

Notification of Intent to Develop (NID)

The Council for Scientific and Industrial Research
(CSIR)
Biogas Project

Farm SCIENTIA 627
Meiring Naude Road
Pretoria
Tshwane

Submitted to the South African Heritage Resources Agency (SAHRA)
Section 38(1) and S 38(8).



The CSIR Farm Scientia Pretoria

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1. INTRODUCTION

This is a Notification of Intent to Develop submitted to the South African Heritage Resources Agency (SAHRA) in terms of s 38(1) and s 38(8) of the National Heritage Resources Act (Act 25 of 1999).

The Council for Scientific and Industrial Research (CSIR) intends establishing a Biogas Facility on its campus situated at Farm 627, Meiring Naude Road, Pretoria. The site, which measures 172.1809 ha, is owned by the CSIR which holds title to the property (see Annexure One). The development of a biogas project triggers the National Environmental Management Act (NEMA) (Act 59 of 2008) and the National Environmental Management Waste (Act 62 of 2008). In terms of the NEMA, the basket of supporting specialist studies is required. In the case of heritage, a Heritage Impact Report is required in terms of s 38(8) of the National Heritage Resources Act (Act 25 of 1999). The Impact Assessment Report will be submitted to the National Heritage Authority or the South African Heritage Resources Agency for comment. Any comments obtained will be fed into the EIA process.

A feasibility study highlighted the need for certain authorisations under Specific Environmental Management Acts (SEMAs). Chand Environmental Consultants cc has been appointed through an open tender process as the Environmental Assessment Practitioner for this project. Over and above the application for various authorisations, Chand has also been appointed to assist with the selection of an appropriate site through an Environmental Opportunities and Constraints (O&C) Analysis.

Melanie Attwell and Associates was appointed as the heritage consultant together with other specialists who are currently involved in the development of impact studies. A site visit was undertaken in October 2017 by Melanie Attwell and Associates followed by the drawing up of the feasibility study which was submitted to Chand Environmental Consultants, also in October 2017, and has fed into the process to date. During the site visit and feasibility study, it was noted that there were no buildings older than 60 years on the site, the campus was an arena for ongoing scientific enquiry, the CSIR is an institution of national significance and its scientific enquiries should be supported.

In addition to heritage, specialist input has sought from the following:

- Air Quality
- Botanical
- Traffic
- Stormwater; and
- Groundwater.

1.1. The Council for Scientific and Industrial Research (CSIR)

The CSIR is currently reviewing three potential site options for the proposed facility with one site identified as the preferred option (Site 3).

The CSIR was established in 1945 and has a mandate to undertake research and development in many fields of scientific endeavor including multi-disciplinary research and technological innovation. More recently, it has undertaken development in the scientific fields of the environmental sciences. In 2016 the CSIR launched a project investigating bio-industrial development, including a proposal for a bio-

refinery and small scale investigative on-site biogas production. The production of biogas is in line with current scientific research into fields of sustainable energy production.

The research into renewable energy includes the creation of an integrated energy resource plan for the campus of the CSIR. The building of photo-voltaic systems on campus between 2016-2017 is part of that program. The intention is to further develop a sustainable system of integrated energy production that can be used on other campuses, institutions and local municipalities to reduce dependence on the formal energy grid.

For a history of the CSIR and the land on which it is situated, see Annexure Two.

2. LOCATION

2.1. Location

The CSIR campus is situated in the eastern suburb of Lynwood with the main entrance off Meiring Naude Road in Pretoria in the Municipality of Tshwane. It is situated on a kopjie with Meiring Naude Drive to the west of the site and the N4 to the north. To the south are the suburban houses of Darlington Road and Charbury Road. To the north are the photo-voltaic facilities of the CSIR. For location, see Fig 1.

There are three public entrances, the south, the most used of the public entrances and near the conference centre, the north entrance, and the east entrance.

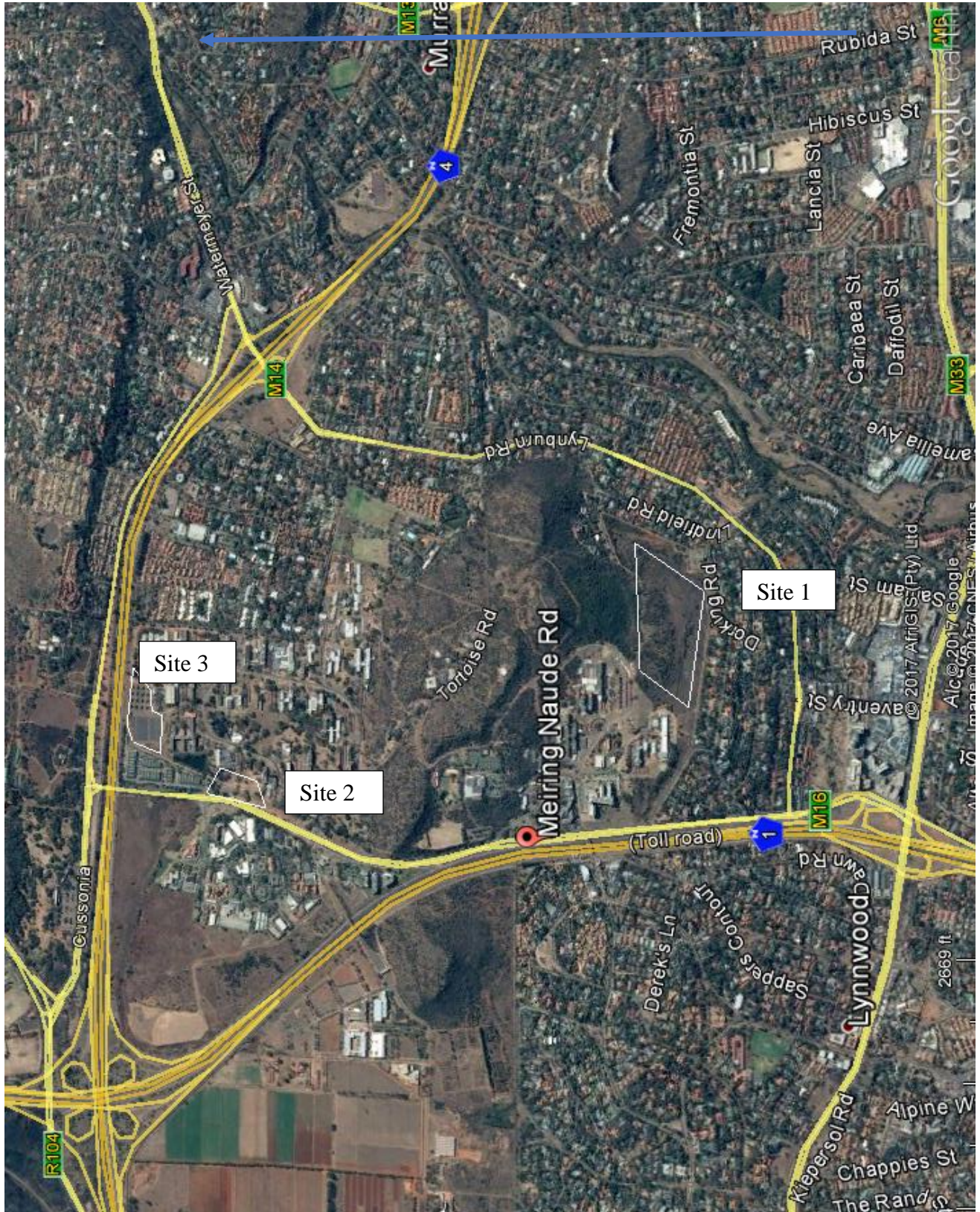


Fig 1. Location of the CSIR campus in relation to road network and the surrounding environment of Pretoria. The campus is extensive. Site options 1, 2 and 3 are shown. Site 3 is the preferred site.

2.2. Site description

The CSIR campus is situated in the eastern suburb of Lynnwood, Pretoria. It is partially surrounded after 1955 by suburban development and extensive roadworks. The land on which the CSIR is situated is extensive and measures 172.1809 ha. The campus itself consists of groups of research facilities and buildings scattered over the site or grouped together within partially landscaped grounds of lawns, ponds, groups of trees, connecting roadworks and parking areas for staff. Most of the buildings date to after 1970. There is an international conference centre situated within the grounds. The summit of the kopjie remains intact as does the indigenous vegetation in parts. The campus actively encourages the presence of small wildlife in these areas. The campus is surrounded by a road network of freeways, the suburb of Lynnwood Manor to the south-west, other residential neighborhoods to the east, an office park to the west, and an industrial park to the north west.

The intention in choosing an appropriate site has for the proposed biogas facility been to minimize or avoid impact of residential areas and maximize access opportunities presented by the peripheral road network, as well as continuing the CSIR's mandate for environmental research and reducing the environmental footprint of its facilities.

2.3. Property details

The property is called the Council for Scientific and Industrial Research (CSIR). It is situated on the farm Scientia 627 Pretoria in the district of Tshwane. The responsible Municipality is the Municipality of Tshwane. Its current use is for scientific and industrial research, conferences, experimentation and education. The predominant use of the surrounding environment within the campus is buildings and laboratories of research, administration, parking roads and open space.

The campus is 172.1809 ha in extent. It supports a range of scientific environmental and industrial research and is set in an expansive campus on a slight kopjie. Buildings are scattered across the campus largely following road access patterns. There is no formal urban design for the campus and the buildings are of differing styles, materials and functions.

The registered owner is the CSIR and the property is held by registered title (Annexure One).

3. PROJECT DESCRIPTION

The proposal for a biogas facility is based on the mission of the Council for environmental feasibility and sustainability. It forms part of a series of eco-friendly and environmentally sustainable initiatives on the CSIR Campus. The availability of waste in the area, the high and continuously rising landfill gate fees as well as the CSIR's high electricity consumption and decreasing security of electricity supply; all provide convincing reasons for the feasibility of a biogas plant.

The CSIR proposes to construct a waste to energy facility. The proposed plant would be located on the CSIR campus and would provide an output of up to three megawatts (MW), cover an area of up to 10,000m², and would probably source feed stock from the municipal garbage dumps and shopping malls within a 50km radius from the site. Only organic feedstock would be accepted, and no sorting of waste would be undertaken (noting that no sorting of waste would take place on site). The proposed facility would require a larger gas store (with up to 3 x 9,000m³ tanks) to provide the baseload capacity during hours of high demand. The biogas plant is proposed to have a maximum power output of

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3MW. Design and planning is in the conceptual stages only and engineering drawings will be submitted when prepared. The preferred technology with respect to the processing and treatment of the waste at the proposed facility will still be confirmed.

Design would require flexibility to accommodate a range of various feed stock types and composition to adapt to future demands. The construction of an access road may be necessary if site one is selected. However most sites have easy access to the surrounding road network. The required width would be up to 5m, exclusive of the road reserve. Waste would be received during normal work hours between 8:00 and 17:00, six days a week. Two sources of water are currently being considered by the CSIR (namely freshwater and borehole water). However, the water source or combination thereof has not yet been confirmed. Should municipal water be required, confirmation of available capacity will be sought.¹

The site which has the lowest visual functional environmental and heritage constraint is the proposed option, i.e. Site 3. Site 1 is the least preferred option as it contains greater environmental and visual constraints and is close to a residential area.

4. LEGISLATIVE FRAMEWORKS

4.1. Notification of Intent to Develop: This is submitted to SAHRA in terms of Sections 38(1) and 38(8) of the NHRA. The Heritage Report will be submitted to SAHRA for comment.

4.1.1. Relevant Heritage statutory requirements: This NID is submitted to outline what (if any) heritage resources are likely to be affected, how the character of the site will change and what processes need to be followed. It is submitted to SAHRA in terms of s 38(1). S 38(1) (c) identifies triggers for heritage in terms of the following:

Any development or activity that will change the character of a site

(i) exceeding 5,000 sq m. Section (ii) and (iii) do not apply.

S 38 (1) (c) (i) of the NHRA states that an HIA may be required for the following:

“Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as-

(c) any development or other activity which will change the character of a site-

(i) exceeding 5 000 m² in extent;” if there is reason to believe that heritage resources may be affected by the proposal and the proposal may change the character of the site. It is anticipated that the proposal will change the character of the site in the immediate affected area by additional transport levels, increased loading activity and the construction and operation of the biogas facility. However, it is not anticipated that heritage resources will be affected as none have been identified on site.

As the project triggers an Environmental and related assessment, a “stand-alone” Heritage Impact Assessment (HIA) is not required in terms of the NHRA. An HIA *is* required as a specialist study under the S&EIA and NEMA. The National Environmental Management Act (NEMA, No. 107 of 1998, as amended) requires a Scoping and Environmental Impact Assessment. (S&EIA) that includes a specialist HIA study. The heritage authority i.e. SAHRA will be a commenting body rather than an authorising agency.

¹ Chand Environmental Consultants: Opportunities and Constraints Analysis, October 2017.

4.2. Other NHRA Legislative triggers affecting historic buildings.

4.2.1. Section 34 NHRA

Buildings older than 60 or 100 years are regarded as heritage resources. S 34 of the NHRA states that, “No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority”.

There is no evidence to support the fact that any buildings on or near the affected sites are older than 60 or 100 years. The campus has been in a constant state of building and rebuilding since inception. There are no buildings on sites 1, 2 and 3 and the buildings in the periphery are relatively modern. S 34 therefore has no application.

4.3. Archaeology and palaeontology.

4.3.1. Section 35 NHRA:

Archaeology:

S 35 of the National Heritage Resources Act enacts the protection of archaeology and palaeontology as heritage resources. S 35 (4) states that, “destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite”.

Should such resources be identified or uncovered during a heritage assessment, it should be immediately brought to the attention of the relevant heritage authority (SAHRA). S 35 (4) thereupon has application in such an event.

No detailed archaeological studies have been undertaken on the sites in question. It should be noted that two of the sites (Sites 2 and 3) are situated in areas deeply modified by human activity and groundworks and landscaping. Even if archaeological objects were revealed they would be likely to not be *in situ*.

Palaeontology.

Palaeo-sensitivity is identified as low to nil (See Fig 3). The Palaeo-sensitivity map indicates Sites 1, 2 and 3 as areas of low sensitivity. No palaeontological studies are therefore required in terms of SAHRA requirements although a protocol for finds should be included.

4.4. Section 36. Burials

There are no known burials on site and apart from the general provisions of the NHRA, s36 does not apply.

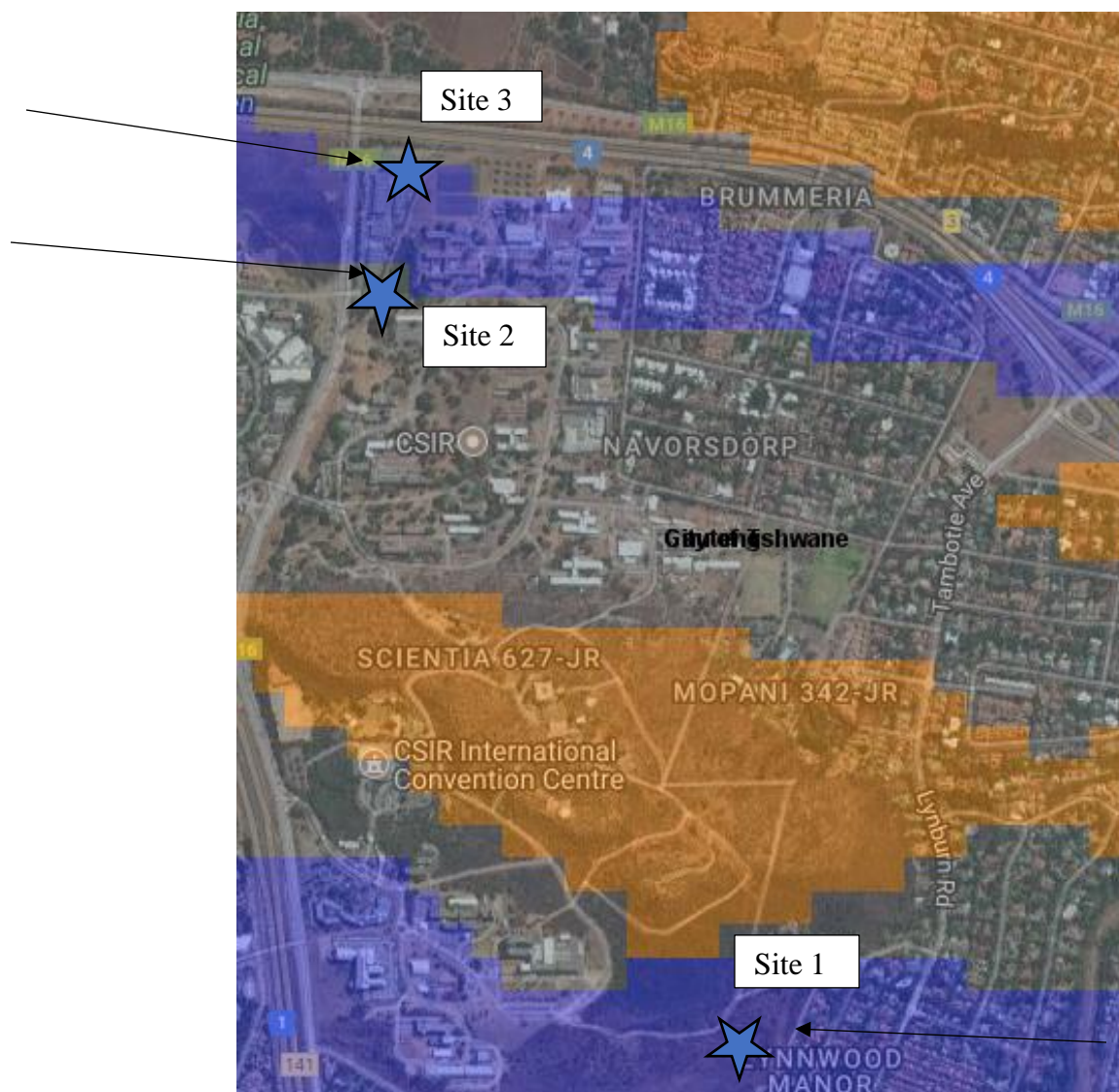


Fig 3. Palaeo-sensitivity map (SAHRIS) showing the sites. Sites 1, 2 and 3 (blue) are situated in areas of low palaeo-sensitivity (shaded grey and blue).

4.5. The following legislation also applies:

- The National Environmental Management Act (NEMA, No. 107 of 1998, as amended). NEMA requires that an environmental authorisation (EA) be issued by a competent authority (in this case the National Department of Environmental Affairs [DEA]). The process required in terms of NEMA and the listed activities is for a Scoping and Environmental Impact Assessment. (S&EIA).
- The National Environmental Management: Waste Act (Act 53 of 2008), (NEM:WA) provides for listed waste management activities which consider waste management activities that require a Waste Management Licence in terms of the Act. This would cover feedstock for the project. Activities are defined within Category A as non-hazardous, Category B as hazardous, and Category C as waste with lower threshold in terms of waste volumes. The licensing procedure

in terms of the NEM:WA is carried out as per the procedures prescribed in the 2017 EIA regulations in terms of the NEMA.

- The National Environmental Air Quality Act (Act 39 of 2004). Requirements in the Act relate to the scope of work and not the specific site.
- The National Environmental Management Biodiversity Act (Act 10 of 2004). The Act places severe restrictions on activities that could have adverse effects on threatened or protected species. It covers the potential for the existence of sensitive biodiversity on site.
- The National Water Act (Act 36 of 1998). Should the triggers contained in the Act apply a water Use Licence would be required from the Department of Water and Sanitation.

4.6. Relevant Planning and Policy Frameworks

4.6.1. The City of Tshwane Integrated Development Plan 2013-1026 (IDP).

The waste component of the IDP focuses on the requirement for additional solid waste removal services, landfill space and associated staff and infrastructure requirements. Although it does not specifically mention the establishment of biogas facilities, it does highlight the pressure on landfill space, which could be slightly alleviated because of this project. The IDP also highlights energy backlogs within the City of Tshwane. The City would like to reduce those backlogs and the implementation of the proposed development would serve to provide part of the solution. Such applications would apply regardless of the site selected.

4.6.2. City of Tshwane Draft Regional Spatial Development Framework (RSDF, 2017) – Region 6. The RSDF has been compiled in accordance with the following provisions:

- Indicate where public and private development infrastructure investment should take place;
- Indicate desired development and land use patterns for different areas;
- Indicate where development of land uses should be discouraged or restricted;
- Provide broad indication of the areas where priority spending should take place; and
- Provide guidelines for development and land use decision-making by the municipality.

4.6.3. The CSIR falls within the urban edge and is located along a transport route. The infilling is therefore in line with the requirements of the RSDF.

The project itself does not fall within any of the identified ward priorities. However, the CSIR has been identified as a node for job opportunities and there would be additional job opportunities with the project and mixed use is supported at the CSIR. Note that in the RSDF, all three sites are earmarked for mixed use development.

4.6.4. City of Tshwane Metropolitan Spatial Development Framework, 2012 (MSDF)

The MSDF for the COT's Spatial Development Policy includes the following principles:

- Compaction and densification;
- Green Economy;
- Sustainable Human Settlements;
- Urban Design and Quality of Environment
- Urban Edge

- 5. HERITAGE RESOURCES

5.1. Definitions

Heritage resources are defined as “any place or object of cultural significance” (NHRA).

Cultural significance is defined as “aesthetic, architectural, historical, *scientific* (author’s italics), social, spiritual, linguistic or technological value or significance”.

5.2. Findings in terms of NHRA

No heritage resources in terms of s 34, 35 and 36 of the NHRA have been identified on site. This finding was supported by preliminary research and a site inspection. In addition, no heritage resources have been identified by the City of Tshwane within the CSIR campus.

However, considering broad definitions of cultural significance² it could be argued that the CSIR is in itself of resource of cultural (scientific) value or significance, and proposals intended to further its scientific endeavours are supported in terms of the proposal. Efforts to support the expanding scientific and industrial research therefore should be supported.

- 6. PHOTOGRAPHS AND DESCRIPTIONS OF THE 3 SITES FOR THE PROPOSED BIOGAS FACILITY.

Three sites have been identified as being possible for a biogas plant³. They are:

6.1. Site One: Situated to the south of the site, it consists of sloping open ground which is unmodified by development intervention. It backs on the houses of the Charbury Road area where there is a firebreak/service road. There are no existing buildings on the site and no buildings older than 60 years. For the development of a biogas plant, it is the least feasible from a number of perspectives, largely related to its proximity to human habitation and while not a heritage issue, issues around access would continue to affect the feasibility of the site.

² NHRA S 2.

³ Revised site layout: 5th September 2017. Information supplied by Chand Environmental Consultants.



Fig 4. Site One near Charlbury Road Lynwood. An unmodified site with natural vegetation



Fig 5. Site One showing the open sloping nature of the area and the firebreak.



Fig 6. The abutting residential environment of Lynwood Manor.

6.2. Site Two. The site is situated off Meiring Naude Road and is situated opposite an office park outside the campus. The area contains a detention pond and buildings with treed forecourts. The site provides good opportunities for access. In terms of heritage, the site presents few constraints. It is a modified landscape and none of the buildings nor mature planting appear to be older than 60 years, with no known heritage resources.



Fig 7. Site Two showing it surrounded by offices and facilities.



Fig 8. The environment of Site Two with mature trees and a fenced firebreak



Fig 9. Site Two. A closer view of some of the mature vegetation.

6.3. Site Three. This is the preferred option. The site is situated on the edge of the campus and is situated along the N4. The N4 is a busy and wide road and there are likely to be few adverse impacts on settled residential areas or historic environments. It contains no buildings older than 60 years.

The site has the advantage of already containing a facility or sustainable energy production in the form of the photo-voltaic installations.

6.4. Preferred option

On the basis of a combined series of informants assessing constraints and opportunities, Chand Environmental Consultants have identified Sites 2 and 3 as being equally suitable. Site 3 would require the removal of the solar arrays and Site 2 has bulk water and sewer and bulk water constraints. Site 3 has been chosen as the preferred option.



Fig 10. View of Site 3 adjacent to the photovoltaic plant.



Fig 11. View of the freeway (N4) from site 3).



Fig 12 Explanatory board about photo-voltaic energy at the site.

7. CONCLUSIONS AND RECOMMENDATIONS: HIA

7.1. Conclusions

- There are no buildings either 60 years old on any of the three sites.
- There are no known archaeological sites and no identified affected areas of palaeontological significance. Archaeological and palaeontological impacts are therefore likely to be low.
- Site 3 has been identified as the preferred site. It has low heritage significance and proceeding with investigations into development on the site may be considered appropriate from a heritage perspective.
- Sites 2 and 3 are on heavily modified and altered environments, while Site 1 is a “natural landscape” at the lower reaches of the kopjie and does not appear to show signs of significant modification. In this instance botanical constraints as well as social and visual constraints would apply which would not apply to Sites 2 and 3.
- S 38 (2) of the NHRA allows the relevant heritage authority (i.e. SAHRA in this instance) to require a Heritage Report “if there is reason to believe that heritage resources will be affected by such development”. There is currently little reason to suppose that the proposal will affect heritage resources.
- However, in terms of S&EIA requirements a heritage report should be submitted as part of a basket of related studies.

7.2. Recommendations regarding the way forward.

- 7.2.1. This NID notes that heritage significance is low other than in terms of the site and the mission of the CSIR which could be regarded as being of scientific significance. Efforts to enhance such significance therefore should be supported.

- 7.2.2. It notes that no buildings older than 60 years were identified in the periphery of the affected sites and archaeological and palaeontological significance was regarded as low.
- 7.2.3. It is therefore proposed that a limited heritage report be undertaken in terms of s 38(8) which focuses on any procedural heritage issues which may arise in terms of the development of heritage related protocols of heritage resources – for example, should archaeology and human burials be revealed during development This assessment and guidance could be incorporated into the EIA conditions and any future conservation management plan.
- 7.2.4. On the basis of existing evidence, the NID recommends no further specialist heritage studies and recommends that protocols be put in place for general application of the Act should the need arise.

8. REFERENCES

Attwell M, Melanie Attwell and Associates, Heritage Feasibility Study, The Council for Scientific and Industrial Research (CSIR) Farm Scientia 627, Meiring Naude Road, Pretoria, October 2017.