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9/2/018/245

**NOMINATION FOR GRADE 1 STATUS TO THE SAHRA COUNCIL
18 July 2008**

**ROYAL OBSERVATORY, OBSERVATORY
CAPE TOWN
WESTERN CAPE PROVINCE**

PREPARED BY GREGORY ONTONG FOR SAHRA WSETRN CAPE

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LOCATION OF SITE

Place: *The Royal Observatory, Observatory*
Location: *The Royal Observatory is located on a raised (hill) corner site between two landmark developments, the Valkenberg Psychiatric Hospital (east) and The River Club (west). It is placed on the extension of Station Road, Observatory, which terminates as Observatory Road adjacent to Valkenberg Psychiatric Hospital. Observatory Road is essentially a dead-end that converges into a pedestrian bridge which spans both the Black River and Black River Parkway to give access to the Maitland Garden Village and the Oude Molen estate and the Alexandria Hospital precinct. East and northeast of the site the Black- and Liesbeeck River confluence creates a wetland with remnants of indigenous plants, reed and wild grass. The site is further bracketed by the Liesbeeck Parkway to the west and Black River Parkway to the east.*

City:	<i>Cape Town</i>
Province:	<i>Western Cape</i>
Owner:	<i>National Research Foundation</i>
Please refer to:	
Annexure A	<i>Locality Plan</i>
	<i>Site Plan</i>
Annexure B	
Annexure C	<i>Photographs and Plans</i>
Annexure D	<i>Site Plan with proposed boundaries</i>
Annexure E	<i>Original submission for nomination</i>

1. STATEMENT OF SIGNIFICANCE

As a preamble to the Statement of Significance, it is important to note that the site was previously nominated for National Monument status by Mr. David Hart during 1998. However, due to the eminent promulgation of the National Heritage Resources Act of 1999, a moratorium was placed on all nominations and declarations. The process was therefore not taken forward or concluded. It must further be stated that the site is an essentially scientific one but that the impact of the historic development of Observatory and the notion of Khoi and San activities, albeit speculative as no proper survey has been done, around the site, cannot be ignored.

In order to start and take the process forward it needs to be reiterated that the significance of the site is derived from three arenas, possibly a fourth.

The **first** arena has to do with the significant contributions made to the fount of scientific and astronomical research. These contributions include the introduction and the importation of highly sophisticated instrumentation. It must be acknowledged that sophistication is a relative term as we are speaking of a time approximately 200 years ago. There are also the socio-historical elements which accompany the history of the built fabric and its concomitant role as

research vehicle. The reference here is to the people who occupied the site for purposes of residence, research and recreation.

The **second** arena has to do with the architectural significance of the Main Building, designed by John Rennie during the period 1825 to 1828, *and* the Observatory Building housing the McClean telescope. The main building is an essentially Georgian building built in the Greek Revival Style. The other significant building on the site is the one with the dome and observatory-annex which houses the only working mechanical McClean telescope in the Southern Hemisphere. This building was designed by Sir Herbert Baker, a turn of the century master of architecture with a substantial portfolio in Cape Town and South Africa. The grave of the first Director (1820-1831) of the South African Astronomical Observatory, Fearson Fallows, is also on site and is set virtually directly in front of the main building.

The **third** arena of the significance of the site is the natural context at the confluence of the two rivers and the proximity to the Valkenberg Psychiatric Hospital, situated on a hill, a series of buildings of architectural and townscape significance within a peri-urban setting. On site there are also several trees and shrubs of historical significance with a very rare species of plant being unique in that it is the only known site where it grows. The Black River-Liesbeeck Urban Park, the Two Rivers Urban Park, borders the site on both the eastern, northeastern and northwestern part of the site. The western part of the Liesbeeck-Black River Valley houses a number of sports fields with an edge of industrial buildings.

At a **fourth level**, one could argue for the historical habitation of the area by the Khoi and San communities. This is very significant as it gives impetus to the belief that the site is also of cultural-historical significance. This then becomes an added arena on which to build one's argument for the significance of the *area* and its built fabric bounded by the two rivers and hemmed in on either side by the roads traversing the larger site. The reference to the Khoi and San are mainly to highlight the primordial nature of the Cape Peninsula and the associated activities of its inhabitants.

It also **needs to be noted** that the land north and east of the site, the part facilitating the River Club, Erf 151832, falls under the ownership of Transnet. The land, Erf 15326, to the east which includes land on both sides of the Black River Parkway and the Black River falls within the ownership of the City of Cape Town. These tracts of land fall within the defined Two Rivers Urban Park, so identified by the City of Cape Town. It is protected by the National Environmental Management Act no 107 of 1998. These pieces of land should also be considered for *enhanced* protection, if necessary, even if it forms part of the Two Rivers Urban Park. The idea then is to find protection for it under the auspices of a cultural landscape. The motivation for the land as Cultural landscape can only be done if properly motivated.

2. THE CULTURAL LANDSCAPE OF THE LIESBEECK- BLACK RIVER CONFLUENCE

2.1 The primordial landscape

An extensive estuarine system of marshes was created by the confluence of the Black- and Liesbeeck Rivers flowing into the Salt River together with the Diep River from the north. These marshes extended well inland and may have formed part of a broader wetland system stretching from Rietvlei to Zeekoevlei and Sandvlei on the Indian Ocean side of the Peninsula.

Hippopotami, elephants and Cape buffalo have assisted in keeping open the channels and pools amongst the reed beds and Palmiet. The banks would have displayed varied pasture types for herds of grazing antelope and zebra, as well as, sand plain fynbos dominated by restios, riverine shrub and woodland near the mountain.

For millennia small groups of hunter-gatherers followed the seasonal cycle of this landscape, collecting plants and seafood, catching wild birds and animals. They found shelter in caves and rock formations. They also constructed windbreaks and waterproof shelters in more open areas (Aikman 2002).

2.2. The Pre-colonial landscape

The seasonal nature of the Peninsula's vegetation and water supply set a situation where Nomadic Pastoralists brought in their herds of sheep and cattle to this marshland for grazing. The grasses that grew in this manner were only able to support the herds for short periods of time. When the grazing receded and all but disappeared during summer they moved back into the interior or up the coast to the northwest. This cyclical movement of large herds of domestic animals across the landscape created broad trails where once only narrow paths existed (Aikman 2002). It has been suggested that these may have become the basis of the road system still used in part today. It is also possible that site extents reflect drainage channels and that these became the property defining lines and perhaps later route systems. The movement of these animals more than likely had a significant impact on the ecology of the Peninsula, and in particular, the site of the Royal Observatory and surrounds.

Elsewhere in the Peninsula the hunter-gatherers and pastoralists have left some archaeological evidence of their existence but the site has not yet been properly surveyed to confirm the presence of the ancients beyond a doubt (Aikman 2002).

2.3. The Dutch Colonial Period

Dramatic changes occurred once the Dutch East India Company (VOC) established its refreshment post in Table Valley. The result of this was that the pastoralists were gradually excluded from grazing their herds along the Liesbeeck River until; finally, in 1657 freehold grants were given to the Free Burghers. This, according to Aikman (2002), precluded the Goringhauqua's use of grazing. Between 1657 and 1660 palisades were constructed along the Liesbeeck- and Salt Rivers. A wild almond hedge was planted stretching from the Salt River to the hill at Wynberg where extensive sections still remain.

The Free Burghers or Settlers grew fruit and vegetables and planted wheat between the Liesbeeck River and the main Route to the south- the Wagenpad na t~~o~~Bos. Their main activity

though was the rearing of stock. A group of farms developed near the present day Coornhoop known as *de Hollandse Thuijn*. The homestead of another farm known as *Onderneming* is now known as Wrensch House. The Westoc homestead is embedded in 19th and 20th century suburban developments (Aikman 2002).

Lying between Coornhoop and the sea was Jan van Riebeeck's own farm *Uitwyk*, later known as *Malta* farm. This farm may have lent its name to what is now Malta Road. The farm *Vaarschedrift* lay between Malta Farm and the Salt River. This home was also demolished in the 20th century by the Union government. It was a cattle drift between the Table Valley settlement and the interior. There were several farms between the two rivers, Valkenberg, Bloemendal and Vredenberg. There was little development to the east of the Black River which remained a wilderness of marshland and shifting sands and almost no land grants were made. Instead, a series of windmills were erected, the Oude- and Nieuwe Molen, all between 1780 and 1800. The road network was extended with a number of crossing points over the rivers (Aikman 2002).

Besides the Oude- and Nieuwe Molen complexes the Valkenberg farmstead is probably the most significant remaining element from the VOC period. The extensive pastures and fields of grain have almost disappeared under suburban development. However, the open landscape still creates a sense of the VOC rural landscape (Aikman 2002).

2.4. British Colonial Period

From the beginning of the 19th century, residential, commercial and industrial development began to encroach on the agricultural landscape. Land within the Liesbeeck- and Black River area itself was largely unaffected by these processes and farming continued at Malta farm, Westoc, Coornhoop and Valkenberg. Road networks grew significantly and so did the 19th century railway network. At the beginning of the 19th century there were two main routes, the Main Road to the south, and to the north, today's Voortrekker Road. The two rivers area was left largely intact. The landscape character of the area was distinctly agricultural, essentially a patchwork of pastures for dairy cows who could drink at the river, plots of vegetables and

orchards, fields of winter wheat and screens of Poplars to protect them from the winds (Aikman 2002).

2.5. The Institutional Period

Although the area retained its agricultural character well into the 20th century, it increasingly played an institutional role. In 1827 a portion of Valkenberg was sold for the establishment of the Royal Observatory. A large complex was then developed around the Observatory including subsidiary residential and administrative buildings. Valkenberg was bought by the Cape Colonial government with money from the Porter Bequest Fund for the establishment of the Cape Colony's first reformatory. The farming activity continued at the reformatory on a more intensive basis than when Valkenberg was in private ownership (Aikman: 2002).

The reformatory moved to Tokai in 1888 and the Valkenberg complex taken over by the Cape Colonial government as a replacement for Robben Island lunatic asylum that closed down. The estate was then once again used for farming, primarily for therapeutic activity.

On the west bank of the Liesbeeck River the smaller farms in private ownership were gradually reduced in size through residential subdivision. Land along the river was used mainly for dairy farming in the 20th century with the old silo in Durban Road a relic of Louw's Dairy.

In 1899 a new mental hospital complex was developed and the old manor house at Valkenberg was once again used as a residential building for staff. In 1901 the Cape Colonial government purchased the Nieuwe Molen complex with its mill, Alexandra, and developed a military hospital on site. The complex was converted into a hospital for use by chronically mentally ill patients and renamed the Alexandra Institution. Additional buildings were added to form a fine group of buildings. Oude Molen was taken over for institutional use and was eventually renamed the Valkenberg Hospital.

The abandonment of farming by the authorities left large, grassed open spaces, the former pasturage, unused. Along the Liesbeeck River the neglect has led to the fairly rapid development of woodland which is now an entirely new landscape element which screens the Valkenberg

manor house from view. The Roman Catholic Community acquired land to the south of Oude Molen and established the St Joseph's Sanatorium early in the 20th century close to Raapenberg Road. The sanitarium eventually became the Vincent Pallotti Hospital. Maitland Garden Village was established in the 1930s and was done parallel to the development of Pinelands on Ebenezer Howard's Garden City planning principles. Apart from this intrusion most of the area was unaffected by the urbanization processes taking place around it (Aikman 2002).

2.6. Urban infrastructure

After the Second World War, the City Council constructed Settler's Way, Black River Parkway and Liesbeeck Parkway during the 1950s and 1960s. These systems cut through the existing historical links and spatial relationships. Valkenberg Road which provided access to the hospital from Mowbray Village in the south was closed. At the beginning of the 1960s access was only via Observatory Bridge. The road and bridge from Valkenberg to Oude Molen was demolished and replaced with the bridge over the Black River Parkway. The Black- and Liesbeeck Rivers were canalized after the flooding of the winters of 1941 and 1943. This impacted on the riverine landscape of the confluence area. The road construction programme led to the development of the landscape as we know it today. Large areas of wetland were filled in along the Black River canal to accommodate the Settler's Way-Black River Parkway Interchange. The development of the railway system had led to the destruction of the Salt River marshes and the Vaarsche Vlei. At the end of the 20th century the once extensive estuarine wetland was reduced to a few remnant reed beds near the Royal Observatory and along the Black River canal. The canalization and the development of sports fields transformed the Liesbeeck River from an essentially waterlogged area to a meadow.

Centered on the original 1827 building the Observatory complex commands a dominating position on a small hill. The layout is quite informal and buildings are loosely arranged in a park like setting. The Maitland Garden Village follows the planning conventions of Ebenezer Howard and others and is almost unaltered since its construction in the 1920s.

The Valkenberg Homestead dates from about 1830. with various elements that made it special, modified by the Mostert Family, the reformatory and eventually by the hospital authorities. The Courtyard Hotel was recently built on the site and forms an uncomfortable intrusion on the site. The farmstead is the only building on the site retaining a sense of its agricultural past. All others either demolished or embedded within the suburban fabric.

The Valkenberg Hospital was the first asylum designed according to modern principles . the symmetrical layout centred on the administrative block with interlinking courtyards and buildings is typical of 19C institutional complexes with strong hierarchical principles of control (Aikman 2002).

3. BRIEF HISTORY OF THE ROYAL OBSERVATORY

3.1. Prehistory of the Royal Observatory

The earliest astronomical observations in South Africa were made by Dutch and Portuguese navigators on their way to the east. The observations were made essentially for the determination of latitude and longitude. In an early record dating from 1652 Jan van Riebeeck logged the observation of a comet in his personal journal. A more specialized form of record keeping was begun when, in 1685 a party of Jesuit Priests, bound for Siam, landed at the Cape and had among its passengers, **Father Guy Tachard**. A temporary observatory was set up for observation on a site which later became the Old Supreme Court. Following after Tachard, Pieter Kolb, a German, also made observations during 1707, however, collectively the two did not make any discoveries significant enough to merit special recognition (Laing 1970:35).

The visit by **Abbé Nicholas Louis de LaCaille**, sent to the Cape in 1751 by the Academie Royale des Sciences de France, resulted in the definition of many constellations which includes Mons Mensa and included the accurate determination of the earth's radius in the Southern Hemisphere. This observatory was situated at No 2 Strand Street (Laing 1970:35).

Early in 1820 the Commissioners of the Board of Longitude proposed the establishment of an Observatory at the Cape. The King's Most Excellent Majesty in Council authorized the Lord's Commissioners of the Admiralty to cause an observatory to be erected at the Cape of Good Hope. The Order-in-Council, which formally established the Observatory, was signed on the 20th October 1820 defining its stated purpose as that of the improvement of practical astronomy and navigation. The construction of the main building was begun in 1825. During the construction phase, 13 Kloof Street, known as garden Rozenhof, was used as a temporary observatory (Laing 1970:8).

3.2. Royal Observatory

#.2.1. Social History

The first astronomer at the Royal Observatory was **Reverend Fearon Fallows** who is buried near the entrance to the main building. His first task was to select a site for the new observatory. The location of the Observatory had to satisfy three conditions. The conditions were that it had to be in sight of Table Bay so that visual signals could be passed to ships in the harbour; it had to be sufficiently far east of Table Mountain to have an unobstructed meridian and it had to be on Government-owned land. While awaiting the completion of the main building on Slangkop he used small semi-portable instruments to view the brighter stars. The main building was completed in 1827 with the transit instrument, the mural circle and a new Harrison clock in position. Fallows could now start the serious work. He died in 1831 from complications of scarlet fever and was buried on the observatory grounds at his request (Laing 1970:9).

Thomas Henderson (1831-1833), a lawyer by training, gave the world a catalogue of the principle Southern stars of an equal accuracy with the contemporaneous work of the best observatories in the Northern hemisphere. He was also responsible for the most accurate measurement of the distance from the earth to the moon including observations from which the distance of a star from the earth could be measured. In 1833 he also measured the light shifts in

the position of Alpha Centuri, the equivalence of measuring the size of a 1 cent coin 4 kilometres away. He resigned in May 1833 and returned to Edinburgh.

Thomas Maclear's arrival in 1834 heralded a further phase in the development of South African Astronomy with the remeasuring of Lacaille's Arc of Meridian and the carrying out of massive survey work. Maclear, an Irish born physician, finally put the organization on a firm footing. Since his arrival the volume of observations greatly exceeded the limited facilities at his disposal for their reduction. He realized that an early epoch for the first accurate observations of as many stars as possible was particularly important; their reduction could be left for later (Laing 1970:10).

In 1855 The Airy Transit Circle was acquired and installed and it replaced the earlier models. He also engaged land surveying, magnetic, meteorological and tidal observations. From 1838-1847 he spent a considerable part of his time organizing and participating in the remeasuring and extension of the meridian arc that Abbé de Lacaille had measured during 1751-1753. The mass of the mountains on either end of the arc affected Lacaille's measurements and his results did not agree with measures made in other parts of the world

Sir John Herschel arrived 10 days after Maclear.. He resided at the Cape during the period 1834 and 1838 occupying the home Feldhausen in Claremont starting what was an effective partnership and mentorship between the two.

Edward James Stone followed Maclear at the Observatory and spent his time, 1870 to 1879, largely with the reduction of Maclear's observational data. He also did a systematic survey of all the stars brighter than the seventh magnitude in the southern sky. He also found time for such investigations as the determination of the speed of sound from chronographic measures of the interval between the flash of the noon gun and the instant that the sound was heard at the Observatory. Stone resigned in 1879 and died in 1897 (Laing 1970:11).

Next to arrive at the Cape was **David Gill**. His main task was to eradicate all arrears of

reductions and to recondition the existing instruments especially the Airy Transit Circle. Photographs of the bright comet of 1882 drew Gill's attention to the possibility of charting and measuring star positions accurately by means of photography. This led to the photographic charting of the whole heavens. For this purpose an Astrographic refractor was acquired. Work at the Cape significantly improved measurements of the mass of Jupiter and the moon. The beginning of the 20th century saw the Royal Observatory to be the finest in the southern hemisphere.

Sydney Samuel Hough worked at the Observatory from 1907 to 1923. He arrived at the time when it was being expanded to its present size. It was also being re-equipped with the finest instruments at the time. Gill had designed and obtained the instruments and Hough was responsible for bringing it into service and that Gill's programs were brought into being. This included the preparation of fundamental catalogues of precise star positions with the new transit circle (Laing 1970:14).

Sir Harold Spencer Jones 1923-19330 arrived at the Cape when changes were beginning to be necessary. Equipment was increasingly in need of repair to the lack of proper maintenance from the war years onward. He was able to replace aging equipment, modernize the accommodation and build a new office block. The Astrographic zone was completely rephotographed..**John Jackson** spent time at the Royal Observatory between 1950 and 1968.

3.2.2.Current History

The South African Astronomical Observatory (SAAO) was formed in the 1970's with the merging of the Royal Observatory, Cape Town (1825-28) and the Republic Observatory, Johannesburg (1903) and the Radcliffe Observatory in Pretoria. The SAAO was formed during 1972 by the Council for Scientific and Industrial Research (CSIR) of South Africa and the Science and Research Council (SERC) of the United Kingdom.

It is a facility of the National Research Foundation under the Department of Science and Technology. Its prime function is to conduct fundamental research in astronomy and astrophysics by providing a world-class facility and by promoting astronomy and astrophysics in Southern Africa.

Currently the headquarters of the SAAO is located on the grounds of the Observatory. The Royal Observatory Building houses the offices, national library and computer facilities. A number of historic telescopes are found on site housed in a number of domes on the grounds with the museum concentrating on historic scientific instruments.

4. PHYSICAL DESCRIPTION

4.1. The built Fabric and Associated Technical Instruments

The key buildings on the site are the south-facing Main building, a neo-Classical building of Georgian and Greek reference, and the Observatory building that houses the McClean telescope. The uniqueness around the telescope is its age, its associated history with colonial rule at the Cape and the scientific contributions which it has made to South African astronomical research.

The Main Building, designed by John Rennie circa 1821, has four ornate Doric timber columns with fluting of thin slivers of timber dressing the main body of the columns. It is an accurate reconstruction of the façade of a Greek temple. The building is symmetrical with two double storeyed wings extending to the front with two large windows with detailed surrounds within which it is set. Some of the windows on the wings facing onto the courtyard at the rear were false arising from an incorrect assumption by the architect that a window tax was applicable (Warner 1979:17). The central room initially had a central lantern placed there in 1824. To the rear of the main elevation, a square tower now rises upward currently housing some of the services of the building.

The parapet wall surround has an offset projection that terminates the wall and adds some ornate detailing as finishing element. At the rear of the main building a stable was built with a wall

surround creating a small courtyard. It is also this wall that was the subject of a partial demolition due to its precarious overhang.

The other building of considerable importance is the Observatory building housing the McClean Telescope.

Northern Terminal of Maclear's Arc of Meridian and treshing floor, Farm Klipfontein

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5. MOTIVATION FOR THE DECLARATION OF THE ROYAL OBSERVATORY AS A GRADE 1 SITE

Several reasons guide the decision to declare the Royal Observatory as a Grade 1 site. The reasons are governed by the fact that it was founded in 1820 with the first scientific observations being made at the Cape to determine its longitude by Father Guy Tachard. He was a member of a party of Jesuit Priests bound for Siam in 1685. These and other observations were made at the slave lodge at the entrance into the Company Gardens.

The visit by Abbé Nicholas Louis de la Caille between 1751 and 1753 resulted in the definition of many constellations which includes Mons Mensa and the determination of the earth's radius in the Southern Hemisphere. This observatory was situated at No 2 Strand Street.

6. CURRENT PROTECTIONS AND RESTRICTIONS

It must be noted that some of the buildings on site have been identified by SAHRA in 1998 as having significant heritage value to be nominated for declaration as National Monuments. The process, however, was impacted on by the introduction of the National Heritage Resources Act and the moratorium imposed by the Minister of Arts and Culture at the time.. This situation left the property without any formal protection and consequently left the site and its buildings vulnerable to possible insensitive maintenance and developmental work. Part of the declaration process would be to protect the built fabric and the history of the building for posterity.

The buildings on the site do, however, enjoy protection under the General Protections provision of the National Heritage Resources Act no 25 of

1999. It is specifically protected under Section 34 (1) of the Act which states that no person may alter or demolish any structure or part of a structure that is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

Some work has already been affected on site through the demolition of a wall that was near collapse as a result of trees and roots growing through its centre line. The threats to the property are therefore obvious. Careless and enthusiastic maintenance work has resulted in an awareness of potential loss of valuable heritage resources. It is furthermore important to ensure that all work is done within the framework of the law. It is therefore of grave importance that the most important buildings on the site be identified, graded and declared as part of the larger site and situated within the historical context of the observatory.

In respect of the grave on the site, Sections 36(1) and 36(3) (b) which states that no person may, without a permit issued by SAHRA or a PHRA, disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority.

6.1. MANAGEMENT: From the NMC to SAHRA

An application was lodged by the NMC under the direction of Mr. David Hart on 15 October 1998 to declare the site and buildings on it a national monument. In the application he suggested that the main building and the McClean telescope buildings be declared national monuments.

Management of the site will be in the hands of the

7. CONSERVATION POTENTIAL

The conservation worthiness of the site is very high. The conservation of the property has value in its socio-historical context, its scientific and the physical characteristics of the built fabric and the natural context.

The site

The **physical constructs** on the site is governed by the architecture of the main building, the telescope building-annex and the grave of Fearon Fallows, Her Majesty's astronomer at the Cape (1820). These resources are not only rare but have an interesting and far reaching history both socially and scientifically. The contributions made by astronomy in Cape Town, and later the site specific connotations, are far reaching. The list of achievements is summarised in the nomination form.

The **natural context** is defined by the history of the Khoisan because of the water resources and the later history of the occupation of the land for agricultural purposes. Its agricultural use relates to the use of the land by freeburghers supplying resources to the Dutch East India Company's passing ships. It was also the site of one of the earliest brickworks in Cape Town.

8. RECOMMENDATION

The recommendation is:

- That the site as a whole be seen as significant enough to warrant Grade I status. The reasons for defining the whole site rests in the historicity of the two major buildings, the associated housing, and the socio-cultural history associated with the astronomers *and* the astronomical developments produced through research.
- That the cultural and natural setting of the landscape, its adjacency to the Liesbeeck-Black River Urban Park, i.e. the rivers, the natural vegetation and its

- adjacency to the Valkenburg Psychiatric Hospital- a building of some townscape and architectural presence, needs to be protected.
- There is also the associated planning development such as the subdivision of farms for developmental purposes, i.e. the creation of Observatory.
- The site is adjacent to the location of a historical brickyard, now long defunct, in at the area immediately west of the confluence of the two rivers.
- The associated history of the Khoi and San groups that inhabited the area as part of their larger movement patterns.

110 **9. TOUWS RIVER**

1. **Astronomical Relic**

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9. ANNEXURES

Annexure A

Annexure B



Annexure C

Photographs and Plans



PHOTOGRAPH 1: ELEVATION OF THE BUILDING



ENTRANCE TO TELESCOPE

McCLEAN TELESCOPE BUILDING AND ANNEX



DETAIL OF DOME AND CIRCULAR WINDOW

Annexure D

Site Plan with proposed boundaries

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