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A. PHASE I CULTURAL HERITAGE RESOURCES IMPACT ASSESSMENT

(a) PHASE I CULTURAL HERITAGE RESOURCES IMPACT ASSESSMENT FOR THE VAALHARTS IRRIGATION PROJECT CANAL GANSPAN – PAMPIERSTAD –JAN KEMPDORP – HARTSWATER AND TAUNGH NORTH WEST PROVINCE AND NORTHERN CAPE PROVINCE

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Date of report: 18 September 2015

B. EXECUTIVE SUMMARY

The Vaalharts Irrigation Scheme is the largest and most successful irrigation project in South Africa. It lies on the border between the North West Province and the Northern Cape Province. The scheme was built in the 1930/40`s as a poverty relieve project for poor whites in the 1930`s depression. Most of the work was done by manual labour digging the 182 kilometres north canal as well as secondary and tertiary canals.

The main canal is the North canal which has to be rebuilt as its concrete walling is collapsing. The original 1930/40`s canal was enlarged in the 1990 which has destroyed many of the original structures of the canal.

The area is very rich in Cultural Heritage Resources associated with the canal building and the agricultural development. These include architecture of houses, outbuildings, workshops, office buildings etc. There is also a totally neglected Museum and two important cemeteries.

It is recommended that:-

- A full Phase II Heritage Impact Assessment be done on the project.
- Documenting of the history of the scheme and the future management of the comprehensive archives.
- Specific recommendations be made on the German and Italian cemeteries
- Specific recommendations be made on the preservation of objects associated with the scheme in the museum

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D. BACKGROUND INFORMATION ON PROJECT

(a) Whether the report is part of a scoping report EIA/HIA or not

Report will form part of an EIA

(b) Type of Development (e.g. low cost housing project, mining etc.)

Bulk Water Supply (Irrigation and Potable water)

(c) Whether re-zoning and/or subdivision of land is involved

Not applicable

(d) Developer and consultants and owner contact details

Prepared for:

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(e) Terms and Reference

The broad generic term *Cultural Heritage Resources* refers to any physical and spiritual property associated with past and present human use or occupation of the environment, cultural activities and history. The term includes sites, structures, places, natural features and material of paleontological, archaeological, historical, aesthetic, scientific, architectural, religious, symbolic or traditional importance to specific individuals or groups, traditional systems of cultural practice, belief or social interaction.

(f) Legislative requirements of Act 25 of 1999.

Protected sites in terms of the National Heritage Resources Act, Act No. 25 of 1999

The following are the most important sites and objects protected by the National Heritage Act:

- Structures or parts of structures older than 60 years.
- Archaeological sites and objects.

- Paleontological sites.
- Meteorites.
- Ship wrecks.
- Burial grounds.
- Graves of victims of conflict.
- Public monuments and memorials.
- Structures, places and objects protected through the publication of notices in the Gazette and Provincial Gazette.
- Any other places or objects, which are considered to be of interest or of historical or cultural significance.
- Geological sites of scientific or cultural importance.
- Sites of significance relating to the history of slavery in South Africa.
- Objects to which oral traditions are attached.
- Sites of cultural significance or other value to a community or pattern of South African history

E. BACKGROUND TO THE ARCHAEOLOGICAL AND HISTORY OF THE AREA

THE VAALHARTS IRRIGATION SCHEME

The Vaalharts Water Irrigation Scheme is located on the border between the Northern Cape- and the North West Province at the confluence of the Harts- and Vaal rivers. It is mainly in the Dikgatlong Local Municipality – the name refers to meeting place of the Harts and Vaal Rivers (<http://www.francesbaard.gov.za>). The establishment of an irrigation scheme was already suggested in 1870s by Land-surveyor Francis HS Orpen (Van Vuuren 2012). He realised that the Vaal River bed that is higher than that of the Harts River made gravity irrigation a viable option. The Griqualand West War intervened with these plans. Cecil John Roads wanted to divert the water of the scheme, then known as the Harts River Valley Irrigation Scheme, to the diamond fields at Kimberley (van Vuuren 2012). He was granted land for this venture but could not raise the money. The Government was at that stage not willing to spend money on the project. After several unsuccessful attempts the scheme was eventually prompted by the Government policy to grant land to soldiers returning from World War I (WWI).

It was first proposed to build a dam in the Vaal River at Christiana. In view of the need for water on the Rand, the decision was made to construct the Vaal Dam (van Vuuren 2012). The droughts of 1923/24 and 1931/33, and an exponential demand for water from the Witwatersrand, prompted the established of Vaal Dam, intended to increase the supply from the Vaal River (Haarhoff and Tempelhoff 1997). The Vaal River Development Scheme Act No. 38 made provision for the construction of the Vaal Dam 20 km downstream of the confluence of the Wilge and Vaal rivers. Almost half of the storage of the Vaal Dam would be reserved for irrigation at the Vaalharts settlement. The Rand Water Board would fund the major expenditure on the Vaal. The water from the Vaal Dam would flow to a diversion weir (then known as the Knoppiesfontein Dam) (The Water Wheel Jan/Feb 2010) 57 km downstream and then

through the main canals to the scheme. The construction of both projects would be done concurrently (van Vuuren 2012).

The Vaalharts irrigation scheme was intended to provide employment and a means of sustainable living to impoverished whites who had been left destitute by the consequences of the Anglo Boer War (1899-1902), the rinderpest (1896-1897), and the depression of 1930-1933 (Haarhoff and Tempelhoff 1997). Cecil John Rhodes was the first to suggest that the irrigation scheme could alleviate the poverty of whites who sustained major losses through the Rinderpest epidemic – he argued that most whites did not want to work on the diamond fields but preferred to farm (van Vuuren 2012). Irrigation schemes frequently serve as vehicles to relieve poverty (Tempelhoff et al. 2012).

The first work began in 1933 although the Act was approved by Parliament only in 1934 (Act 38 of 1938). More than 7000 profile holes were put into find suitable land (approximately 43 000 ha) for the irrigation scheme (Troskie 2008). The scheme would comprise a storage dam, weir and associated canals. Manual labour and mechanical construction means were used. Digging of the canals was done mainly with pick and shovel and 6 kg hammers were used to break up the rock. It often took months to reach canal depth in very rocky sections and the area known as the ‘blue canal’ was particularly difficult to excavate (The Water Wheel 2010; Van Vuuren 2012).

(See The Water Wheel Jan/Feb 2010 and van Vuuren 2012:129-131 for detail on the construction, the irrigation specifics and photographs of the construction and infrastructure. The report by Moedi Consulting Engineers (2013) includes a good photograph of the canal lining taken in 1934).

The construction took place during what became known as the Great Depression and the Vaalharts Irrigation Scheme made extensive use of manual labour from white men as pointed out above. Different wage structures are mentioned in the literature (Troskie 2008; van Vuuren 2012). What is important is that the daily bonus was paid into a Post Office Saving Account; the latter money was only made available after completion of work (van Vuuren 2012). Labourers were housed in camps (without their families). The excavations of the canals took place over a linear distance of 80 km so that each section was separately overseen by section and resident engineers and each section had its own camp (The Water Wheel 2010). More skilled workers were allowed to bring their families and stayed in houses for which a nominal rent was paid (van Vuuren 2012). Medical care was free and clothing and other necessities were subsidised. These could be bought at a dry-goods canteen with coupons (The Water Wheel 2010; van Vuuren 2012). Recreational activities were provided that included a reading room and workers received schooling after work in a school building. Cultural and sport activities involved a debate and drama societies and a movie theatre. Provision was made for playing rugby, tennis, golf and there was a swimming pool. There were sport competitions, boxing and wrestling. Field hospitals catered for basic treatments. There was also a small church (The Water Wheel 2010; van Vuuren 2012). At the outbreak of WW II many of the men of the Vaalharts settlement joined the SA Armed Forces and there was increasing reliance on black labour (Troskie 2008).

The first plots were occupied in 1838 while work on the bulk services for the scheme was ongoing. The size of the plots was 17 to 26 ha but subsequently increased to 25 ha. The Department of Lands built houses on each plot. By 1940 there were 304 settlers (The Water Wheel 2010). Up to 1953 1174 families were settled and around 80 had already left the settlement (Troskie 2008). Settlers had to apply according to the Land Settlement Act (1912) and had to conform to specific criteria. Low numbers of applicants could meet this and a mere 10% were successful. Support measures included an allowance, a few animals provided through a hire purchase system, farm equipment provided remained state property, water was free of charge, etc. A superintendent advised on crops, production measures, maintenance and other matters (The Water Wheel 2010). During the probation period all produce was handled by the state until a cooperative was established to dispose of all produce (Troskie 2008). Farming was experimental and farmers mostly grew grains, vegetables, Lucerne, groundnuts and potatoes. Currently pecan nuts, cotton, olives, citrus, soft fruits and other crops are grown (The Water Wheel 2010). The settlers encountered many obstacles but some became successful farmers.

The Vaalharts Irrigation Scheme did make a significant contribution to the livelihood of many individuals, and also provided towards food production for South Africa (Troskie 2008). Vaalharts is the largest single irrigation project in South Africa (Braun and Rogers 1987). In 2003 the Vaalharts Water Association took over the management of the scheme (The Water Wheel 2010; O'Reilly and Bezuidenhout 2011; van Vuuren 2012).

In a study on land reform Vaalharts was identified as one of the vehicles through which previously disadvantaged black farmers and would-be farmers could have access to and participate in mainstream agriculture (Maisela 2007). The farmers encountered many problems, including dissent among themselves and lack of experience. The study concludes (Maisela 2007:95) that 'land reform farms in the Vaalharts scheme have not realised their agricultural potential' making little contribution to the livelihoods of the intended beneficiaries or to the agricultural economy. The Ditaung LRAD project that comprises a small farm of 21.7ha within the Vaalharts Irrigation Scheme experience similar problems. The LRAD grant was provided in September 2004 and the purchase price of the farm was R400 000 (SA Government 2007).

Tswana and Korana communities were early on in the planning stages removed from the proposed area for development, even although these initiatives were at first unsuccessful (The Water Wheel 2010; van Vuuren 2012). Shillington (1986) criticized irrigation as being an extension of historical racial discrimination in farming (Tempelhoff 2008). The Vaalharts irrigation scheme was subsequently claimed by the Batlhaping community, and their claim include 10 000 ha near Warrenton and Boetsap in the Northern Cape (Du Plessis et al. 2006). The Barolong and Batlhaping communities used the large tracts of land for pastoral land and subsistence farming (Masemula 2013).

IRON AGE SETTLEMENTS AND RUINS

Rossouw (2008) reported that several ruins were document along the Vaalharts Irrigation Scheme canal system. No reports dealing with ruins were found on SAHRIS. Breutz (1968) was informed of ruined stone kraals in the Taung District, on the farms Modimong and Killarney, Mogogong and Modutung areas and west of Pampierstad and others but he did not visit any of the localities. The Barolong and

Bathaping communities are resident in the area. The area that is occupied by the Bathaping is bordered on the south east by the Harts River and the Kalahari Desert (Madise 2010). It is claimed that the Tlhaping 'had roots among Rolong and Khoisan people near the Vaal - Harts confluence. In brief, the Goat People tradition holds that the Tlhaping chiefdom expanded into Khoisan territory, incorporated Khoisan people and retreated to the Kuruman - Vryburg region' (Jacobs 1999).

ROCK ART

Morris (1988) found that geometric motifs comprise 33% of the rock art images at Vaalharts. He noted a correlation with water in that the engraved sites are mostly concentrated in river valleys and on higher ground beside streams, springs or pans. Breutz (1968) recorded some of the engravings at Dikwana near Tlapeng Valley in the north-eastern corner of the Manthe area of the Taung Reserve. These are mostly outlines of animals such as giraffe, rhinoceros, zebra and antelope, and various others.

STONE AGE

Some of the Heritage reports referred to above include references to Stone Age lithics. The river gravels should also contain Earlier Stone Age and Middle Stone Age lithics. The Christy 1810-1865 collection in the British Museum contains lithics from the Harts River; the J.A. Swan collection (1948.1.97-102; 1954.7.11) contains lithics from Ricket's Road Drift, Harts (Hartz) River and from the Vaal-Harts Dam J.A. Swan Collection (1947.6.26) (Mitchell 2002). Some lithics in the Christy collection are clearly MSA and some were collected from the bed of the Harts River. A salt pan near the Harts River also yielded lithics on hornfels. The lithics in the White collection from 'north of the Vaal and Harts Rivers' are not diagnostic to a specific Stone Age period - Artefacts from the Harts River Gravels are closer to Taung (27° 37'S, 24° 37'E). The British Museum collection include MSA lithics said to be from Newlands (28° 19'S, 24° 23'E), a small settlement on the lower reaches of the Harts River to the north-west of Barkley West.

HERITAGE REPORTS

Van Ryneveld (2005) in a Phase 1 on Erf 1 on the Vaalharts Nedersetting B for the proposed prospecting and mining of diamondiferous deposits investigated 60 ha. A LSA locality (Site VHNB01) was recorded in four existing quarry pits. It was estimated that the LSA distribution covers an area in excess of the 5 ha where the deposit was visible and to a depth of 2.5 m. It was recommended that the 1.5 ha development proceeds but that Phase 2 mitigation is undertaken in the event that the remainder of the 60 ha becomes developed (Van Ryneveld 2005:6). A historic site of compounds for accommodation was established in the late 1970s/early 1980s and is not subject to the National Heritage Resources Act (NHRA) of 1999.

De Beers (2015) subsequently lodged an application for prospecting rights (and not for mining) on a portion of portion 1 of the farm Philmar 380 and holding 547 of Vaal-Harts Settlement B, Barkly West District.

In an AIA study of Portion 3 of the farm Machorogan 106 (S28.193606° E24.380238° (1:50 000 Map Reference 2824AB) for the proposed Anjutone Photovoltaic Power

Plant and Power Line Development in the Dikgatlong Local Municipality, Frances Baard District Municipality, Northern Cape Province 70 kilometres northwest of the town of Kimberley on the R370 regional road to the towns of Delportshoop and Jan Kempdorp, only one Stone Age site with MSA and LSA lithics in low densities were recorded in association with a pan locality (AGES 2013).

GRAVES

Graves should be present in the area. For example, a permit was issued (ID 1087) for test excavations of alleged graves at the Thaga Diepelajang Housing Development (SAHRIS March 2015).

F. DESCRIPTION OF THE PROPERTY OF AFFECTED ENVIRONMENT

(a) Detail of area surveyed:

- Full location Data for Province, Magisterial District/Local Authority and property (e.g. Farm erf) name and number etc.;

Environmental Impact Assessment for the construction of Bulk Water Supply (irrigation and Potable water).

Dr. Ruth Segomotsi Mompoti District Municipality
Mr. Fred Cawood, 21 De Kok Street, Vryburg, 8600
Tel: 053 927 1095; Cell: 082854 9199; Fax: 086 580 8179
E-mail: cawood@bophirima.co.za

Taung 894 HN Vryburg North West Province, Ganspan Northern Cape Province Pampierstad North West Province, Jan Kempdorp North West Province and Northern Cape Province, Hartswater Northern Cape Province

Commencement of Northern Canal: S28° 2' 43.94" & E24° 47' 30.87"
End of northern Canal at Pudimoe: S27° 24' 55.62" & E24° 42' 42.64"

- Location map(s)/orthophotos of the general area. These must include the map name and number (e.g. 3313 DC Bellville). Maps must include at least a 1:50 000 and (if) available also a 1:10 000 (i.e. most detail possible). Large scale colour satellite photos make a useful addition. Maps should be preferable at least A4 size.

*1/50 000 Map: Taung 2724 DB; Mokgareng 2724DA; Jan Kempdorp 2724 DD
Pampierstad 2724 DC; Pudamong 2724 BC; Mmammutla 2824 BA &
Warrenton 2824 BB*

- Either the Location Map or the Site Map must have the polygon of the area surveyed marked on it and full geographical co-ordinates for all relevant points and where applicable, indication of the area to be developed (footprint).

Attached: pages 24 - 26

(b) Description of the Methodology

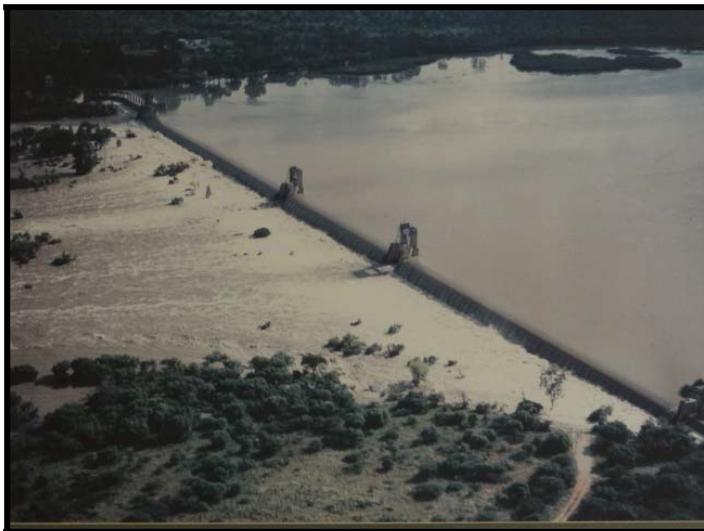
The site was visited at two occasions together with the Environmental practitioner and senior officials of the Vaalharts Water Irrigation Scheme. The proposed building of a new northern canal next to the existing canal will take place within the servitude of the existing canal.

The visibility was excellent as a service road runs next to the canal and in the servitude area. The canal itself is still in use and well maintained. Historic sites in the irrigation area were also visited and photographed.

G. DESCRIPTION OF SITES MAPPED

The Vaalharts Irrigation scheme lies in the Northern Cape Province and the North West Province. The canals were mainly build in the 1930/40`s and have developed mayor structural problems as the concrete walls crack and collapsed. It is extremely difficult to repair collapsed sections as the water supply to the irrigation farmers may not be cut off for a length of period as this will have a bad effect on their crops. Repair work can only take place on weekends.

The first stage of the replacement of the main canals is the Northern canal. The canal runs from the weir in the Vaal River near Christiana to the east of Jan Kempdorp where it splits into the North and South canal.

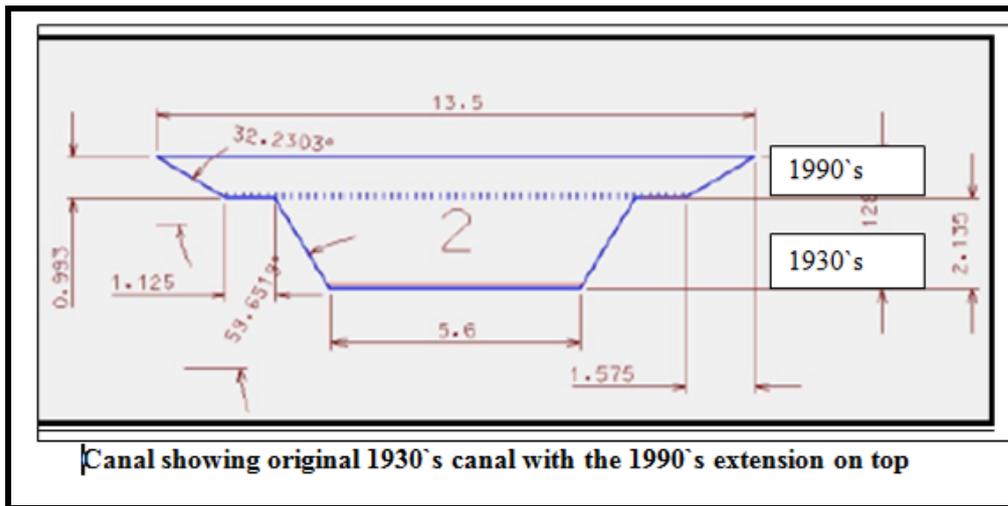


The weir at Christiana in the Vaal River where the irrigation canal starts



The sluices which divide the main canal into the north canal on the right and the west canal on the left

The original canal was lined with concrete slabs. On top of this original canal a new section was added in 1990 to increase the water capacity. – see sketches



From here the north canal runs towards Jan Kempdorp and then to Hartswater ending near Taung. A total distance of some 180 kilometres - see Google Map.

The main centre of the irrigation scheme is Jan Kempdorp. The town was named after General Kemp who was the Minister of Water Affairs. In the 1930`s. Though the project mainly deals with the North Canal the area of the scheme has many heritage sites. Of these the following aspects are important.

➤ **Architecture**

The area has many buildings dating to the 1930/50`s. Some examples are shown below.



Engineers House



1950`s house with closed veranda



Offices of the Water Department



Workshops for building and maintenance equipment



Windbreaks



A secondary canal with bridge



The Kimberley to Zimbabwe railway line



Taung Fossil Site

Replacing the North Chanel

The North Chanel is the largest and most important of the two channels. This channel branches of into secondary and tertiary channels supplying water to each 25 hectare plot – see photographs.



The north canal with the enlarged section on top build in the 1990



Example of secondary canal

The present problem experienced with the channel is that the original cement casing cast in the 1930 is cracking and slowly breaking up.

In the 1990`s the channel was enlarged by adding a new section on top as already mentioned photograph



This new addition created many problems and has not improved the system. The main new problems are crabs which tunnelled underneath the concrete casing. Eventually the concrete slabs are penetrated by the strong water current which then washes large sections away – see photographs.



Empty north canal with original canal at the bottom and the new addition on top



Crabs tunnelling underneath the concrete slabs



Collapsed north canal

As already mentioned the water supply to the farms can't be cut off for a long period of time. Repair work has to be done over weekends if possible.

With the enlargement of the Northern Canal all the weirs, water inlets and so forth have been replaced

After many possible solutions were proposed it has been decided the only reliable option is to build a new canal next to the existing canal within the servitude area of the canal. This area has already been disturbed during the construction of the original canal.

Eventually the soil of the excavations of the new canal will be used as filling for the old canal. This has to be done as the empty canal will be a safety hazard to children and animals.

H. DESCRIPTION OF THE ARTEFACTS, FAUNA, BOTANICAL OR OTHER FINDS AND FEATURES

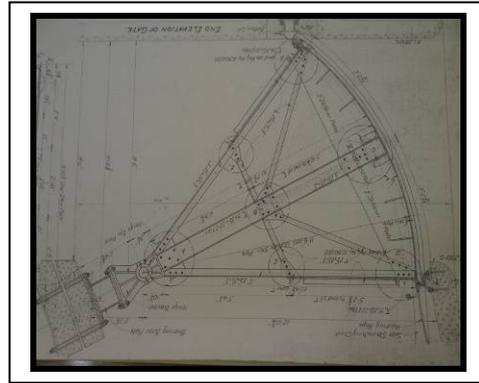
Museum

The museum in Jan Kempdorp (S27° 55' 14.37" & S24° 50' 18.72") housed in the original canteen where workers received their food and food parcels the Municipality developed a museum. This museum has now been totally neglected and many small items stolen. The museum has a collection of implements and machinery used in the development of the irrigation scheme. Many of the items are unique but are standing exposed to the elements and are not cared for. This is a real disgrace – see photographs.



Archive

In the offices of the Vaalharts Irrigation Scheme is a comprehensive archive of all records and detail plans of every aspect of the scheme. For every plot there is a complete record, also for every structure build. There are even all the posters for social functions – see photographs.



I. CLEAR DESCRIPTION OF BURIAL GROUNDS AND GRAVES

In Jan Kempdorp is a large cemetery where workers who died during the early years are buried. The cemetery is large and still in use. On the northern side is a small section for Germans who were interned during World War II in the town. The graves are hand built out of local granite stones with a concrete slab on top. This is a unique small cemetery GPS S27° 54' 22.76" & E24° 52' 36.32" – see photographs



Near the workshops of Water Affairs and north of the railway line is a small cemetery for Italian Prisoners of War. They most probably came from Zonder Water Prison of War near Cullinan. This cemetery is totally neglected and the small concrete crosses broken. Urgent repair and protection of the cemetery is needed GPS S27° 55' 9.59" & S24° 49' 33.60" – see photographs.



J. EVALUATION AND RATING (FIELD RATING)

The Vaalharts irrigation scheme is the largest of its kind in South Africa and is of National importance. . It is also associated with job creation for poor whites but has become a mayor agricultural success.

K. STATEMENT OF SIGNIFICANCE (heritage value)

The project is important in the community of South Africa`s history.

- It is important in demonstrating the principal characteristics of a particular class, namely poor whites.
- It is important in demonstrating a high degree technical achievement in the 1930/40`s in the field of irrigation and agriculture.
- It has a strong association with poor Afrikaners after the Anglo Boer War and the depression of the 1930`s.

L. RECOMMENDATIONS AND CONCLUSION

The Vaalharts Irrigation scheme is the largest and most successful agricultural project in South African associated with the problem of poor White and job creation after the Anglo Boer War and the great depression of the 1930`s. It is a mayor success story of hard work and dedication in the creation of the largest agricultural project of its kind in South Africa.

It is recommended that:-

- A full Phase II heritage Impact Assessment to be done on the project.
- Specific recommendations be made on the German and Italian cemeteries
- Specific recommendations be made on the preservation of objects associated with the scheme in the museum
- Documenting of the history of the scheme and the future management of the comprehensive archives.

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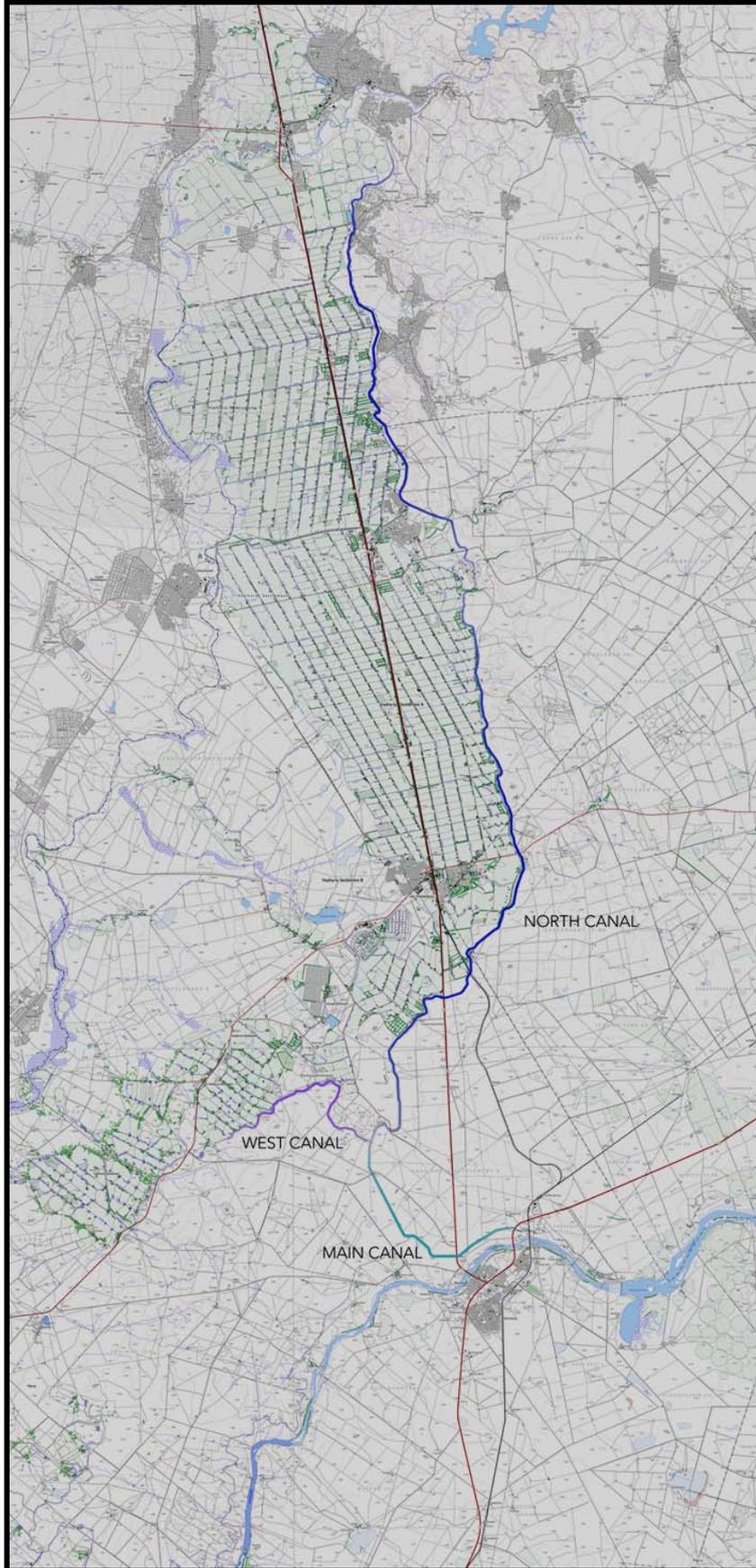
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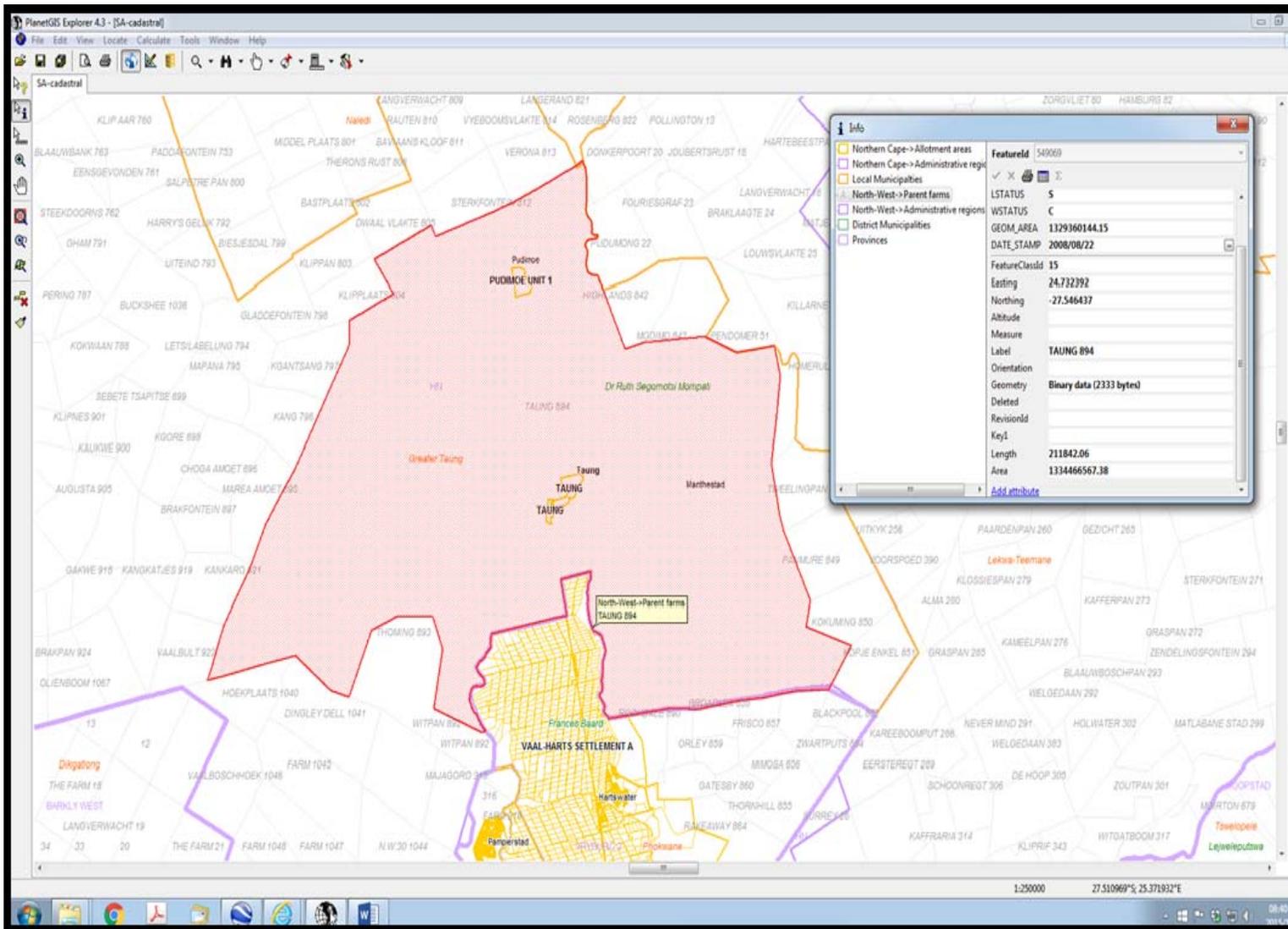
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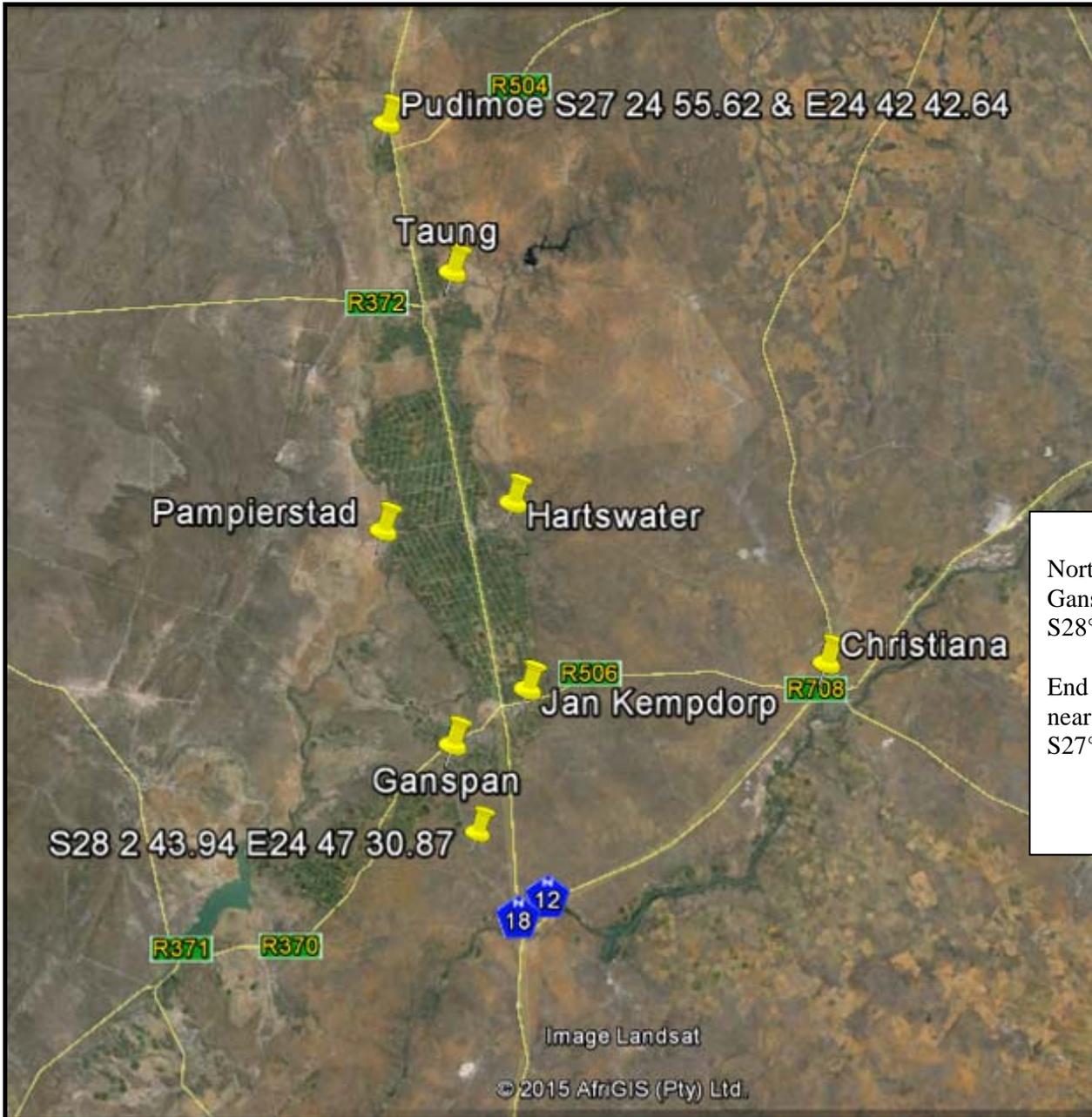
N. APPENDIX

Maps pages: 24 - 26

Maps of the area Investigated







Northern Canal commence near
Ganspan:
S28° 2' 43.94 & E24° 47' 30.87

End of Northern Canal at Pudimoe
near Taung:
S27° 24'55.62" & E24° 42' 42.64"