

Project Code: KDA_22073
Client Ref: 87 Workington Road, Kenville, Kwazulu-Natal
Date: 26 September 2022

Dear Madam / Sir

Re: Structural Engineering Report: 87 Workington Road, Kenville, Kwazulu-Natal

1. Terms of reference

KDA Consulting Engineers Pty Ltd was appointed by Mr. A. Valjee to conduct a structural assessment of the as built structure at 87 Workington Road, Kenville, Kwazulu-Natal.

A visual inspection was carried out on the as built dwelling.

Mr A. Valjee has informed us that there has been some recent remedial works completed on the structure, however his concerned that his property had undergone prolonged stress and the recent storm & flooding has compounded the damages to the structure.

The site was inspected by Mr Veshall Kasseepursad of KDA Consulting Engineers Pty Ltd, together with the owner Mr. A. Valjee on the 10th of September y 2022.

Our findings are as follows.

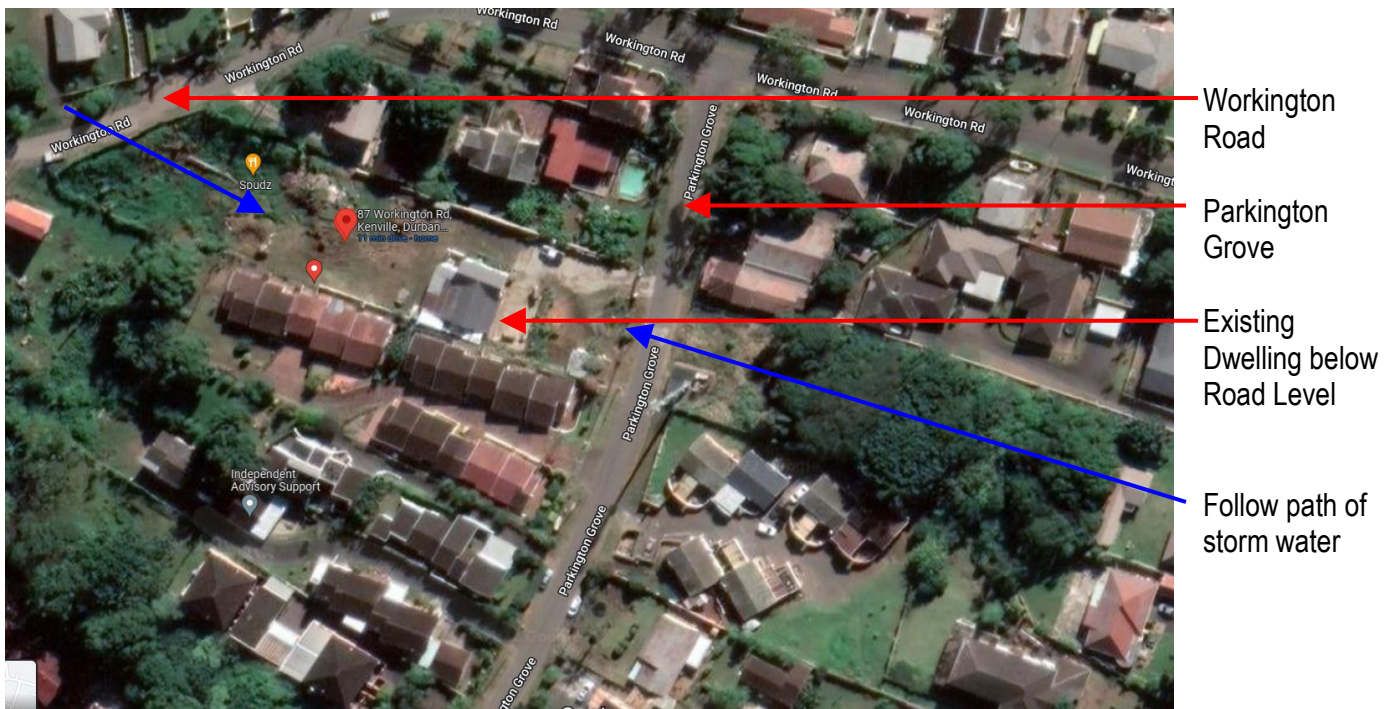
The site is located below Parkington Grove & Workington Road.

The dwelling comprises of a suspended ground floor, basement, and split level bed rooms, some with timber flooring and some with concrete floor slabs.

The structure consists of a brick / block structure, timber & concrete flooring with a timber roof structure covered with roof sheeting.

Currently there is ongoing maintenance & remedial work being carried out on the dwelling to ensure it remains structural stable.

Site Layout



Assessment of Existing Building

(Note - Our assessment was based on visual information only. No material testing, structural diagnostics or open foundation investigation has been done to date. Inspection of the existing timber roof truss was not carried out).

2. Observations

Plates 01 to 03



- Roof trusses sagging in areas.
- Loose and damaged roof sheeting
- Storm water goods damaged, loose and missing in areas.
- Storm water flows into the site from Parkington Grove.



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- Storm water flows into the site from Parkington Grove.
- Soil erosion and water ponding in pockets along the driveway and parking area.

Plates 04 to 05



- Roof trusses damaged and sagging in areas.
- Loose and damaged roof sheeting
- Storm water goods damaged, loose and missing in areas.
- Cracks from moisture build up below sheeting.



- Roof trusses damaged and sagging in areas.
- Storm water goods damaged, loose and missing in areas.
- Cracks form along the wall at various points.
- Facia boards missing.
- Movement at joint indicating settlement in the foundations.

Plates 06 to 07



- Damaged timber bearer floor beams damaged in areas.
- Supporting brick column damaged & collapsed in areas.



- Damaged timber bearer floor beams damaged in areas.
- Supporting brick column damaged & collapsed in areas.
- Signs of dampness along wall.
- Sign off water ponding within the structure compromising the material below the foundations.



- Damaged roof sheeting
- Timber roof truss sagging and bowing in areas.
- Signs of dampness.
- Damaged and broken truss members in areas.



- Ceiling boards have collapsed in areas.
- Voids / holes in roof sheeting promoting leaks and damage to the timber trusses and structure.
- Remedial works currently being carried out.
- Remedial works to cracks on wall have recently been completed and painted.

Plates 10 to 11



- Ceiling sagging in areas.
- Signs of dampness along joint lines.
- Visible water stains in areas.
- Remedial works has been completed in areas.



- Roof trusses damaged and sagging in areas.
- Storm water goods damaged, loose and missing in areas.
- Cracks from moisture build up below sheeting.
- Facia boards missing.
- Visible cracks on the brick work, remedial work currently being carried out.

Plates 12 to 13



- Existing precast concrete lintels to floor slab deflecting.
- Moisture build-up noted on walls.
- Floor filler blocks not consistent.
- Lintels deflecting in areas.



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- Moisture build-up noted on walls.
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Plates 14 to 15



- Moisture build-up noted on walls.
- Floor filler blocks not consistent.
- Lintels deflecting in areas.
- Brick support wall not bonded.
- Signs of concrete erosion at pep joints.
- Poor quality brickwork for structural support.
- Lintel support and mid span has not been consistent.



- Existing precast concrete lintels to slab deflecting.
- Filler blocks not consistent.
- Brick support wall not bonded.
- Signs of concrete erosion at pep joints visible.
- Lintel support and mid span has not been consistent.

Plates 16 to 18



- Storm water goods damaged, loose and missing in areas.
- Visible cracks on the brick work, remedial work currently being carried out.



- Storm water goods damaged, loose and missing in areas.
- Visible cracks on the brick work.
- No Concrete aprons allowing water to penetrate to foundations compromising supporting material.
- Soil erosion, exposing foundation brick work.



- Storm water goods damaged, loose and missing in areas.
- Fascia boards missing.
- Visible cracks on the brick work, remedial work currently being carried out.

Plates 19 to 21



- No concrete aprons or drainage allowing water to penetrate to foundations
- Water compromising the foundation material.
- Sign of ponding.
- Soil erosion.



- No concrete aprons or drainage allowing water to penetrate to foundations.
- Soil erosion exposing foundation brick work in areas.

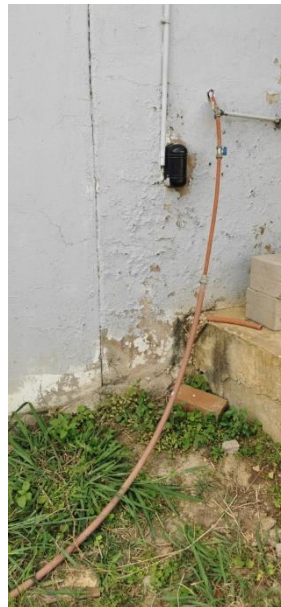
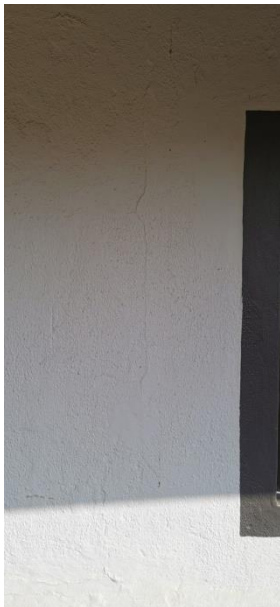


- No concrete aprons or drainage allowing water to penetrate to foundations.
- Soil erosion exposing foundation brick work in areas.

Plates 22 to 25



- No concrete aprons or drainage allowing water to penetrate to foundations.
- Water ponding.
- Visible cracks on wall.



- No concrete aprons or drainage allowing water to penetrate to foundations.
- Water ponding.
- Visible cracks on wall.
- Signs of dampness.
- Soil erosion.



- Visible cracks on wall.
- Remedial works currently being completed.

3. Summary of Observations

As per our visual inspection and comments outlined above, we hereby confirm the following.

- 3.1 The existing timber roof truss system including the battens, siltation, storm water good and roof sheeting need to be reviewed and replaced accordingly.
- 3.2 The existing timber flooring needs to be removed, supporting structure to be exposed and reviewed and replaced accordingly.
- 3.3 Existing precast concrete flooring to be removed and reconstructed to the latest standard building practice and design codes.
- 3.4 Storm water management plan prepared for the site to assist with the disposal of storm water.
- 3.5 New concrete aprons and drains constructed around the perimeter of the building.
- 3.6 All cracked and damaged brick / block work to be removed and reinstalled and repaired in accordance with the remedial works specified.

4. Conclusion

- 4.1 The damages to the existing dwelling have been as a result of poor maintenances.
- 4.2 Current remedial works being carried out are not in line with structural repairs and superficial. Remedial works to be completed to a structural engineer specifications and details.
- 4.3 The damages by the flooding has compound on the current state of the structure.
- 4.4 The building requires major remedial / repair works. However the cost of this will prove to be uneconomical.

5. Recommendations

We recommend that the structure be demolished. All new / remedial works must be prepared, supervised and signed off by a professional structural engineer.

Once the structure has been completed in accordance with the required design and specification it can be signed off as being structural stable (extent of structure as indicated on latest architectural drawings).

We trust that the above adequately addresses your concerns. Kindly contact us if there are any further queries.



Signature of Professional Engineer,
Pr. Tech Eng. | MSAICE | NHBRC | IMESA
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26 September 2022
Date