifications of this EMPr the Contractor will be liable to pay a penalty fine over and above any other contractual consequence.

The following penalty fines (per repeat offence) are recommended for transgressions:

a) Ongoing littering on site: R2 500 plus any rehabilitation costs, if applicable.
b) Ongoing dumping of any waste on site: R10 000 plus any rehabilitation costs, if applicable.
c) Ongoing burning of any waste on site: R10 000 plus any rehabilitation costs, if applicable.
d) Ongoing transgression of a Method Statement: R10 000 plus any rehabilitation costs, if applicable.
e) Ongoing disturbance to Fauna and Flora on site: R5 000 plus any rehabilitation costs, if applicable.
    - This notably includes any presence, activity or disturbance of the Renosterveld remnants which must be treated as strict no-go areas.

3) Other fines

a) Any individual/s causing damage to identified sensitive natural areas: R5 000 plus any rehabilitation costs.
    - This notably includes any disturbance or damage to the Renosterveld remnants which must be treated as strict no-go areas.
b) Any individual/s causing damage to identified sensitive heritage areas: R5 000 plus any rehabilitation costs.
c) Any individual/s causing irreparable damage to the environment: R10 000.
d) Injuring or killing of any wildlife: R5 000 plus any rehabilitation costs, if applicable.

The above recommended fines are applicable and relevant to the construction phase of this EMPr and as such do not exempt the client from other legal obligations such as *Section 24(h)* National Environmental Management Second Amendment Act, Act No. 107 of 1998, which states that it is "*an offence for any person to contravene conditions applicable to any environmental authorization granted for a listed activity. A person convicted of an offence is liable to a fine not exceeding R5 million or to imprisonment for a period not exceeding ten years, or to both such fine and such imprisonment".*

An Environmental Management Programme constitutes a *Condition* applicable to an *Environmental Authorisation* and any transgression would thus trigger *Section 24(h)* of the above-mentioned Act. The exact penalty and fines will be decided on, subsequent to consultation with Competent Authority and the local municipality.

All staff working on-site must be made aware of the penalties and fines associated with non-conformance. The Principal Agent will be responsible for ensuring that the penalty system is maintained and enforced. Should disputes arise between the Client, Engineer, Contractor or ECO/ESCO with respect to the above then the matter will be referred to arbitration.

ANNEXURE A

GLOSSARY

TERMS USED IN THIS *EMP*

"Acceptable exposure" *means the exposure of the maximum permissible concentration of a substance to the environment that will have a minimal negative effect on health or the environment.*

"Agenda 21" *means the document by that name adopted at the United Nations Conference of Environment and Development held in Rio de Janeiro, Brazil in June 1992.*

"Agreement"*, for the purpose of NEMA EIA Regulations GNR 982 regulation 1(3) and (4) (of 2014) means the Agreement as contemplated in section 50A (2) of the Act;*

"Agri-industrial" *means an undertaking involving the beneficiation of agricultural produce.*

*"**Alternatives**", in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to –*

(a) the property on which, or location where, the activity is proposed to be undertaken;
(b) the type of activity to be undertaken;
(c) the design or layout of the activity;
(d) the technology to be used in the activity; or
(e) the operational aspects of the activity;

And includes the option of not implementing the activity.

*"**Applicant**", means a person who has submitted or who intends to submit an application.*

"Application" *in terms of the NEMA EIA Regulations GNR 982 (2014) means an application for an –*

(a) Environmental authorisation in terms of Chapter 4 of these Regulations;
(b) Amendment to an environmental authorisation in terms of Chapter 5 of these Regulations;
(c) Amendment to an EMPr in terms of Chapter 5 of these Regulations; or
(d) Amendment of a closure plan in terms of Chapter 5 of these Regulations;

"Aquifer" *means a geological formation which has structures or textures that hold water or permit appreciable water movement through them*

"Aquatic critical biodiversity areas"*, means linkages between catchment, important rivers and sensitive estuaries whose safeguarding is critically required in order to meet biodiversity pattern and process thresholds and are spatially defined as part of a bioregional plan or systematic biodiversity plan, available on the South African National Biodiversity Institute's BGIS website (http://bgis.sanbi.org/WCBF14project.asp);*

"Associated structures, infrastructure and earthworks" *means any structures, infrastructure or earthworks, including borrow pits, that is necessary for the functioning of a facility activity;*

"Basic assessment report" *means a report contemplated in NEMA EIA Regulations GNR 982 regulation 19 (of 2014);*

"Best practicable environmental option" *means the Option that provides the most benefit or causes the least damage to the environment as a whole at a cost acceptable to society in the long term as well as in the short term*

"Biodiversity"*, this means the variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.*

"Bioregional plan" *means the bioregional plan contemplated in Chapter 3 of the National Environment Management Biodiversity Act, 2004 (Act No. 10 of 2004);*

"Borehole" *includes a well, excavation or my artificially constructed or improved underground cavity which can be used for the purpose of—*

(a) intercepting, collecting or storing water in or removing water from an aquifer;
(b) observing and collecting data and information on water in an aquifer; or
(c) recharging an aquifer;

"Buffer area" *means, unless specifically defined, an area extending 10 kilometres from the proclaimed boundary of a world heritage site or national park and 5 kilometres from the proclaimed boundary of a nature reserve, respectively, or that defined as such for a biosphere;*

"Building and demolition waste" *means waste, excluding hazardous waste, produced during the construction, alteration, repair or demolition of any structure, and includes rubble, earth, rock and wood displaced during that construction, alteration, repair or demolition.*

"Business waste" *means waste that emanates from premises that are used wholly or mainly for commercial, retail, wholesale, entertainment or government administration purposes.*

"By-product" *means a substance that is produced as part of a process that is primarily intended to produce another substance or product and that has the characteristics of an equivalent virgin product or material.*

"Canal" *means an open structure that is lined or reinforced, for the conveying of a liquid or that serves as an artificial watercourse.*

"Catchment" *in relation to a watercourse or watercourses or part of a watercourse, means the area from which any rainfall will drain into the watercourse or watercourses or part of a watercourse, through surface flow to a common point or common points.*

"Channel" *means an excavated hollow bed for running water or an artificial underwater depression to make a water body navigable in a natural watercourse, river or the sea.*

"Clean production" *means the continuous application of integrated preventative environmental strategies to processes, products and services to increase overall efficiency and to reduce the impact of such processes, procedures and services on health and the environment.*

*The term '**client**' means the owner of the asset to be procured or project product, and representative of the end users of the asset.*

"Closure plan" *means a plan contemplated in NEMA EIA Regulations GNR 982 regulation 19 (of 2014);*

"Commence" *means the start of any physical activity, including site preparation or any other activity on the site in furtherance of" a waste management activity, but does not include any activity required for investigation or feasibility study purposes as long as such investigation or feasibility study does not constitute a waste management activity.*

"Commercially confidential information" *means commercial information the disclosure of which would prejudice to an unreasonable degree the commercial interests of the holder provided that details of emission levels and waste products must not be considered to be commercially confidential notwithstanding any provision of this Act or any other law.*

"Community" *means any group of persons or a part of such a group who share common interests and who regard themselves as a community.*

"Competent authority"*, means the authority who in terms of the provisions of the NEMA and the EIA Regulations GNR 982 (of 2014) is identified as the authority who must consider and decide on an application in respect of a Specific listed activity.*

> *Note: the "competent authority" in terms of an application for environmental authorisation for an Activity listed in listing notice 1, 2 or 3, is not necessarily the same authority as the "licensing Authority" in terms of the NEMA:WA or NEM: AQA.*

"Concentration of animals" *means the keeping of animals in a confined space or structure, including a feedlot, where they are fed in order to prepare them for slaughter or to produce products such as milk or eggs.*

"Conservation" *in relation to a water resource means the efficient use and saving of water, achieved through measures such as water saving devices, water-efficient processes, water demand management and water rationing.*

"Constitution" *means the Constitution of the Republic of South Africa 1996 (Act No. 108 of 1996).*

"Construction" *means the building, erection or establishment of a facility, structure or infrastructure that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure and excluding the reconstruction of the same facility in the same location, with the same capacity and footprint.*

*The term '**Contractor**' means an organisation that contracts with a Principal to carry out the work under the contract, including construction and related services, to deliver an asset or construction product.*

*The term '**consultant**' means a professional person or organisation that contracts with a customer to provide design, management or other services.*

"Container" *means a disposable or re-usable vessel in which waste is placed for the purposes of storing, accumulating, handling, transporting, treating or disposing of that waste, and includes bins, bin-liners and skips.*

"Contaminated" *means the presence in or under any land, site, buildings or structures of a substance or micro-organism above the concentration that is normally present in or under that land, which substance or micro-organism directly or indirectly affects or may affect the quality of soil or the environment adversely.*

"Cultural significance"*, this means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.*

"Cumulative impact"*, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities;*

"Dam" *when used in the Listing Notice 1 GNR 983 and Listing Notice 2 GNR 984 Regulations means any barrier dam and any other form of impoundment used for the storage of water.*

"Dangerous goods" *means goods containing any of the substances as contemplated in South African National Standard No. 10234, supplement 2008 1.00: designated "List of classification and labelling of chemicals in accordance with the Globally Harmonized System (GHS)" published by Standards South Africa, and where the*

presence of such goods, regardless of quantity, in a blend or mixture, causes such blend or mixture to have one or more of the characteristics listed in the Hazard Statements in section 4.2.3, namely physical hazards, health hazards or environmental hazards;

*"**Days**" means calendar days. Note: when a period of days must in terms of these regulations be reckoned from or after a particular Day, that period must be reckoned as from the start of the day following that particular day to the end of the last day of the period, but if the last day of the period falls on a Saturday, Sunday or public holiday, that period must be extended to the end of the next day which is not a Saturday, Sunday or public holiday. The period of 15 December to 2 January must be excluded.*
In the reckoning of days, where a timeframe is affected by the 15 December to 2 January period, the timeframe must be extended by the number of days falling within the 15 December to 2 January period. Where a timeframe is affected by one or more public holidays, the timeframe must be extended by the number of public holiday days falling within that timeframe.

***"Decommissioning"** means to take out of active service permanently or dismantle partly or wholly, or closure of a facility to the extent that it cannot be readily re-commissioned.*

*"**Department**", means the Western Cape department of environmental affairs and development planning;*

***"Derelict land"** means abandoned land or property where the lawful/legal land use right has not been exercised during the preceding ten-year period.*

*The term **'design'** means the process (and product) of converting a brief into design details ready for documentation, including concept design and design development, and then documentation or detailing of the technical and other requirements for the project in a written form that details the project product sufficiently for it to be constructed or otherwise provided.*

***"Development"** means the building, erection, construction or establishment of a facility, structure of infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, including any associated post development monitoring, but excludes any modification, alteration or expansion of such a facility, structure of infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint;*

***"Development footprint",** means any evidence of its physical alteration as a result of the undertaking of any activity;*

***"Development setback"** means a setback line defined or adopted by the competent authority;*

***"Disposal"** means the burial, deposit, discharge, abandoning, dumping, placing or release of any waste into, or onto, any land.*

***"Domestic waste"** means waste, excluding hazardous waste, that emanates from premises that are used wholly or mainly for residential, educational, health care, sport or recreation purposes.*

***"DWA"**, the Department of Water Affairs. This Department is the custodian of South Africa's water resources. It is primarily responsible for the formulation and implementation of policy governing this sector. It also has override responsibility for water services provided by local government.*

***"Ecosystem"** means a dynamic system of plant animal and micro-organism communities and their non-living environment interacting as a functional unit.*

"Effluent" *means-*

a) *Any liquid discharge into the coastal environment as waste and includes any substance dissolved or suspended in the liquid; or*
b) *Liquid which is a different temperature from the body of water into which it is being discharged.*

"Environment", *the surroundings (biophysical, social and economic) within which humans exist and that are made up of:*

i. the land, water and atmosphere of the earth;
ii. micro-organisms, plant and animal life;
iii. any part or combination of (i) and (ii) and the interrelationships among and between them; and
iv. the physical, chemical, aesthetic and cultural properties and conditions of the foregoing that influence human health and wellbeing;

*"**Environmental assessment practitioner**" (EAP), means the individual responsible for planning, management and coordination of environmental impact assessments, strategic environmental assessments, environmental management programmes or any other appropriate environmental instrument introduced through the NEMA EIA Regulations GNR 982 – as defined in section 1 of the Act.*

Note: if exemption from the appointment of an EAP has been applied for, the applicant must perform the tasks required of an EAP, as indicated in this guideline.

"Environmental audit report" *means a report contemplated in NEMA EIA Regulations GNR 982 regulation 34 (of 2014);*

*"**Environmental authorisation**", means the authorisation by a competent authority of a listed activity or specified activity in terms of this act, and includes a similar authorisation contemplated in a specific environmental management act.*

"Environmental Impact", *the direct effect of human activities and natural events on the components of the environment.*

"Environmental Impact Assessment" *(EIA), means a systematic process of identifying, assessing and reporting environmental impacts associated with an activity and includes basic assessment and S&EIR;*

"Environmental Impact Assessment Report" *(EIR) means a report contemplated in NEMA EIA Regulations GNR 982 regulation 23 (of 2014);*

"Environmental Management Programme" *(EMPr), a document that contains recommendations for the control or management of the potential significant impacts of operations on the environment and recommendations to contain or mitigate actual impacts – as contemplated in NEMA EIA Regulations GNR 982 regulation 19 and regulation 23 (of 2014).*

*The term '**environmental opportunity**' means a potential for beneficial environmental impacts (such as an improvement in air or water quality through environmentally friendly technology alternatives).*

*The term '**environmental risk**' means a potential for adverse environmental impacts (such as pollution of a water source during construction activities).*

"Environmentally sound management" *means the taking of all practicable steps to ensure that waste is managed in a manner that will protect health and the environment.*

"Expansion" *means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which an activity takes place in such a manner that the capacity of the facility or the footprint of the activity is increased.*

"Export" *means to take or send waste from the Republic to another country or territory.*

"Extended producer responsibility measures" *means measures that extend a person's financial or physical responsibility for a product to the post-consumer stage of the product, and includes—*

(a) waste minimisation programmes;
(b) financial arrangements for any fund that has been established to promote the reduction, re-use, recycling and recovery of waste;
(c) awareness programmes to inform the public of the impacts of waste emanating from the product on health and the environment; and
(d) any other measures to reduce the potential impact of the product on health and the environment

"Fatal Flaw"*: generally, this is regarded as an impact associated with an activity on a site that is of such a negative or detrimental nature that even with mitigation measures, cannot be mitigated to acceptable levels and it is therefore not considered as implementable by the relevant independent specialist or EAP.*

"Feasible", *Acceptable, capable of being used or implemented successfully, without unacceptably damaging the environment. Hydrogeological study: The study of ground water.*

"Financial year" *means a period commencing on 1 April of any year and ending on 31 March of the following year.*

"Forum" *refers to the National Environmental Advisory Forum.*

"Gazette"*, when used in relation to—*

(a) the Minister, means the Government Gazette; and
(b) the MEC, means the Provincial Gazette of the province concerned.

"General waste" *means waste that does not pose an immediate hazard or threat to health or to the environment, and includes—*

(a) domestic waste;
(b) building and demolition waste;
(c) business waste: and
(d) inert waste;

"Government waterwork" *means a waterwork owned or controlled by the Minister and includes the land on which it is situated.*

"Hazard" *means a source of or exposure to danger.*

"Hazardous waste" *means any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.*

"Holder of waste" *means any person who imports, generates, stores, accumulates, transports, processes, treats, or exports waste or disposes of waste.*

"High-risk activity" *means an undertaking, including processes involving substances that present a likelihood of harm to health or the environment.*

"Import" *means any entry into the Republic other than entry for transit.*

"Important Bird and Biodiversity Areas (IBA)" *means areas/sites that hold significant numbers of globally and/or regionally threatened species (Categories A1 and C1); sites that are known or thought to hold a significant component of a group of species whose breeding distributions define and Endemic Bird Area (EBA) (Category A2); sites that are known or thought to hold a significant component of a group of species whose distributions are largely or wholly confined to one biome (Category A3);*

"Incineration" *means any method, technique or process to convert waste to flue gases and residues by means of oxidation.*

"Independent"*, in relation to an EAP, a specialist or the person responsible for the preparation of an environmental audit report, means –*

- *(a) That such EAP, specialist or person has no business, financial, personal or other interest in the activity or application in respect of which that EAP, specialist or person is appointed in terms of the NEMA EIA Regulations GNR 982 (2014); or*
- *(b) That there are no circumstances that may compromise the objectivity of that EAP, specialist or person in performing such work; excluding –*
  - *i. Normal remuneration for a specialist permanently employed by the EAP; or*
  - *ii. Fair remuneration for work performed in connection with that activity, application or environmental audit;*

"Indigenous vegetation" *refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.*

"Industrial complex" *means an area used or zoned for bulk storage, manufacturing, processing or packaging purposes.*

"Industry" *includes commercial activities, commercial agricultural activities, mining activities and the operation of power stations.*

"Inert waste" *means waste that—*

(a) does not undergo any significant physical, chemical or biological transformation after disposal;
(b) does not burn, react physically or chemically biodegrade or otherwise adversely affect any other matter or environment with which it may come into contact; and
(c) does not impact negatively on the environment, because of its pollutant content and because the toxicity of its leachate is insignificant;

"In stream habitat" *includes the physical structure of a watercourse and the associated vegetation in relation to the bed of the watercourse.*

*"**Interested and affected party**" (I&AP), for the purposes of chapter 5 of the NEMA and in relation to the assessment of the environmental impact of a listed activity or related activity, means an interested and affected party contemplated in section 24(4)(a)(v), and which includes-*

(a) any person, group of persons or organisation interested in or affected by such operation or activity; and
(b) any organ of stale that may have jurisdiction over any aspect of the operation or activity.

"International environmental instrument" *means any international agreement declaration, resolution, convention or protocol which relates to the management of the environment.*

"Large stock unit" *means domesticated units including but not limited to cattle and horses, as well as game, including but not limited to antelope and buck with an average adult male live weight of 100 kilograms or more.*

"Life cycle assessment" *means a process where the potential environmental effects or impacts of a product or service throughout the life of that product or service are being evaluated.*

"Linear activity" *means an activity that is arranged in or extending along one or more properties and which affects the environment or any aspect of the environment along the course of the activity, and includes railways, roads, canals, channels, funiculars, pipelines, conveyor belts, cableways, powerlines, fences, runways, aircraft landing strips, and telecommunication lines;*

"Littoral active zone" *means any land forming part of or adjacent to the seashore that is-*

a) *unstable and dynamic as a result of natural processes, and*
b) *characterised by dunes, beaches, sand bars and other landforms composed of unconsolidated sand, pebble or other such material which is either un-vegetated or only partially vegetated*

"Low water mark" *means the lowest line in which coastal waters recede during spring tides.*

"Maintenance" *means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint;*

"Maintenance management plan" *means a management plan for maintenance purposes defined or adopted by the competent authority;*

*The term '**management**' means the planning and interactive controlling of human and material resources to achieve time, cost, quality, performance, functional and scope requirements. It involves the anticipation of changes due to changing circumstances and the making of other changes to minimise adverse effects.*

"MEC" *means the Member of the Executive Council to whom the Premier has assigned the performance in the province of the functions entrusted to a MEC by or under such a provision.*

"Minimisation", *when used in relation to waste, means the avoidance of the amount and toxicity of waste that is generated and. in the event where waste is generated, the reduction of the amount and toxicity of waste that is disposed of.*

"Minimum information requirements" *means the minimum information requirements contemplated in section 24(5)(bA)(viiiA), if any are applicable at the time of the application;*

"Mitigation" *means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible;*

"Mixed use", *with regard to an activity, means the presence of two or more types of land use in an area.*

"National Appeal Regulations" *means the national appeal regulations published in terms of section 43(4) and 44 of the Act;*

"National department" *means a department of State within the national sphere of government.*

"National Environmental Management Act" *(NEMA), means the National Environmental Management Act, 1998 (Act No. 107 of 1998); To provide for co-operative environmental governance by establishing principles for*

decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.

"National Protected Area Expansion Strategy (NPAES)" *means South Africa's national strategy for expansion of the protected area network, led by the Department of Environmental Affairs and developed in collaboration with national and provincial conservation authorities. The NPAES sets targets for protected area expansion, provides maps of the most important areas for protected area expansion, and makes recommendations on mechanisms for protected area expansion. Focus areas for protected area expansion are identified in the NPAES. They are large, intact, unfragmented areas of high importance for land-based protected area expansion, suitable for the creation or expansion of large protected areas.*

"NEM: AQA", *National Environmental Management: Air Quality Act (39 of 2004). The NEM: AQA's serves to protect the environment by providing reasonable measures for the protection and improvement of the quality of air; the prevention of air pollution and ecological degradation; and securing ecologically sustainable development while promoting economic and social development.*

"NEM: BA", *National Environmental Management: Biodiversity Act (10 of 2004). This Act serves to provide for the management and conservation of biological diversity within an area and of the components of such biological diversity. This Acts objective is to preserve species and ecosystems irrespective of whether or not they are situated in protected areas.*

"NEM: PAA", *National Environmental Management: Protected Areas Act (57 of 2003). This Act is intended to protect and conserve ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. This includes the identification and classification of various types of protected areas to give effect to this intention and underpinning this intention is the stated objective of creating a national system of protected areas in South Africa as part of a strategy to manage and conserve its biodiversity. These protected areas are to fall on state owned land, privately owned land and communally owned land.*

"NEM: WA", *National Environmental Management: Waste Act (59 of 2008). The NEM:WA serves to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; to provide for institutional arrangements and planning matters; to provide for national norms and standards for regulating the management of waste by all spheres of government; to provide for specific waste management measures; to provide for the licensing and control of waste management activities; to provide for the remediation of contaminated land; to provide for the national waste information system; to provide for compliance and enforcement; and to provide for matters connected therewith.*

"NEMA EIA regulations*", mean the environmental impact assessment regulations promulgated in terms of the national environmental management act, 1998 (act no. 107 of 1998) ("NEMA") 12.*

*"**No-go option**" means the option of not implementing the activity.*

"Non-substantive"*, in relation to the amendment or substitution of a regulation, notice, strategy, licence, approval, or provision thereof, includes—*

(a) any clerical mistake, unintentional error or omission;
(b) the correction of any miscalculated figure; and 45
(c) the correction of any incorrect description of any person, thing, property or waste management activity;

"Ocean-based activity" *means an activity in the territorial waters of the Republic of South Africa;*

*"**Organ of state**", means -*

(a) any department of state or administration in the national, provincial or local sphere of government; or
(b) any other functionary or institution –
I. Exercising a power or performing a function in terms of the constitution or a provincial constitution; or
Ii. Exercising a public power or performing a public function in terms of any legislation but does not include a court or a judicial officer.

Note: examples of organs of state include: municipalities (both the district and local municipality), Heritage western cape, CapeNature, the department of water affairs, etc.

"Person" *includes a natural person, a juristic person, an unincorporated body, an association, an organ of state and the Minister.*

"Phased activities" *means an activity that is developed in phases over time on the same or adjacent properties to create a single or linked entity through interconnected internal vehicular or pedestrian circulation, sharing of infrastructure, or the continuum of design, style or concept by the same proponent or his or her successors.*

"Plan of study for environmental impact assessment" *means a study contemplated in NEMA EIA Regulations GNR 982 regulation 22 (of 2014) which forms part of a scoping report and sets out how an environmental impact assessment will be conducted;*

"Pollution", *manes any change in the environment caused by-*

i. *Substances*
ii. *Radioactive or other wastes; or*
iii. *Noise, odours, dust or heat.*

Emitted from any activity, including the storage to treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where the change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems or on material useful to people, or will have an effect in the future.

"Previous NEMA notices" *as contemplated in these transitional arrangements means the previous notices published in terms of section 24(2) and NEMA (Government Notices R. 386 and R. 387 in the Government Gazette of 21 April 2006, as amended, or Government Notice No. R 544, 545 and 546 in the Government Gazette of 18 June 2010, as amended);*

*"**Previous NEMA regulations**" means the environmental impact assessment regulations published in terms of: · sections 26 and 28 of the ECA, by government notice no. R. 1183 of 5 September 1997; or · NEMA, by government notice no. R. 385 in the government gazette of 21 April 2006.*

*The term '**procurement**' means the collection of activities performed by and for an agency to acquire services and products, including assets, beginning with the identification/detailing of service requirements and concluding with the acceptance (and where applicable, disposal) of the services and products.*

*The term '**project**' means an undertaking with a defined beginning and objective by which completion is identified. Project delivery may be completed using one contract or a number of contracts*

***"Proponent"** means a person intending to submit an application for environmental authorisation and is referred to as an applicant once such application for environmental authorisation has been submitted;*

***"Protection"** in relation to a water resource, means -*

(a) maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way;
(b) prevention of the degradation of the water resource; and
(c) the rehabilitation of the water resource

***"Protected area"** means those protected areas contemplated in section 9 of the NEMPAA and the core area of a biosphere reserve and shall include their buffers;*

*"**Public participation process**", means a process by which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, an application.*

***"Receipt"** means receipt on the date indicated –*

(a) On a receipt form if the application of document was hand delivered or sent via registered mail;
(b) In an automated or computer generated acknowledgment of receipt;
(c) On an acknowledgment in writing from the competent authority as the date of receipt if the application or document was sent via ordinary mail; or
(d) On an automated or computer generated proof of transmission in the case of a facsimile message;

***"Recovery"** means the controlled extraction of a material or the retrieval of energy from waste to produce a product.*

***"Recycle"** means a process where waste is reclaimed for further use, which process involves the separation of waste from a waste stream for further use and the processing of that separated material as a product or raw material.*

***"Red Flags"**: generally, this is terminology used to bring to attention, at the early stages of assessment, a potentially serious issue that needs to be assessed in greater detail and that may have undesirable impacts, even with mitigation. This can however, only be determined on detailed assessment, but serves as a good guide to the professional team and EAP and applicant early on in the process to inform further design on site.*

***"Registered environmental assessment practitioner or registered EAP"** means an environmental assessment practitioner registered with an appointed registration authority contemplated in section 24H of the Act;*

*"**Registered interested and affected parties**" in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of NEMA EIA Regulations GNR 982 regulation 42 (of 2014);*
a) all persons who, as a consequence of the public participation process conducted in respect of an application have submitted written comments or attended meetings with the applicant or EAP;
b) all persons who, after completion of the public participation process, have requested the applicant or the EAP managing the application, in writing, for their names to be placed on the register; and
c) all organs of state which have jurisdiction in respect of the activity to which the application relates.

Note: to be registered as an interested and affected party the persons referred to in (a) and (b) above must provide their names, contact details and addresses to the EAP managing the application process.
Registered IA&Ps must ensure that they notify the EAP if their contact details and/or address changes during the application process.

A registered I&AP is entitled to comment, in writing, on all written submissions made to the department by the applicant or the EAP, provided that comments are submitted within the specified timeframes and the I&AP discloses any direct business, financial, personal or other interest which that party may have in the approval or refusal of the application.

***"Reserve"** means the quantity and quality of water required -*

(a) to satisfy basic human needs by securing basic water supply, as prescribed under the Water Services Act. I) 97 (Act No, 108 of 1997) for people who are now or who will, in the reasonably near future be—
(i) relying upon;
(ii) taking water from; or
(iii) being supplied from, the relevant water resource; and
(b) to protect aquatic ecosystems in order to secure ecologically sustainable development and use of the relevant watt resource.

***"Resource quality"** means the quality of all the aspects of a water resource including-*

(a) the quality, pattern, timing, water level and assurance of instream flow;
(b) the water quality, including the physical, chemical and biological characteristics of the water;
(c) the character and condition of the instream and riparian habitat; and
(d) the characteristics, condition and distribution of the aquatic biota.

***"Responsible authority"** in relation to a specific power or duty in respect of water uses means-*

(a) it that power or duty has been assigned by the Minister to a catchment management agency that catchment management agency; or
(b) it that power or duty has not so been assigned the Minister.

***"Re-use"** means to utilise articles from the waste stream again for a similar or different purpose without changing the form or properties of the articles.*

***"Riparian habitat"** includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of Species with a composition and physical structure distinct from those of adjacent land areas.*

***"Route determination"** means the process of planning and designing a new route;*

***"SANS 1089:1999"** The Petroleum Industry: Storage and distribution of petroleum products in above-ground bulk installations.*

***"Scoping report"** means a report contemplated in NEMA EIA Regulations GNR 982 regulation 21 (of 2014);*

***"S&EIR"** means the scoping and environmental impact reporting process contemplated in NEMA EIA Regulations GNR 982 regulation 21 to regulation 24 (of 2014);*

*The term '**service provider**' means a Contractor, sub-Contractor, supplier, consultant (including an agency) and sub-consultant (contracting with a consultant), and their service providers, that contract with a customer to carry out assets construction, provide other products (including goods) and/or provide services.*

***"Significant impact"** means an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence;*

***"Site or areas listed in terms of an International Convention"** means any area and its buffer, unless specifically defined, of 5 kilometres extending from is listed boundary, listed in terms of an international convention but does not include world heritage sites, and shall include but not be limited to the Ramsar Convention on Wetlands (Ramsar, Iran, 1971);*

***"Small stock unit"** means domesticated units, including sheep, goats and pigs, as well as game, including but not limited to antelope and buck with an average adult male live weight of less than 100 kilograms.*

***"Specialist"** means an independent SACNASP registered specialist with experience with the relevant taxa and who is generally recognised within the scientific community as having the capability of undertaking, in conformance with generally recognised scientific principles, specialist studies or preparing specialist reports or undertaking specialist assessments;*

*"**State department**", means any department or administration in the national or provincial sphere of Government exercising functions that involve the management of the environment or that administer a law relating to a matter affecting the environment.*

Note: examples of state departments include: the department of water affairs, department of agriculture, etc. Whilst all state departments are organs of state, not all organs of state are state departments (e.g. Municipalities are organs of state, but not state departments).

***"State land"** means land which vests in the national or a provincial government, and includes land below the high water mark and the Admiralty Reserve but excludes land belonging to a local authority.*

***"Storage"** means the accumulation of waste in a manner that does not constitute treatment or disposal of that waste.*

*The term '**sub-Contractor**' means an organisation that contracts with a Contractor as the customer to carry out construction and related services, and/or provide other products.*

*The term '**supplier**' means an organisation that contracts with a Contractor/Principal to supply a product and/or service**.***

***"Sustainable development"** means the integration of social, economic and environmental factors into planning, implementation and decision-making so as to ensure that development serves present and future generations.*

***"Systematic biodiversity plan"** is a plan that identifies important areas for biodiversity conservation, taking into account biodiversity patterns (i.e. the principle of representation) and the ecological and evolutionary processes that sustain them (i.e. the principle of persistence). A systematic biodiversity plan must set quantitative targets/thresholds for aquatic and terrestrial biodiversity features in order to conserve a representative sample of biodiversity pattern and ecological processes;*

"the Act" *means the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended;*

- *Any reference in the associated regulations to an environmental assessment practitioner will, from a date to be determined by the Minister by notice in the Gazette, be deemed to be a reference to a registered environmental assessment practitioner, as defined.*

"Throughput capacity" *means the design capacity or maximum capable capacity of a facility, structures or infrastructure, whichever is greater;*

"Transit" *means the continuous passage from one border of the Republic to another such border without storage other than temporary storage incidental to transport.*

"Treatment" *means any method, technique or process that is designed to—*

(a) change the physical, biological or chemical character or composition of a waste; or
(b) remove, separate, concentrate or recover a hazardous or toxic component of a waste; or
(c) destroy or reduce the toxicity of a waste, in order to minimise the impact of the waste on the environment prior to further use or disposal:

"Undeveloped" *means that no facilities, structures or infrastructure have been effected upon the land or property during the preceding 10 years.*

"Unit" *in relation to a quantity standard for determining throughput of facilities or infrastructure for the slaughter of animals, has the meaning assigned to it in Regulations promulgated in terms of the Meat Safety Act, 2000 (Act No. of 40 of 2000).*

"Urban areas" *means areas situated within the urban edge (as defined or adopted by the competent authority), or in instances where no urban edge or boundary has been defined or adopted, it refers to areas situated within the edge of built-up areas.*

"Vacant" *means not occupied for the purpose of its lawful land use during the preceding ten-year period.*

"Virgin soil" *means land not cultivated for the preceding 10 years.*

"Waste" *means any substance, whether or not that substance can be reduced, re-used, recycled and recovered—*

(a) that is surplus, unwanted, rejected, discarded, abandoned or disposed of;
(b) which the generator has no further use of for the purposes of production;
(c) that must be treated or disposed of; or
(d) that is identified as a waste by the Minister by notice in the Gazette, and includes waste generated by the mining, medical or other sector, but—
(i) a by-product is not considered waste; and
(ii) any portion of waste, once re-used, recycled and recovered, ceases to be waste;

"Waste disposal facility" *means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise.*

"Waste management activity" *means any activity listed in Schedule 1 or 40 published by notice in the Gazette under section 19, and includes—*

(a) the importation and exportation of waste;
(b) the generation of waste, including the undertaking of any activity or process that is likely to result in the generation of waste:

(c) the accumulation and storage of waste;
(d) the collection and handling of waste;
(e) the reduction, re-use, recycling and recovery of waste;
(f) the trading in waste;
(g) the transportation of waste;
(h) the transfer of waste; 50
(i) the treatment of waste; and
(j) the disposal of waste;

"Waste management services" *means waste collection, treatment, recycling and disposal services.*

"Waste minimisation programme" *means a programme that is intended to promote the reduced generation and disposal of waste.*

"Waste transfer facility" *means a facility that is used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility.*

"Waste treatment facility" *means any site that is used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste.*

"Watercourse" *means-*

(a) a river or spring;
(b) a natural channel in which water flows regularly or intermittently;
(c) a wetland lake or dam into which, or from which, water flows; and
(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and

A reference to a watercourse includes, where relevant, its bed and banks;

"Water management area" *is an area established as a management unit in the national water resource strategy within which a catchment management agency will conduct the protection use development, conservation, management and control of water resources.*

"Water management institution" *means a catchment management agency, a water user association, a body responsible for international water management or any person who fulfils the functions of a water management institution in terms of this Act.*

"Water resource" *includes a watercourse, surface water, estuary, or aquifer.*

"Waterwork" *includes any borehole, structure, earthwork or equipment installed or used for or in connection with Water use.*

"Wetland" *means land which is transitional between terrestrial and aquatic systems, where the water table is usually at or near the surface, or the land is periodically covered with shallow water and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.*

ANNEXURE B

METHOD STATEMENT

TYPICAL BASELINE INFORMATION TABLE RELATING TO CONSTRUCTION WORKS

Describe in detail *what* work is to be undertaken?
Describe in detail *where* on the site the works are to be undertaken and the *extent*?
***When* the works will start and the anticipated finishing date of these works?**
***How* are the works to be undertaken?**
Typical Plant and Machinery to be used
Materials to be stored on Site

METHOD STATEMENT TABLE

PROJECT NAME	
IMPACT SOURCE(S)	
RECEPTOR(S)	
OBJECTIVE	
RISKS	
Impacts of Camp Site on Surrounding Site	
NOTES:	

ROLE	**NAME**	**COMPANY**	**DATE**	**SIGNATURE**
CLIENT				
PRINCIPAL AGENT				
CONTRACTOR				
ENGINEER				
ECO/ESCO				

Signature of this Method Statement represents a **binding agreement** to the Method Statement and associated Construction EMP by all site Contractors and sub-Contractors involved in the work for which the Method Statement is submitted.

DECLARATIONS OF RESPONSIBILITY ROLES ON PROJECT

ROLE	**NAME**	**COMPANY**	**DATE**	**SIGNATURE**
CLIENT				
PRINCIPAL AGENT				
CONTRACTOR				

ENGINEER
ECO/ESCO

DECLARATIONS OF UNDERSTANDING BY PARTIES

CLIENT

I understand the contents of the method statement document and associated construction EMP as well as the legal obligations in terms of ensuring that the Project Team comply with this Method Statement and associated Construction EMP.

_____ **(Print name)**

_____ **(Signed)** **Dated:** _____

CONTRACTOR

I understand the contents of the method statement document and the scope of the works required of me. I further understand that the method statement may be amended on application to the signatories of this declaration, and that the Environmental Control Officer will audit my compliance with the contents of this method statement.

_____ **(Print name)**

_____ **(signed)** **Dated:** _____

ENVIRONMENTAL CONTROL OFFICER (ECO/ESCO)

The work described in this Method Statement document, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm.

_____ **(Print Name)**

_____ **(Signed)** **Dated:** _____

PRINCIPAL AGENT

The work described in this Method Statement document, if carried out according to the methodology described, is satisfactorily mitigated to prevent avoidable environmental harm.

_____ **(Print name)**

_____ **(Signed)** **Dated:** _____

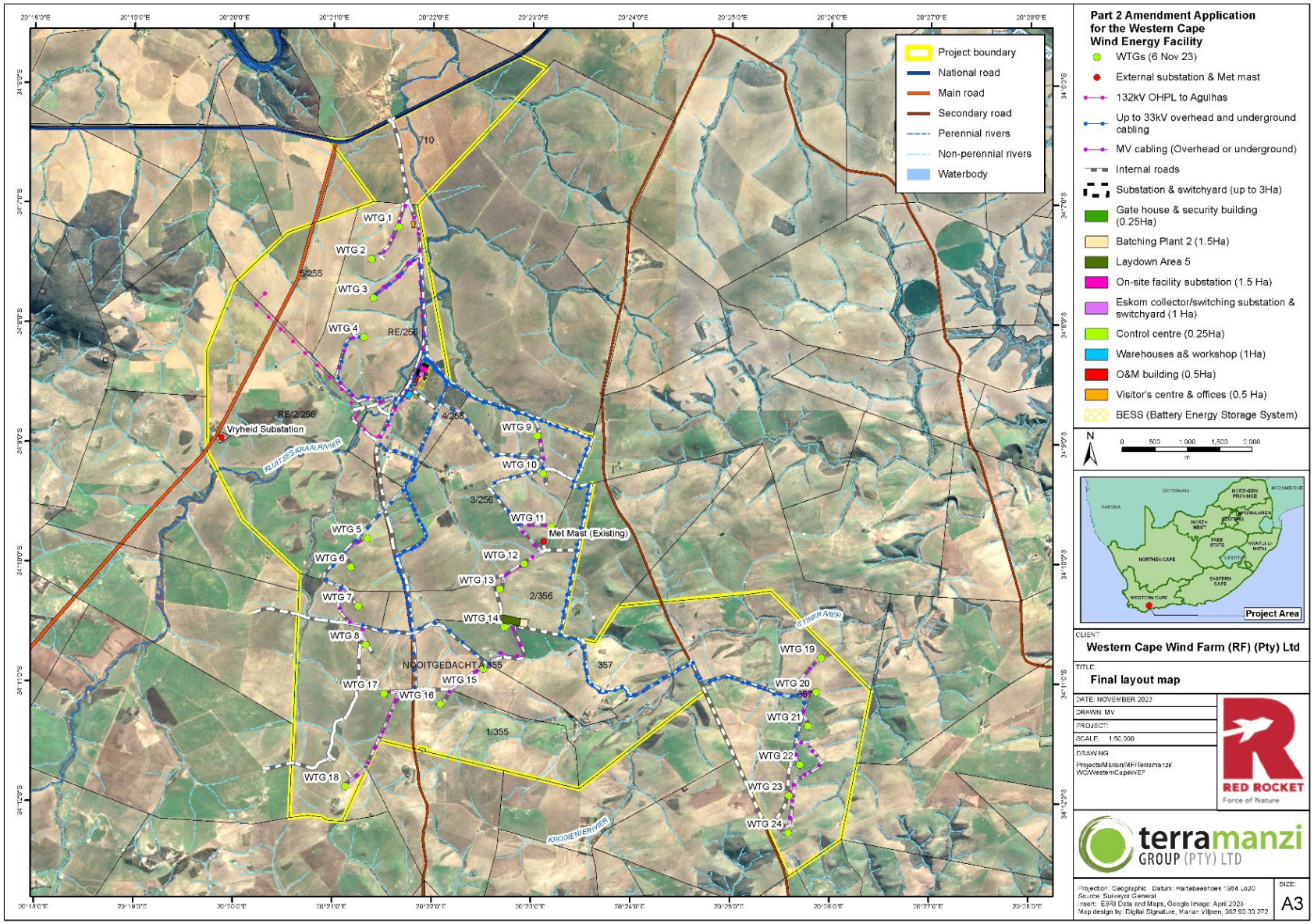
ANNEXURE C

RELEVANT PERMITS

Relevant permits to be inserted in this Annexure once received.

ANNEXURE D

DESIGN AND PLANNING



Annexure D: The Final Project Layout for the Western Cape WEF.

ANNEXURE E

ROLE OF THE ECO/ESCO

DUTIES OF THE ECO/ESCO

1. The identification of potential environmental impacts, prior to the onset of the project.
2. Ensuring that the EMPr conditions are adhered to at all times and taking action (via the engineer) where the specifications are not being followed.
3. Ensuring that environmental impacts are kept to a minimum.
4. Reviewing and approving method statements in consultation with the Principal Agent.
5. Advising the engineer and Contractor on environmental issues and assisting in developing environmentally responsible solutions to problems.
6. Reporting to the client and Principal Agent on a regular basis and advising of any environmental impacts.
7. Attending site meetings (when necessary) and giving a report back on the environmental issues at these meetings and other meetings that may be called regarding environmental matters.
8. Inspecting the site and surrounding areas regularly.
9. Establishing and monitoring an ongoing environmental awareness program in conjunction with the Contractor.
10. Requesting the removal of person(s) and/or equipment not complying with the specifications.
11. Keeping both a written and photographic record of progress on site from an environmental perspective, and an ad hoc record of all incidents or events on site with environmental ramifications. These records must be dated and accurately catalogued.
12. Undertaking continual internal review of the EMPr and submitting a report at the end of the project.
13. Submitting all written instructions and verbal requests to the Contractor via the engineer.

ANNEXURE F

Specialist studies

ANNEXURE G

EAP's Curriculum Vitae

ANNEXURE H

Environmental Authorisation

(once available)

ANNEXURE I

Aquatic Rehabilitation Plan

(To be drafted prior to Construction)

(To be drafted prior to Construction)

ANNEXURE J

Transportation Management Plan

ANNEXURE K

Stormwater Management Plan

ANNEXURE L

Fire Management Plan

ANNEXURE M

Revegetation Habitat Plan

ANNEXURE N

Chance Fossil Finds Procedure

ANNEXURE O

Generic EMPR OHPL

ANNEXURE P

Generic EMPR Substation