Installing Borehole-Vaults

infrastructure that protects

SA Patent 2012/08045
SA Patent 2016/07488

Fig 1

Fig 2

Fig 3

Generally submersible borehole pumps can be stolen in minutes simply by pulling the plastic pipe out of the hole - a hacksaw or axe is then used to sever the pipe and electrical cable and the pump is carried away.

To prevent this a 1.7 ton borehole vault made from heavily reinforced 60MPa concrete may be installed in four simple steps:

Step 1 : Excavate around the existing borehole's casing to a depth of approximately 450mm (see fig 1 and 2) and ensure the base is level. Note that in fig 1 the pump is still operational, while in fig 2 the pump was stolen.

Step 2 : Cut the borehole casing 100mm above the base – see fig 3.

Step 3 : Using a tripod & chain-block lower the 1.7 ton vault into the hole, over the shortened casing pipe, see fig 4 and 5. Alternatively this can be done even more easily using a crane truck. The vault has a 'tunnel' to prevent damage to the plastic pipe and electrical cable.

Step 4 : Backfill, compact, and landscape – see fig 6.

Figs 7 & 8 show the completed installations corresponding to figs 1 & 2, with their lids in place and plugs installed (see arrows). It is evident that the vault will be substantially hidden once veld grass re-establishes.

Fig 9 shows (a) the cylindrical lock, (b) the plug (c) the key assembly (for installing & removing the lock and plug) and (d) the opening tool (for unlocking the lid's levers and for lifting the lid out). For a fuller presentation of how the lid is unlocked and opened please click on borehole vault.

Fig 10 is a cross section through the vault showing the various elements of the vault.

A variety of other concrete products such as various sliding doors, lockable lids, vaults, and ventilation panels all offer extreme protection for example to pump stations, valve chambers, generator rooms, cathodic protection equipment, etc. To view these products please click on www.concretedoorsandvaults.com.

The 'Borehole Vault' is manufactured by Concrete Doors and Vaults (Pty) Ltd.

If required installation can also be arranged.

Please direct enquiries to Dr Nicholas Papenfus at nicholas@damsforafrica.com, or 011 472 1520/8, or 082 416 8958.

Fig 10

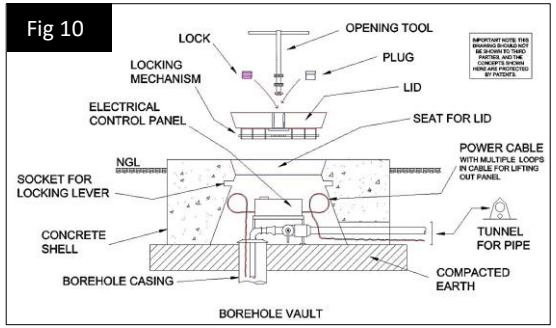

Fig 9

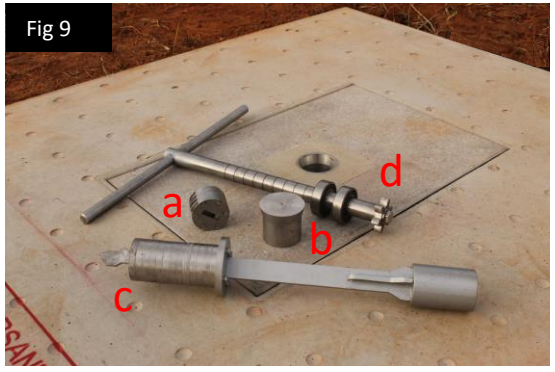

Fig 4

Fig 5

Fig 6

Fig 7

Fig 8