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STRUCTURAL REPORT ON PROPOSED ALTERATIONS
GLEN DIRK HISTORIC CISTERN
ERF 10373 KLAASSENS ROAD, WYNBERG

This brief structural report on the existing 120 year old water cistern forms an addendum to the "Motivation for Proposed Alterations".

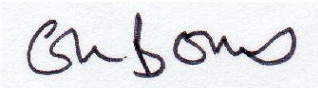
For a detailed description of the water cistern one needs to refer to the "Heritage Statement" by Graham Jacobs, dated 8 April 2015, submitted to HWC as an NHRA Section 34 application for the proposed alterations.

The existing water cistern displays significant foundation movement which has resulted in major structural cracks forming. These cracks occur in the barrel vaulted roof, through the main side walls as well as the main internal support piers and arches. Refer to figures 03 and 04 of the "Heritage Statement". Figure 04 also shows that there have been past attempts to repair these cracks. These repair attempts have not been successful and are considered to be cosmetic as opposed to structural.

To carry out a successful structural repair one needs to first investigate in detail, the present foundation conditions. It is also important to attempt to reduce the existing loading on the foundations, in particular, the internal support piers and arches. The proposal therefore is to carefully demolish approximately half the barrel vault in a transverse direction leaving the external walls intact. The remaining structure would be walled off and suitably repaired. Should it be prove to be necessary, the remaining internal piers would be underpinned all to be determined during the construction phase of the project.

Should approval be given for partial demolition then the structural floor level of the open portion would be raised approximately 2.5 metres using a lightweight suspended precast rib and block slab supported on sleeper walls all independent of the remaining cistern support structure. This new floor slab will be relatively easy to demolish should the situation arise.

The proposed reduction in size together with remedial structural repairs will substantially extend the expected useable life of the structure. If the structure is left as is then deterioration will continue unabated and consideration should be given to sealing all access for safety reasons.



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10th June 2015