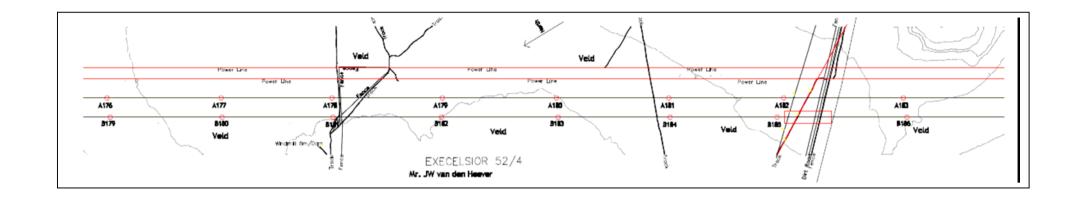




A 175 - A186 & b178 - B189 Flat plains area

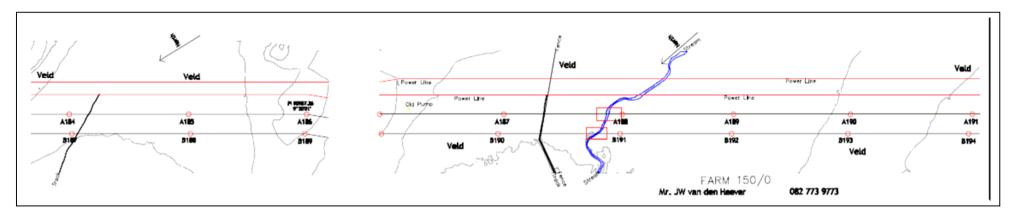
Farm Name	Patrysfontein 42/63
Owner	Fred van Zyl
Contact name	FC van Zyl
Tel No.:	053 693 0550
Cell No.:	
Special Conditions	Contact owner prior to construction. Repair existing servitude access.

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A169 – A175	No specific environmental aspects	Generic EMP	Contractor	Generic	
B171 – B177	No specific environmental aspects	Generic EMP	Contractor	Generic	
A175 – A186	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower A175 and tower A186 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Falling to do so, the EWT would request that the mitigation devices be reapplied correctly, at the contractor's cost	-
B178 – B189	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower B178 and tower B189 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be reapplied correctly, at the contractor's cost	-



Farm Name	Excelsior 52/63
Owner	JW van den Heever CC
Contact name	
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to
	construction.

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A182	Erosion sensitive area in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO	-	√
B185	Erosion sensitive soils in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO	-	V





A187 – A188 & B190 – B191 Stream crossing and dam in area

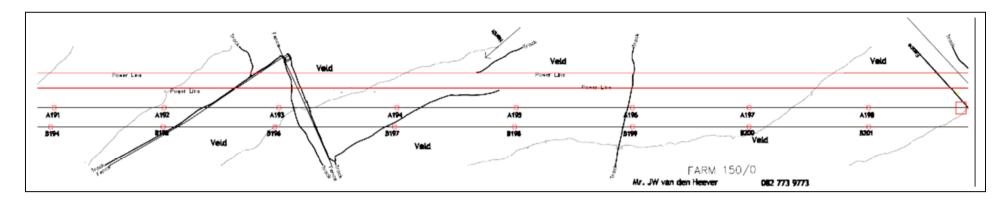


A189 - A204 & B192 - B207 Flat plains area

Farm Name	Farm 150/150/63
Owner	Private
Contact name	JW van den Heever
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to construction

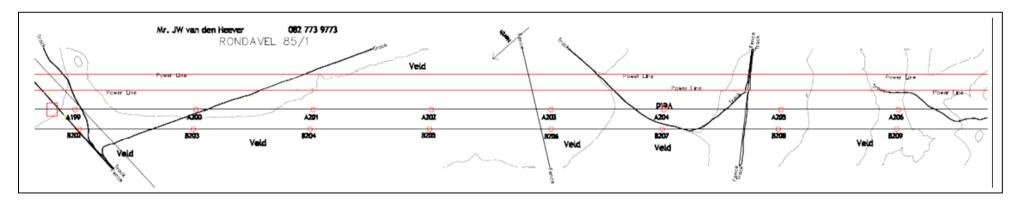
TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A187 – A188	Stream crossing and a dam that will attract birds in the immediate area IMPACT: Powerline / bird collisions	Both earth wires between tower A187 and tower A188 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A188	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		√
A189 - A204	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower A189 and tower A204 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B190 – B191	Stream crossing and a dam that will attract birds in the immediate area IMPACT: Powerline / bird collisions	Both earth wires between tower B190 and tower B191 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B191	Erosion sensitive soils in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO	-	V
B192 B 207	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower A189 and tower A204 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-



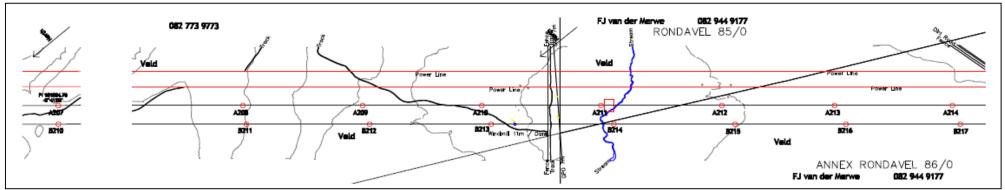
Farm Name	Farm 150/150/63
Owner	Private
Contact name	JW van den Heever
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A193	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil erosion. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		V



Farm Name	Rondavel 85/63
Owner	FJ van der Merwe Trust
Contact name	FJ van der Merwe
Tel No.:	044 695 1981
Cell No.:	082 944 9177
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A199 – A206	No specific environmental aspects	Generic EMP	Contractor	Generic EMP	-
B207 – B209	No specific environmental aspects	Generic EMP	Contractor	Generic	



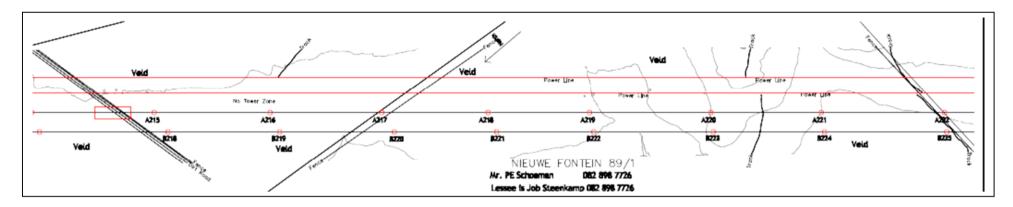


A 2 1 4	A222 (D216	D224	Flat plain area
AZ 14 —	AZZZ C	x BZ 10 -	DZZ4	rial piairi area

Cell No.: Special Conditions	082 944 9177 Contact owner prior to
Tel No.:	044 695 1981
Contact name	FJ van der Merwe
Owner	FJ van der Merwe Trust
Farm Name	Rondavel 85/63

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B210 - B212	No specific environmental aspects	Generic EMP	Contractor	Generic	
A210 – A212	Dam in the immediate area and a stream crossing that will attract birds. IMPACT: Powerline / bird collisions	Both earth wires between tower A210 and tower A212 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A211 – A212	Erosion sensitive areas in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil erosion. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		√
B213 - B215	Dam in the immediate area and a stream crossing that will attract birds. IMPACT: Powerline / bird collisions	Both earth wires between tower B213 and tower B215 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A213 – A221	Flat plains area that will attract birds. IMPACT: Powerline / bird collisions	Both earth wires between tower A213 and tower A221 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	V

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A214	Erosion sensitive areas in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		V
B214 – B217	Erosion sensitive soils in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO	-	V
B216 – B224	Flat plains area that will attract birds. IMPACT: Powerline / bird collisions	Both earth wires between tower B216 and tower B224 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	V

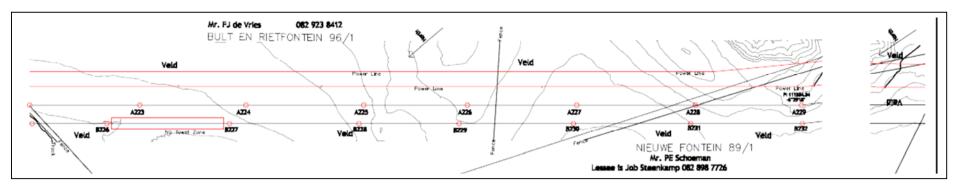


Farm Name	Rondavel 85/63
Owner	FJ van der Merwe Trust
Contact name	FJ van der Merwe
Tel No.:	044 695 1981
Cell No.:	082 944 9177
Special Conditions	Contact owner prior to construction

Farm Name	Annex Rondavel 86/63
Owner	FJ van der Merwe Trust
Contact name	FJ van der Merwe
Tel No.:	044 695 1981
Cell No.:	082 944 9177
Special Conditions	Contact owner prior to construction

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A215 – A221	No specific environmental aspects.	Generic EMP	Contractor	Generic EMP	-
B218 – B224	No specific environmental aspects	Generic EMP	Contractor	Generic	
A222 - A224	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	 Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation. 	ECO / CELO		V
	Flat plains area Nest on 1 Droerivier Hydra Tower 291 IMPACT: Powerline / bird collisions and disturbance of bird's nest	 Both earth wires between tower A222 and tower A224 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5) The existing power lines must be inspected just prior to construction starting and the active raptor nests recorded. The new line with tower positions must be plotted onto a map of the old line indicating where the active raptor nests are in order to identify those areas where disturbance could happen. A meeting must be convened with the ECO and the construction crews to put a mechanism in place whereby a local EWT representative can be alerted when construction is going to take place at a sensitive tower. Appropriate, practical measures will then be agreed upon to reduce the risk of disturbance of the breeding birds. These measures could include temporarily taking the eggs off the nest and keeping it in an incubator in extreme instances, or shielding the chick from the direct sun while activities take place at the adjacent tower. As a general principle, construction activities should ensure minimal disturbance to the receiving environment, refer to ESKOM Nesting Guidelines (APPENDIX 6). 	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B225 – B227	Flat plains area Nest on 1 Droerivier Hydra Tower 291 IMPACT: Powerline / bird collisions and disturbance of bird's nest	 Both earth wires between tower B225 and tower B227 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5) The existing power lines must be inspected just prior to construction starting and the active raptor nests recorded. The new line with tower positions must be plotted onto a map of the old line indicating where the active raptor nests are in order to identify those areas where disturbance could happen. A meeting must be convened with the ECO and the construction crews to put a mechanism in place whereby a local EWT representative can be alerted when construction is going to take place at a sensitive tower. Appropriate, practical measures will then be agreed upon to reduce the risk of disturbance of the breeding birds. These measures could include temporarily taking the eggs off the nest and keeping it in an incubator in extreme instances, or shielding the chick from the direct sun while activities take place at the adjacent tower. As a general principle, construction activities should ensure minimal disturbance to the receiving environment, refer to ESKOM Nesting Guidelines (APPENDIX 6). 	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	



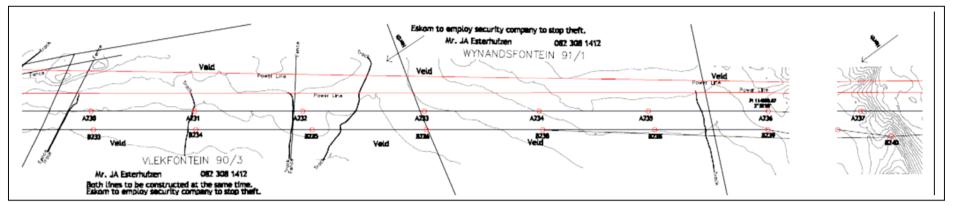


Farm Name	Niewe Fontein 89/63
Owner	Schoeman Familie Trust
Contact name	PE Schoeman
Tel No.:	021 853 2201
Cell No.:	082 898 7726
Special Conditions	Contact owner prior to construction. Lessee Job Steenkamp 082 898 7726

Farm Name	Bult Rietfontein 96/1
Owner	De Vries Famielie Trust
Contact name	FJ de Vries
Tel No.:	053 6912 1703
Cell No.:	082 923 8412
Special Conditions	Contact owner prior to construction. No new roads to be constructed. Contact lessee Mr Esterhuisen 053 691 4812

A229

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A225 to A227	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower A225 and tower A227 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A229	Low ridge in proximity to tower. IMPACT: Potential loss / impact of diverse habitat and destabilisation of the edge.	Demarcate edge area as a no-go zone prior to construction.	ECO & Contractor	R1000.00	-
B232	Edge of a low ridge in proximity to tower. IMPACT: Potential loss of diverse habitat and destabilisation of the edge.	Demarcate edge area as a no-go zone prior to construction.	ECO & Contractor	R1000.00	No
B227	Erosion sensitive soils in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO	-	V
B228 – B230	Flat plains area IMPACT: Powerline / bird collisions	Both earth wires between tower A225 and tower A227 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B228 – B231	No specific environmental aspects	Generic EMP	Contractor	Generic	-





A231





A231 – A233 & B234 – B236 Drainage line

Tower A237& B240- Crosses ridge. View from South

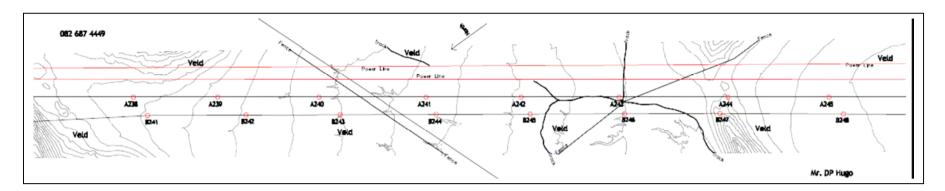
Farm Name	Niewe Fontein 89/63
Owner	Schoeman Familie Trust
Contact name	PE Schoeman
Tel No.:	021 853 2201
Cell No.:	082 898 7726
Special Conditions	Contact owner prior to construction. Lessee Job Steenkamp 082 898 7726

Farm Name	Vlekfontein 90/63
Owner	Private
Contact name	JA Esterhuisezen
Tel No.:	053 6912 4812
Cell No.:	
Special Conditions	
Cell No.:	053 6912 4812

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A230	No specific environmental aspects.	Generic EMP	Contractor	Generic EMP	-
B233, B237 - B240	No specific environmental aspects	Generic EMP	Contractor	Generic	
A231	Water drainage channel in proximity to tower.	Demarcate the drainage channel as a no-go zone.	ECO & Contractor	R1000.00	-
	IMPACT: Potential impact on sensitive habitat due to impairment of stormwater flow and likelihood of erosion caused by the tower foundations and anchor points. Pollution of drainage channel due to construction activities.				

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED	
A231 - A233	Drainage line that will attract birds in proximity to towers. IMPACT: Powerline / bird collisions	Both earth wires between tower A231 and tower A233 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-	
A234 – A235	Drainage line Nest on 3 Droerivier Hydra Tower 317 IMPACT: Powerline / bird collisions and disturbance of bird's nest	 Both earth wires between tower A234 and tower A235 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the ESKOM Collision Guidelines (APPENDIX 5) The existing power lines must be inspected just prior to construction starting and the active raptor nests recorded. The new line with tower positions must be plotted onto a map of the old line indicating where the active raptor nests are in order to identify those areas where disturbance could happen. A meeting must be convened with the ECO and the construction crews to put a mechanism in place whereby a local EWT representative can be alerted when construction is going to take place at a sensitive tower. Appropriate, practical measures will then be agreed upon to reduce the risk of disturbance of the breeding birds. These measures could include temporarily taking the eggs off the nest and keeping it in an incubator in extreme instances, or shielding the chick from the direct sun while activities take place at the adjacent tower. As a general principle, construction activities should ensure minimal disturbance to the receiving environment, refer to ESKOM Nesting Guidelines (APPENDIX 6). 	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-	
B234	Tower in proximity to water course. IMPACT: Potential impact on sensitive habitat along watercourse	Prevent access to the area of the watercourse by demarcating a no-go zone	ECO & Contractor	R1000.00	-	
B234 – B236	Drainage line that will attract birds in proximity to towers. IMPACT: Powerline / bird collisions	Both earth wires between tower A231 and tower A233 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-	
A237	Erosion sensitive areas in proximity to tower. IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		V	
	North-facing edge of a dolorite ridge in proximity to tower. IMPACT: Potential disturbance of the diverse rocky habitat along the edge.	Demarcate the north-facing slope as a no-go zone prior to construction. Access to the tower must be via the gentler slope on the southern and western side of the ridge.	ECO & Contractor	R1000.00	V	

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B237 – B 238	Drainage line Nest on 3 Droerivier Hydra Tower 317 IMPACT: Powerline / bird collisions and disturbance of bird's nest	Both earth wires between tower B237 and tower B238 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the ESKOM Collision Guidelines (APPENDIX 5) The existing power lines must be inspected just prior to construction starting and the active raptor nests recorded. The new line with tower positions must be plotted onto a map of the old line indicating where the active raptor nests are in order to identify those areas where disturbance could happen. A meeting must be convened with the ECO and the construction crews to put a mechanism in place whereby a local EWT representative can be alerted when construction is going to take place at a sensitive tower. Appropriate, practical measures will then be agreed upon to reduce the risk of disturbance of the breeding birds. These measures could include temporarily taking the eggs off the nest and keeping it in an incubator in extreme instances, or shielding the chick from the direct sun while activities take place at the adjacent tower. As a general principle, construction activities should ensure minimal disturbance to the receiving environment, refer to ESKOM Nesting Guidelines (APPENDIX 6).	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	
B240	New access road. IMPACT: New access road to tower on slope will cause visual scarring on landform if access road built on south slope.	Use existing access and select new access road to tower from north of ridge westwards, to climb ridge from the west diagonally across the contours. Special attention to be given to rehabilitation of access road and surface water management.	ECO CELO	-	-









Tower A242 - Watercourse in proximity



Tower A243 & B246 erosion protection near drainage line



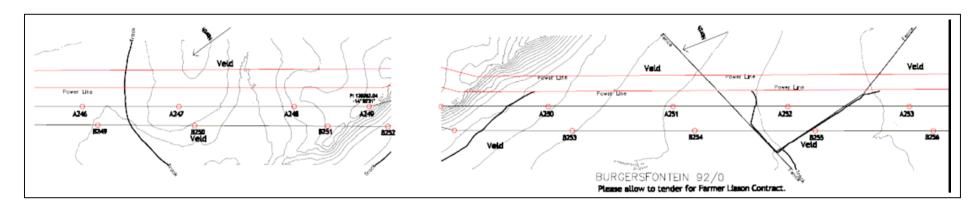
Tower A244 - large rocks / boulders in proximity

Farm Name	Wynandfontein 91/63
Owner	Private
Contact name	M Esterhuisen
Tel No.:	053 6912 4812
Cell No.:	082 687 4449
Special Conditions	Contact owner prior to construction. No new roads to be constructed. Build first two 765kV lines simultaneously.

Farm Name	Burgersfontein 92/63
Owner	Private
Contact name	DP Hugo
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to construction. Interested in farmer liaison contract. Please allow to tender.

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B241	Tower in proximity to watercourse. IMPACT: Potential impact on sensitive habitat along watercourse. Potential for impact on water flow regimes during flood conditions.	Ensure that anchor positions are located outside of the main watercourse. Implement proper stabilization structures/measures to prevent flood damage. Prevent access to the area of the watercourse by demarcating a no-go zone	ECO & Contractor	R1000.00	Yes

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A242	Tower in proximity to the watercourse although not directly next to it.	Prevent access to the area of the watercourse by demarcating a no-go zone	ECO & Contractor	R1000.00	-
	IMPACT: Potential impact on sensitive habitat along watercourse by construction activities.				
B242 – B247	Drainage line that will attract birds in proximity to towers.	 Both earth wires between tower B242 and tower B247 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled 	ECO / Contractor	The EWT insists on strict adherence to recommendations and	-
*	IMPACT: Powerline / bird collisions	"Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)		specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at	
				the contractor's cost	,
A243	Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	 Erosion protection measures must be installed around foundations. Soil face around tower must be reinforced by packing rock as a paving around anchors and tower foundation. 	ECO / CELO		V
A244	Ridge in proximity to tower.	Use existing access and select access to tower from track on the northern side of the ridge, to climb	ECO / CELO		-
	INDA CT. Nov	diagonally across the contours.			
	IMPACT: New access road to tower on slope will cause visual scarring on landform.	Access road must be rehabilitated. Surface water management measures must be implemented.			
A244	Dolorite ridge with sensitive habitat in proximity to tower.	Restrict access to the immediate assemblage and construction areas due to sensitive surrounding habitat.	ECO & Contractor	R1000.00	-
	IMPACT: May have a slight impact on the surrounding habitat covered by large rocks and boulders.				
B244	Tower in proximity to watercourse.	Ensure that anchor positions are located outside of the main watercourse. Implement proper stabilization structures/measures to prevent flood damage.	ECO & Contractor	R1000.00	V
	IMPACT: Sensitive vegetation could be damaged during construction. Disturbance of floodplain and presence of structures within these areas could lead to accelerated erosion and flood damage around structures.	Restrict access to the immediate assemblage and construction areas due to sensitive surrounding habitat.			
B246	Erosion sensitive soils in proximity to	Erosion protection measures must be installed around foundations.	ECO / CELO		V
•	tower.	 Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation. 			•
••	IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.				
B247	Slope in proximity to tower.	 Use existing access and select access to tower from track on north side of ridge, to climb diagonally across the contours. 	ECO / CELO	-	-
	IMPACT: New access road to tower on slope will cause visual scarring on landform.	Special attention to be given to rehabilitation of access road and surface water management.			





A247 – A248 & B250 – B251 Drainage line and mountainous area



A248 - A249 Mountainous area



Tower A 249 - Large rocks and dolorite boulders



Tower A 249 - Large rocks and dolorite boulders



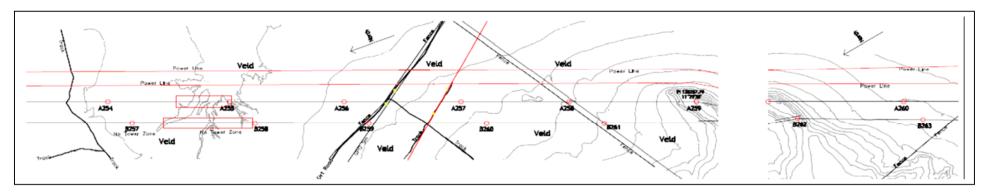
A253 Drainage line and dam

Farm Name	Burgersfontein 92/63
Owner	Private
Contact name	DP Hugo
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to construction. Interested in farmer liaison contract. Please allow to tender.

TOWER NUMBER	ENVIRONMENTAL ASPECT MITIGATION MEASURES		RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B249	No specific environmental aspects	Generic EMP	Contractor	Generic	
A247 – A248	Drainage line in proximity to towers. IMPACT: Drainage line and the new power line will be obscured by a dark mountainous area. Powerline / bird collisions will result.	Both earth wires between tower A247 and tower A248 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the ESKOM Collision Guidelines (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost.	-

TOWER NUMBER	ENVIRONMENTAL ASPECT		MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A248 – A249	Ridge in background. IMPACT: The new power line will be obscured by a dark mountainous area. Powerline / bird collisions will result.	•	Both earth wires between tower A248 and tower A249 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	
A249	A steep northeast facing mid-slope of a high dolorite ridge is in proximity to tower, which is characterised by a high cover of large rocks and dolorite boulders. This creates an area with a high diversity of microhabitats and consequently an area of high biodiversity compared to the surrounding flats. IMPACT: Access to the tower site and tower construction at the site could have a huge impact on the local biophysical environment including destabilisation of the steep slope, erosion of the slope, loss of microhabitats and loss of species diversity if not mitigated.	•	Access should be from the much gentler west-facing slopes on the north. The northeastern slopes should be demarcated as a no-go zone prior to construction.	ECO & Contractor	R5000.00	V
A250 – A252	Flat plains area. IMPACT: The new power line will be obscured by a dark mountainous area. Powerline / bird collisions will result.	•	Both earth wires between tower A250 and tower A252 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B250 - B152	Ridge in background. IMPACT: The new power line will be obscured by a dark mountainous area. Powerline / bird collisions will result.	•	Both earth wires between tower B250 and tower B252 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
B252	Tower located on top of ridge. IMPACT: Tower is visually dominant on horizon. New access road to tower on slope will create visible scar.	•	Utilise existing road and create access to tower from the south side.	ECO / CM / CELO	-	√

TOWER NUMBER	ENVIRONMENTAL ASPECT		MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B253 – B255	Flat plains area. IMPACT: The new power line will be obscured by a dark mountainous area. Powerline / bird collisions will result.	•	Both earth wires between tower A250 and tower A252 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A253	Flat plains area and dam that will attract birds in the immediate vicinity IMPACT: Powerline / bird collisions	•	Both earth wires between tower A253 and tower A254 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 3) and the "ESKOM Collision Guidelines" (APPENDIX 4)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be reapplied correctly, at the contractor's cost.	-
B256	Flat plains area and dam that will attract birds in the immediate vicinity IMPACT: Powerline / bird collisions	•	Both earth wires between tower B256 and tower B257 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be reapplied correctly, at the contractor's cost.	-











Tower A254 & B258 - severe soil erosion in progress

A 254

A 254

B157 – B259 Flat plains and mountainous area







Farm Name	Burgersfontein 92/63
Owner	Private
Contact name	DP Hugo
Tel No.:	
Cell No.:	
Special Conditions	Contact owner prior to construction. Interested in farmer liaison contract. Please allow to tender.

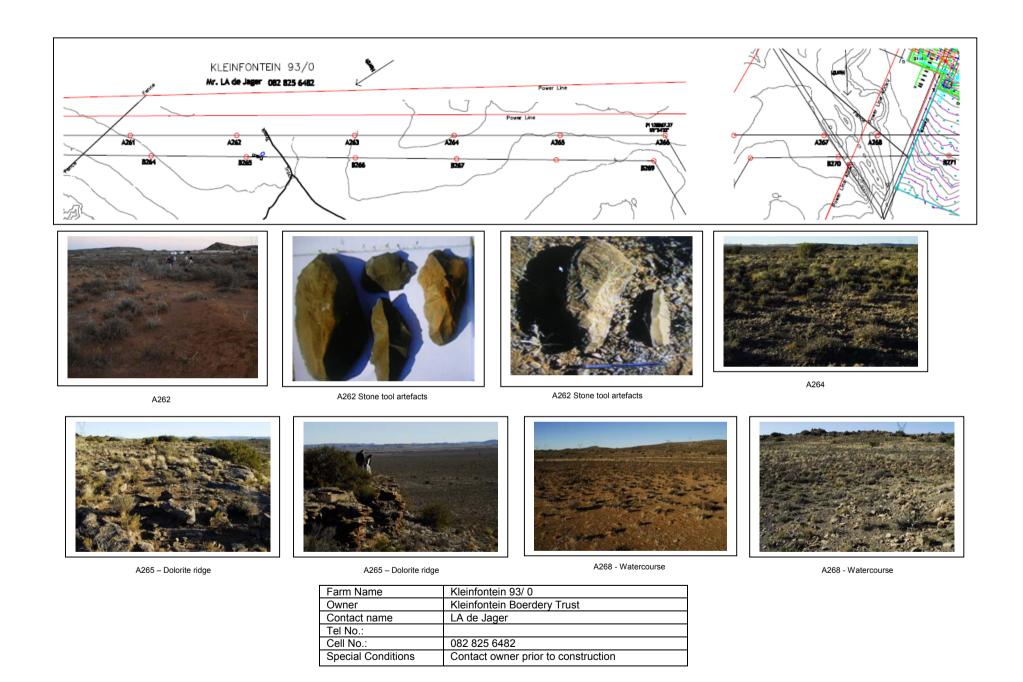
Tower A259 & B262 west route to plateau

A 259

A 259

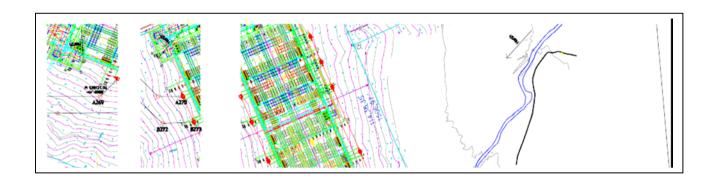
TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMEN T REQUIRED
A254 to A256	Drainage line and a dam at tower A254. IMPACT: Powerline / bird collisions	Both earth wires between tower A254 and tower A256 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A255	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		V
	Wide erosion zone in proximity to tower. IMPACT: Potential to affect stormwater flow regime and to cause accelerated erosion due to the scouring action of stormwater if not mitigated.	Ensure that anchor points are also outside of erosion zone or protect anchors with stabilisation structures (gabions etc.). Implement the necessary prevention measures against potential erosion since the area seem to be highly prone to erosion due to local soil conditions (saline) and possibly the grazing regime. Limit impact on the soil profile to the areas demarcated for assembly and construction site.	ECO & Contractor	R1000.00	V
B257 – B259	Drainage line and a dam at tower A257. IMPACT: Powerline / bird collisions	Both earth wires between tower B257 and tower B259 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A258	The tower is in proximity to a large dolorite ridge, which is a sensitive habitat to small mammals, lizards etc. likely to be disturbed. IMPACT: New access road will create scar on the ridge. Potential destabilisation of upper slope during construction.	Demarcate the edges of the ridge as no-go zone prior to commencement of construction. Access to the tower should be from the existing track to the north of the ridge. Align access route from existing road north to reach tower from west side of hill climbing diagonally across the contours. Exact route of the access road to be finalised between the ECO and Site Engineer.	ECO & Contractor / CELO	R5000.00	√
B258	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / CELO		Yes
B262	Tower in proximity to south-facing edge of a large dolorite ridge. IMPACT: Sensitive habitat to small mammals, lizards etc. likely to be disturbed during construction. Potential destabilisation of upper slope during construction. Potential scarring of ridge due to construction of	Demarcate edges as no-go zone prior to commencement of construction. Align access route from existing track on the north of the ridge to reach tower from west side of hill climbing diagonally across the contours. Exact route of the access road to be finalised between the ECO and Site Engineer.	ECO / Contractor / CELO	R5000.00	√
	new access road.	Engineer.			



TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
B264, B268, B269, B271	No specific environmental aspects	Generic EMP	Contractor	Generic	
A262	Erosion sensitive areas in proximity to tower, IMPACT: Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld.	 Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation. 	ECO / CELO	-	V
	Middle Stone Age scatter site at 31*39.748'S, 23*25.956'E. IMPACT: Damaging or removal of middle stone artefacts.	Area must be demarcated during construction and access thereto must be denied to construction team. Collection of artefacts must not be allowed. No construction camp shall be erected within a radius of least 30m from the identified site.	Contractor / PM / ELO	Fine and or imprisonment in terms of the National Heritage Resources Act No. 25 of 1999	-
A263	Tower placed too close to an existing erosion channel. IMPACT: Probability for diversion of stormwater flows and accelerated erosion caused by tower foundation structures if not mitigated.	Care to be taken not to have any impact on the erosion areas – eroded areas to be clearly marked as a no-go zone and all access to be prohibited.	ECO & Contractor	-	-
A265	Tower placed in proximity to the edge of a dolorite ledge. IMPACT: Specialised habitat for small mammals, lizards etc. can be impacted.	The edge area of the ledge must be demarcated as a no-go zone.	ECO & Contractor	R1000.00	-
B265	Tower in proximity to a wide erosion zone. IMPACT: Potential to affect stormwater flow regime and to cause accelerated erosion action of stormwater. Disturbance of erosion sensitive soils will extend and accelerate soil removal. Visual degradation of karoo veld will result.	Ensure that anchor points are also outside of erosion zone. Implement the necessary prevention measures against potential erosion since the area seem to be highly prone to erosion due to local soil conditions and possibly the grazing regime. Erosion protection measures must be installed around foundations. Soil surface around tower must be reinforced by packing rock as a paving around anchors and tower foundation.	ECO / Contractor / CELO	-	V
A265 to A267	Dam in the immediate area that will attract birds. Crossing of existing line may require higher towers and new access route. IMPACT: Powerline / bird collisions	Both earth wires between tower A265 and tower A267 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-
A267 – 268	Tower approximately in proximity to a rocky dolorite ledge with specialised habitat for flora and fauna including small mammals, lizards etc. IMPACT: The anchors and tower foundations can potentially cause disturbance to the habitat.	 Align access route to A267 north of ridge. Erosion control measures must be implemented, which includes diverting surface water from road regularly and effectively. Demarcate sensitive zone with danger-tape before commencement of construction and declare a no-go zone. 	Contactor / ECO / CELO	R1000.00	V
B266	Tower in proximity to existing erosion channel. IMPACT: Potential impact for diversion of stormwater flow and accelerated erosion during construction.	Care to be taken not to have any impact on the erosion areas – eroded areas to be clearly marked as a no-go zone and all access to be prohibited.	ECO & Contractor	-	-
B267	Tower placed in proximity to wide, shallow drainage channel. IMPACT; Probability for diversion of stormwater flow and accelerated erosion during construction.	Natural drainage channel to be clearly marked as a no-go zone and all access to be prohibited.	ECO & Contractor	R1000.00	-
B268 – B270	Dam in the immediate area that will attract birds. IMPACT: Powerline / bird collisions	Both earth wires between tower B268 and tower B270 require the installation of Bird Flight Diverters (large spirals) Specifications for the correct marking of both earth wires can be found in the document titled "Specifications for Bird flight Diverters Installation on a Transmission Line" (APPENDIX 4) and the "ESKOM Collision Guidelines" (APPENDIX 5)	ECO / Contractor	The EWT insists on strict adherence to recommendations and specifications provided in this EMP report and its appendices. Failing to do so, the EWT would request that the mitigation devices be re-applied correctly, at the contractor's cost	-

TOWER NUMBER	ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
A268	Tower in proximity to dry watercourse that is a sensitive habitat with increased micro habitats and more specialised plants. IMPACT: Probability for diversion of stormwater flow and accelerated erosion caused by tower foundation structures. Pollution of watercourse due to construction activities.	Natural drainage channel to be clearly marked as a no-go zone and all access to be prohibited	ECO & Contractor	R1000.00	-
B270	Crossing of existing line requires higher towers and new access route.	Align access route to B270 from north of ridge. Erosion control measures must be implemented, which includes diverting surface water from road regularly and effectively.	CM / ECO / CELO	-	V



Farm Name	Kleinfontein 93/ 0		
Owner Kleinfontein Boerdery Trust			
Contact name LA de Jager			
Tel No.:			
Cell No.:	082 825 6482		
Special Conditions	Contact owner prior to construction		

ENVIRONMENTAL ASPECT	MITIGATION MEASURES	RESPONSIBILITY OF	PENALTY	METHOD STATEMENT REQUIRED
No specific environmental aspects	Generic EMP	Contractor	Generic EMP	-
No specific environmental aspects	Generic EMP	Contractor	Generic EMP	-
	No specific environmental aspects	No specific environmental aspects • Generic EMP	No specific environmental aspects • Generic EMP Contractor	No specific environmental aspects • Generic EMP Contractor Generic EMP

3 CONCLUSION

This EMP builds on the Environmental processes that have preceded it (Scoping Report and Environmental Impact Report) and has been compiled by a specialist team that has visited each tower position in order to identify all potential impacts that such a development may have on the environment. This process facilitated the identification of relevant and implementable mitigation measures, which may now be used by the construction team and Eskom to draw up and respond to Tender documentation. It is thus key to this process that this document be included during tendering to allow all potential bidders for this work to seriously consider and cost for such mitigation. This will ensure that the document receives the necessary buy in that it requires right from the outset of any further work.

This EMP was compiled in an iterative manner that allowed for a pre-screening of the towers by the specialist team. This enabled specialist and the technical team from Trans African Projects to identify towers that could be moved slightly from one position to another to avoid more sensitive environmental features, such as drainage lines, areas susceptible to erosion and heritage artefacts. This in turn made it possible for the technical team to revise all the profiles to the agreement of all specialists concerned.

The above mentioned profiles for each of the various tower sections, along with visual aids to assist those undertaking the construction have been included in the EMP to enabled the construction crew to familiarise themselves with the area prior to getting onto each individual site.

The document thus provides a good indication as to what a contractor needs to consider before moving into an area, which is obviously key to managing environmental aspects such as nesting birds, river crossings drainage lines and heritage artefacts.

Penalties to be imposed for the transgression of environmental specifications are also noted along with the roles and responsibilities of all stakeholders such as Eskom Transmission, The Environmental Auditing Team, The Environmental Control Officer, Project Manager, Contract Manager, the Contractors, landowners, interested and affected parties and the relevant environmental and project specialists.

In order to ensure environmental compliance, all parties undertaking the construction of these 765kV lines shall be fully acquainted with the contents of the CEMP. This will ensure that potential negative impacts are identified, avoided or mitigated.