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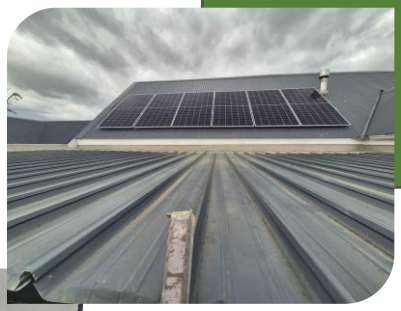

NATIONAL HOME BUILDERS NHBRC REGISTRATION COUNCIL

Ref: DM2025 – WC – SE - 050

Professional Engineering Services

Structural Engineering and Waterproofing Investigation
to the property on Erf 19788, Somerset West
House Botes

Report – Rev 0

5 September 2025

Contact Person: **Melt Badenhorst** (Pr.Tech.Eng)(Pr.CPM)

CESA Consulting Engineers South Africa
IAF Member of Multilateral Recognition Arrangement
ISO 9001:2015

Document Control Sheet

Client Project Reference	**Internal Project Number**
DM2025 – WC – SE - 050	TechQ – 048

Title

Structural Engineering and Waterproofing Investigation

Project Stage

Investigation and Concept Remedial Proposals

Version	Date	Comment
Rev 0	5 September 2025	Report submitted for review.

Prepared For:

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EXECUTIVE SUMMARY

This ***Structural Engineering and Waterproofing Investigation Report*** is presented by **TechQ Development (Pty) Ltd** based on the *Request for Proposals (RFP)* called by the ***National Home Builders Registration Council (NHBRC)*** in terms of the *Housing Consumer Protection Measures Act (Act 95 of 1998) and Regulations (HCPMA), and the NHBRC Technical Requirements* **at *Erf 19788, Somerset West***, Western Cape Province. This property forms part of the **"Somerset Lakes"** development and is referred to as **House Botes** in this report.

The original RFQ dated 10 July 2025 recorded water ingress into the building and complaints towards the structural integrity of the garage concrete roof slab, which areas of defects constitutes the scope of investigation.

Documentation made available to **TechQ** together with independent tests and surveys conducted by Specialised Service Providers during the investigation period, are listed and elaborated on in **Section 1.3** of this report.

Section 2 of the report outlines the affected areas with notes taken during the investigation. Of note in this section of the report is proof of a **fraudulent NHBRC registration documentation**, attached as **Annexure G,** presented by the Home Builder, **SAVREZ Trading**, which is a direct reflection on the poor workmanship during construction and management of activities by the Home Builder.

Another alarming document worth noting is the **Certificate of Occupation** issued by the City of Cape Town: Development Management division dated 6 May 2025 – **Annexure H** – whilst the **Form 4** signed by the Engineer Competent person – **Annexure C1** – dated 28 April 2023 explicitly excludes the concrete roof slab over the garage area, where also the house's Distribution Board is installed, making this section inhabitable and unsafe.

The concepts outlined in **Section 3** of this report are informed by the site inspections, review of approved municipal architect drawings, structural engineering drawings, geotechnical report and conciliation report together with the assessment done towards the complaints raised by the Homeowner as recorded in the RFQ.

A concept design review discussion session was held with the NHBRC on 27 August 2025, with relevant comments incorporated in this report.

In summary, the following remedial concept repair works are presented.

Section	Concept Remedial Actions – Drawing attached as Annexure A
• **Garage concrete roof: Waterproof, improve stormwater drainage and structural support**	• Remove all waterproofing and brush down vertical and horizontal surfaces to expose concrete slab and parapet wall elements. • Apply torch-on waterproofing membrane to specification as per details on drawing attached. • Adjust existing water drain outlet on the roof to ensure proper drainage of stormwater into existing downpipe.
• **Flat roofs : Reconstruct roofs at back end and Foyer section at Front door**	• Remove roof sheeting, wooden truss assembly, ceiling, isolation, waterproofing and flashings. • Construct new roof at min 3-deg slope complete as per detail on attached drawing. • Install wall flashings and apply appropriate waterproofing to roof as per specifications and details on attached drawing.
• **Water damp/ingress: Repair water damp areas**	• Locate water damp and water ingress areas pertinent to the inside of external walls, brush down, apply 1:5 mortar mix and paint to suit existing.
• **Stormwater management**	• Install subsoil drainage on the western boundary of the property.

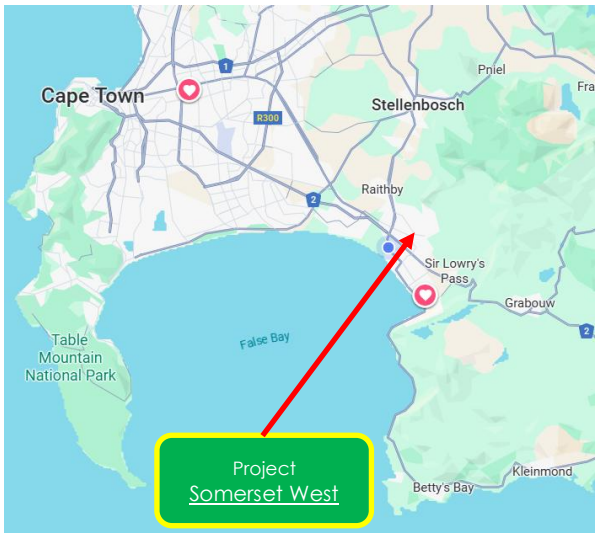
---- End of Executive Summary ---

1 PROJECT LOCALITY, SCOPE AND INFORMATION

1.1 Project Locality

Erf 19788, Somerset West (House Botes) is located at *No.20 Tenerife Avenue, Somerset Lakes, Somerset West* within the boundaries of the ***City of Cape Town*** as show on the Figures below.

Site coordinates are **South:** 34° 06' 30" **East:** 18° 52' 04"



Project Location: House Botes

1.2 Scope of Work

1.2.1 Original RFQ scope of works

TechQ Development (Pty) Ltd was appointed by the **NHBRC** to conduct an ***Investigation*** towards structural and waterproofing defects of the property with the following specific deliverables.

- Investigate structural and waterproofing defects that have manifested at the above-mentioned home and classify them in terms of the Housing Consumer Protection Measures Act (Act 95 of 1998) and Regulations (HCPMA) and the NHBRC Technical Requirements.
- Assess the structural integrity of the garage roof slab.
- The initial assessment of the complaint noted the following defects, which requires further investigation and remedial specification:
  - The water ingress into the house.
  - Water ponding on the concrete garage roof.
  - Complaints from the home owner regarding the structural integrity of the garage concrete roof slab.
- Determine the root causes of defects, report on the defects of the existing structure and provide remedial solutions and specifications including drawings where necessary.

Throughout the investigation and considerations of remedial works, special attention is drawn to **Chapter III** of the Act, clause 13(1)(b) – (i) "rectify major structural defects" and (ii) "deviation from plans or any deficiency related to design, workmanship or materials".

1.2.2 Additional scope following site brief and site inspection

The main focus of the investigation is towards water ingress and water damp on the walls of the structure and assessment of the structural integrity of the garage concrete roof, however, numerous settlement and movement cracks previously repaired on the external walls were noted, which may be the root causes to the rising water damp and water ingress to the affected areas, as elaborated on in **Section 2.2** of the report.

1.3 Information Provided and Independent tests conducted

Information received from the NHBRC, Homeowner, design Architect and Structural Engineer involved in the planning and construction of the building, provided background to the site development and an understanding to analyse the structural system of the building and recommend concept remedial actions.

1.3.1 Annexure B – Municipal approved Architect drawings

Architect drawings produced by **Van der Wolf Weyer Architects** (November 2022) are attached, which drawings were reviewed to ascertain the intended design approach of the building.

Comments on detail provided on the drawings with notes related to differences between design and construction and towards general architectural detail are elaborated on in **Section 2.1(b)** below.

1.3.2 Annexure C – Structural Engineering drawings

Structural engineering drawings produced by **EVK Consulting Engineers** (August 2022) were received. Comments on detail provided on the drawings with notes related to irregularities and general structural engineering detail related to buildings are elaborated on in **Section 2.1(c)** below.

Discussions with the Homeowner (Botes family) and **EVK Consulting Engineer** recorded that several on-site changes to the engineering designs with regards to the strip foundations and garage concrete roof slab were made by the Contractor (**SAVREZ Trading**), resulting in **EVK** to exclude the garage roof from the **Form 4.**

Also attached as **Annexure C2** is structural engineering detail prepared by **Struwig Kotze** (June 2024) towards changes to the garage roof from a metal sheet roof to a concrete slab to accommodate the "New Guest Bedroom" also drawn on the architect drawing dated June 2024, attached as **Annexure B2**. The new guest room was not constructed at the time of the investigation.

1.3.3 Annexure D – Geotechnical Investigation

A geotechnical report compiled by **Core Geotechnical Consultants** (November 2016) was received from **EVK Consulting Engineers,** who stated that the foundation designs were based on this report.

The geotechnical investigation classified the existing site soil conditions to be **P(fill)/H/R** with a clay content of between 32% to 37%. Critical items highlighted in the geotechnical report of which most is normally considered at design stage, with founding recommendations are listed below.

- The underlying residual shale soils are firm to very stiff in consistency and are moderately compressible. These soils are clayey and relatively fine-grained and are moderately plastic, with a Plasticity Index (PI) of 21 and a **clay content of 52%.** These soils can therefore be considered as potentially moderately expansive due to this plasticity, at least in the upper 0.5 m of the residual profile. Nevertheless these soils will form a competent load-bearing founding horizon, provided appropriate design precautions are taken to cater for possible heave movements.
- No particular excavation problems are anticipated, apart from potential difficulties due to water ingress in wetter areas. Bailing and pumping may be required in excavations during periods of high rainfall.
- Structures may be founded conventionally using **strip or spread footings** founded at depths of **0.5 m to 1.0 m below ground surface** in dense gravelly transported colluvial soils. A foundation bearing pressure of up to 150 kPa is applicable under these conditions. Total movement should not be more than 10 mm.
- If higher bearing pressures are required, then structures may be founded using **spread or pier foundations and ground beams** founded at **1.3 m to 2.1 m** depth approximately on weathered very soft rock shales. Under these conditions, foundation bearing pressures of up to 00 kPa will be applicable, and total movement less than 5 mm.

1.3.4 Annexure E – NHBRC Conciliation report

A Conciliation report dated **23 April 2025** listed complaints raised by the Homeowner to be attended too by the Building Contractor relevant to this project scope, not limited to the list:

- Several cracks on back wall (Boundary)
- Water ingress in 2nd bathroom with water marks on walls
- Water marks stains on ceiling in passage
- Water leaks evident against side and from walls of garage
- No insolation / Isotherm in ceiling voids
- Cement loose at garage entrance to paved driveway
- Horizontal cracks in walls repaired are opening again
- Water damp on garage concrete ceiling (slab)
- Concern to integrity of concrete garage roof, cracking and water damp / ingress
- Water damp in several locations around the house

The above portray poor and unsatisfactory workmanship from the Building Contractor which most of the items have not been attended too at the time of this investigation.

1.3.5 Annexure F – Structural Integrity of concrete slab over garage area

Concrete Worm was appointed to conduct an infra-red scanning exercise using a **Hilti Ferroscan PC 300** detector for rebar localisation, depth measurement and size estimation in structural analysis. The full report with **concerning scanning diagrams** is attached as **Annexure F1** with elaboration in **Section 2.4.1** below.

Attached as **Annexure F2** is graphical representation of the scanning diagrams, clearly indicating that the top and bottom rebar of the concrete slab were not fixed and secured adequately as seen in **Pic 16 – 18** below.

A concrete rebound hammer tester apparatus – **Schmidt Hammer** – was used record the concrete strength in the absence of concrete test cubes taken during construction. Reasonable values were obtained averaging **20MPa** compared to the 25MPa design strength as per the **General Notes, Item 3.10** attached as **Annexure C1**.

To confirm these values, 3 x concrete cores were drilled and tested by **ROADLAB**, recording an average of over **40MPa** – **Annexure F3** – which only confirms the concrete strength, however, does not rule the concrete slab to be safe.

It is highly recommended that due to concerning structural cracks visible on the soffit of the slab – **Pic 08 below** - and evidence of large volumes of water ingress through these cracks during rainfall, **no construction to be done** on this concrete slab as anticipated by the Homeowner to be a New Guest room – **Annexure B2.**

1.3.6 Annexure G – Fraudulent NHBRC Certificate

Attached is the Home Builder's renewal certificate and an e-mail dated **1 August 2025** with confirmation from the NHBRC's registration department that the said certificate is a fraudulent document.

1.3.7 Annexure H – Certificate of Occupation

Taking note of all the defects listed in the Conciliation report as described in **Section 1.3.4** above and the omission of the concrete slab over the garage area as endorsed on the **Form 4 – Annexure C1** - , the authenticity of the **Certificate of Occupancy** attached as **Annexure H** is questioned.

The building's Distribution Board (DB) is installed in the garage and with this section of the structure not completely verified to be structural sound, the prevailing situation to be unsafe for occupancy.

It is highly recommended that the issue of releasing a **Certificate of Occupation** with all these defects and unsafe structural areas by discussed between the **NHBRC** and the **City of Cape Town: Development Management** and to be prevented at all costs.

2 INVESTIGATION: DISCREPANCIES, NON-CONFORMANCES AND POSSIBLE ROOT CAUSES

Independent investigation of the building structure together with verbal reports of previous remedial works done, raised concerns towards the design and construction of the structure and what possible future damage to the structure may occur if not attended too soon.

Evident during the investigation, no proof of any Quality Assurance / Quality Control was tabled or coordination between design and construction activities, which are important processes contributing to the success of a project.

2.1 Negligeable due diligence, Discrepancies and Non-conformances

Of great concern is the discrepancies and non-conformant detail on the architect and structural engineering drawings, which in itself, might be possible root causes for defects as elaborated on below.

a) Negligeable due diligence

SANS 10400-H: clause 4.3.1.1 not exercised. The geotechnical report (**Annexure D**) clearly stated the recommendations for strip foundations to be between 05,m and 1,0m below natural ground level. The existing foundations were constructed at a depth of 700mm below natural ground level.

b) Architect drawings – **Annexure B3**

- #01 : Parapet walls and metal sheeting with box gutters as per design, not as per construction.
- #02 : Garage and Foyer covered with metal roof sheet, constructed separately.
- #03 : Rain downpipe designed to be fixed to box gutter.
- #04 : Roof areas design to be 3-degree metal sheeting. Roof constructed with little to no slope.
- #05 : Level difference between garage and house area not as per drawing.
- #06 : Box gutter inside wall of bedrooms and bathroom, not industry practice and unsafe.

c) Structural Engineer drawings – **Annexure C3**

- #01 : Foundation detail indicates bottom steel only. Cage type foundation rebar was installed.
- #02 : No earthwork preparation under strip foundations noted to manage settlement.

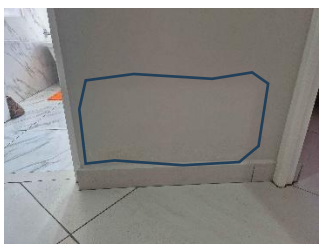
2.2 Water ingress, damp and stormwater provision

Main focus of the investigation was towards water ingress and damp located over the footprint of the building and along the external facades.

Test pits were prepared at the front and back of the structure to determine any shallow water table evident on the property. The geotechnical report – **Annexure D** – records high volumes of clay material over the property footprint which is visible from the soils removed from the test pits. **Pic 23** and **Pic 25** below shows water seepage into the test pit at a level 500mm below the current paving surface. This concerning observation explains the water damp and ingress into the structure over a large area of the external walls as shown in **Pic 03** and **Pic 04**.

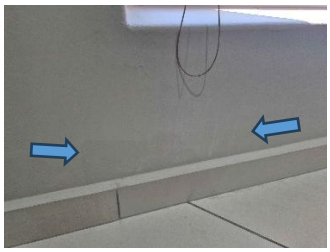
The picture album below provides evidence of such defects of which the root causes are water seepage from poorly constructed roof covering and inadequate stormwater drainage and slopes of the paving around the building.

Pic 01: Poor waterproofing of the shower tiles results to leaks.



Pic 02: Shower wall showing water damp.

Pic 03: Water damp and paint peeling off.



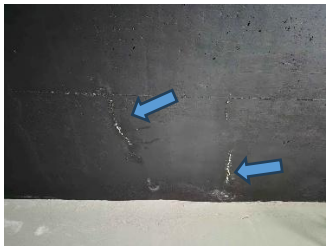
Pic 04: Water damp on bedroom external wall.

Pic 06 shows algae growth on the paving surface at the discharge end of the rainwater downpipe, which indicates little to no drainage of stormwater.

Pic 05: Water damp / ingress from garage concrete slab.

Pic 06: Water ingress/damp on external wall. Ponding water.

Pic 07: Rising water damp on front walls.



Pic 08: Water seepage and cracks in garage slab.

Ponding water next to the building walls will result in water ingress and damp into the house, also be the root causes of irregular settlement of foundations and differential cracks in the walls.

2.3 Defected roof construction

Metal sheet roof covering with a 3-degree slope was originally designed for the back bedrooms/bathroom and garage / passage areas. A box gutter inside the external walls of these areas is shown on the Architect's drawings – **Annexure B1** – with reference toto **Section B – B**, which configuration is not practical in the bedrooms/bathroom area.

The metal roof over the back bedrooms/bathroom area has little to no slope and deflects from the sides to the middle of the roof area as shown in **Pic 10** below. Standing water in the gutter also proofs no slope of the gutter towards the rainwater downpipe as shown in **Pic 09** below.

A late revision to the construction was the concrete slab over the garage to cater for a future "New Guest bedroom". This new intervention was not constructed, however, a concrete roof slab over the total garage area was constructed with a slope of 150mm from back to front as shown in **Pic 11** below.

Pic 09: Little to no slope results in ponding water in the gutter.

Pic 10: Back-end roof deflecting in the centre.

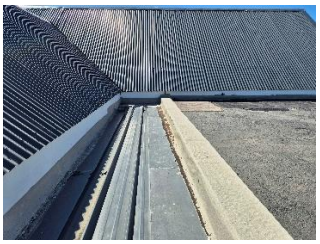
Pic11: Garage concrete slab slopes to front with no outlet.

Pic 12: Ponding water with sand deposits remains.

Pic 12 shows ponding water in one corner of the garage roof, resulting from the outlet pipe being installed too high. Water leaks through the concrete roof slab are shown in **Pic 08**.

The construction of a concrete slab over the garage resulted that the roof area over the Foyer was also covered with metal roof sheeting as shown in **Pic 14**. Poor workmanship towards the installation of the wall flashings, waterproofing and gutter on this section of the roof, **Pic 13** and **Pic 15** below, resulted in water leaks to the ceiling and walls of the Foyer area.

Pic 13: Damaged flashing and waterproofing. Water in gutter.



Pic 14: Flat metal sheet roof over Foyer with water leaks.

Pic15: Flashing and water - proofing damages.

2.4 Structural integrity of concrete slab over garage area

Structural cracks to the underside of the slab soffit as shown in **Pic 08** above and the unusual 150mm slope of the slab from back to front – **Pic 11** - necessitated independent tests to verify the structural integrity.

2.4.1 Rebar scanning

Rebar scanning of the concrete slab using a **Hilti Ferroscan PC 300** detector for rebar localisation, depth measurement and size estimation in structural analysis. The full report prepared by **Concrete Worm** is attached as **Annexure F1** which indicates irregular placing of the top and bottom rebar, also confirmed by photos taken by **EVK Consulting Engineers** during construction.

The images below is a summary of the rebar scanning conducted, also attached as **Annexure F2**.

The photos below as received from **EVK Consulting Engineers** substantiate the above graphical illustrations, indicating rebar to be bend, not properly fixed together, incorrect "stools" installed and conduit services above the top rebar, which will result in cracks in the slab.

Pic 16: Top rebar bend and not fixed properly to each other.

Pic 17: "Stools" installed not according to specification and trade.

Pic18: Incorrect "stools" installed and conduit services above top steel of slab.

The Form 4 signed by EVK Consulting Engineers – **Annexure C1** - excluded the concrete slab which questioned the validity of the **Certificate of Occupation** issued by the City of Cape Town – **Annexure H**.

2.4.2 Concrete strength tests – Smidth Hammer and core tests

No concrete cube test results were made available during the investigation period, also none taken during construction as verified by the Homeowner and **EVK Consulting Engineers**.

Smidth Hammer tests were conducted over a large area of the concrete slab soffit, with an average of 20MPa compared to the 25MPa design specification as per **EVK's** general structural notes.

Accuracy of these rebound hammer tests were tested from the results of 3 x 100diam **concrete cores** taken from the top section of the slab. The core results attached as **Annexure F3** recorded an average of over 40MPa.

Picture evidence of the cores taken on site is given below.

Pic 19: Core #01 measure rebar 125mm from top.

Pic 20: Core #01 with air-pockets, result of poor vibration.

Pic 21: Core #02 – rebar located 162mm from top.

Pic 22: Core #03 – rebar located 134mm from top of slab.

The rebar scanning and concrete strength test results from the **Smidth Hammer** and concrete cores, together with the visual cracks and water leaks through the concrete slab, conclusively indicates the structural integrity of the concrete slab to be questionable and not habitable in any sense.

2.5 Settlement cracks on external walls

Numerous horizontal settlement cracks were observed on all external walls at similar heights, mainly above and under window and door openings.

These settlements are common to settlement of foundations over period of time due to climatic seasons, however, to rule out any defective foundation conditions, 2 x test it holes were dug at the back and front of the building footprint, **Pic 23** and **Pic 25** below

Visual observations from both tests pits during the digging exercise revealed water seeping through the foundation walls into the test pits, these approximately 500mm below the paving level and above the strip footing level.

Pic 23: Test Pit #01 – water seeping from above foundation.

Pic 24: Horizontal cracks repaired but appear again.

Pic 25: Test Pit #02 – standing water above foundation level

Pic 26: Horizontal cracks repaired but appear again.

No noticeable or concerning settlement of the foundation or differential structural cracks were evident in the structure during the investigation, nor such of concern to be included in the remedial scope of works.

The geotechnical report – **Annexure D** – classified the soils to have a large percentage of clay. To manage and control future heave or settlement of underground soils, a subsoil drain pipe and sump is proposed in **Section 3.4** below in order to reduce water ingress to the subsoils supporting the strip foundations.

3 ENGINEERING REMEDIAL SOLUTIONS AND RECOMMENDATIONS

Contributing factors towards the **possible route causes** resulting in water ingress and damp evident on most of the internal and external walls and visible structural cracks can be summarised as incorrect engineering detail towards the foundation design, engineering soil precautions, methodology of the strip footings to the building walls and proper stormwater management.

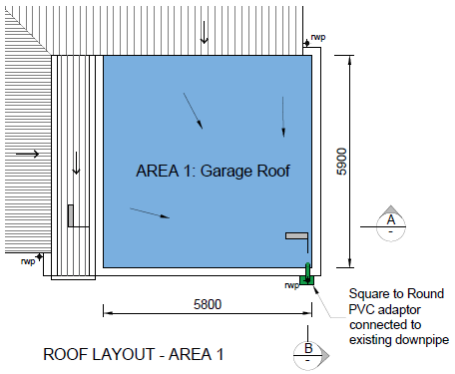
Section 2.4 above provides elaborative notes towards the structural integrity of the concrete roof slab over the garage area

Investigation areas and possible route causes for the defects are elaborated on in **Section 2** above with proposed concept remedial measures given below.

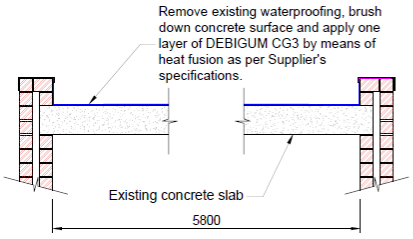
3.1 Area 1: Garage concrete roof slab – correct waterproofing

Proper waterproofing needs to be provided to the concrete roof slab top, including replacing all wall flashings and waterproofing to the parapet wall extensions to the roof perimeter.

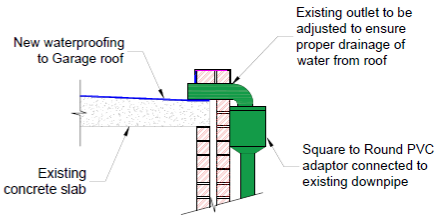
The stormwater outlet on the top of the roof (south corner) needs to be corrected to ensure total drainage of water from the garage roof. A square to round PVC adaptor to be installed as connection between the drainage outlet and the rain down pipe. The images below are graphical views of the remedial works detailed on the drawing attached as **Annexure A**.



ROOF LAYOUT - AREA 1



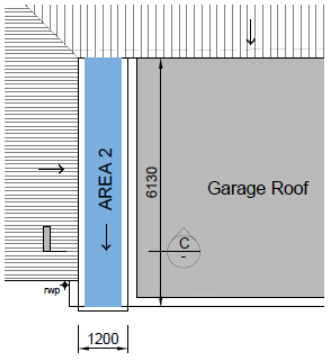
SECTION A - A
Waterproofing to Garage roof



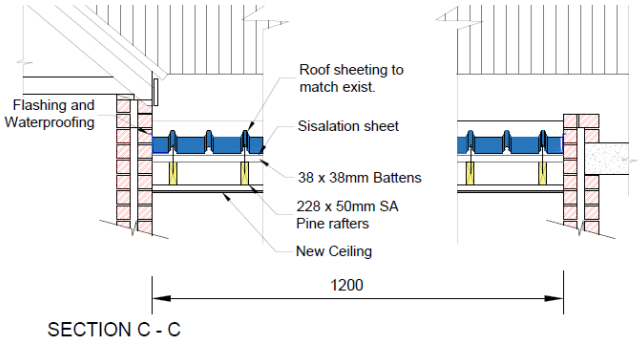
SECTION B - B
Stormwater outlet and PVC adaptor

3.2 Area 2: Re-construct Foyer "Flat" roof

Reconstruction of the narrow roof section over the Foyer area at the entrance of the building to be done as per details on the attached drawing – **Annexure A** – graphically shown below.



ROOF LAYOUT - AREA 2



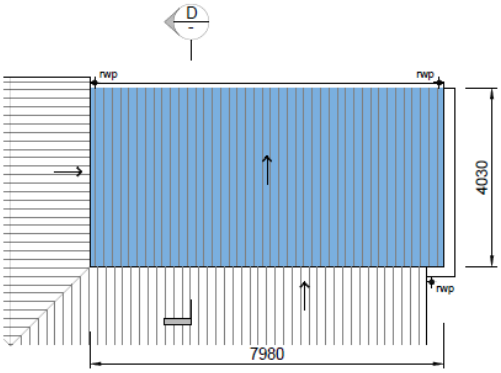
SECTION C - C
New Flat Roof over Passage

3.3 Area 3: Re-construct back-end "Flat" roof

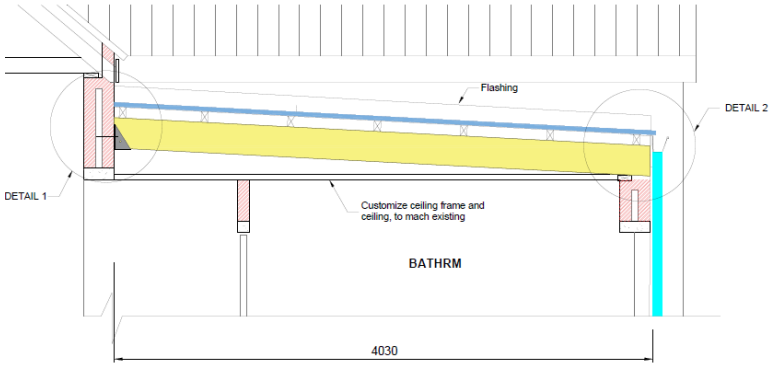
The Flat roof section at the back of the structure covering the bedrooms, a bathroom and the passage linking these areas of the building needs to be reconstructed in totality.

Remedial works also to include proper waterproofing of roof-to-wall flashings, installation of new gutters and downpipes.

Details for all reconstruction activities are provided on the drawing attached as **Annexure A** with image views given below.



ROOF LAYOUT - AREA 3
Bedrooms and Bathroom



SECTION D - D
Reconstruct roof

3.4 Area 4: On-site Stormwater management

Water ingress to the subsoils of the property needs to be controlled and managed to prevent future settlement or heave of the foundations. A sub-soil drain with open-air sump and water channel to the west boundary of the property is proposed as per details on the drawing attached as **Annexure A**.

3.5 Area 5: Repair water damp and water ingress areas

Water damp and water ingress to the external walls of the building is mainly caused by stormwater draining under the foundations and rising int the cavity walls. Guideline steps to attend to these areas are provided on the drawing attached as **Annexure A**.

The stormwater management remedial works proposed in **Section 3.4** above will manage and control this occurrence.

3.6 Summary: Engineering Solutions

The table below is **a summary** of the **remedial actions proposed**.

Section	Concept Remedial Actions – Drawing attached as Annexure A
• **Garage concrete roof: Waterproof, improve stormwater drainage and structural support**	• Remove all waterproofing and brush down vertical and horizontal surfaces to expose concrete slab and parapet wall elements. • Apply torch-on waterproofing membrane to specification as per details on drawing attached. • Adjust existing water drain outlet on the roof to ensure proper drainage of stormwater into existing downpipe.
• **Flat roofs : Reconstruct roofs at back end and Passage at Front door**	• Remove roof sheeting, wooden truss assembly, ceiling, isolation, waterproofing and flashings. • Construct new roof at min 3-deg slope complete as per detail on attached drawing. • Install wall flashings and apply appropriate waterproofing to roof as per specifications and details on attached drawing.
• **Water damp/ingress: Repair water damp areas**	• Locate water damp and water ingress areas pertinent to the inside of external walls, brush down, apply 1:5 mortar mix and paint to suit existing.
• **Stormwater management**	• Install subsoil drainage on the western boundary of the property.

4 RISKS & MITIGATION MEASURES

Qualifications, risks and possible sensitivity issues needs to be considered in performing the proposed remedial Works during the construction stage. The main objective of the Project is repair works as defined in **Section 3** above, however, the following aspects with mitigation proposals, need to be taken into consideration in the Risk Register of the Project.

Risks and mitigation measures

Nature of Risk	Risk	Mitigation
Site and Construction Risks	Abnormal rainfall and restricted working space	Proper scheduling of Works, being aware of the "critical path" items and implementing effective construction methodologies, Quality Assurance and Controls.
Limiting Factors	Decanting plan	Phased implementation of Works in accordance with proper planned decanting program.
Health and Safety	Delays and Fatal	Detailed OH&S plan compiled.
Quality Assurance	Construction Management	QA and QC Inspection procedures in place and approved
	Sub-standard materials	Quality tests and Agrements in place
OH&S and Environmental	Disturbance to environment, community and workers	Focus on the environment, building rubble disposals, air and noise pollution and disruption of day-to-day operations

--- End of Report ---