

BUILDING CONDITION
ASSESSMENT REPORT

**36 Boundary Rd, Isle of
Houghton Office Park, JHB**

Wits Health Consortium

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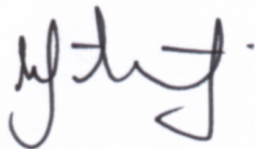
Document prepared by:

Zutari (Pty) Ltd
Reg No 1977/003711/07
Oxford Corner
32A Jellicoe Avenue
Rosebank
Johannesburg
South Africa
PO Box 653763
Benmore
2010

T +27 11 214 4500

E johannesburg@zutari.com

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Reviewer signature		Approver signature	
Name	W Göllnitz	Name	D. Bousfield Pr.Eng, B Eng (Hons)
Title	Senior Electrical Technician Market Built Environment	Title	Associate- Market Built Environment

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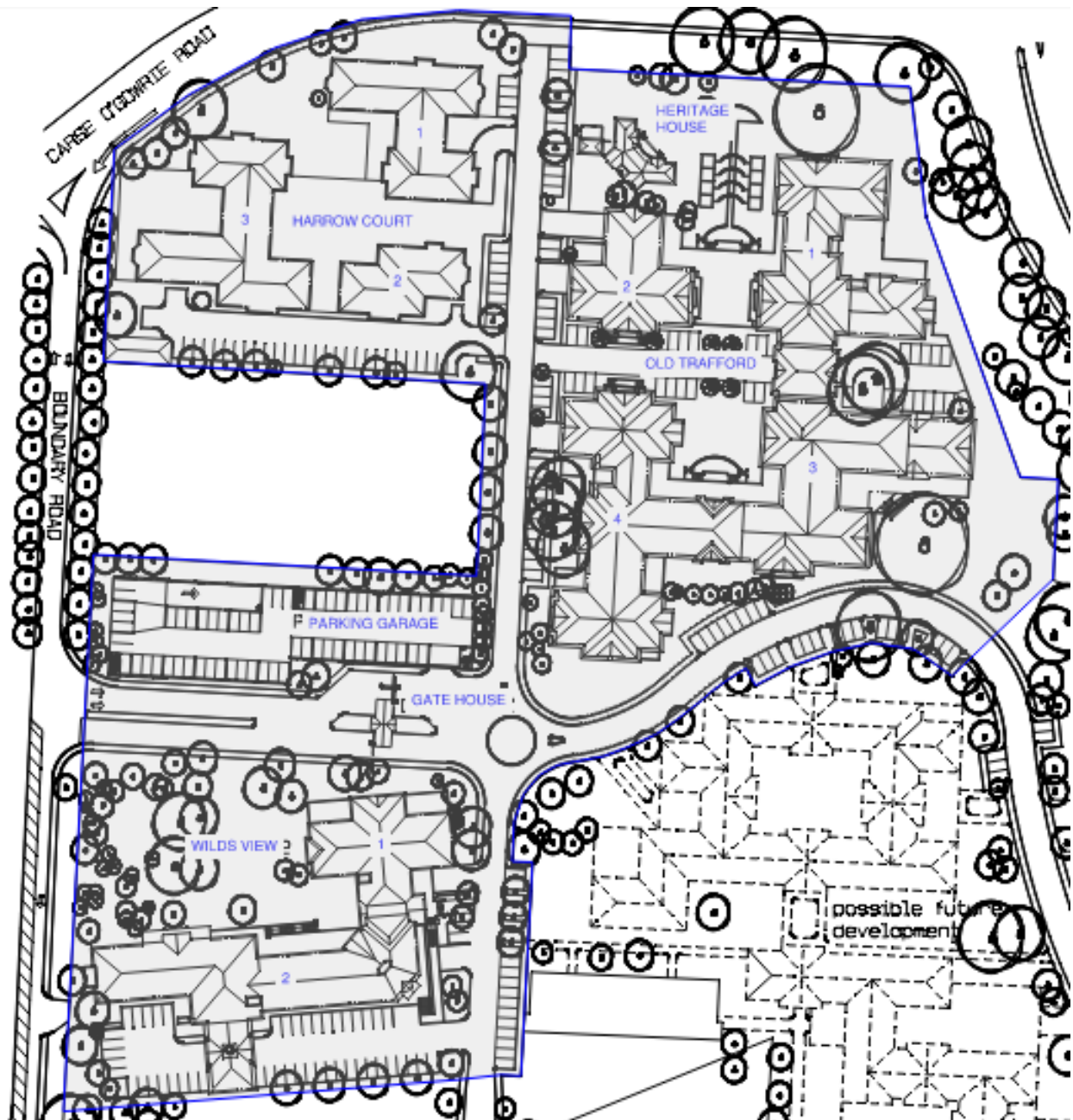
1 Site Location

The building is located at 36 Boundary Road in Parktown, Johannesburg.

The office park consists of the following buildings, with an approximate total area of 28,563m²:

- ▶ Harrow Court Building 1
- ▶ Harrow Court Building 2
- ▶ Harrow Court Building 3
- ▶ Old Trafford, Building 1
- ▶ Old Trafford, Building 2
- ▶ Old Trafford, Building 3
- ▶ Old Trafford, Building 4
- ▶ Wilds View Building 1
- ▶ Wilds View Building 2
- ▶ Parking Garage Building
- ▶ Heritage House
- ▶ Gate House





2 Scope of Works

The scope of works is to conduct a high-level visual condition assessment of all buildings and services at the above site. This assessment report comments on the condition of buildings and services, non-compliant findings according to the national building regulation and the expected life span of the buildings and services.

The following items are covered in this report:

- ▶ Compliance challenges
- ▶ Roof structures
- ▶ Building structure
- ▶ Civil services
- ▶ HVAC services
- ▶ Electrical services
- ▶ Wet Services
- ▶ Fire Services

3 Structural elements

3.1 Overview

In compliance with the prevailing regulatory standards and guidelines outlined in SANS10400 and the OHS Act, Zutari have conducted a structural assessment to evaluate the structural integrity and safety of the buildings and secondary structures at the Isle of Houston Office Park. The primary objective of this assessment is to conduct a high-level visual condition evaluation, identifying potential issues or compromises that could impact the structural soundness and safety of both the premises and its immediate surroundings. Any findings that do not comply with the national building regulations and potential maintenance issues that may lead to structural compromise over time are also documented.

3.2 Scope

The scope of structural engineering services outlined in this report encompasses the following:

1. A walkthrough of all accessible areas within the main building, including basements, courtyard spaces, untenanted/unoccupied floors, and balconies.
2. Inspection of all exposed structural elements, such as columns, slab soffits, the tops of slabs, down stand and upstand beams, exposed steelwork, as well as brickwork, partitions, tiled finishes, and similar components. These elements are examined for signs of cracking and excessive deflections. Additionally, the functionality of waterproofing systems, gutters, and downpipes is visually assessed.

Note: This assessment is primarily a visual inspection and does not entail an in-depth analysis or comprehensive review of the entire building structure. Consequently, any potential issues are typically observed on roofs, in fire escape areas, and within basements where the structure is exposed. These issues are often related to maintenance and age, and while some may require attention, they generally do not compromise the structural integrity of the building. Occupied spaces typically have minimal to no exposed structure, resulting in limited findings unless there is significant structural distress, which is typically manifested through extensive damage to finishes.

3. Any identified cracks or deflections are promptly assessed on-site, documented through photography, itemization, and comprehensive documentation within this report.
4. Subsequently, the observations from the previous point are thoroughly reviewed to ascertain whether they indicate structural distress. Comments are provided to elucidate the possible causes of such issues, along with an assessment of the urgency and importance of addressing each item.

3.3 Method

The structural assessment employed a visual inspection approach, without the execution of design calculation checks or detailed load/system testing. Accessibility constraints limited the inspection of certain structural elements. Zutari's structural engineer conducted a thorough examination of the facility on a level-by-level basis, documenting observations, and comments on the various structural elements present. Photographs were taken during the inspection to serve as reference materials. The assessment scope for different structural elements is outlined as follows:

1. The inspection included concrete columns and walls wherever accessible, as well as structural steel support columns in the courtyard and the north fire escape.

2. Due to concealment by ceiling panels, the soffits of slabs were generally inaccessible for inspection, except in the basements. Additionally, the top surfaces of slabs were covered with carpets and tiles, rendering them inaccessible as well.
3. Brickwork was examined for signs of cracking, while waterproofing and courtyard areas were inspected for indications of ponding, staining, and leaking.
4. The roofs were typically timber trusses covered in ceramic tiles and were inaccessible from below due to tenant occupation. Assessment of the roofs occurred from within the courtyard, and balcony areas of the buildings.
5. Internal secondary elements, including drywall partitioning, were assessed for visible distress, to make inferences regarding the structural state of typical floors. Windows throughout the building were inspected for signs of deterioration and cracks.

3.4 Findings

During the visual assessment of the building's key concrete structure, the following key findings were observed:

3.4.1 General

Structural element	State of condition	Description
Foundations	5	No significant signs of foundation settlement were observed, although a direct inspection of the foundations themselves was not possible.

3.4.2 Harrow Court

Structural element	State of condition	Description
Basement Entrance	4	The entrance to the Harrow court basements has a low-lying slab soffit, height restrictors were not visible. While physical measurements were not determined directly on site, it was noted that this may be a potential issue for larger vehicles with roof racks, or delivery vehicles for example. Height restrictors should be added to notify occupants.
Roofs	4	Roof rafters appeared to be in an acceptable structural condition. Some tiles on the roofs were visibly shifted and the building manager noted issues of leaking in the area (see Photo 1 and 2)
Carports Steel Framing	3	The paintwork on the carport structures was visually peeling and significant rusting was observed on the top side of beams. A steel paintwork specialist is required for remedial works to the steel framing (see Photo 3).
Full bores	4	Full bore covers damaged and/or missing. Some downpipes have become blocked as a result. Ponding of water on slabs due to blocked downpipes (see photos 3 and 5). Downpipes need to be cleaned out to avoid water damage to the slabs.

Structural element	State of condition	Description
Leaking pipes	4	Pipes are leaking in the basement resulting in water ponding on slab. Pipes to be fixed to avoid damage to slab (see Photo 6).
Cracking around columns	4	Basement screed is cracking around columns due to insufficient/improper joints (see Photo 8). Cracks should be sealed to avoid water damage to reinforcement in the slab.
Concrete efflorescence	3	Basement slabs and structures are showing efflorescence, which is a white powdery substance that appears on the surface of concrete due to migration of water (see Photo 9). This is likely due to water accumulating on the slab from the courtyard above. Waterproofing of the top of slab should be carried out to avoid deterioration of durability of concrete and rusting of reinforcement.
Water issues in courtyard	3	There appears to be signs of water ponding in courtyard which may be the result of block full bores in the area (see photos 11 and 12). Ponding results in water seeping through slab below resulting in concrete efflorescence as described in the previous point. Full bores need to be maintained to avoid ponding. The area may also require further waterproofing upon conclusion by specialist. Previous waterproofing has been done between the building face brick and the paving. The paving is porous rendering the previous waterproofing inadequate. Proper waterproofing would require the paving to be lifted with waterproofing being applied to the slab itself.

3.4.3 Heritage building

No obvious signs of structural deterioration seen at the Heritage building. State of condition 5.

3.4.4 Old Trafford

Structural element	State of condition	Description
Water damage on soffit of slab	4	Some pipes are leaking resulting in water damage to the slabs in the basements (see Photos 13 and 16). Specialist to determine the cause of the leaks and repair to suit.
Expansion joints	4	The slabs appear to be post-tensioned with multiple expansion joints (see Photo 14). The flexible sealant of the joint has become rigid over time and has started to crack under typical movement of the joint. The flexible need to be replaced as per typical maintenance of the expansion joints.
Roof ceiling panelling	3	Some of the ceilings to the roof outside the building has become damaged likely as a result of water. Boards need to be replaced.

3.4.5 Parking Building

Structural element	State of condition	Description
Retaining wall	3	Rebar is exposed in the retaining wall in the parking lot area (see Photo 17). This is likely the result of insufficient cover to the reinforcement during the construction. Further in-depth structural assessments should be carried out to determine remedial works.
Roof Structure	3	The roof structure is showing signs of water damage to the timber trusses (see Photos 18 and 19). And Audit should be conducted to determine full extents of damage. Damaged structural elements should be repaired.

3.4.6 Wilds View

Structural element	State of condition	Description
Ground settlement	4	There is settlement at the joint between the ground and the adjacent parking garage slab. This needs to be levelled to avoid health and safety risks.
Ceiling damage above stairwell	4	Damage to the ceiling in the stairwell may have resulted from trap door use or leaks. Specialist to review cause and extent of damage and repair to suit.

3.5 Photo references



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11

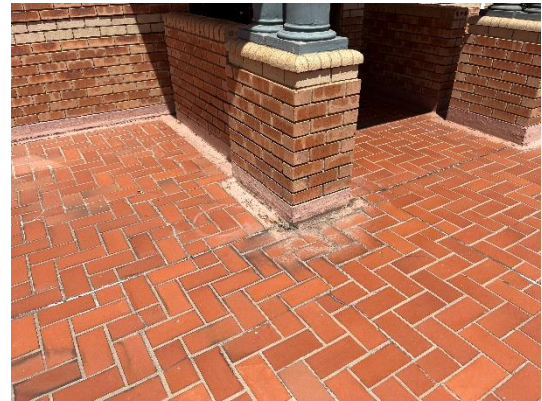


Photo 12

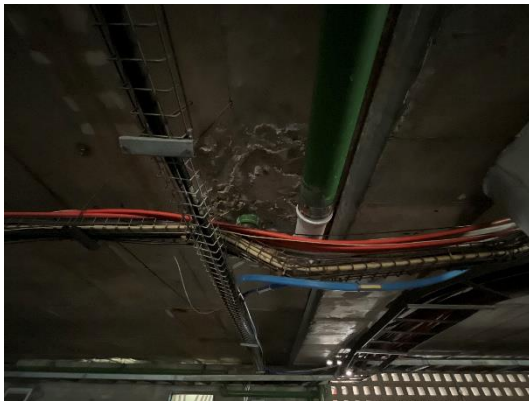


Photo 13



Photo 14



Photo 15



Photo 16



Photo 17



Photo 18



Photo 19



Photo 21



Photo 20

3.6 Conclusions

The structural assessment concluded that there are no visible signs of structural distress to the various buildings. The inspections also concluded that there appears to be no obvious health and safety violations. However, areas of the buildings were indicating the structure requires important, and in some instances urgent, maintenance.

The buildings are currently predominately used as office space. No structural drawings were provided to indicate the buildings were designed for alternate occupancies. Hence, the buildings appear to be suitable for use as offices. Should the buildings be converted into other occupancy types that may include heavy equipment or storage, further in-depth structural assessments should be carried out to determine whether the buildings are suitable for these intended use cases, and if potential structural strengthening is required.

4 Civil Services

4.1 Scope of services

The scope of work includes onsite inspections of the Isle of Houghton buildings located on 36 Boundary Road in Houghton Johannesburg (see Figure 1 below) to identify any obvious civil defects. This was required as Wits Health Consortium are considering purchasing the office park. The civil scope was restricted to within the property boundary.

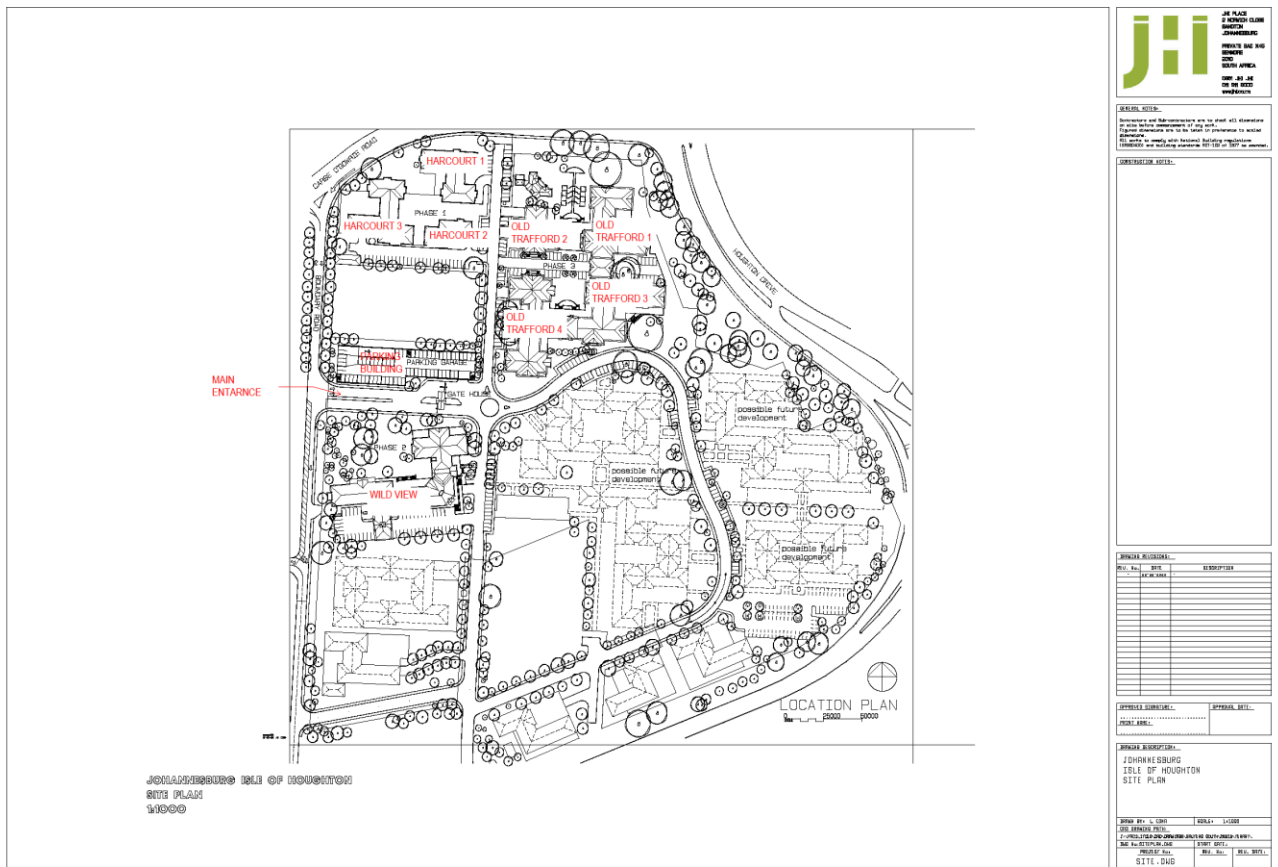


Figure 1: Isle of Houghton Site Plan

4.2 Description of civil services

The property comprises of the following:

- ▶ Internal access road and parking
- ▶ Internal stormwater network
- ▶ Internal sewer network
- ▶ Internal water network
- ▶ Retaining wall and fencing

The office park comprises of the following buildings:

- ▶ Wild View
- ▶ Harcourt 1, 2, and 3
- ▶ Old Trafford 1, 2, 3 and 4
- ▶ Parking Building

The property utilises 36 Boundary Road for access to the office park. Boundary Road runs from north to south and connects with Carse O’Gowrie Road on the south.

The internal access road comprises of asphalt surfacing enclosed by kerbing. Outside parking for each building comprises of block paving enclosed by kerbing. There is also a visitors parking which comprises of asphalt surfacing enclosed by kerbing. Each building has basement parking for the employees. The entrance to the property has two automatic operated boom gates (entrance and exit) with security guards. There is also a turnstile entrance for the pedestrians.

All buildings have rainwater down pipe which drains to internal stormwater grid inlets. These grid inlets drain into underground stormwater pipes. There are also kerb inlets along the roads that also drains into underground stormwater pipes. These stormwater pipes connect to the existing municipal bulk stormwater, which is located on the southern side of the property.

There are two sewer discharge points from the property. One line runs in the street between Harcourt and Old Trafford buildings and connect to the municipal bulk sewer on the southern side of the property (along Carse O’Gowrie Road). The other line runs on the eastern side of Old Trafford 1 building and also connect to the municipal bulk sewer on the southern side of the property (along Carse O’Gowrie Road).

There are two municipal water supply connections to the property: one along Boundary Road and another on the southern side of the property ((along Carse O’Gowrie Road).

The property is fenced off by a steel palisade fence.

There are block retaining walls around some buildings.

4.3 Methodology of assessment

All civil engineering services were inspected visually, only where accessible.

Zutari’s civil engineer inspected all the accessible civil services and photographs were taken during the inspection for record purposes. The extent of the visual assessment for the various elements are as follows:

4.3.1 Vehicular access and parking

The vehicle access and parking area was assessed in terms of position, layout, drainage, pavement condition, road marking and access.

4.3.2 Stormwater drainage

Only surface inspections were conducted as no manholes could be opened. The stormwater drainage system was assessed based on visual rainwater downpipes, existing external slopes, catchpit/kerb inlet/grid inlet positions and the conditions thereof.

4.3.3 Sewer

Only surface inspections were conducted as no manholes could be opened. The sewer system was assessed based on visible manholes only.

4.3.4 Water

Only surface inspections were conducted as no meter chambers could be opened.

4.3.5 Retaining wall and fencing

Only visual inspections of the retaining wall and fence were conducted. The retaining wall was visually inspected for possible movement or budging and the fence was visually inspected for rusting.

4.4 Audit and findings

4.4.1 Vehicular access and parking areas

As mentioned above, access to the property is from 36 Boundary Road. Access is via a two automatic operated boom gates (visitors and tenants) manned by security guards. There is also a turnstile entrance for pedestrians.

Access into the building is through a combination of access ramps and steps. Both were constructed using bricks. They both look to be in good condition (see **Photos 1**).

Access roads comprises of asphalt surfacing. In general, all the access roads are in good condition. There are asphalt damages and minor asphalt cracks in some areas (see **Photos 2 and 3**). There seem to be isolated layer works failure in the access road section between Old Trafford 4 and Harcourt 2 (see **Photos 4**). There is damage to kerbs (see **Photos 5**) and concrete channel (see **Photos 6**) in some areas on the access road between Old Trafford 4 and Harcourt 2.

There is an open parking area for visitors on the northern side of Old Trafford 4. This parking comprises of asphalt surfacing and enclosed with kerbing. There are noticeable asphalt and layer works damages (see **Photos 7**). There is major asphalt uprooting on the northern side of Old Trafford 1 (see **Photos 8**).

There are walkways and parking outside the buildings surfaced with block paving. In general, the paving look to be in good condition. There are minor settlement and tree uprooting of the paving in some areas. (see **Photos 9,10,11 and 12**).

The road marking and kerbs in the access road and parking area look to be in good condition.

4.5 Stormwater

Stormwater in the property is drained via underground stormwater pipes. There are rainwater down pipes from each building that connects to grid inlets. These grid inlets connect to the underground stormwater pipes. There are also kerb inlets that collect stormwater from the access roads, that also drains into underground stormwater pipes. These stormwater pipes connect to the existing municipal bulk stormwater, which is located on the southern side of the property.

From the discussion with the maintenance team, the stormwater system in the property is generally in good condition.

The cut-off drains located at the entrance of the basement parking look to be in good condition, but regular removal of leaves is required. There is a kerb inlet at the main entrance (on exit side) that is fully blocked with (see **Photo 13 and 14**). There is a stormwater manhole cover missing on the eastern side of Old Trafford 1 (see **Photo 15**).

All the buildings have apron slabs around the buildings. These apron slabs are constructed of bricks and generally look to be in good condition. There is an area on the eastern side of Old Trafford 1 where the apron slab has collapsed (see **Photo 16**).

4.5.1 Sewer

There are two sewer discharge points from the property. One line runs in the street between Harcourt and Old Trafford buildings and connect to the municipal bulk sewer on the southern side of the property (along Carse O'Gowrie Road). The other line runs on the eastern side of Old Trafford 1 building and

also connect to the municipal bulk sewer on the southern side of the property (along Carse O'Gowrie Road).

According to the maintenance team, there are two areas where the property experiences periodic sewer blockages. The first one is at the sewer manhole on the northern corner of Old Trafford 4 and this is caused by the intrusion of tree roots into the manhole (see **Photo 17**). The second, at the inspection eye (IE) at the entrance between Old Trafford 2 and 4 (see **Photo 18**).

4.5.2 Water

There are two municipal water supply connections to the property: one along Boundary Road which is 50mm diameter Sensus meter (see **Photo 19**) and another on the southern side of the property (along Carse O'Gowrie Road) which is 80mm diameter Sensus meter (see **Photo 20**).

As per the discussion with the maintenance team, no water issues have been experienced so far except for normal municipal water outages.

4.5.3 Retaining wall and fencing

The property is fenced with a steel palisade fence all around. The fence looks to be in good condition, although rusting and paint peel off was noticed in some areas (see **Photo 21 and 22**).

There are block retaining walls located on the northern, southern side of each building and eastern side of Old Trafford 1. There are no noticeable movements on the retaining walls, except for the damaged block wall around the tree on the northern side of Old Trafford 3 damaged by tree roots (see **Photo 23 and 24**).

4.5.4 Conclusion and recommendations

The following are our recommendations:

- ▶ Repair damaged asphalt area.
- ▶ Seal minor asphalt cracks.
- ▶ Unblock kerb inlet.
- ▶ Replace damaged kerbs.
- ▶ Regular cleaning of cut-off drains.
- ▶ Replace missing stormwater manhole cover.
- ▶ Regular removal of tree roots from sewer manholes or investigate further cause of root ingress into the sewer system.
- ▶ Repair uprooted paving.
- ▶ Repair stormwater concrete channel along the road.
- ▶ Treat rust areas and repaint fence.

4.6 Disclaimer

Visual inspections are non-intrusive by nature and although we execute our duties with the necessary due diligence required it does not render our findings as absolute.

It therefore remains of critical importance that suitably trained maintenance personnel routinely inspect the facilities and monitor its structural behaviour in order to timely identify and attend to items of structural concern.

The building owners are respectfully referred to the requirements of regulation 9 (4) of the construction regulations (emanating from the Occupational Health and Safety Act No 85 of 1993, which requires that any structure be inspected regularly to ensure that the structure is safe for continued use.

4.7 Photo references

 Photo 1: Access ramp into the Old Trafford 4 Building	 Photo 2: Asphalt cracks on Wild View access road
 Photo 3: Cracks and asphalt damage on access road between Old Trafford and Parking building	 Photo 4: Minor layer works failure on access road between Old Trafford and Parking building
 Photo 5: Kerb damage on access road between Old Trafford and Parking building	 Photo 6: Concrete channel damage on access road between Old Trafford and Parking building
 Photo 7: Damage to asphalt in the visitors parking area	 Photo 8: Major uprooting of asphalt on the northern side of Old Trafford 1



Photo 9: Uprooting of block paving on sidewalk along the main entrance



Photo 10: Uprooting of block paving on Harcourt 3 parking



Photo 11: Uprooting of block paving and kerbs on exit Harcourt 2 parking



Photo 12: Uprooting of block paving and kerbs on Old Trafford 2 parking



Photo 13: Kerb inlet fully blocked at the main entrance (on exit side)



Photo 14: Kerb inlet fully blocked at the main entrance (on exit side)



Photo 15: Missing stormwater manhole cover



Photo 16: Collapsed apron slab



Photo 17: Sewer manholes between Old Trafford 4 and Parking Building that block periodically



Photo 18: Sewer IE between Old Trafford 4 and 2 that blocks periodically



Photo 19: Water meter on Boundary Road



Photo 20: Water meter on the southern side of the property (along Carse O'Gowrie Road)



Photo 21: Palisade fence rusting



Photo 22: Palisade fence paint peeling off



Photo 23: Loffelstein retaining wall



Photo 24: Loffelstein retaining wall damaged by tree roots

5 Mechanical services (HVAC)

5.1 Introduction

A visual inspection and assessment was carried out at the Isle of Houghton Office complex on 4 October 2023 with the aim of establishing the status of the air-conditioning and ventilation systems installed in the facilities. The following office blocks were inspected:

- ▶ Harrow Court buildings 1,2 & 3.
- ▶ Old Trafford buildings 1,2,3 & 4.
- ▶ Wild View buildings 1 & 2.
- ▶ The Parking building at the entrance.
- ▶ Security building at the entrance to the complex.

The aim of the assessment pertaining to the HVAC services includes the following:

- ▶ Assess the HVAC installation for compliance to the SANS10400 Part-O building regulations. (Pre 2011 and Post 2011 SANS10400 documents)
- ▶ Assess the condition and operation of the all major equipment including chillers, cooling towers, air handling units, pumps and fans as well as unitary equipment such as split units and console units.
- ▶ Assess the general condition of piping, ducting, diffusers and grilles.
- ▶ Carry out a high level condition and functionality checks of the building management and control systems.

Photos were taken of the HVAC systems which are included further in the report.

The report below communicates the status of the system as inspected and assessed on site.

5.2 Available information

The internal section of the console units consists of the evaporator section which draws in return office air through the bottom of the units, cools or heats the air, and emits the conditioned air through the top grilled opening of the unit thereby providing conditioned air to the areas served.

The controls at the top section of the units allows for the switching of the units, adjusting of the fan speed, and selection of cooling or heating mode.

The console units are such, that only perimeter areas can be served by the units due them being installed on perimeter walls only.

Various console unit makes are installed including Airco Silhouette units as well as Defy Silhouette units.

It is understood that the Airco console units were installed when the facilities were originally constructed. As the Airco console units reach the end of their useful lifespan they have been replaced with Defy console units.

The Airco units make use of inefficient resistive heating to heat the air in the winter months, and use R22 as refrigerant. Following discussions with Airco it is understood that the Airco console units have been discontinued.

The Defy units are similar in construction to the Airco units and also make use of R22 as refrigerant and resistive heating in the winter months. (info gathered off the internet as no specification for the units could be found online)

5.2.1.1 Split units

Upon out inspections it was established that there are numerous split units of the mid-wall and concealed type that have been installed into selected areas requiring conditioning where console units could not be accommodated. Typical areas where split units have been installed include reception areas where no perimeter walls exist, as well as other internal areas not served by console units.

The split unit condensers are installed in numerous locations including basement parking areas, external walls, and external landings on the upper floors of the buildings. Interlinking refrigeration piping between the evaporators and condensing units reticulate within the ceiling voids, and down riser shafts in various locations.

The split units consist predominantly of aged units (in some instances installed in 1995) making use of R22 refrigerant. The newer units make use of modern refrigerant, namely R410.

5.2.2 Fresh air systems

Upon inspecting the buildings, no fresh air systems (ducted or other) could be found serving the areas that are airconditioned. Furthermore, no external fresh air intake louvres against the perimeter of the buildings could be found.

One of the features of some console unit makes, is that limited fresh can be air drawn into the units via the external louver of the unit. However, it has been established that the Airco units do not have this feature.

Attempt to source the specifications for the Defy console units in order to establish whether fresh air can be drawn in as described above proved fruitless, and no mention is made in technical documentation of this feature.

Based on the above it can be deduced that no fresh air is being effectively introduced into air-conditioning areas within the respective facilities, in contravention with the SANS10400 Part – O requirements.

5.2.3 Extraction systems

5.2.3.1 Toilet extraction systems

Upon our inspections it was established that all male and female ablution facilities contained wall mounted or ceiling mounted extract fan systems. However, in some instances the disabled toilets that are not located at the perimeter of the building lack any means of toilet extraction.

5.2.3.2 Electrical room ventilation systems

All HT and LT electrical rooms located in the basement areas contained ventilation systems. Some of the systems provided extraction only, whilst other system contained make up air as well as extraction system installed into the facilities.

In most instances the extraction systems were controlled via a thermostat control that would automatically switch the system on when the temperatures in the rooms elevate beyond the setpoint of the thermostats.

5.2.3.3 Parking area ventilation

There are numerous parking areas across the site, mainly located in the lower basement areas. No mechanical ventilation systems were found in the basement areas, and it is assumed that they are not required.

All parking areas contain wall and/or slab openings along the perimeter walls of the areas to provide suitable cross ventilation of the respective parking levels. It is assumed that the openings are sufficiently sized in accordance building regulations to provide suitable natural ventilation of the areas served.

5.3 Findings and assessments

The narrative below communicates our finding and assessment of the HVAC installation for the complex. Compliance to the SASN10400 building regulations and discussed, as well as the condition and useful lifespan of the systems.

5.3.1 Wall mounted console units

As mentioned above, the console units consist of a combination of two makes of unit namely Airco and Defy units. Upon our inspection it appears that the Airco console units formed part of the original HVAC installation. It is also understood from discussions with the maintenance foreman that the Airco units get replaced with new Defy or Airco units when the aged Airco units are deemed irreparable.

The console units make use of R22 as refrigerant which is regarded as an ozone depleting refrigerant. This refrigerant is being phased out resulting in limited availability of the refrigerant.

5.3.1.1 Fit for purpose status

In the 1990's console units were a popular means of providing air-conditioning to perimeter areas within buildings in a cost-effective manner due to the lower capital cost of the units when compared to other systems. However, with the advent of VRF systems, console units are less commonly used in newly constructed buildings.

The console units are regarded as suitable in serving sparsely populated perimeter office areas; however they are noisy in operation and can be disruptive to tenants. This is due to the compressors being located within the wall sleeves, in close proximity to evaporator sections of the unit resulting in compressor noise pervading the area served.

Console units are not suitable for noise sensitive areas such as meeting rooms, call centres and the like.

Consoles units cannot cater to internal areas of facilities as they are designed to serve perimeter areas only.

Console units are not as energy efficient as split units and VRF systems.

Maintenance is more intensive and intricate when compared to split units, due to all components being located within the casing of the units.

Each console unit is controlled at the unit, i.e. there is no common controller that can control multiple units as is the case with other systems.

The controls of the units are basic, and do not lend themselves to interfacing with building management systems.

5.3.1.2 Useful lifespan

According to the Chartered Institute of Building Services Engineers (CIBSE) Guide M, the useful lifespan of console units is estimated at 15 years.

The console units installed are a combination of old and new units implying that we cannot comment on the individual useful lifespan of each unit.

5.3.2 Split units

There are numerous instances where split units have been installed into areas requiring air-conditioning that cannot be accommodated using console units. Areas typically include reception areas, internal meeting rooms and offices, and limited open plan areas where wall mounted console appears to be ineffective.

Most of the split units inspected appeared aged, with some of the units having been installed as early as 1995. These units make use of R22 as refrigerant. There are however limited newly installed split units that make use of R410 as refrigerant.

5.3.2.1 Fit for purpose status

Upon our inspection, most of the condensing units at the Old Trafford building were located in parking basement areas, with refrigerant piping rising in shafts to the indoor evaporative unit. Harrow Court's condensing units were located mainly on the building facades, with limited a few split units located in the basement parking areas.

5.3.2.2 Useful lifespan

According to the Chartered Institute of Building Services Engineers (CIBSE) Guide M, the useful lifespan of split units is estimated at 15 years.

The split units installed are a combination of old and new units implying that we cannot comment on the individual useful lifespan of each unit.

5.3.3 Fresh air systems

Upon our inspection it was observed that there are no mechanical fresh air systems introducing outside air into the offices areas as is required by SANS10400 Part-O.

The current occupants are to rely on opening windows to attain outdoor air into the areas served, in an uncontrolled manner.

5.3.3.1 Compliance status

The pre 2011 building regulations stipulated that airconditioned non-smoking areas require 7,5l/s person of outdoor air to be introduced mechanically into the office areas served.

The post 2011 building regulations require that airconditioned areas require 7,5 l/s/person or 2 air changes per hour, (whichever is the greater) of outdoor air to be introduced mechanically into the office areas served.

It can be stated that it appears that the building's outdoor air requirements are not being catered for in the occupied areas, and in particular internal areas served by split units.

No dedicated mechanical fresh air systems serving occupied office areas could be found installed in ceiling voids, implying that the lack in providing fresh air to the offices is regarded as non-compliant to the pre 2011 as well as post 2011 SANS104000 Part-O building regulations.

5.3.4 Toilet/ablution extraction systems

As previously mentioned, all male and female toilet areas have either wall mounted or ceiling mounted extract fan systems installed. Judging by the fan sizes installed, it appears that extraction rates match, or are in excess of the SANS10400 Part-O extraction rates of 20 air changes per hour for the areas served.

The system can be regarded as fit for purpose, however most of the extraction fans appear aged and due for replacement having reach the end of their useful life.

5.3.5 Electrical room ventilation systems

There are no SANS10400 Part-O requirements for the ventilation of HT and LT electrical rooms.

However, all electrical rooms contained extraction systems controlled by a wall mounted thermostats which switch the systems on when the room temperatures rise to above the setpoint temperature.

Upon enquiry with the maintenance foreman, it was established that no problems have arisen due to an overheating of the rooms, and the system are regarded as fit for purpose.

The extraction systems for the most part appear somewhat aged and have reached the end of their useful lifespans. It is recommended that they be replaced with new fan systems over time to ensure reliability of the systems.

5.4 Photo references



Photo 1: Photo showing typical console units installed in office area, note no fresh air supply to offices



Photo 2: Photo showing typical console unit installed in perimeter wall sleeve.



Photo 3: Photo showing typical sleeve opening outlet at Harrow Count offices. Opening fitted with vermin proofing on inside of façade opening.



Photo 4: Photo showing typical below window sleeve opening outlet grille at Old Trafford building.



Photo 5: Photo showing typically aged split units installed against Harrow Place façade serving areas not catered for, by the console units



Photo 6: Photo showing typical split units installed against Old Trafford façade wall in inaccessible location making maintenance problematic



Photo 7: Photo showing typical split unit condensing units in basement of Old Trafford complex serving areas above.

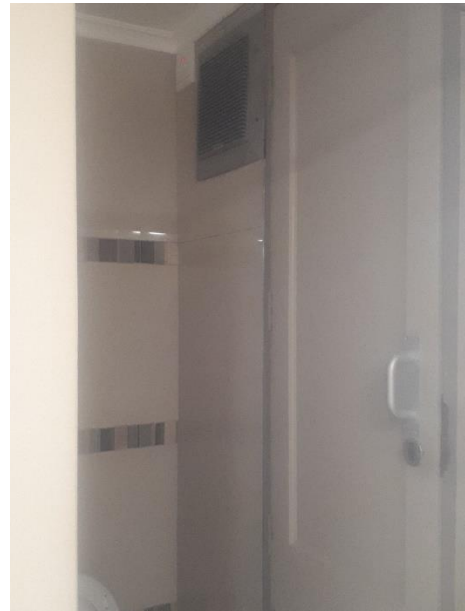


Photo 8: Photo showing typical toilet wall mounted toilet extract fan system. (Extraction lacking in disabled toilets)



Photo 9: Photo showing typical upper level at Harrow court ceiling void (note no roof insulation under roof tiles) with refrigeration piping rising in electrical shaft to split units on floor.



Photo 13: Photo showing redundant split unit condensers at Old Trafford complex. Units to be removed from site.



Photo 11: Photo showing typical wall mounted extract fan in electrical room connected to thermostat controls.



Photo 12: Photo showing typical HT room ducted extract system connected to thermostat controls.

5.5 Discussions

The report finding as communicated above can be summarised as follows:

FRESH AIR

The fresh air as is required by the SANS10400 Part-O for airconditioned areas is lacking and is therefore non-compliant with the national building regulations.

In order to elevate the air-conditioning installation to a state of compliance, mechanical fresh air systems are to be introduced into all occupied areas that are airconditioned.

The fresh air systems are to be designed in accordance with the SANS10400 Part-O, taking cognisance of the occupancy classification fresh air requirements as per Table 2 of Part O.

CONSOLE UNITS

The console units make use of outdated technology in that heating is inefficient due to the units making use of resistive heating to heat air in the winter months. Furthermore, the units make use of R22 as refrigerant which is regarded as an ozone depleting refrigerant which is currently being phased out.

FUTURE UPGRADES

It is recommended that if upgrading of the HVAC systems is considered in order to accommodate new office layouts, that alternative, modernised technology be used in provide air-conditioning to occupied areas.

It is our opinion that Variable refrigerant flow (VRF) systems of the heat recovery type would be a suitable replacement system offering the following benefits:

- ▶ The systems are energy efficient, and if correctly designed can result in free cooling and heating under certain ambient conditions. Furthermore, heating is not achieved using resistive elements.
- ▶ The system is flexible in that office layout changes can be easily accommodated using the system.
- ▶ The system can serve both perimeter as well as internal areas effectively.
- ▶ Differing indoor units can be installed to cater for differing office configurations, and can cater for differing ceiling void limitations. ie midwall, concealed and cassette units can be used on the system.
- ▶ Fresh air can be preconditioned using a full fresh air VRF system if required, but not essential.
- ▶ The systems are commonly used implying that spares are freely available from the suppliers of the systems.
- ▶ Refrigeration piping is compact, and easily installed into areas with limited ceiling voids.
- ▶ The outdoor condensing units serving the multiple indoor units are compact, with a small footprint, and can be located at a substantial distance from the indoor evaporator units in areas such as the basements that are suitably ventilated.
- ▶ The VRF control systems are sophisticated and can be easily incorporated into building management systems if required, so as to easily monitor and control the performance of the system.
- ▶ Maintenance is simplified in that a single condensing unit serves multiply indoor evaporator units. ie the number of maintenance significant items is reduced.

In conclusion it can be stated that the current HVAC systems do not cater for the fresh air requirements of the occupied areas, the console units installed are based on outdated technology, and upgrading of the HVAC systems in general is recommended as described above to ensure compliance with the SANS10400 Part-O requirements.

6 Electrical services

6.1 Electrical capacity of the main incoming supply

There is an 11kV main intake substation located in Boundary road. The substation has two rooms, namely the supply authority room and the consumer room.

All equipment inside the supply authority room belongs to City Power and is their maintenance responsibility. There are two incoming 11kV electrical supplies from the supply authority, feeding into the main 11kV consumer panel.

The total installed capacity of transformers is 4260kVA. This is sufficient capacity for the 28,563m² of offices.

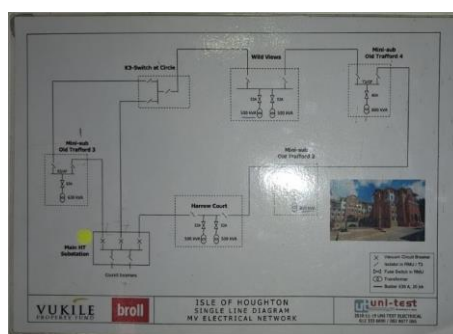


Main substation building

6.2 11kV medium voltage (MV) substations

The office park 11kV reticulation is a “three-legged” ring feeder, ensuring a stable electrical MV supply, in case of an 11kV cable fault.

To accommodate the three-legged function of the MV reticulation, an 11kV three-way switch was introduced.



11kV schematic diagram

6.2.1 Main substation

The 11kV consumer switchgear inside the consumer room of the main substation, feeds into the main 11kV electrical reticulation of the office park.

The main 11kV substation switchgear is of the vacuum circuit breaker type. Although the switchgear is old technology it appears to be in a reasonably good condition.

It is unclear when the last servicing of equipment occurred.



Schematic diagram of the 11kV MV reticulation.

6.2.2 Harrow Court Undercover Parking

This substation is fitted with an 11kV panel with 2 oil-filled fuse switches for the 500kVA transformers. Although the switchgear is old technology it appears to be in a reasonably good condition. No oil leaks were observed and the oil levels were correct.

The transformers are of the sealed ONAN (oil natural air natural) type. Although the transformers are old, they appear to be in a reasonably good condition. No oil leaks were observed and the oil levels were correct. The year of manufacture of the transformers is 1993.

It is unclear when the last servicing of equipment occurred.



2 x 500kVA ONAN transformers



Fused 11kV oil switches for transformers

6.2.3 Old Trafford, Building 2

This 800kVA minisub is in the lower ground parking area of the building.

The minisub is fitted with an 11kV K3 switch, as was the standard with minisubs of the era. The 11kV switch is of old technology but appears to be in reasonably good condition.

The minisub transformer is of the sealed ONAN type. Although the transformer is old, it appears to be in a reasonably good condition. No oil leaks were observed and the oil level is correct. The year of manufacture of the transformers is 1997.

It is unclear when the last servicing of equipment occurred.



800kVA minisub



11kV switchgear inside minisub

6.2.4 Old Trafford, Building 3

This 630kVA minisub is in the lower ground parking area of the building.

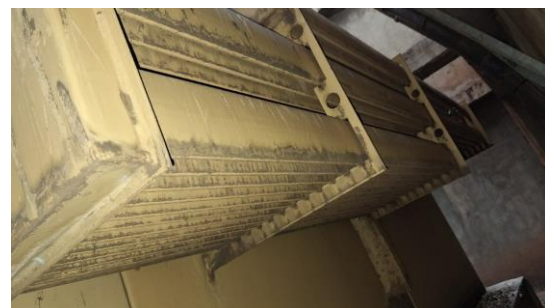
The minisub is fitted with an 11kV K3 switch, as was the standard with minisubs of the era. The 11kV switch is of old technology but appears to be in reasonably good condition.

The minisub transformer is of the sealed ONAN type. Although the transformer is old, it appears to be in a reasonably good condition. No oil leaks were observed and the oil level is correct. The year of manufacture of the transformers is 1997.

It is unclear when the last servicing of equipment occurred.



800kVA minisub



Transformer cooling fins. No oil leaks were observed.

6.2.5 Old Trafford, Building 4

This 800kVA minisub is in the lower ground parking area of the building.

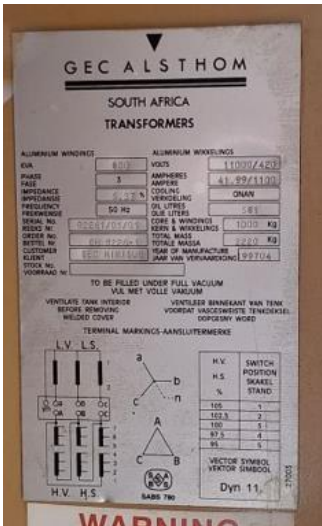
The minisub is fitted with an 11kV K3 switch, as was the standard with minisubs of the era. The 11kV switch is of old technology but appears to be in reasonably good condition.

The minisub transformer is of the sealed ONAN type. Although the transformer is old, it appears to be in a reasonably good condition. No oil leaks were observed and the oil level is correct. The year of manufacture of the transformers is 1999.

It is unclear when the last servicing of equipment occurred.



800kVA minisub



11kV switchgear inside minisub

6.2.6 Wilds View Building 2

This substation is fitted with a 11kV oil-type 4-way ring-main unit. Although the switchgear is old technology it appears to be in a reasonably good condition. Minor leaks were observed and the oil levels were correct.

The transformers are of the sealed ONAN (oil natural air natural) type. Although the transformers are old, they appear to be in a reasonably good condition. Minor oil leaks were observed and the oil levels were correct. The year of manufacture of the transformers is 1999.

It is unclear when the last servicing of equipment occurred.



4-way 11kV ring-main unit with slight oil leak at bottom



2 x 500kVA transformers, each with slight oil leaks

6.3 Photovoltaic (PV) installation

There is no PV solar panel installation.

6.4 Generators

There is a variety of generators installed for the office park. These generators do not have the capacity to supply the entire office park with emergency power, in case of a supply authority power failure. They only supply small portions of the office park, as well as some small UPS units.

There are also some tenant dedicated generators installed, but this remains their property.

The result is that most office areas are without a stand-by electrical supply during a supply authority power failure.

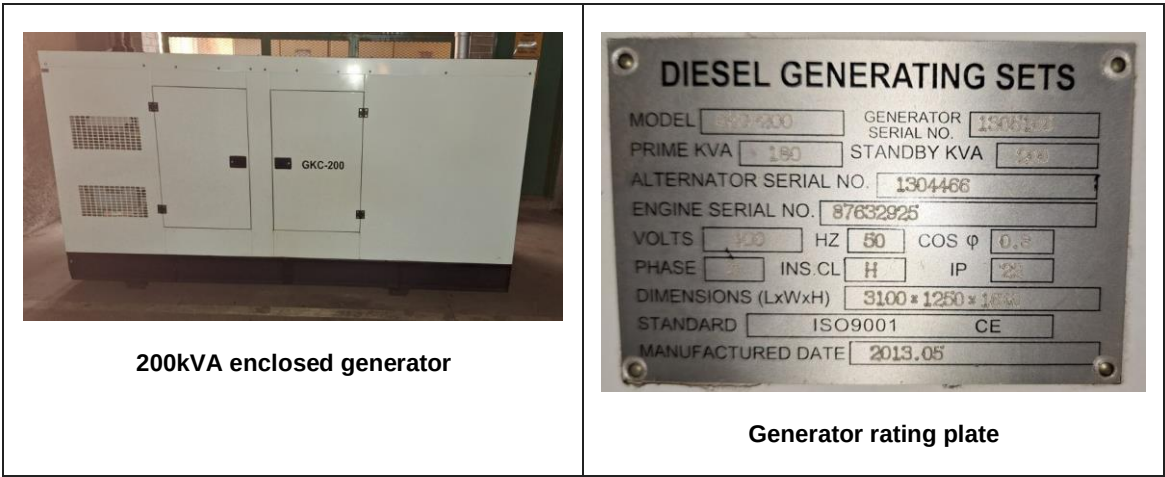
6.4.1 200kVA Generator

The generator is positioned on the lower ground floor in the parking area of the Old Trafford Building 4. The generator is an enclosed sound attenuated type, with a base mounted diesel tank. The generator exhaust has not been fitted with heat resistant lagging at the enclosure entry. The year of manufacture is 2013.

No fused link to activate a diesel shut-off was observed and should be implemented.

The condition of the generator appears to be in a reasonably good condition, with no oil or diesel leaks observed.

It is unclear when the last service occurred.



6.4.2 100kVA Generator- size to be confirmed

The generator is positioned on the lower ground floor in the parking area of the Old Trafford Building 4, inside a dedicated generator room. The generator is an enclosed sound attenuated type, with a base mounted diesel tank. As no rating plate could be found, the generator capacity is assumed and needs to be confirmed. The generator exhaust has not been provided with heat resistant lagging at the enclosure entry. The condition of the generator appears to be in a fair condition.

Of concern is the generator room size. The room is not sufficiently sized which makes servicing problematic and safety clearance is also not sufficient. No fused link to activate a diesel shut-off was observed and should be implemented.

From discussions with the office park caretaker, it was confirmed that this generator is dedicated for one of the tenants, although it belongs to the landlord.

It is unclear when the last service occurred.



Sound attenuated enclosure



Diesel generator engine

6.4.3 300kVA Generator

The generator is positioned on the lower ground floor in the parking area of the Wild Views Building 2, inside a dedicated generator room. The generator is an open type, with a base mounted diesel tank. The generator exhaust has not been fitted with heat resistant lagging. The year of manufacture is unknown and is not indicated on the rating plate.

Of concern is the generator room size. The room is not sufficiently sized which makes servicing problematic and safety clearance is also not sufficient. No fused link to activate a diesel shut-off was observed and should be implemented.

The condition of the generator appears to be in a reasonably good condition, with no oil or diesel leaks observed.

It appears as if the last service occurred in 2021.



300kVA generator

 MarelliGenerators®									
AC GENERATOR				PHASE 3		PROD 07'15			
TYPE MJB 315SA4-B2				SERIAL N°		MC18134			
CODE MJB3102L014M0				INSULATION CL.		H			
WEIGHT Kg		835		IP 23		P. F. 0.8			
V A Hz RPM V ex. A ex. ΔT cl.									
S1 CONTINUOUS DUTY - AMB T. 40°C									
kVA 300	400 Y Δ	433	50	1500	27	4,3	H		
kVA 280	220 Y Y	735	50	1500	27	4,3	H		
kVA 350	440 Y Δ	459	60	1800	27	4,3	H		
STAND BY DUTY - AMB. T. 27°C									
kVA 330	400 Y Δ	476	50	1500	29	4,6			
kVA 385	440 Y Δ	505	60	1800	29	4,6			
				6315-22-C3					
EN 60034-1		IEC 60034-1				Made in Italy			

Generator rating plate

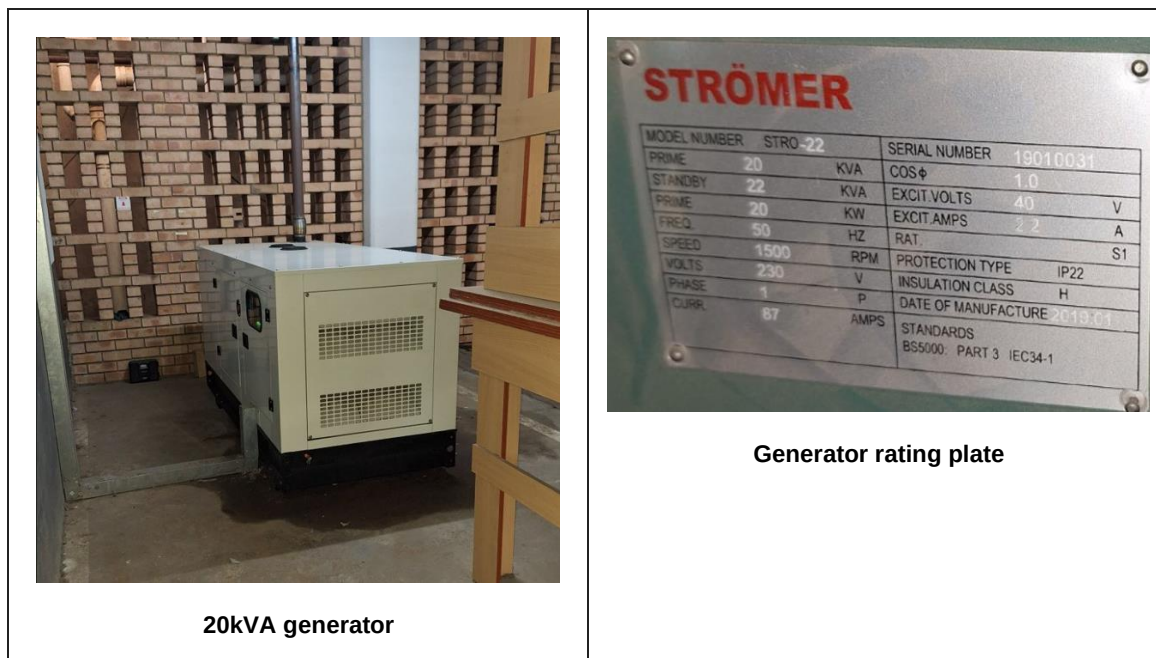
6.4.4 20kVA Generator

The generator is positioned on the lower ground floor in the parking area of the Wild Views Building 2. The generator is an enclosed sound attenuated type, with a base mounted diesel tank. The generator exhaust has not been fitted with heat resistant lagging at the enclosure entry. The year of manufacture is 2019.

No fused link to activate a diesel shut-off was observed and should be implemented.

The condition of the generator appears to be in a reasonably good condition, with no oil or diesel leaks observed.

It is unclear when the last service occurred.



20kVA generator

Generator rating plate

6.5 Main LV panels

Each substation is provided with a main LV panel. Main LV panels are fed with busbars, in the case of substations with transformers. In the case of minisubs the main LV panels are supplied with cables.

The main LV panels in turn supply sub-main LV panels, located on the relevant floors of each building.

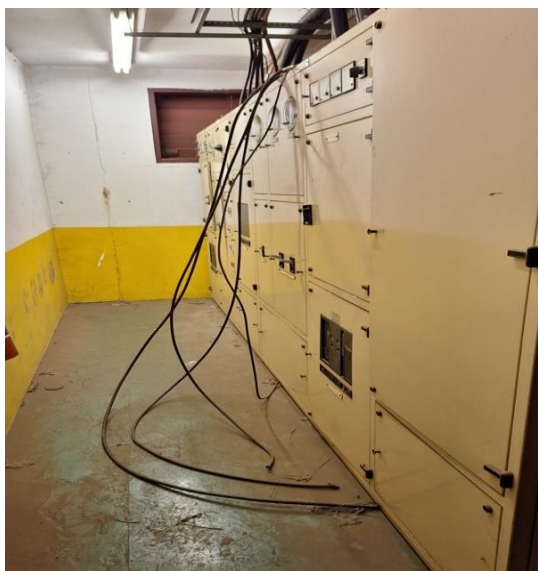
6.5.1 Harrow Court Building

The Main LV panel is positioned on the parking level of the building. The panel of the respective building is located next to the substation.

It was observed that some stolen earth wires are in the process of being re-instated. This installation thereof has not yet been completed.

The switch gear inside the panel is old and some replacement may be required. Some sub-metering is in place. These are old electro-mechanical meters without any interfacing capabilities. These types of meters have become obsolete.

The panel is in a fair condition and in need of maintenance. Non-connected earth wires are concerning and should be rectified urgently.



**Harrow Court Building
Main LV Panel**



**Harrow Court Building
Main LV Panel: Metering**

6.5.2 Old Trafford, Building 2

The Main LV panel is positioned on the parking level of the building. The panel of the respective building is located close to the minisub.

The switch gear inside the panel is reaching its end of life and some replacement may be required. Some sub-metering is in place. These are old meters with limited interfacing capabilities. These types of meters have become obsolete.

The panel is in a reasonable condition, but in need of maintenance.



**Old Trafford, Building 2
Main LV Panel**



**Old Trafford, Building 2
Main LV Panel: Metering**

6.5.3 Old Trafford, Building 3

The Main LV panel is positioned on the parking level of the building. The panel of the respective building is located close to the minisub.

The switch gear inside the panel is reaching its end of life and some replacement may be required. Some sub-metering is in place. These are old meters with limited interfacing capabilities. These types of meters have become obsolete.

The panel is in a reasonable condition, but in need of maintenance.



**Old Trafford, Building 3
Main LV Panel**



**Old Trafford, Building 3
Main LV Panel: Metering**

6.5.4 Old Trafford, Building 4

The Main LV panel is positioned on the parking level of the building. The panel of the respective building is located close to the minisub.

The switch gear inside the panel is reaching its end of life and some replacement may be required. Some sub-metering is in place. These are old meters with limited interfacing capabilities. These types of meters have become obsolete.

The panel is in a reasonable condition but in need of maintenance.



**Old Trafford, Building 4
Main LV Panel**



**Old Trafford, Building 4
Main LV Panel: Metering**

6.5.5 Wilds View Buildings

The Main LV panel is positioned on the parking level of the building. The panel of the respective building is located next to the substation.

The switch gear inside the panel is old and some replacement may be required. Some sub-metering is in place. These are old electro-mechanical meters without any interfacing capabilities. These types of meters have become obsolete.

The panel is in a reasonable condition but in need of maintenance.



**Wild Views, Building
Main LV Panel**



**Wild Views, Building
Main LV Panel: Metering**

6.6 Power Factor Correction (PFC) Equipment

All main LV panel at Old Trafford have been provided with PFC. No other PFC is installed on the site. The PFC equipment needs to be serviced, as many are manually set to “off”, assuming that there might be a failure of some capacitors.



**Old Trafford, Building 2
PFC partially operational, but with some PFC
capacitor banks set at “off”**



**Old Trafford, Building 3
PFC not operational, with all PFC capacitor
banks set at “off”**



**Old Trafford, Building 4
PFC not operational, no display indication by
controller**

6.7 Uninterrupted Power Supply (UPS) units

All main LV panel at Old Trafford have been provided with UPS units. No other UPS units are installed on the site. The UPS units need to be serviced, and possibly have to be provided with new batteries. Many UPS units are not operational and have alarm conditions. might be a failure of some components.

As no rating plates could be found, the UPS unit capacities need to be confirmed by the landlord. From surveying the circuit breaker sizes, it appears that the UPS units have a capacity of approximately 10kVA, single phase with a possible back-up time of 7 minutes. This capacity is limited and possibly only feeds into absolute essential circuits. The details of these circuits are unclear.

The UPS units are of old technology and the entire replacement thereof is recommended.

It is unclear when the last servicing of equipment occurred.



**On-board UPS circuit breaker panel with clear
signs of lack of maintenance**



**UPS units with clear signs of lack of
maintenance**

6.8 Sub-main LV panels

The floors of each building have been provided with sub-main LV panels, from where the tenanted areas are fed from. Common areas such as lobbies, staircases etc, are fed from the nearest sub-main LV panel.

The switch gear inside the panels will soon reach their end of life and some replacement may be required. Some sub-metering is in place. These are old meters with limited interfacing capabilities. These types of meters have become obsolete.

Some of the DB legend cards are not in place.

The sub-main LV panels are in a fair but are in need of maintenance as well as correcting a variety of compliance issues.



Sub-main LV panel inside roof cupboard, creating excessive heat exposure.



Wireway to DB, without cover



Wiring inside DB cupboard, without wireways



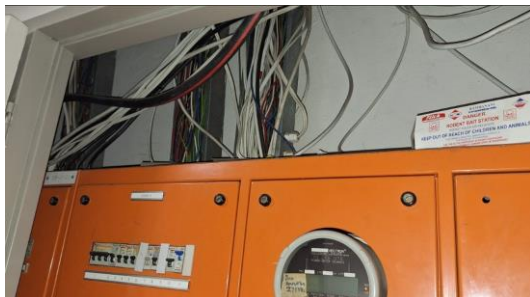
No wireway and unsupported wiring



Loose faceplates on DB. Unused conduit entry, to be sealed.



No wireway and unsupported wiring



No wireway and unsupported wiring



DB in reasonably good condition. DB cupboard untidy inside

6.9 Power and lighting

The power and lighting installation has various components.

6.9.1 Tenant areas

The lighting and power installation inside the various tenant areas, are specific to the tenant needs, and therefore no consistency in types, product, colour, etc. were installed.

Tenant lighting is mostly of the old fluorescent tube type of lighting and is not of the latest energy efficient LED-type of lighting.

Power skirtings vary from tenant-to-tenant area of which some are not available in the market anymore.

 Old power skirting inside tenant areas	 Obsolete power skirting inside tenant area
 Untidy and non-compliant wiring to tenant HVAC units	 Obsolete fluorescent lighting inside tenant area

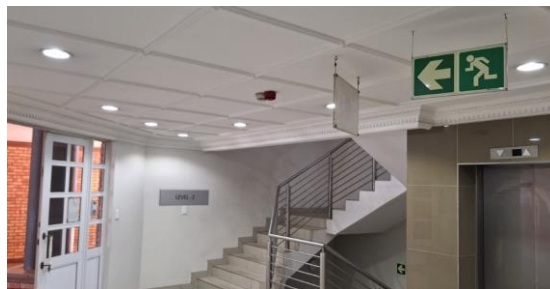
6.9.2 Common areas, lobbies, staircases, and public toilets

Common area lobbies and public toilets are mostly fitted with LED recessed down lights, although there is no consistency regarding type and brand.

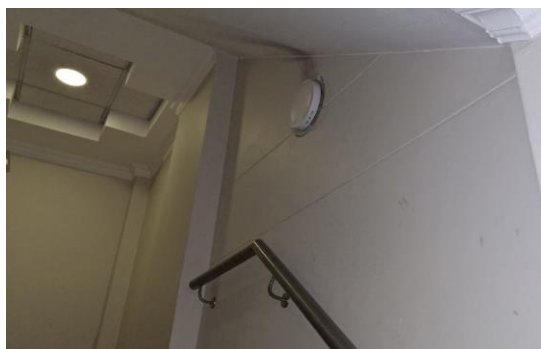
Staircase lighting has visibly been replaced some time ago with round LED bulkhead lights fittings, of which some started failing.



LED downlights in lobby



LED downlights in lobby



Failed LED bulkhead light on staircase



LED downlights in toilets

6.10 External areas, excluding road lighting

Each building has been fitted with external lights in courtyards, staircases and for balconies. The lights are old (but suitable for the building architecture). They have not been fitted with LED energy efficient lamps.



External staircase lighting



Balcony lights



Courtyard lighting

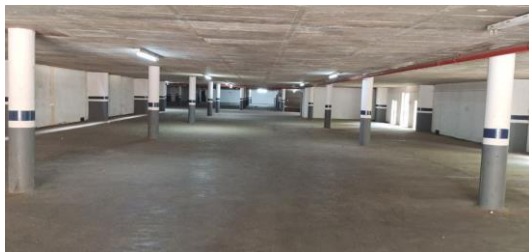


Courtyard lighting

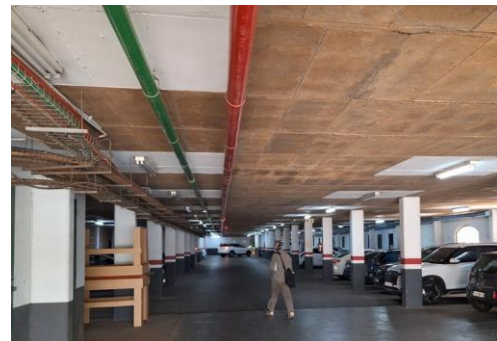
6.11 Undercover parking areas

All parking areas are fitted with linear fluorescent light fittings, which have been retrofitted with linear LED tubes. All these light fixtures are problematic throughout the entire development as they continuously flicker.

Retrofitting LED tubes to old fluorescent light fixtures is not an acceptable engineering solution and continuous surges, due to load shedding caused failures of components.



Typical linear light fixtures in undercover parking areas



Typical linear light fixtures in undercover parking areas

6.12 Road lighting

Road light fixtures consist of decorative pole mounted light fittings, complementing the architecture of the buildings. The light fixture lamps are of the old CFL type and have now become obsolete.

It is recommended that these light fixtures are fitted with LED lamps, retaining the “look-and-feel” of the office park architecture.



Typical road lighting installation



Typical road lighting installation

6.13 Lightning protection system (LPS)

All buildings, excluding the Harrow Court buildings, are provided with an LPS.

The installation typically consists of solid aluminium conductors installed on roof ridges, which is the industry norm for tiled roofs.



LPS conductors on ridge of tiled roof



LPS conductor from roof ridge down to earth spike

6.14 Access Control

The office park has an access control system for vehicles at the gate house and to each entrance of the undercover parking entrances. The system is old and, in many cases, not operational.

There is a turnstile for pedestrians at the gate house.

Access to tenant areas is tenant specific and does not form part of the office park access control system.



Access control for booms not operational



Turnstile for pedestrians at gate house

6.15 CCTV

There is no comprehensive CCTV surveillance system. The only CCTV cameras for the office park are installed at the gate house. The system has an NVR recording device and is operational.



CCTV monitor at gate house

6.16 Electric fence

The entire office park perimeter is fitted with a sixteen-strand electric fence, which is operational.



Electric Fence

6.17 Conclusion and Recommendations

It is evident that there is a lack of maintenance during the past few years. The electrical installation therefore has various challenges that need to be addressed.

- ▶ Comprehensive testing and servicing of the entire 11kV installation.
- ▶ Infrared scanning and making compliant of all LV distribution boards.
- ▶ All generators need to be serviced.
- ▶ Should it be a requirement that the entire office park needs stand-by power, additional generators need to be installed, to suit the actual electrical load.
- ▶ PFC equipment needs to be serviced and repaired.
- ▶ UPS units need to be serviced and repaired.
- ▶ LPS installation for Harrow Court.
- ▶ The power and lighting installation in the tenant areas may need to be replaced to suit the new owner's requirements.
- ▶ All undercover parking lights need to be replaced with new energy efficient linear light fixtures.
- ▶ All external and pole lights need to be converted to LED lighting.
- ▶ A new access control system needs to be installed.
- ▶ Should an *Offer of Purchase* be made, the following regulation, relating to COC's needs to be adhered to: "A *Certificate of Compliance* is valid for **two years for purposes of transfer** and the user or lessor may not allow a change of ownership if the certificate of compliance is older than two years."

7 Wet services

7.1 Introduction

A visual inspection and assessment were carried out at the Isle of Houghton Office complex on 3rd of October 2023 with the aim of establishing the status of the wet services installed in the facilities.

The following buildings were inspected:

- ▶ Harrow Court buildings 1,2 & 3.
- ▶ Old Trafford buildings 1,2,3 & 4.
- ▶ Wild View buildings 1 & 2.
- ▶ The Parking building at the entrance.
- ▶ Heritage House

7.2 Potable (domestic) water supply

The domestic water supply piping installation within the building is as follows:

- ▶ External Piping Cold Water Piping- Galvanized mild steel piping (GMS)
- ▶ Internal Cold-water Piping – Majority Copper piping (Cu) & some PPR

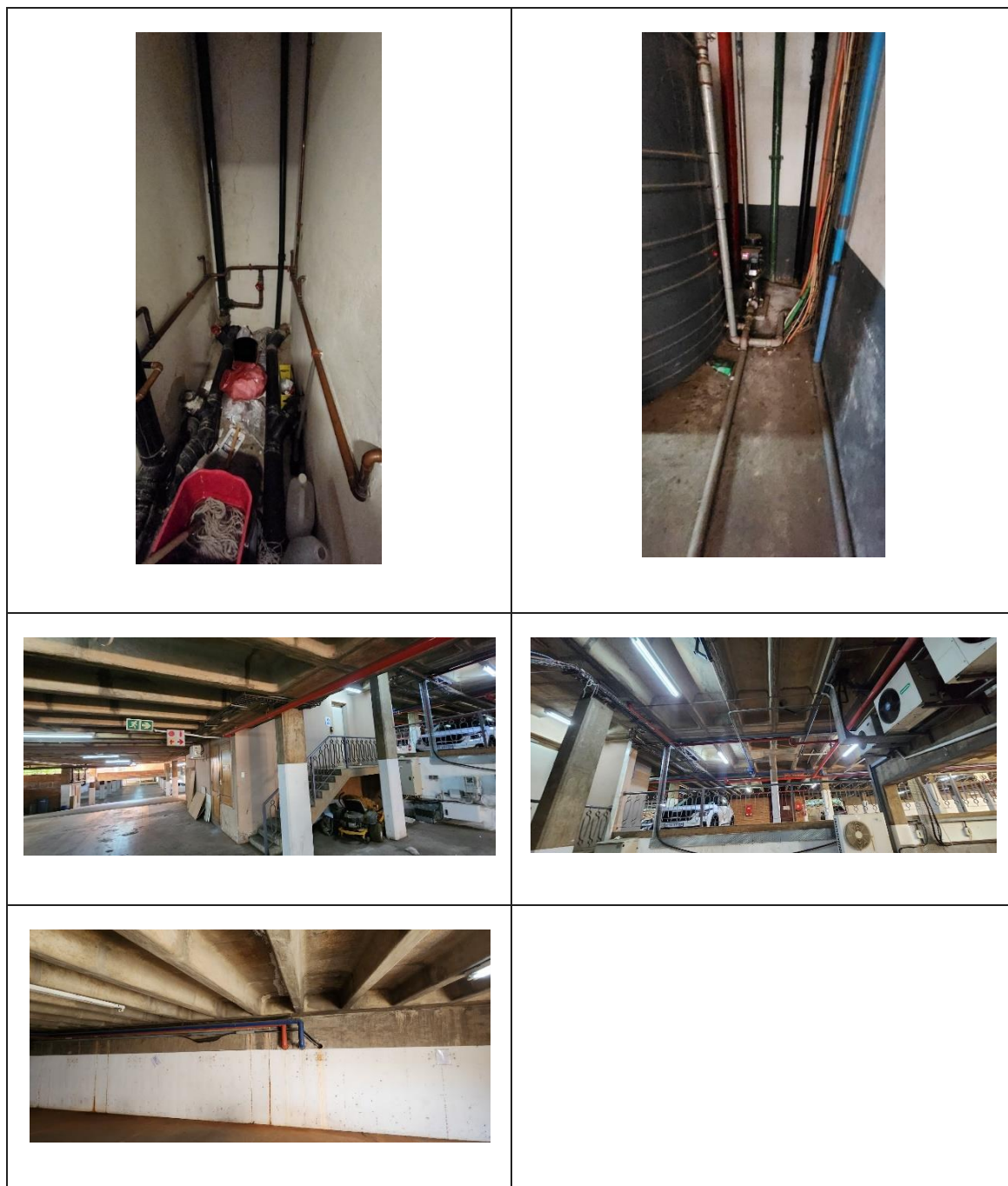
The condition of the piping is in good condition however requires planned maintenance.

Service ducts located in the communal areas need cleaned and not used as a storage area.

There is no water storage on the entire property besides the 4000l water storage at Gauteng city College, this system needs to be serviced as there was an error indication on the control panel.

No hot water is provided in the communal areas. Presently the hot water is provided as part of the tenant installations.





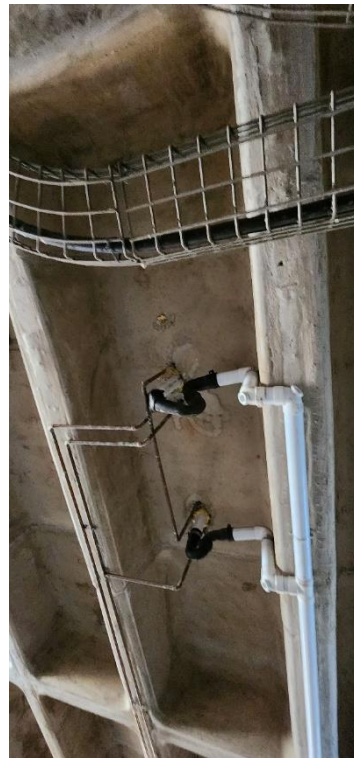
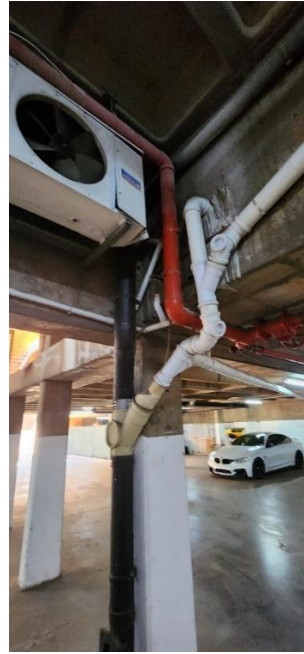
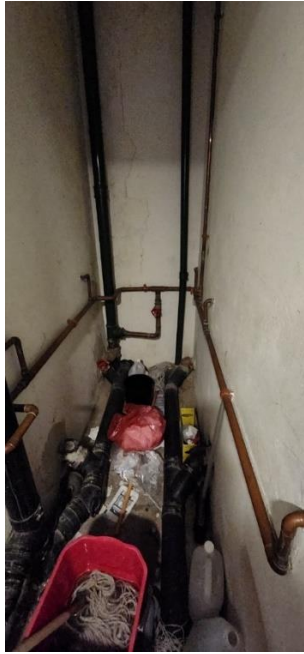
7.3 Sanitary drainage

The sanitary drainage piping installation within the building and basement is a mix of Cast Iron and Polyvinyl chloride (PVC)

The condition of the piping is in most cases is in fair condition, however the installation requires planned maintenance. Some areas might need more intensive maintenance.

Service ducts located in the communal areas need to be cleaned and not used as a storage area.

Tenant installations have been installed, which connect to the existing drainage system, some maintenance is required, such as attending to loose fittings, sagging pipes, etc.



7.4 Rainwater

Rainwater displacement is generally acceptable, as informed by key personal on site.



Old Trafford rainwater drain needs to be cleaned out.

7.5 Sanitary Fixtures - Conditions Assessment

The condition of sanitary fittings in the bathrooms and kitchenettes are in good condition. As all communal bathrooms have been refurbished, general maintenance needs to be done. Gauteng City College needs a bit of maintenance due to missing fittings toilets seats and sinks.



Typical toilet for Disabled



Typical used tea kitchen



Tenant installed under counter geyser



Refurbished urinals



Typical un-used tea kitchen



Refurbished urinals – not working



Typical refurbished wash hand basin



Typical refurbished toilet core



Repair work required Wild View 2



Missing Fittings – Gauteng Cit College – ground floor

7.6 Recommendations

Preventative maintenance is required on water supply piping system, as well as flushing of the entire system, as the water is contaminated with rust.

Any future space planning changes will require new hot water generation system(s) by means of 50% renewable energy as per SANS 10400-XA.

For the most part the sanitary fittings throughout the building seem to be in good working condition. Only a minor amount of fittings show significant damage, which needs to be replaced. It must be noted that not all fittings could be tested as some areas of the building could not be accessed or had the water switched off.

8 Fire services

8.1 Introduction

A visual inspection and condition assessment was carried out at the Isle of Houghton Office complex on 3rd of October 2023 with the aim of establishing the status of the fire systems installed at the office park.

The following buildings were inspected:

- ▶ Harrow Court buildings 1,2 & 3.
- ▶ Old Trafford buildings 1,2,3 & 4.
- ▶ Wild View buildings 1 & 2.
- ▶ The Parking building at the entrance.
- ▶ Hertiage House

8.2 Fire Services

The aim of the assessment pertaining to the fire services installations includes the following:

8.2.1 Site wide hydrants and booster connections

Each of main building core at street level has an external hydrant with booster arrangement installed.



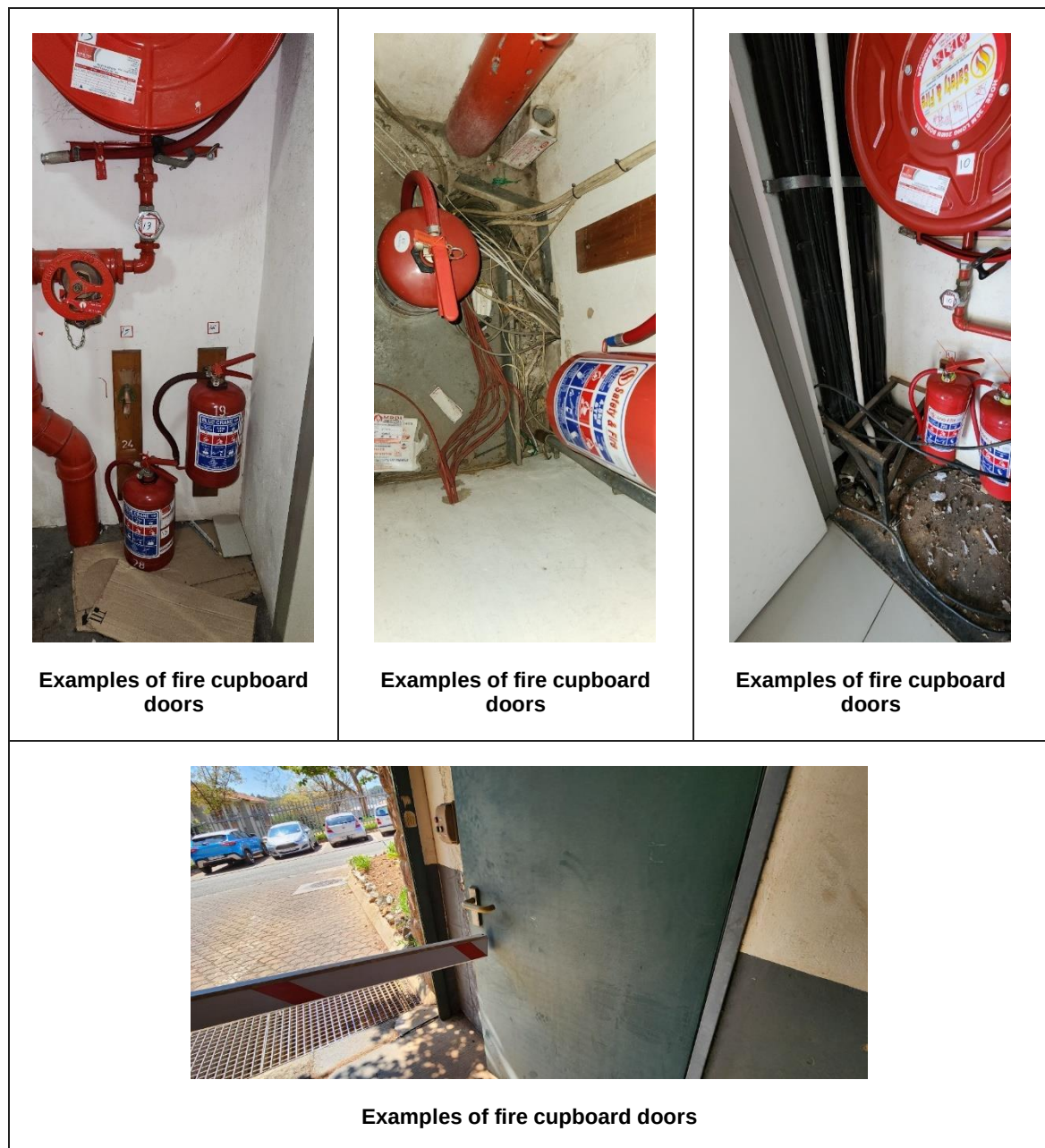
Typical hydrant booster

These hydrant boosters require a non-return installed to allow the prevention of boosting back feeding into the ring main, should there be a fire department boost the system during a fire. We would need to see the fire rational design report to further understand the design philosophy of the hydrant and hose reel system.

In general, all fire hydrants and hose reel systems are in good condition and well maintained.

There are some minor issues that need to be addressed:

- ▶ All hydrant cupboards need to remain clear of rubbish and other obstructions.
- ▶ Hydrant and fire hose reel cupboards are not to be used as storage spaces.
- ▶ The internal hydrant cupboards all require some attention, such as missing door handles. This is more of a daily maintenance issue.
- ▶ The boom position at the parking entrance to Wild Views needs to be addressed, as the boom is obstructing the opening of the fire hose reel cupboard.



8.2.2 Fire equipment

The fire equipment throughout the buildings has recently been serviced and is in good condition. Some minor concerns were observed and these include missing keys to fire extinguisher boxes. Some fire extinguishers were also completely missing.

The use of fire cupboards as storage spaces needs to be addressed.

The following is noted and recommend for the buildings:



Main Electrical DB's located in the various basements to have 2 x 5kg CO² extinguishers, located on the outside of the DB room and not inside the room.



All firefighting equipment to be made freely available, no obstruction in front of the equipment

8.2.3 Fire and escape signage.

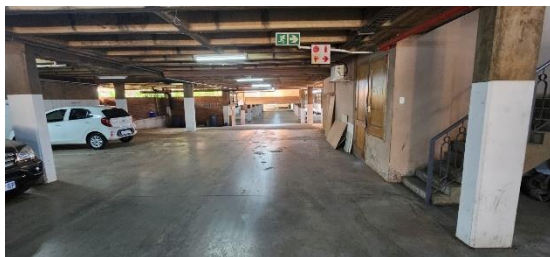
Fire signage needs to be installed as per SANS 10400 Part T section 4.29 and SANS 1186-5. A thorough assessment needs to be conducted to ascertain which signage needs to be corrected and replaced.



Replacement of missing and damaged signage needs to be corrected



Replacement of missing and damaged signage needs to be corrected



Replacement of missing and damaged signage needs to be corrected

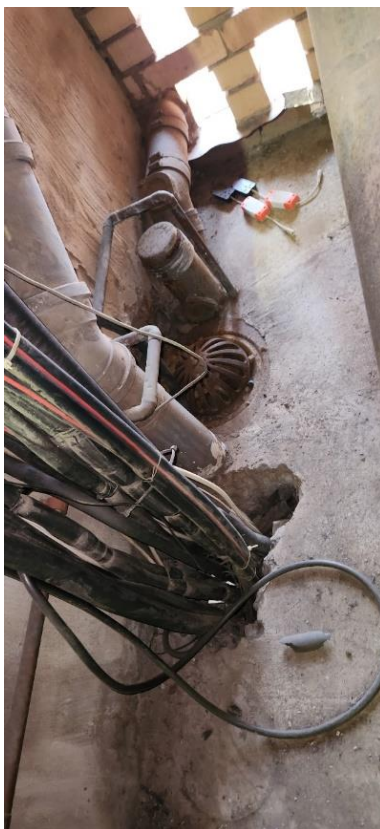


Replacement of missing and damaged signage needs to be corrected

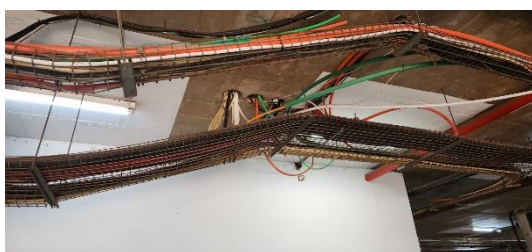
8.2.4 Fire separations and fire sealing

When referencing SANS 10400 Part T Section 4.41, all openings/penetrations through floor slabs shall be sealed and have a fire rating of 120 minutes.

Presently these openings are mainly located inside service ducts for electrical and wet services.



Fire sealing to be made good throughout various buildings



Fire sealing to be made good throughout various buildings



Fire sealing to be made good throughout various buildings



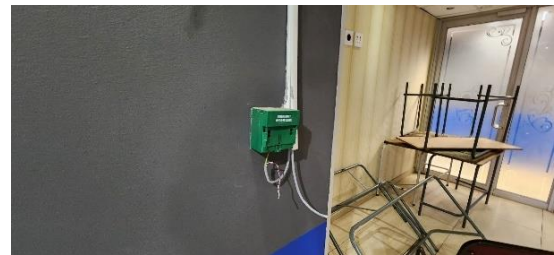
Fire sealing to be made good throughout various buildings

8.2.5 Smoke detection system

- ▶ The smoke detection is need of major repairs. Numerous maunual call points, detectors, etc are damaged. Badly damaged cabling was also observed.
- ▶ The system needs to comply with SANS 10139.
- ▶ We informed by the caretaker that a repair quote has been issued and will be actioned shortly, to repair the system to working order.



Damaged smoke detection system



Damaged smoke detection system



Damaged smoke detection system



Damaged smoke detection system



Damaged smoke detection system



Damaged smoke detection system

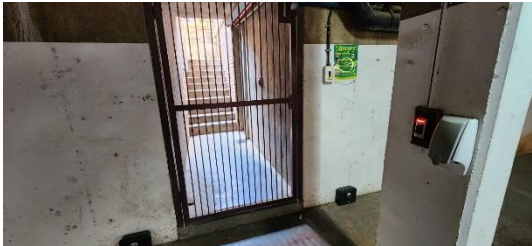
 Damaged smoke detection system	
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8.2.6 Fire escape staircases, fire doors.

In general, all fire escapes are in good condition and free of obstructions,.

The following areas need to be attended to:

- ▶ Gauteng City College-
- ▶ Thumb-turn door locks to be provided for the escape-side of emergency exit doors, to allow people to escape.
- ▶ Presently there are existing security gates at major entrance and exit doors. In the case of an emergency and security gates being locked, the escape doors cannot be used as intended. This needs to be rectified.

 Old Trafford basement	
 All escape doors require all Redlam bolt's to be fixed or repaired.	 All escape doors require all Redlam bolt's to be fixed or repaired.
 All escape doors require all Redlam bolt's to be fixed or repaired.	

8.3 Recommendations

8.3.1 Fire signage escape routing

Some fire signage has been installed incorrectly and needs to be corrected to comply with the regulations.

The escape signage on some of the floors will need to be looked at as they are a bit scarce and more will need to be installed to ensure that all fire escape routes are clearly marked, and egress points are easily found in the event of a fire.

Fire Escape routing block plans will need to be updated.

8.3.2 Fire sealing

Fire sealing to all the openings between basement and ground floors to be done.

8.3.3 Smoke detection

Major repairs need to take place on the various smoke detection systems, we are aware that the costing for repairs is currently being approved.

8.3.4 Fire equipment

Replacement of missing extinguishers is to be done. we are aware that the costing for this replacement is currently being approved.

9 Conclusion

In general, the buildings are in a reasonably condition, but the lack of recent maintenance is evident.

The buildings are suitable for the use as an administration building. We do not see any risk to this possible re-development, should the compliance issues be corrected.

Refer to the various disciplines for specific recommendations in relation to the condition and compliance thereof.

In diversity there is beauty and there is strength.

MAYA ANGELOU

Document prepared by:

Zutari (Pty) Ltd

Reg No 1977/003711/07

Oxford Corner

32A Jellicoe Avenue

Rosebank

Johannesburg

South Africa

PO Box 653763

Benmore

2010

T +27 11 214 4500

E johannesburg@zutari.com