

Appendix D5 Electrical Load Report



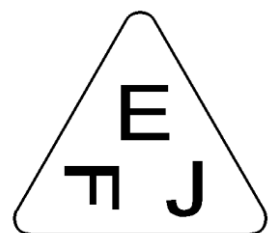
 **LEGACY** | ENVIRONMENTAL
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Endangered Wildlife Operational Centre

Dinokeng

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Contents

Background	3
Load Estimate.....	3
Supply Options.....	5
Conclusion.....	6

Background

The site is situated near Dinokeng and in the area where the Wildlife Veterinary Hospital and Rehabilitation centre will be built there is no existing LV reticulation system but it does have a nearby 50kVA supply point fed from a rural 11kV line system.

Load Estimate

Cheetah Recovery Area					
Item	Description	Rating (kW)	Number	Diversity	Load
1	Electric fence	0,25	1	1	0,25
2	Lights (emergency)	0,05	3	1	0,15
Subtotal					0,4

Wild Dog Area					
Item	Description	Rating (kW)	Number	Diversity	Load
3	Electric fence	0,25	1	1	0,25
4	Lights (emergency)	0,05	3	1	0,15
Subtotal					0,4

Buffalo Area					
Item	Description	Rating (kW)	Number	Diversity	Load
5	Electric fence	0,25	1	1	0,25
6	Lights (emergency)	0,05	3	1	0,15
Subtotal					0,4

Laboratory Area					
Item	Description	Rating (kW)	Number	Diversity	Load
7	Lights and Plugs	3	1	0,5	1,5
8	Fridges	0,2	6	0,5	0,6
9	Microscopes	0,1	8	1	0,8
10	Kettles and Microwave	4	1	0,5	2
11	Heating cabinet for frozen embio's etc	1	1	0,5	0,5
Subtotal					5,4

Elephant Area					
12	Lights (emergency)	0,05	3	1	0,15
Subtotal					0,15

Rhino Area					
13	Plugs	3	1	0,25	0,75
14	Lights	0,05	5	1	0,25
Subtotal					1

Exhibition / Museum Area					
15	Lights	0,05	20	0,75	0,75
16	Plugs (projector / Computer etc)	0,25	3	0,5	0,375
17	Fridge / Vending / Coffee maker	4	1	0,5	2
18	Display lights	0,5	1	1	0,5
Subtotal					3,625

Horse area					
19	Plugs	3	1	0,5	1,5
20	Lights	0,05	5	1	0,25
Subtotal					1,75

2 x Residents					
21	ADMD for each home	5	2	1	10
Subtotal					10

Camping Area					
22	Kitchen area (Geyser / Lights / Plugs / Stove / Fridge etc)	5	1	0,5	2,5
Subtotal					2,5

Camp sites					
23	Supply point on 10A	2,5	5	0,5	6,25
Subtotal					6,25

Hospital Area					
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24	Kettle	2,5	3	0,5	3,75
25	Lights	0,05	50	1	2,5
26	X Ray machine	0,5	1	0,5	0,25
27	Hair dryer	3	2	0,2	1,2
28	Fridge	0,2	5	0,2	0,2
29	Microscope	0,1	3	0,2	0,06
30	Theatre (lights / plugs etc)	0,1	2	1	0,2
31	Warm Blanket	0,1	10	1	1
32	Sonar	0,5	1	0,5	0,25
33	Infrared lights	0,2	5	1	1
34	Under floor heating	4	1	0,5	2
35	Cold room	2	1	0,5	1
36	Washing Machine	3	1	0,25	0,75
37	Tumble dryer	3	1	0,25	0,75
38	Fridges in kitchen	0,2	3	0,5	0,3
39	Air Condidoning	1,2	5	0,5	3
40	Heater in Bird ICU room	2	1	0,75	1,5
41	General ICU (Infuse pumps and small equipment)	0,5	1	0,5	0,25
42	Geyser	3	2	0,5	3
43	Overhead Crane (post mortem area)	1	1	0,2	0,2
Subtotal					23,16

Pool Area					
44	Pool pump and lights	1,5	1	0,3	0,45
Subtotal					0,45

Total Estimated Load After Diversity				55,485
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Supply Options

Supply Authority

There is an 11kV line with a 50kVA transformer next to the site that would be available to feed the load.

Co-generation

Since the load is spread out over quite an area it may be prudent to consider powering some of the smaller loads (like electric fencing and lights) from a small solar system(s). This can easily be applied to all the animal enclosures remote from the main hospital.

Independent Power production

It may also be feasible to consider installing a bigger solar system for the main hospital to circumvent load shedding and also to save some costs. It would eliminate the need for a standby generation unit if designed correctly. This should be considered in the detail design of circuits even if this option will not be implemented initially. Design the system with essential and non-essential loads separate with separate feeds.

Conclusion

The existing supply point should be sufficient to handle the load as some overload capabilities are allowed for in the SABS780 and ANSI transformer specifications as long as durations are within limits.

Since it is a hospital backup supply must be considered whether it be a standby generator or solar system. This backup power source should be sufficient to carry the 25kVA load of the Hospital area.



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