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## **CONCEPT DESIGN REPORT**

For: Transnet Corporate

Project Name: Restoration of ZK Matthews House  
Alice, Eastern Cape  
Project Number: TBA

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## **EXECUTIVE SUMMARY**

This Concept Design Report provides the design response for the restoration of the ZK Matthews House at Alice in the Eastern Cape. The house has historical significance as it belonged to Professor Zachariah Keodirelang "ZK" Matthews who was one of the authors of the Freedom Charter.

The site has three existing single storey buildings that are currently vacant. It is proposed that the buildings on the site be restored and used as exhibit spaces to honour the life and work of Professor Matthews. It will give the space a renewed sense of place and highlight its historical importance.

Following site investigation on the 5<sup>th</sup> of July 2016 by the Transnet team, it became evident that an incremental and conservative approach should be undertaken. The town of Alice is in dire need of regeneration. Available funding should be used to uplift other areas of the town and encourage other heritage initiatives.

Due to the poor structural condition of most of the buildings, it has been proposed that the buildings be demolished and re-built to match the original buildings in material, form and layout. It is proposed that the house and outbuilding be used as information and exhibition spaces and the garage be used for office purposes, security and ablutions.

It is proposed that landscaping and fencing should be limited to 2900m<sup>2</sup> around the building to secure the existing house and outbuildings. The remainder of the site can be cleaned up and remain in its original form. As the town is regenerated and heritage links developed, this site can be enhanced further.

With the reduced building scope, the construction cost estimate is R3.4million.

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## **1 GENERAL**

### **1.1 BACKGROUND TO THE PROJECT**

The house of Professor ZK Matthews, an academic and one of the authors of the "Freedom Charter" in 1955, has fallen into progressive disrepair over the years. It is proposed that the house be restored and refurbished in his honour. Refer to Annexure A: Background. It is proposed that the house located in Alice in the Eastern Cape be converted to a resource and exhibition space depicting the life and times of Professor Matthews.

### **1.2 OBJECTIVE OF THIS DOCUMENT**

The purpose of this concept report is to provide the findings of the site and building condition investigation and propose a concept design and estimate for the building restoration.

### **1.3 APPROVAL BY OTHERS**

Prior to project implementation and construction, the following approvals shall be required

- Department of Public Works (DPW) as the owner of the land shall be required to confirm cadastral information, approve the development layout and detail drawings of the development prior to construction.
- The Municipality must be issued with courtesy copies of the approved drawings and application forms, for their further consideration and approval.
- A rezoning application is required to rezone property from residential to a zoning appropriate for museum and exhibition space.
- Eastern Cape Provincial Heritage Agency will be required to approve any alteration or demolition, as the building is over 60 years old

### **1.4 LEGAL REQUIREMENTS REGARDING DESIGNS**

The designs shall comply with all national and local legal requirements.

### **1.5 GOVERNING CODES, STANDARDS AND SPECIFICATIONS**

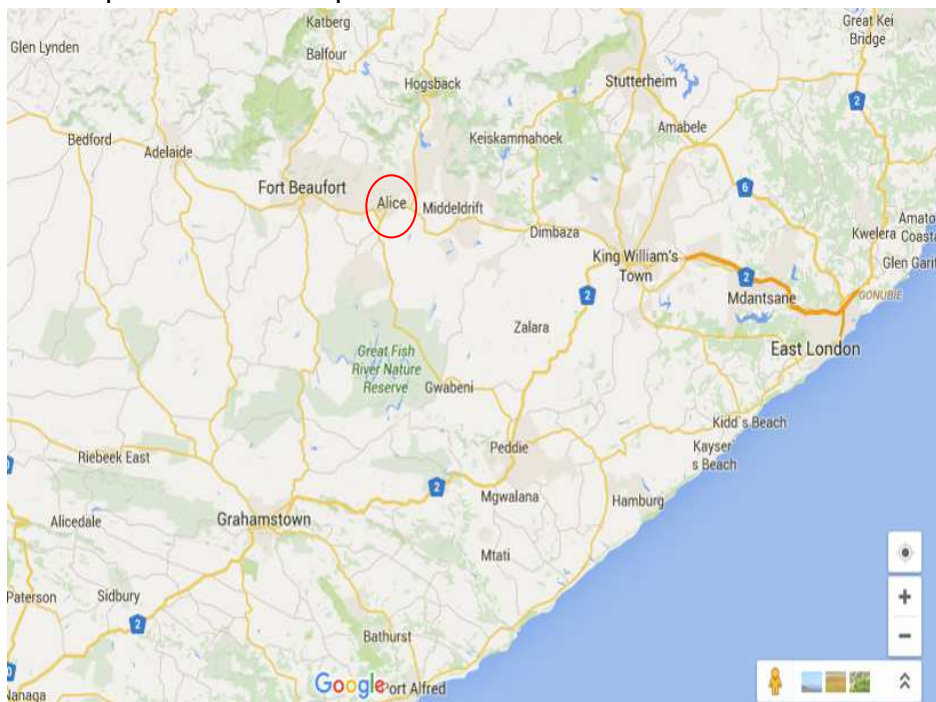
The design shall comply with the requirements of the South African National Standards (SANS) codes and standards as well as any local, regional and national laws and bylaws.

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## **2 LOCALITY, SITE AND SERVICES**

Alice is a small rural town and home to Fort Hare University. It is approximately 1 hour 30 minutes away from East London. The closest towns are King Williams Town and Fort Beaufort.

Alice has a reasonable level of infrastructure to service the existing population. The legacy of apartheid has meant that only the basic services and infrastructure are in place. These require regular maintenance and upgrade to support the town and future development within the precinct.



**Figure 1: Locality map showing Alice**

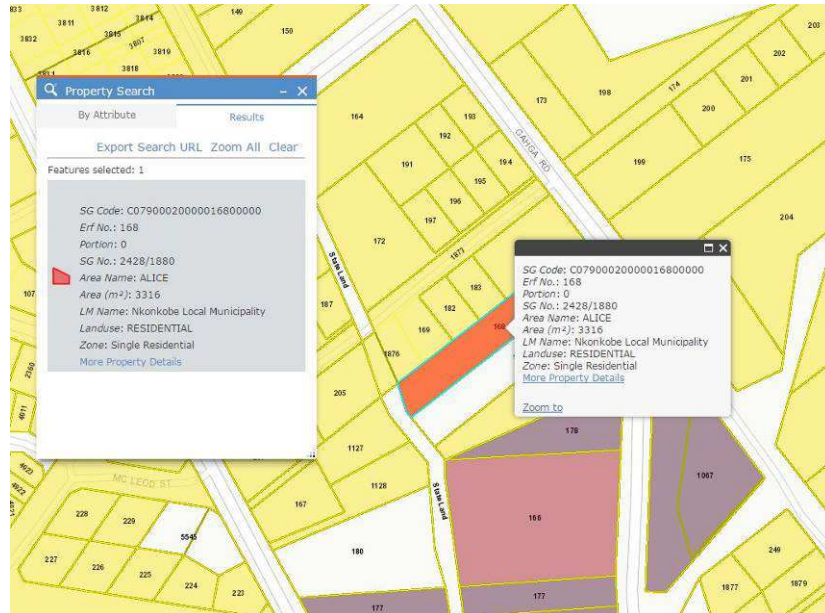
### **2.1 SITE AND ZONING**

The site is in a secluded area in the town. It is a brown field site surrounded by low scale residential development.

It is zoned as "Residential" under the Amatola Town Planning Ordinance (Nkonkobe Municipality). The permitted activities is limited to residential. A rezoning application will be required to change the use of the site to an appropriate zoning to cater for exhibition/museum space.



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**Figure 2: Cadastral Map of the site (Erf 168)**



**Figure 3: Presents the site view from the main house**

## 2.2 EXISTING STRUCTURES

A visual assessment was conducted revealing the following findings.

There are three buildings on the site:

- The main house
- An outbuilding
- A double garage

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### 2.2.1 Existing House

The building structure were found to be in very poor condition. There are large cracks in walls. Plaster is falling off the brickwork. There has been ad-hoc alterations internally and externally over the years.



**Figure 4: North East Elevation (front of main house)**

Figure 3 presents the front of the house. It is evident that the brickwork and plaster has been compromised over the years due to limited maintenance.



**Figure 5: South West facade (back of main house)**

Figure 5 represents the South West façade of the main house. Significant structural cracks are evident that pose a safety risk. The fascia's, gutters and rain water good are missing causing water problems around the building.

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It is assumed that the foundations are concrete strip footings. Due to large structural cracks observed it is evident that the foundations are undermined due an inadequate drainage system. The downpipes have been damaged/ removed. Water discharges onto the ground and seeps into the foundation.

**Figure 6: North West Facade with foundations compromised**



Figure 7 presents the roof of the main house. Visual inspection revealed that early corrosion has set in and compromising the integrity of the roof structure and water proofing of the roof. Drainage off the roof is poor due to missing gutters and downpipes.

**Figure 7: Existing roof sheeting of the main house**

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Figure 8 shows the veranda space in the main house. The plaster in this area is spalling and indicated structural cracks resulting in damp problems internally.

**Figure 8: Veranda space showing plaster cracks**



Figure 9 shows the typical windows in the house. Window frames are galvanised steel and painted. Burglar guards are installed for additional security. There are cracks evident around the windows which indicate differential settlement.

**Figure 9: Typical painted steel window**

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Figure 10 shows brickwork. The undermining and settlement of the foundations has led to severe cracking of the internal and external brickwork and plaster. The plaster to the brickwork is severely cracked and loose and has left the brickwork exposed in certain areas. The exposed brickwork has since been eroded and has lost its structural integrity.

**Figure 10: Shows the cracks and exposed brickwork**



Figure 11: shows the North West corner. The north-west corner of the building has been severely damaged and the brickwork at the ground level has collapsed and contributed to damp problems internally.

**Figure 11: North West corner severely damaged and collapsed**

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Figure 12 shows the external face of brickwork on the south western wall of the main house has separated and is deemed to be unsafe. This damage is due to the roots of a tree which has grown on the face of the rear wall. The brick piers supporting the rear covered entrance is displaced by this growth and has become unstable and unsafe.

**Figure 12: South Western Facade with tree growth in wall**



Figure 13 shows the interior of the house.

- Ceilings

The ceilings are in poor condition and are missing in places.

- Roof structure

Due to inaccessibility, the roof structure could not be assessed. The brickwork joints on the chimney vents to the fireplaces have eroded. This has also become unstable and unsafe.

- Interior walls and plaster

Interior walls indicate loose plaster, dampness, cracks and is in poor condition.

**Figure 13: Interior passage of the house**

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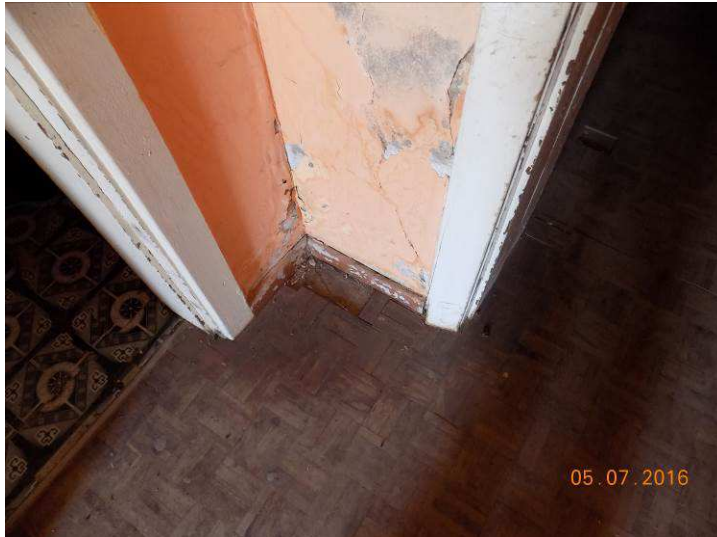


Figure 14 shows the existing floor. The old timber floors have been removed in most rooms and replaced with concrete floors. Floor covering is a mix of timber parquet flooring and vinyl sheeting. The floor levels are below the existing ground line and this is creating damp problems internally

**Figure 14: Shows the existing concrete floor with parquet finish in most rooms**

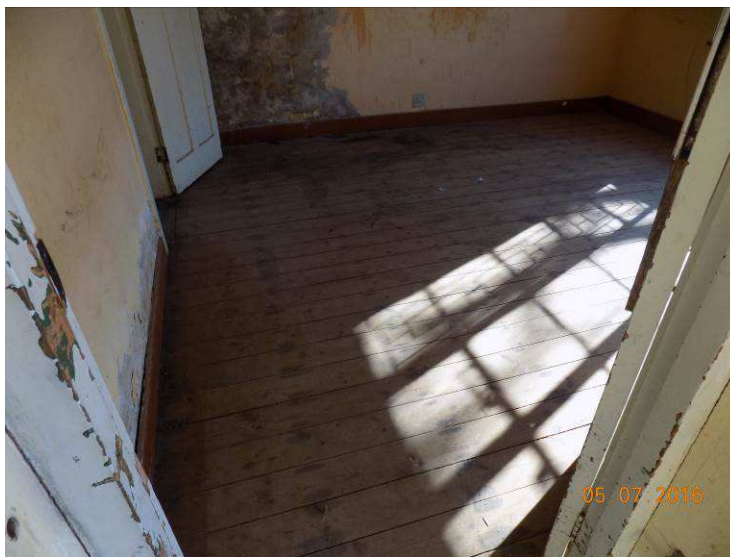


Figure 15 shows the timber flooring. Only two rooms have timber floors. The supports to the timber floors have deteriorated over the years and are deflecting. These floors are extremely unsafe and susceptible to possible collapse.

**Figure 15: Existing timber floors in two rooms**

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Figure 16 and 17 shows the existing kitchen

Kitchen and bathroom fixtures, cupboards, fittings and plumbing are in poor condition and will need to be replaced. Revamp of kitchen and bathroom is required

**Figure 16: Existing kitchen in very poor state**



**Figure 17: Existing bathroom needs total refurbishment**



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**Figure 18: Show existing fireplace**

Figure 19 and 19 shows the existing fireplaces in the house.

There are two existing face brick fireplaces internally that are in fair condition. They are of no architectural significance and can be rebuilt.



**Figure 19: Shows existing fireplace in living room**

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## 2.2.2 Existing Outbuilding



**Figure 20: Shows the existing outbuilding**

Figure 20 presents the outbuilding which is a simple lean-to structure that is in very poor condition. Window glazing is missing.

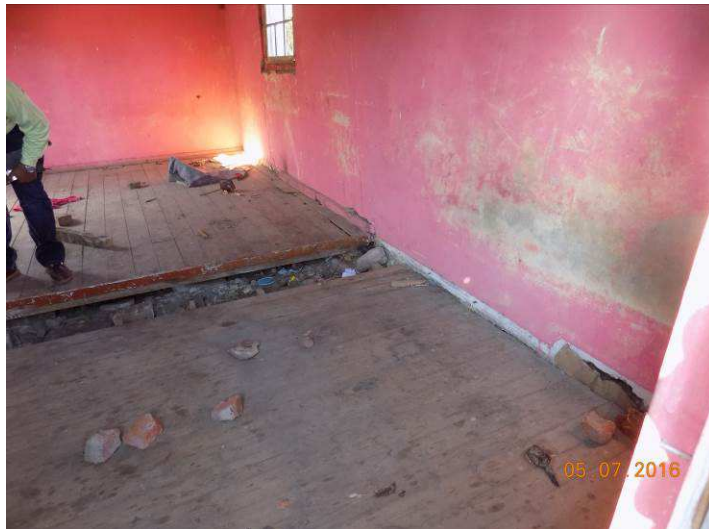


**Figure 21: Outbuilding showing compromised foundations**

Figure 21 shows the outbuilding cracks and subsidence due to foundation being undermined.

It is assumed that the foundations are concrete strip footings which have been undermined due an inadequate drainage system.

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**Figure 22: Outbuilding floor collapse**

Figure 22 shows the existing floor in the outbuilding. The floors are timber. The supports have deteriorated thereby allowing excessive deflection when trafficked. Some of the timber flooring has been removed. These floors are extremely unsafe and susceptible to possible collapse.



**Figure 23: shows the interior of the outbuilding**

The undermining and settlement of the foundations has led to severe cracking in the external brickwork and plaster. The integrity of the walls have been compromised.

The roof comprises of a timber rafter and purlin system. The main rafter show signs of excessive deflection which could lead to possible collapse.

- Roof sheeting and rainwater goods

The roof sheeting and rainwater goods are in poor condition and in need of replacement.

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### 2.2.3 Existing Garage



Figure 24 shows the existing garage which is in very poor condition. The building shows signs of movement as there are large cracks visible.

It is presumed that the foundations are concrete strip footings which have been undermined due an inadequate drainage system.

**Figure 24: shows the existing garage**



Figure 25 shows the interior of the garage. The floors of the existing garage are concrete.

The undermining and settlement of the foundations has led to severe cracking of the external brickwork and plaster. The external wall on the north eastern side has settled and rotated causing severe cracks in the adjacent brickwork. The pier supporting the beam over the garage door has settled causing severe cracking at this junction leading to possible collapse. There is a large crack centrally on the north western wall. The plaster to the brickwork is severely cracked. The integrity of the walls have been compromised and deemed unsafe.

**Figure 25: Interior of garage showing large crack**

- Roof structure and sheeting

The roof comprises of a central timber beam supporting a timber rafter and purlin system. The current construction of the roof does not conform to the statutory codes and standards. The roof sheeting is in poor condition and in need of replacement.

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## **2.3 EXISTING SERVICES**

The site has basic services, i.e. water connection, power and sewer connection.

### **2.3.1 Water, Storm water and sewer**

The site has a water supply and sewer system. The exact points to be determined. Storm water control is poor. Some gutters and rainwater down pipes are missing.

### **2.3.2 Electrical infrastructure**

The existing site has a power supply via overhead conductor.



**Figure 26: Existing power distribution**

### **2.3.3 Surfacing and roadways**

The main road to the site is tarred. The internal driveway surfacing is gravel. There are no kerbs.

### **2.3.4 Fencing and boundary**

The edges of the site has a mix of fencing including wire mesh, concrete palisade. The fencing is generally in poor condition.

### **2.3.5 Vegetation**

The vegetation on the site is limited to scarce grass with some trees.

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### **3 BASIS OF CONCEPT DESIGN**

The significance of this project lies in its historical value to the town and to South Africa. Due to progressive deterioration over years, the actual building has little of architectural significance. The value lies in the simple building form, material and layout.

#### **3.1 DESIGN APPROACH**

The concept design proposal has considered:

- The existing buildings and site conditions
- Information gathered during consultation with the one of the stakeholders from the University of Fort Hare who highlighted that the house should be used as an exhibition space to honour the life of Professor Matthews.
- Report on the Alice Regeneration Programme dated October 2010, prepared by ASPIRE for the Department of National Treasury. The report encouraged the regeneration of Alice through systematic upgrade of accommodation, upgrade of CBD, development of sports and education zone and heritage development. Included in the heritage development was proposed links to various historical sites in Alice. Refer to **Annexure E** for an extract from this report.
- Highlighting the historical significance of the ZK Matthews house as one step to promote the heritage in the area.
- This project is seen as a part of other strategic interventions that are required to uplift the town's image and historical significance. This project may be a catalyst to regeneration of Alice and encourage further upgrades within the town to encourage tourism and the economy
- The building upgrade seeks to improve safety and security of the space by transforming it into an exhibition space.

#### **3.2 TECHNICAL CONSIDERATIONS**

The technical design has considered:

- The condition of the house and existing structures
- Structurally safety and stability of the building/s
- Service connections, eexisting power supply and connections, existing civil services and connections
- Storm water control
- Low maintenance of the building
- Safe pedestrian routes and vehicle routes

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- Local authority requirements (further approvals required)
- Heritage agency requirements (further approvals required)
- Certain assumptions have been made as there are no as-built plans of the original house

## **4 DESIGN RESPONSE**

Following the review of the site conditions and findings of the structural assessment of the existing structures, the poor structural integrity of walls, damp and water problems, poor roof structure and foundations, it is proposed that the most effective solution will be to demolish and re-build the buildings.

It is proposed that the house and outbuildings shall be re-built to match what is believed to be the original building. The form, layout, and material will be replicated to match the original house and outbuildings.

A new raised concrete floor will replace the existing floor to prevent water and dampness problems. The exterior walls will be brickwork, plastered and painted white. The rainwater goods i.e. gutters and downpipes will be replaced with new. The roof structure and corrugated sheeting will be new. Where possible, some elements, like the windows and doors will be salvaged, refurbished and re-used.

This will ensure that the proposed exhibition space is located in a structurally sound and robust building.

### **4.1 CONCEPT DESIGN PROPOSAL**

Refer to **Annexure B**: As-built drawings and proposal layouts

#### **4.1.1 The Site**

- The site should be cleaned and tidied. The house and out buildings are to be fenced off. The remainder of the site shall be left for any future development including parking, exhibition/ meeting space, etc.

#### **4.1.2 Proposed accommodation**

- It is proposed that main house be used for kitchen and exhibition spaces.
- The small outbuilding be used for exhibition space
- The garage be used for office, and ablutions for male, female and paraplegics

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## 4.2 CIVIL

- **Storm water and landscaping**

It is proposed that two downpipes in front of the house are connected into new attenuation pond (indicated on site layout) and graded to the existing gravel driveway around the trees to fall towards the attenuation pond. The two downpipes at back of the house to drain into three jo-jo tanks (2000 liter), overflow from the tanks drain into a soak way. The rest of the areas shall be grassed to drain away from the house into landscape ditches.

- **Sewer**

All new sewer pipes from the existing gullies, baths and toilets shall be re-laid. New pipe work shall be installed within the house. New pipework to be connected to the existing connection point on the property.

- **Water main**

New hot and cold water reticulation, geyser and fittings shall be installed with connection pipe to existing municipality point-meter.

- **Fencing**

New fencing shall be installed to secure the house only. The existing boundary would need to be secured later as the development grows.

- **Driveway**

The existing driveway shall be regraded to falls towards the attenuation ponds and landscaped ditches.

## 4.3 ARCHITECTURE AND BUILDING

Visual inspection has found no element in the house of architectural value that should be salvaged. It is proposed that the house, outbuilding and garage be demolished and be rebuilt in plan and elevation to match the style of the original buildings.

The buildings shall be remain single storey brick structures that will be plastered and painted white. The roof sheeting shall be corrugated iron sheeting painted. All rainwater good will be replaced with new.

Due to damp problems, the floor shall be raised at least 100mm above natural ground line and replaced with new concrete floor slabs. This shall ensure durability and reduce long term maintenance. Floors shall be tiled with hard-wearing porcelain tiles.



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The interiors shall provide spaces suitable for the information centre and exhibition fit-out. All internal walls will be plastered and painted white. Floors will be tiled.

Where possible existing timber doors and steel windows will be cleaned, refurbished and re-used in the buildings. Windows shall be re-glazed. Window cills shall be plastered and painted externally and internal cills to be quarry tiles

All bathrooms and kitchens shall be upgraded with new robust sanitary fittings.

Provision shall be made for paraplegic accessibility into the house that includes ramps, parking and a paraplegic toilet.

#### **4.4 STRUCTURAL ENGINEERING**

The structural design is to be in accordance with the relevant codes and statutory requirements.

- Geotechnical Information

A geotechnical investigation may be required by the municipality. This will be confirmed.

- Design

New Foundations

The foundations are to be reinforced concrete strip footings. The following indicative sizes are to be used for the strip footings:

345 walls	-	900 x 250 Deep	
230 walls	-	700 x 250 Deep	
115 walls	-	600 x 250 Deep	
Concrete Strength	-	Foundations	- 25MPa
		Blinding	- 15Mpa
Cover to Reinforce	-	50mm	

Depth of foundations shall be confirmed by structural engineer on site and shall not encroach over boundary

- New Surface Slab

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Surface slab and apron slab is to be 100mm thick reinforced with 100 mesh. Joints shall be provided at 4.5m centres at a maximum ratio 1:1.25

All fill material and compaction specifications are to be approved and confirmed by engineer prior to construction. The concrete strength shall be 25Mpa. All in situ concrete work (mass and reinforced) shall comply with SANS Specification 1200G

- Brickwork

All brickwork to have a minimum compressive strength of 14MPa. Lintels and a minimum of 5 courses of brickwork reinforced every course with brick force are to be provided over all openings. Foundation brickwork to be reinforced every course for the first 5 courses and thereafter every third course.

#### **4.5 MECHANICAL ENGINEERING**

To save energy and reduce operational costs, it is proposed that ventilation is natural and windows will be openable.

#### **4.6 POWER SUPPLY**

Power supply to the site shall be converted from overhead conductor to underground cable with boundary metering.

- Lighting

The electrical lighting and power design has been catered for lighting all areas. Energy savings is accomplished by utilisation of LED lighting, occupational sensors, and energy saving equipment.

- Distribution boards

Distribution of power shall be provided by recessed distribution boards.

- Earthing and Lightning Protection to be provided
- Socket outlets to be used in the building shall be SABS approved, 4 x 4 (100mm x 100mm) single or double outlets.

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## **5 ISSUES TO BE ADDRESSED**

Prior to any work proceeding, the following needs to be addressed:

- 1) Approval by the land owner  
Department of Public Works shall be required to approve the development proposal as the owner of the property. They will also need to provide title deed information and necessary delegation.
- 2) Approval by the Eastern Cape Provincial Heritage Agency (ECPHA)  
The proposal will need to be submitted and approved by the ECPHA.
- 3) Local municipality approvals  
Courtesy copies of the building plans will be required to be submitted to the local authority for approvals, together with engineer's certifications.
- 4) Rezoning application  
A rezoning application will need to be prepared to change the zoning from "Residential" to "Exhibition/museum space"
- 5) Strategy for procurement and construction management  
Strategy for procurement of contractor to be determined between the stakeholders.

## **6 RECOMMENDATIONS AND DESIGN PROPOSAL SUMMARY**

The design proposal is a reduced scope when compared to the previous report dated April 2016. This development and restoration is seen as a one step in encouraging further regeneration of the town of Alice. Based on the site investigation and condition of the building, it is recommended that the buildings on the site be demolished and re-built to match the original building. Refer to the design proposal in **Annexure B**. These buildings can be used as information and exhibition spaces to honour the life of Professor Matthews.

The estimated cost of the construction is R3.4million (exclusive of VAT). Refer to **Annexure C** for the estimate. This estimate excludes professional fees, disbursements and any building submission fee costs.

The 80m<sup>2</sup> information centre has been omitted. The landscaping and fencing of the site has been reduced.

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Table 1: Summary of the demolition and building work

<b>Existing House, outbuilding and Garage</b>	<b>Condition</b>	<b>proposal</b>
Fencing	Mixed fencing	Fencing limited to around the immediate buildings
Sewer	existing	New Sewer Pipes to be laid to connect to existing
Storm water	Poor storm water control	New storm water pipes to be laid, new jo-jo tank and attenuation pond
Water	Existing supply	New water supply pipes and geyser to be provided
Foundations and floors	Poor	To be demolished and replaced with new
Exterior Walls	Cracks, plaster cracks, poor condition	Demolish and re-build
Ceilings	Poor condition; missing panels in areas	New Plaster board ceilings, branding and moulded cornices to be painted
Windows	Existing galv. Steel windows painted – glazing missing	Refurbish steel windows and replace where necessary. All windows to be re-glazed.
Window cills - internal	plastered and painted	Refurbishment to provide plastered and painted window cills as per original house
Roof structure	Poor, old	Replace with new
Roof sheeting	Poor, damaged, corroding	Replace with new corrugated iron sheeting –painted green
Services	Poor, non-compliant	New pipe work for sewer, water connections and storm water attenuation

*Note: In all cases check against online version for the latest revision prior to use*

Lighting and power	Old, outdated	Upgrade of power supply with new DB, internal and external lighting, internal socket outlets
Lightning protection		To be provided
Signage	Limited to one small sign on the building	Provide clear signage at the entrance gate and on the building
Interior walls	Damp problems, cracks	New walls to be plastered and painted white
Kitchen	Old, poor condition, broken cupboards	New plumbing, new wall tiles, new fittings, new cupboards
bathroom	Poor condition	New fittings (mirrors, toilets, wash hand basins) new plumbing, new wall and floor tiles
Sanitary fittings	Damaged	New sanitary fittings

## 7 CONCLUSION

The site and home of Professor Matthews is important to the history of Alice and South Africa. The restoration of the ZK Matthews House can be achieved at estimated construction cost of R3.4 million. This cost excludes any professional fees, project and construction management fees and disbursements.

Note: In all cases check against online version for the latest revision prior to use

## ANNEXURE A: Background

### ZK Matthews home gets R13mln facelift

Friday 20 May 2016 21:24

SABC



The house of ZK Matthews in Alice in the Eastern Cape is set to get a R13 million restoration and refurbishment, said President Jacob Zuma as part of University of Fort Hare's centenary celebrations.

ZK Matthews, the first African student to obtain an LLB degree, is hailed as one of the historic giants of Fort Hare. He was a lecturer, academic and respected intellectual.

But his house had fallen into disrepair as it stood abandoned for many years, but soon it will stand proud again in honour of the man who lived there.

**TAGS:**

Eastern Cape Alice ZK Matthews  
 Jacob Zuma Fort Hare African LLB degree  
 Zimbabwe Robert Mugabe Naledi Pandor  
 Nkosazana Dlamini-Zuma  
 National Heritage Council

Zimbabwean President Robert Mugabe says, "I wanted to hear him teach and also benefit a bit from his teaching so I included South African law in my arts degree as one of my subject."

The unveiling was attended by Matthews' granddaughter, Minister for Science and Technology, Naledi Pandor and the chairperson

of the African Union Commission Dr Nkosazana Dlamini-Zuma.

The house will have an information centre, a small museum and a library.

The university is also engaging the National Heritage Council to make the house a national heritage site.



*Note: In all cases check against online version for the latest revision prior to use*

## **ANNEXURE B: As built layout and Design Proposal – July 2016**



Note: In all cases check against online version for the latest revision prior to use

## ANNEXURE C: ESTIMATE

Project: Restoration of ZK Matthews House, Alice, Eastern Cape Order of Magnitude Estimate Date: 13 July 2016	
DESCRIPTION	ESTIMATE
Demolition & Site Works	R 280,000
New Structures	R 1,550,000
External Works	R 650,000
<b>Sub-total</b>	<b>R 2,480,000</b>
Preliminaries	R 450,000
<b>Sub-total</b>	<b>R 2,930,000</b>
Contingency	R 440,000
<b>Total Construction Cost Excluding VAT</b>	<b>R 3,370,000</b>

The restoration of the ZK Matthews House can be achieved at estimated construction cost of R3.4 million. This cost **excludes** professional fees, project and construction management fees and disbursements.



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*Note: In all cases check against online version for the latest revision prior to use*

## **ANNEXURE D: Extracts from "Alice Regeneration Programme: Assessment Report"**