A Conservation Plan for the Cape Town Grain Elevator

Report

August 2001

The Archaeology Contracts Office
University of Cape Town

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Executive Summary

This report incorporates, and updates, much that has previously been presented in the ***Draft Interim Report*** (November 2000) and the ***Draft Interim Report: Peripheral Buildings*** (May 2001). The previous reports are therefore superseded.

A detailed Site Inventory is presented as a separate volume. These documents are intended to be read and used together. They are intended as a basis for discussion, and to be used as a keystone in future planning and management of the elevator site.

This report is designed to:

- Inform decisions about the immediate future of the site
- Provide a basis for discussion on the future of the site as a whole
- Provide a framework from within which the Conservation Plan process may be continued

It is important that copies of this report are made available to

- the South African Heritage Resources Agency
- the City of Cape Town's Urban Conservation Unit
- all other potential stakeholders, including those not yet identified

The grain elevator is of **considerable significance** because:

- it is the most visible symbol of the industrial heritage of the docks
- it is unique in that it is an intact and largely original working complex
- it is a symbol of the importance of grain in the South African economy
- it is a rare surviving example of an early twentieth century elevator
- it is of architectural importance
- it is an example of South African innovation
- it demonstrates the international transfer of technology
- it represents an important historical aspect of banking and money supply in South Africa
- it has educational potential

The **critical issues** that most immediately affect the cultural significance of the site are:

- the closure of the site at the end of August 2001 and the vacation of the site by lessees WPK
- the proposal by the VAW to demolish all remaining structures on the site with the exception of the working house and storage annexe

This report **recommends** that:

- ways must be found to balance the requirement to retain cultural significance of the grain elevator with the requirements of the working harbour, the fishing industry and objectives of the Victoria and Alfred Waterfront;
- the historical function and location of the track shed and the gantry should be acknowledged in any new development on the site;
- redevelopment of the working house, hydraulic accumulator house and storage annexe be subject to:
  - the recommendations of a structural engineer's report
  - further stakeholder participation
  - re-assessment of the conservation policies contained in this report in the light of the foregoing
- demolition of the remaining portion of the track shed and the sloping portion of the gantry be approved subject to the historic function and location of these structures being appropriately acknowledged in the approved Site Development Plans.

Examples of silo conversion schemes internationally are presented in an appendix.

1 Preface to Grain Elevator Conservation Plan

This document has been prepared during the period November 2000 - August 2001, in response to varying circumstances, shifting deadlines, and sometimes very specific client requirements. The preparation of this document without proper reference to a legitimately constituted stakeholder group means that it must still be seen as only the first part of that process.

Due to ongoing development in the western part of the Clocktower Precinct, the Victoria and Alfred Waterfront identified a need to undertake major infra-structural works in the immediate vicinity of the grain elevator early in 2001. Whilst not likely to have a direct impact on the main elevator building (the working house), or the attached silos (the storage annex), these works impacted on the railway lines and grain receiving area (the track shed) adjoining the west side of the working house. Since then, as the operation of the elevator has run down in preparation for closure, it has become necessary for the Victoria and Alfred Waterfront to move ahead with demolishing many of the peripheral structures that housed mess and toilet facilities for the staff, as well as the workshop and garage.

This report therefore seeks to:

- provide an overview of the site as a whole;
- provide immediate and specific conservation guidelines relating to the site in order to inform decision making by the Victoria and Alfred Waterfront and by the various statutory and regulatory authorities; and
- form the basis for further discussion and consultation in the Conservation Plan process.

It is acknowledged that at the time of compiling this interim report there is little information on the history of the site between the late 1920s and the late 1950s.This is therefore an area in which further archival research may need to be directed.

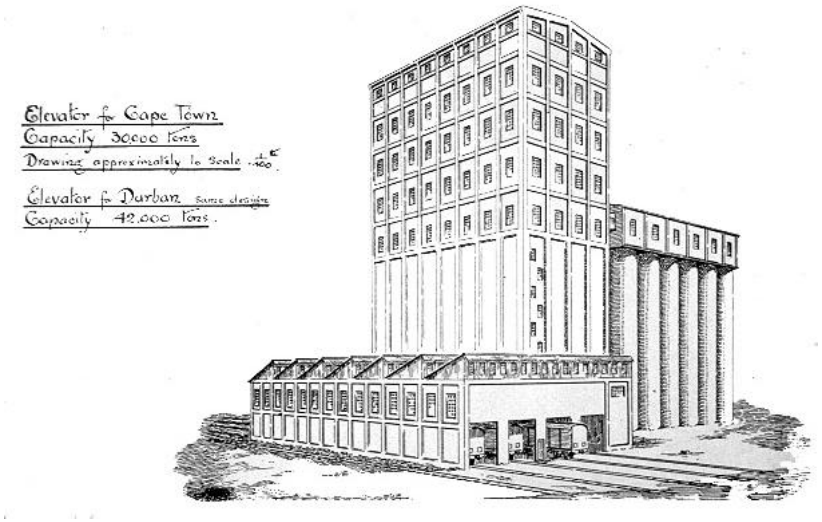


Figure 1: Cape Town Grain Elevator 1923 [1] ***(ref: DW0203)***

Notes to Section 1

[1] South African Railways and Harbours Magazine 1923

2 Schematic Plans

For ease of reference the following schematic diagrams are included here:

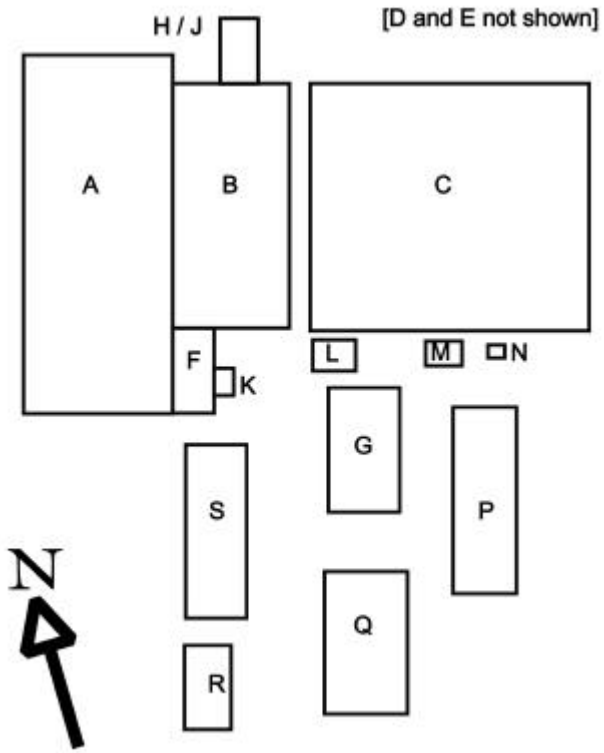
Site Plan

Plan and section of working house and storage annexe

Bin plan for working house and annexe

Flow diagram showing typical movement of grain from intake to shipping.

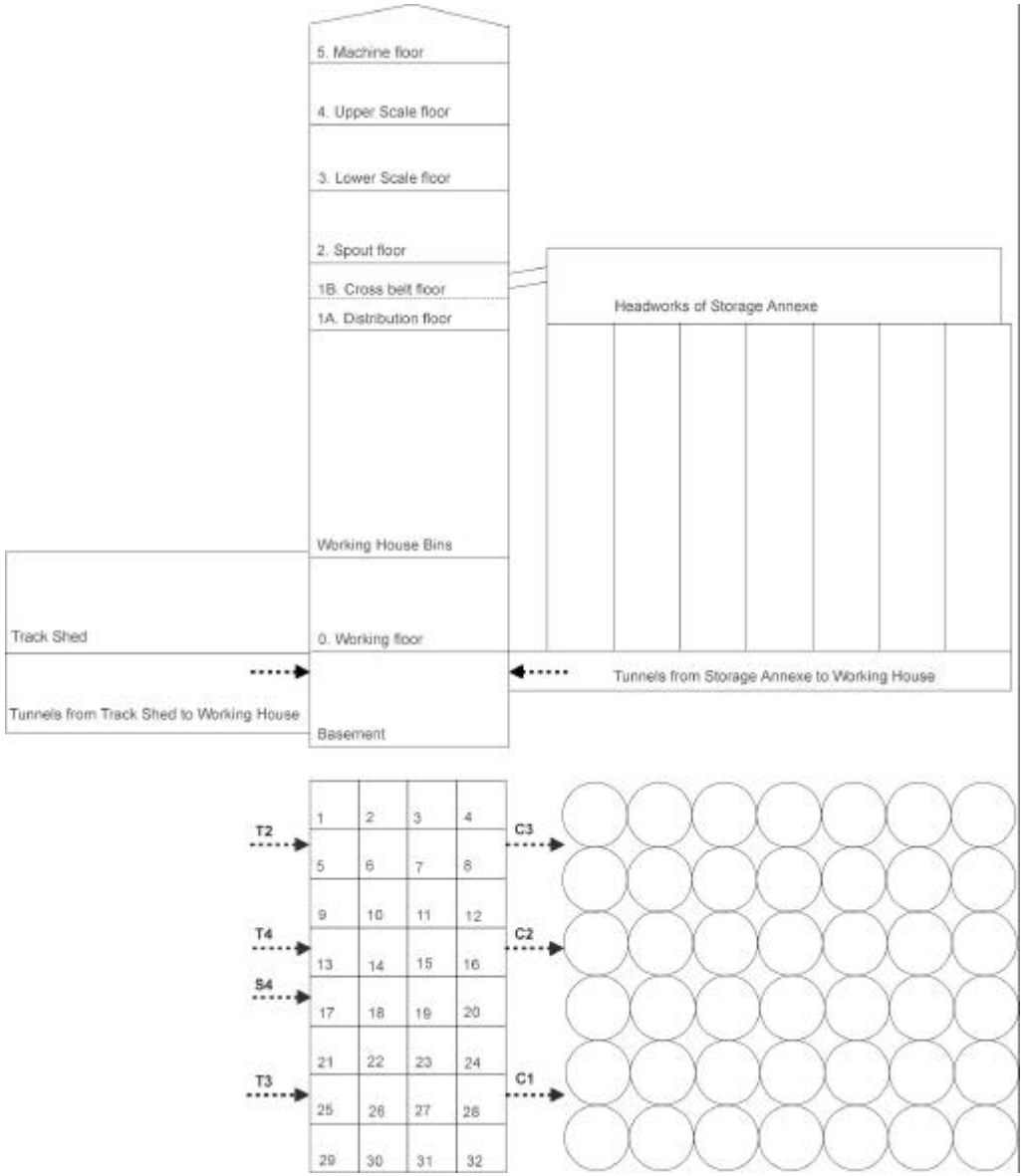
2.1 Site Plan



Key to site plan

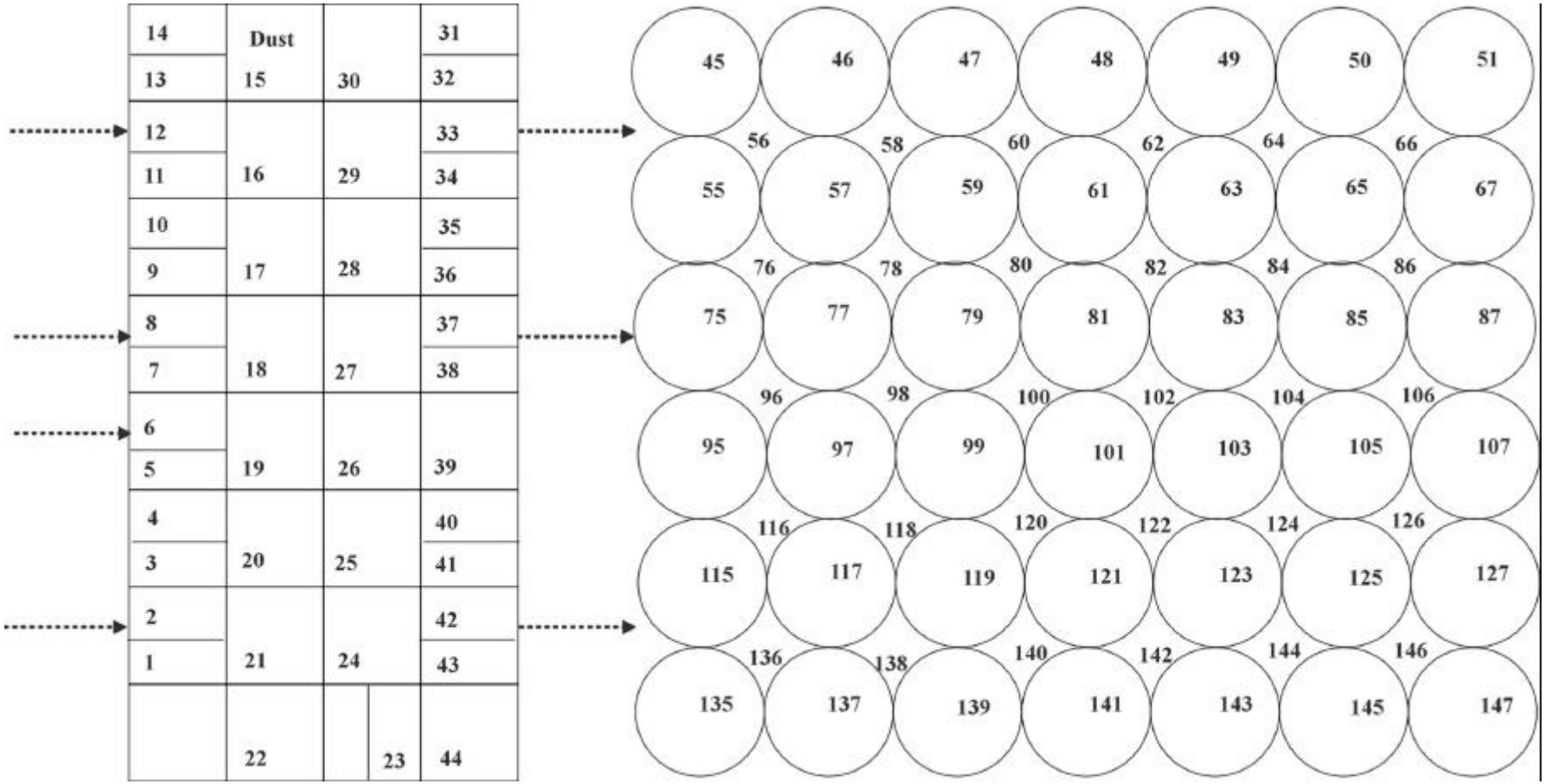
A	Track Shed	K	Fire Pump House
B	Working House	L	Men's Toilet
C	Storage Annexe	M	Men's Toilet
D	Conveyor Gallery	N	Oil Store
E	Ship Loaders	P	Mess Block
F	Hydraulic Accumulator House	Q	Workshops
G	Electricity Sub-Station	R	Garage / Car Port
H	Dust Cyclone House	S	Offices and Mess Facilities
J	Fan / Grain Drying House		

2.2 Plan and section of working house and storage annexe

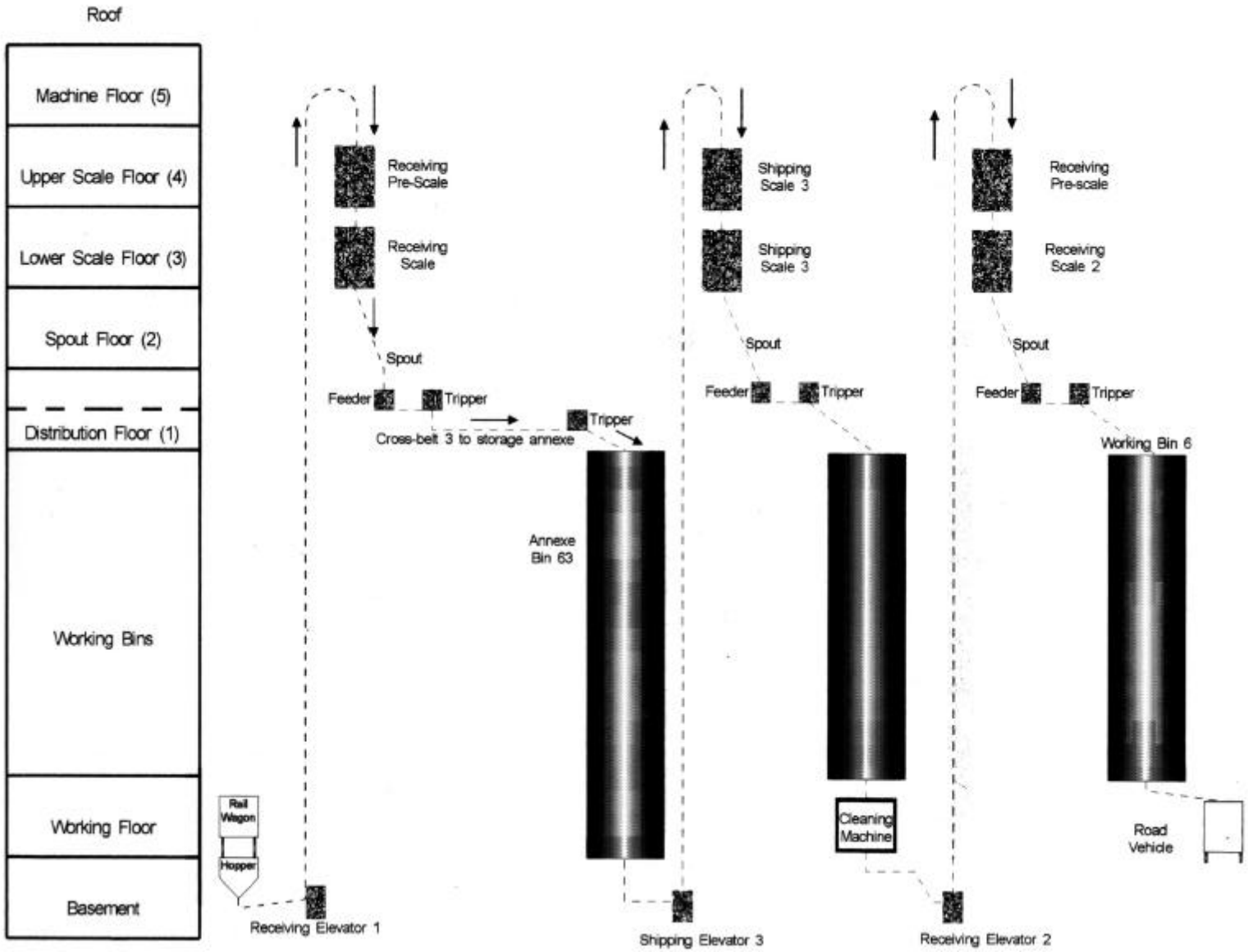


The 'grid':
Numbers on the working house plan refer to the structural steel work 'grid' seen throughout the building. These are used in the inventory with the level numbers to locate items vertically and horizontally.

2.3 Bin plan for working house and annexe



2.4 Flow diagram showing typical movement of grain from intake to shipping.



3 Introduction

3.1 Context

3.1.1 The Victoria and Alfred Waterfront

While conservation of the historic harbour was first motivated in 1980 by architect Gawie Fagan,[1] it was the report of the government appointed Burggraaf Committee that directly led to the formation of The Victoria and Alfred Waterfront Company (Pty) Ltd in 1988 (referred to hereafter as the Victoria and Alfred Waterfront).

Since 1988, the Victoria and Alfred Waterfront has successfully redeveloped a large area of the historic part of Cape Town's harbour for a mixture of retail, commercial and leisure uses. Current development in the old tank farm will add a substantial element of residential use.

The Mission Statement of the Victoria & Alfred Waterfront Company is published on the company's website as follows:[2]

The Victoria & Alfred Waterfront Company develops, promotes and manages the Waterfront of Cape Town in the long term.

We are committed to:

enhancing the maritime heritage of the historic docks

retaining working harbour activities

Creating and maintaining a:

preferred location to invest and trade

desirable place to shop, work, live and play

quality, safe and clean environment for Capetonians, visitors and tourists.

We value our:

employees, and recognise their performance

tenants and customers, and strive to satisfy their needs in order to maximise value for our investors and shareholders.

As the area belonging to the Transnet Pension Fund was not provided for in the Town Planning Scheme of 1941, or in subsequent Zoning Schemes, a 'Package of Plans' approach has been adopted to facilitate the planning of development.[3] Within this context the objectives, policies and proposals of the Victoria and Alfred Waterfront were set out first in a 'Contextual Framework' and then a 'Development Framework'.[4]

The development is divided into a series of precincts, and individual 'Precinct Plans' are the "basis for determining the spatial responsibilities, limitations and rights of the local authority, the land owners and the investors and developers."[5] Once 'Precinct Plans' are approved, the process moves on through 'Site Development Plans' to the formulation of individual 'Building Plans'.[6]

Included in the Development Framework was this summary of the Victoria and Alfred Waterfront's Urban Conservation Policy:

To recognise the importance of the historic aspects of the site; identify the historical environment and its treatment as a unique and special place; maintain and retain historical monuments; identify precincts of historical worth as conservation areas; renovate and adapt other listed and key buildings; ensure that buildings are put to uses compatible with their historic and architectural character; adopt as conservation guidelines the ICOMOS Venice Charter as adapted by Australia ICOMOS (the Burra Charter).

Figure 2: The Grain Elevator seen from the Pierhead Precinct - 1994 (ref: DW0053)

3.1.2 The Clocktower Precinct and the Grain Elevator

It is within the above context that the Precinct Plan for the "Clocktower Precinct" (previously known as the "Grain Silo and Fish Quay Precinct") was approved on 29 July 1999, by the Planning Committee of the City of Cape Town. The Precinct Plan acknowledges that the "site is characterised by the landmark building, the Grain Silo and the associated conveyor gallery on the Collier Jetty. The Clocktower itself is a distinguishing building . . ."[7] yet the change of name for the precinct reflects changing design philosophies and approaches to the area, as the historic Clocktower is now regarded as the design focus.

The grain elevator was first recognised as a site "of national or local historic importance or association" in 1983 by the compilers of a catalogue of Cape Town's buildings for the Cape Provincial Institute of Architects.[8]

A Phase 1 Conservation Study for "The Grain Silo and Fish Quay Precinct" was commissioned by the Victoria and Alfred Waterfront from Revel Fox and Partners in 1994. This study broadly identified some of the key issues on the precinct, and has already been used to support the demolition of some structures and the retention of others. In terms of the then extant National Monuments Act, the grain elevator complex and associated conveyor gallery were designated 'Grade Two'.

Today, however, the relevant legislation is the National Heritage Resources Act (No.25 of 1999). Three categories are distinguished by the Act[9], and it is appropriate and necessary that the current Conservation Plan process should reassess the earlier designation in the context of the new legislation. Some notes on relevant portions of the National Heritage Resources Act are provided in Appendix 8.4.

It must be noted that while the legislation imposes certain constraints and obligations on property owners such as the Victoria and Alfred Waterfront, it makes no provision for the use of public funding in a case such as this. Thus the full cost of conservation work is borne by the developer, and has to be provided for by them in planning and budgeting.

Extensive construction work is already under way on the Clocktower Precinct, and with many buildings already having been demolished, concerns have been expressed internationally that "demand for more 'themed' shops and restaurants will result in the clearance of historic structures, including an impressive grain elevator."[10] Retention of the grain elevator building envelope, for the main part, is prescribed in terms of condition 2.9 attached to the approved Precinct Plan.

An extensive archaeological investigation of the historic Chavonnes Battery has been (and continues to be) undertaken by the Archaeology Contracts Office at the University of Cape Town.

The precinct surrounding the grain elevator site will have a high public profile as it will incorporate the terminal for ferries servicing Robben Island (now a World Heritage Site), new facilities for the local fishing industry, tourist facilities, a museum interpreting the Chavonnes Battery, retail outlets, and a number of seven and eight storey office buildings. The precinct also forms a pivotal point in the broader urban design concept of the Waterfront. A tree-lined boulevard, aligned on the historic Clocktower, is planned to route the visitor directly into the public spaces being designed around the Clocktower.

Figure 3: ***The Cape Town Grain Elevator seen from the top of one of the grain loaders on the Collier Jetty - 1995*** ***(ref: DW0215)***

From the above, it is clear that future management and use of the grain elevator needs to be informed by documents that include, but are not exclusive to, the Victoria and Alfred Waterfront's Mission Statement, the same company's Urban Conservation Policy, the Development Framework and Precinct Plans already approved by the local authority, national heritage and planning legislation, and the Burra Charter. Management of the site needs to respond to a wide range of issues, and it is important that all stakeholders are involved in collaboratively mapping out its future.

3.2 Why have a Conservation Plan?

3.2.1 The Burra Charter

The Victoria and Alfred Waterfront's Urban Conservation Policy was stated earlier, but it is worth repeating here that it includes a policy *"to adopt as conservation guidelines the ICOMOS Venice Charter as adapted by Australia ICOMOS (the Burra Charter)."*

Thus the Burra Charter may act as a point of reference for the Conservation Plan process and for the conservation policies that may be derived from that process. According to Marquis-Kyle and Walker, the Burra Charter "embodies the following seven simple but powerful ideas":

- The place is important
- Understand the significance of the place
- Understand the fabric
- Significance should guide decisions
- Do as much as necessary, as little as possible
- Keep records
- Do everything in a logical order.[11]

Although the phrase 'Conservation Plan' as such does not appear in the Burra Charter, Article 25 states that "A written statement of conservation policy must be professionally prepared, setting out the cultural significance and proposed conservation procedure together with justification and supporting evidence, including photographs, drawings and all appropriate samples."[12] This is indeed the Conservation Plan, very largely as described by Kerr, Clark and others. Article 28 goes on to say that that the record created under in Article 25 (that is – the Conservation Plan) should be placed in a permanent archive and made publicly available.[13]

As the Victoria and Alfred Waterfront's Conservation Policy is to adopt these guidelines, then it is clear that the Conservation Plan process now being embarked upon, and in which this report plays a part, is ideally suited to dealing with all aspects of the historic environment at the Victoria and Alfred Waterfront.

The understanding of significance gained through the Conservation Plan for the Cape Town Grain Elevator, and the policies subsequently agreed for its management therefore form an integral part of broader initiatives for the Victoria and Alfred Waterfront as a whole.

While the Victoria and Alfred Waterfront has taken exception to the criticism that the Waterfront is "primarily a heritage honey pot for tourists rather than an initiative in conservation and interpretation",[14] and point proudly to the awards it has won for its architecture and design, it is nonetheless certain that a properly formulated Conservation Plan will assist the company in meeting the goals set out in its Mission Statement. While it is not the primary goal of the Victoria and Alfred Waterfront to develop the Waterfront as an initiative in conservation and interpretation, the "retention of significance" is considered to be of importance.

3.2.2 Conservation Plans

"The Conservation Plan is a process that seeks to guide the future development of a place through an understanding of its significance. The objective is to evolve policies to guide work that are feasible as well as compatible with the retention, reinforcement and even revelation of significance. These twin concepts of compatibility and feasibility are the bases on which the policies are built." [James Semple Kerr][15]

The above might be paraphrased as follows: *what have we got that's important, and* ***being realistic****, what are we going to do about it?*

Figure 4: The Grain Elevator seen from the Chavonnes Battery - 1999 (ref: DW0998)

Methodology

Conservation Plan methodology addresses these questions in four discrete phases:

- Understand the place
- Assess its significance
- Look at the issues which might affect that significance or make it vulnerable
- Formulate policies for retention of significance

Conservation Plan methodology is therefore entirely consistent with the requirements of the National Heritage Resources Act (No.25 of 1999).

Conservation Plan	**National Heritage Resources Act (Section 38, paragraph 3)**
Understanding	a) Identification and mapping
Significance	b) Assessment of significance
Vulnerability & Issues	c) Assessment of impact on heritage resources
	d) Evaluation relative to sustainable social and economic benefits
	e) Consultation with communities
Policies	f) If heritage resources adversely affected – consider alternatives
	g) Plans for mitigation during and after development

Conservation Plans have been an accepted part of heritage practice in Australia for many years, and recently have also become part of practice in the United Kingdom as they became obligatory for seekers of Heritage Lottery Funding. The Chief Executive of English Heritage recently highlighted three aspects of the Conservation Plan's use:

- their role in overall strategy for managing change in the historic environment;
- their function as a tool, to be used in partnership, and not as an end in themselves;
- and the dynamic nature of the process.[16]

Thus a Conservation Plan is an appropriate starting point for:

- Developing a new project for a heritage site
- Preparing management proposals
- Developing a restoration scheme
- Planning any conservation work.[17]

Conservation Plan methodology is straightforward enough if one remembers Kerr's focus on the need for "compatible and feasible" policies to manage a place so that its significance is retained.

An awareness of a range of other potential values is also necessary. The challenge in creating a workable and worthwhile Conservation Plan is to express the significance inherent in those values, and, within the context of what is practicable and realistic, to draft policies for retention of that significance. In the case of the Cape Town Grain Elevator there are pre-existing economic and developmental pressures on the site, and general approval for development has been given in terms of the Development Framework. The Conservation Plan must therefore be drafted within in the context of those factors.

Notes to Section 3

1 Argus Newspaper 10-Jul-1980
2 http://www.waterfront.co.za/html/index/history.html
3 Worth 1993 p96
4 MLH 1989
5 de Tolly 1992 p25
6 Birkby 1998 p17
7 MLH 1998 section 2.2.3
8 Louw, Rennie and Goddard 1983 p630
[note: the catalogue reference for the elevator is 73.14-73.15]
9 National Heritage Resources Act 1999 section 7
10 Stratton 2000 p17
11 Marquis-Kyle and Walker 1992 p10
12 Marquis-Kyle and Walker 1992 p65
13 Marquis-Kyle and Walker 1992 p67
14 Stratton 2000 p117
15 Kerr 1999 p9
16 Alexander 1999 p3
17 Stratton 2000 p31

4 Understanding the site

"There is a symbiotic relationship between effective conservation policies and the growth of understanding. Monuments will only be conserved and interpreted if they are understood, and the justification for conserving structures must be based on arguments derived from knowledge and not on mindless assertions of questionable superlatives."[1]

[Barrie Trinder]

Cape Town Grain Elevator

One terminal grain elevator of 30,000 tons storage capacity, with loading conveyors to the Collier Jetty. Intake capacity of elevator 1,000 tons per hour; shipping capacity 1,000 tons per hour.[2]

[Ports of South Africa 1958]

[Much of this section is directly drawn from the Conservation Study of the 'Grain Silo and Fish Quay Precinct' – Phase 1 Preliminary Report prepared by Revel Fox and Partners in December 1994,[3] and the current report should be read in close association with that earlier study.]

4.1 Chronology of key events

1656	First pier constructed in Table Bay
1833	Harbour Board created
1860	Start of new breakwater wall
1877	Proposals to extend breakwater and flood quarry to create floating basin
1883	Clocktower and Tide Gauge installed
1905	Victoria Basin completed
1911-19	Series of Government Reports on grain elevators for South Africa
1924	Building of Cape Town Grain Elevator (and others around the country)
1931	Mealie Industry Control Board established
1938-45	Reclamation of Foreshore and building of Duncan Dock
1941	Town Planning Scheme initiated for Cape Town
1966	New brick buildings added to complex to provide offices etc
1984	Burggraaf Committee tasked with examining development potential of Victoria and Alfred Basins
1987	WPK lease grain elevator complex from South African Railways and Harbours
1990	Start of Victoria and Alfred Waterfront
1994	'Grain Silo and Fish Quay Precinct' Conservation Study
1995	Last export shipment from grain elevator on "M/V Anangel Wisdom"
1999	'Clocktower Precinct' Plan approved
2000	Grain Elevator Conservation Plan commissioned
2001	WPK lease negotiated to end in 2001
2001	WPK due to vacate grain elevator complex end of August 2001.

4.2 Resources

Various resources have been used to arrive at the understanding of the site presented here. Principal among these resources has been the present elevator manager, Robert Hurn. His knowledge of the site, gained through more than twenty years working at the elevator, has been invaluable. Without his willingness to share that knowledge, and his commitment to the conservation of the elevator, it is unlikely that this report would have been presented as it is. Robert Hurn cites his favourite memory as being supervising the loading of grain ships for export; watching the ships settle in the water as they are loaded, and going on board at the end of loading to meet with the captain and shipping agents to sign off on the cargo.

Former elevator manager Willie de Jager provided useful information about working on the site from the late 1950s. His story is incorporated into this report as Appendix 8.2.

The contribution of Robert Hurn to the creation of this Conservation Plan has been invaluable. His extensive working knowledge of every aspect of the elevator's operation has assisted in creating an understanding of the site that may otherwise not have been possible.

Some of the longer serving Xhosa speaking labourers should be interviewed to establish something of their history at the elevator.

The elevator complex, and all its component parts, has been the subject of intensive survey. Little has been done in the way of measured drawings as there is extensive archival documentation available. Historic photographs of the construction of the elevator have been scrutinised, as well as building plans and documentation detailing subsequent modifications.

Archival sources, including the SAR&H Journal, and the SAR&H General Manager's Bulletins have provided useful contextual material.

4.3 Historical background

4.3.1 Maize and the grain elevator system

In South Africa, during the early twentieth century, maize was important as the staple diet of most of the population, as stock feed, and as an export commodity.[4]

Durban had been the region's principal grain port, handling two-thirds of maize exports in 1909.[5] At the same time Cape Town saw export cargoes increase to 25,000 tons per annum, "mainly due to large quantities of maize being shipped. Dry summer weather enjoyed at the Cape, combined with the short sea voyage, have established its reputation as a suitable port for the export of all kinds of grain."[6]

A grain elevator provides for the mechanical handling of bulk grain, and its subsequent safe storage. Before the introduction of elevators, all grain was handled out in 200lb bags (known as 'muids'), and the change to bulk handling meant that an entire system of elevators had to be introduced simultaneously for it to be effective. A series of Government Reports, presented in 1911[7], 1918[8] and 1919[9], all supported the building of an elevator system in South Africa, similar to those already established in areas such as North America, Eastern Europe and Russia.[10] The author of the last of those reports, Canadian Littlejohn-Philip, was to become the designer of the Cape Town Grain Elevator, and indeed his signature is present on many of the design drawings dating to 1920.

Whilst the last of these reports recommended the building of elevators at Cape Town, Durban and East London, the General Manager of South African Railways and Harbours, Sir William Hoy, ruled that only Cape Town and Durban were to be built.

To this end, thirty two 'country elevators' were built at stations handling large volumes of grain traffic. One served the wheat lands of the Western Cape, whilst the remainder were located in the maize producing areas of what were then known as the Orange Free State and Transvaal. In addition, two port, or 'terminal' elevators were built, at Cape Town and Durban.

The total storage capacity of the new system was 181,200 tons, of which the elevators at Cape Town and Durban accounted for 30,000 and 42,000 tons respectively.

The functions of the system, which was from the outset controlled by South African Railways and Harbours, included grading, weighing, cleaning, storing and handling (but not buying and selling) of grain.[11] Use of the system was encouraged from the outset by the offer of preferential tariff rates on the railways.[12]

The advantages of the system included safe low cost storage; minimised risk of deterioration through overheating; an 'elevator receipts' system on which money could be raised; economies in loading and unloading times; and improved weighing and grading. South African Railways and Harbours also anticipated cost savings through improved handling and movement of grain traffic, reduced handling, and reduced costs for harbour land, sheds and wharves.[13]

The impact of the elevator system on exports may be judged from the fact that before its introduction South Africa's annual maize export was 650,000 tons, compared with 1.5 million tons in the year 1925-1926.[14]

Cape Town's grain elevator should therefore be seen not in isolation, but rather as an integral part of a system that covered the entire country. Alone, it would have had no use, and indeed, would never have been built.

4.3.2 The building of the Cape Town Grain Elevator

Cape Town, lying about 1,500km from the major grain producing areas, was a marginal choice for the location of the second port elevator, which it nearly lost to the competing claims of East London. However, the greater railage cost was mitigated by the four day advantage in sailing time to Europe. Cape Town was also seen as being better placed to serve the wheat producing areas of the Western Cape, which would not compete with the needs of the maize growers due to their different harvesting cycles.

Lack of available space at Table Bay Harbour led to early suggestions of the quarry site being used for the elevator, but as this would have been too expensive, the current site on the South Arm was selected as the only practicable alternative.[15]

This is land that was reclaimed from the sea in later part of the nineteenth century, and an undated nineteenth century map shows coal sheds on what was to become the site of the grain elevator, and another, of 1905, indicates a cargo sorting shed in the same position.

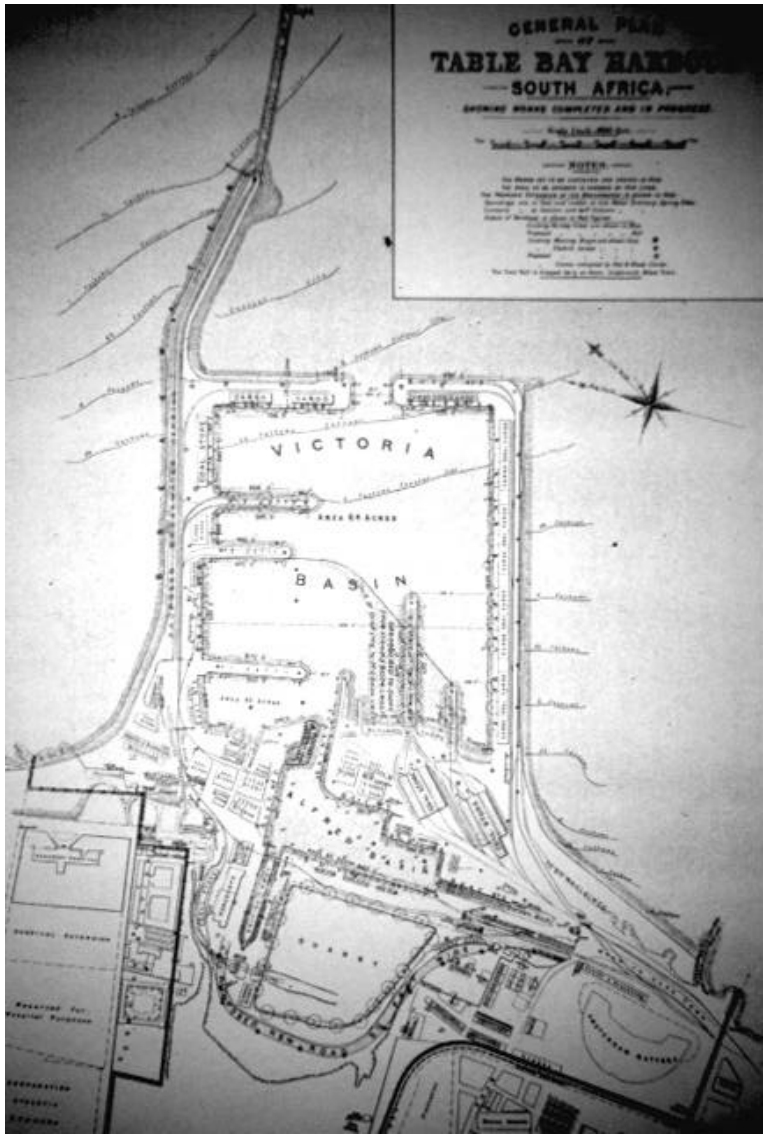


Figure 5: ***Undated map showing coal shed on present site of elevator*** ***(ref:DW206)***

Canadian A W Menkins, based in Durban, was appointed by South African Railways and Harbours as principal contractor[16] for the construction of all the elevators, with Mr Littlejohn-Phillip, as Consulting Engineer. Tenders for the machinery to be installed in the elevators were received from two English companies: Spencer and Company, with whom Littlejohn-Philip was closely associated, and Henry Simon Ltd. Spencer got the contracts for Durban and all the country elevators, while the contract for Cape Town was given to Henry Simon Ltd. The cost of building the Cape Town Grain Elevator was originally estimated at £316,500 but by October 1923 this had been increased to £390,493. Of this about ten per cent was related to the cost of the foundations. The contract price did not cover "the removal and re-erection of a building to clear the site required for the elevator", which was paid for by the railway Administration.[17] That building was the existing grain handling facility, not the earlier coal sheds, and is shown on the early site plan.[18] Work on the foundations of Cape Town's elevator began in 1921, though with some initial difficulties.[19] By February 1923, these problems had been overcome, and work on the superstructure was commenced in June that year.[20]

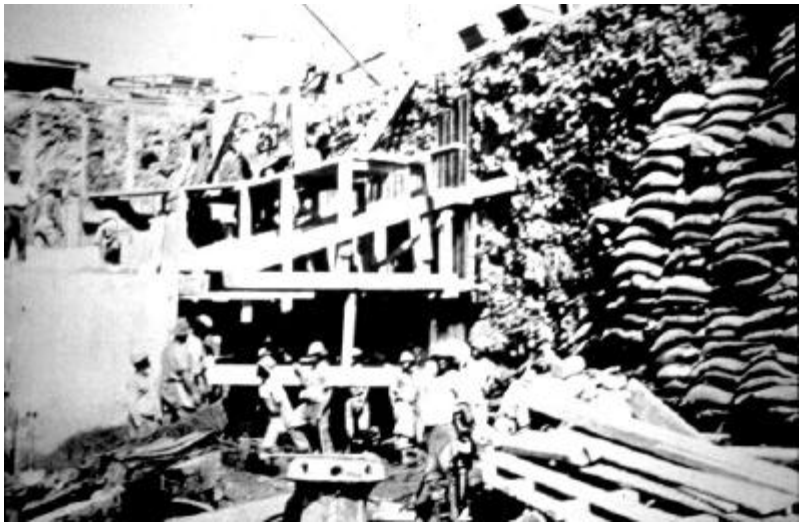


Figure 6: ***Building the grain elevator - "you will notice the ship's capstan in this photo, this being the position where the wreck was."[21]*** ***(ref: DW0193)***

The building works were extensively photographed, from foundation to completion, and provide valuable insights into the construction. It is apparent, for example, that the bins in the working house are carried on steel work right through to the basement. The supports visible in the basement, which at first to appear to be concrete, are in fact steel covered in concrete. The working house bins themselves are of cast concrete, as are the bins in the storage annexe, and above the bins, the structure is again all steel framed.

The photographs show the use of the slipform method of reinforced concrete construction. The use of this method at the Great Northern Elevator, Buffalo, USA, is described in Appendix 8.7.

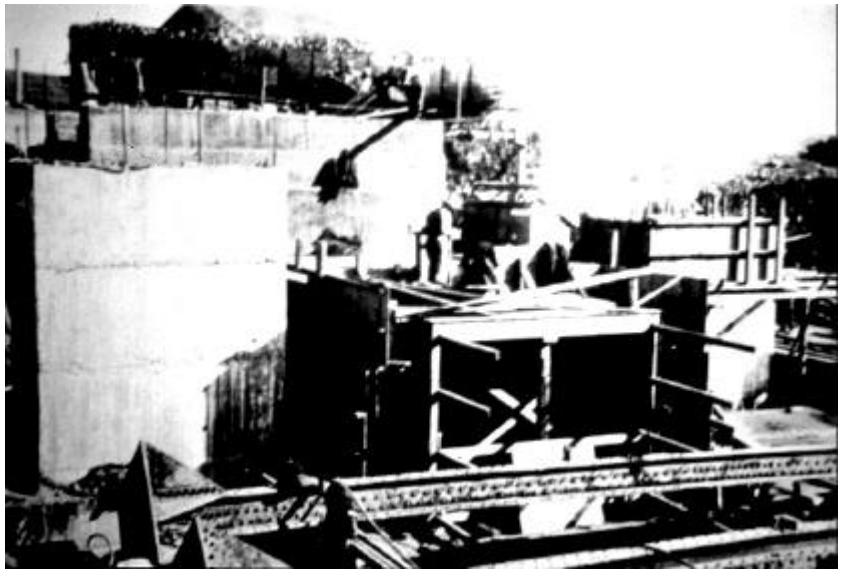


Figure 7: Building the grain elevator – "View of track shed, hoppers and tunnels, with working house. Columns laying horizontal ready to lift into place. Columns are 47' long and weigh approx 9 tons each."[22] (ref: DW0201)

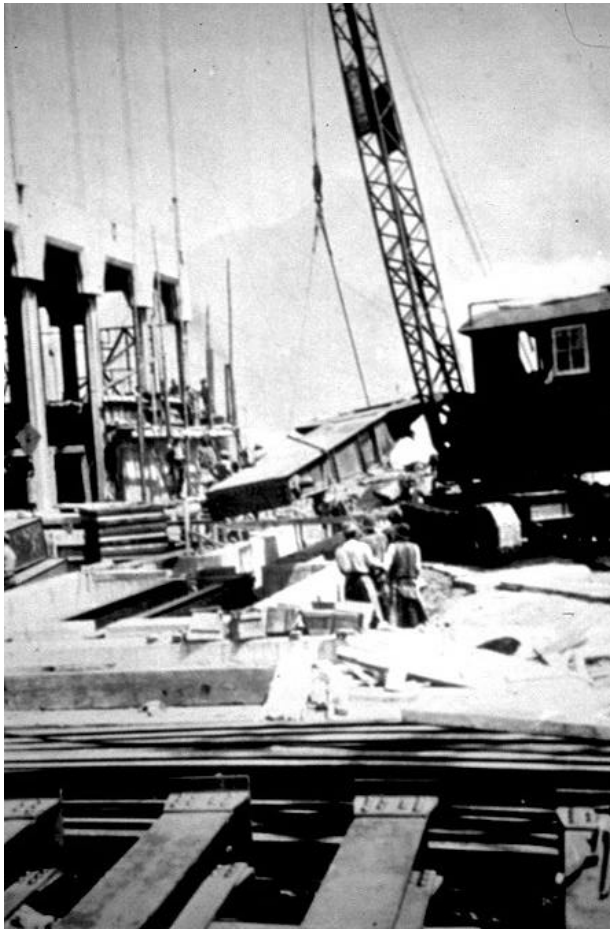


Figure 8: Building the track shed - placing tipping platform in position[23] (ref: DW0196)

Work continued on the "grey towering slab of concrete" throughout the day and night, with up to 1,000 men (400 "Europeans" and 600 "non-Europeans") being employed on the construction at any one time,[24] and by August 1924 the elevator was ready for a trial run.

The Durban elevator was far more problematic, and inadequate testing of the site before laying foundations led to expensive delays.[25] According to his family, Xavier Brain, a "resident engineer" working for SAR&H, was called in to take over when the contractor, A W Menkins, ran into difficulties.[26]

4.3.3 The early use of the grain elevator

The trial run was deemed a success,[27] and with the country elevators now also ready, the first load of maize was received into the grain elevator at Cape Town in September 1924,[28] to be followed two months later by the first export from the new elevator.[29]

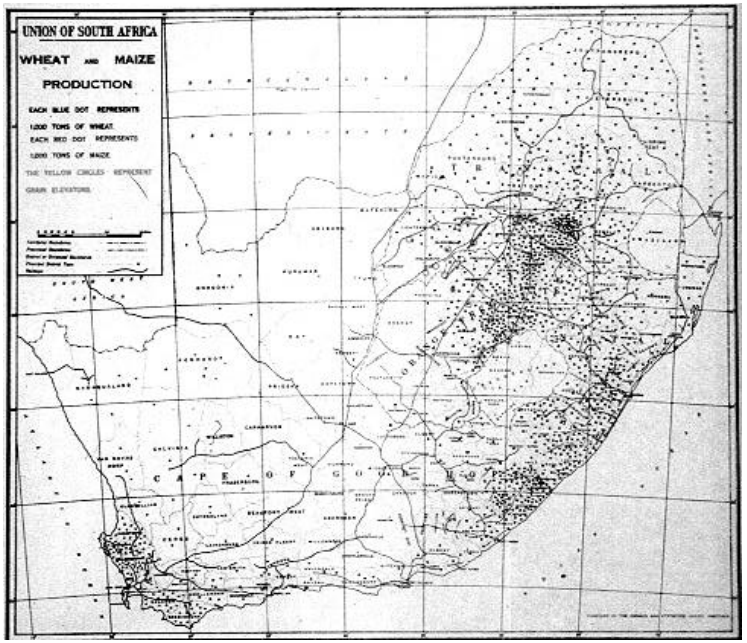


Figure 9: Map showing location of grain production and location of grain elevators[30] (ref: DW0205)

While the elevator was reported as having a shipping capacity of 750 tons per hour, this was rarely achieved at first due to time lost trimming vessels, many of which were not equipped for elevator operation.[31] The system was judged a success, however, and requests were made for the construction of additional country elevators.[32]

As well as handling exports, the port elevators also provided storage facilities when markets were slack or harvests were particularly good. In 1927, when all the country elevators were full of white maize, for which at the time there was insufficient demand, extra capacity was found by transferring stock to the port elevators at both Cape Town and Durban.[33]

'Elevator receipts' were issued to anyone depositing grain into the system, and these became negotiable instruments on which the holder could then demand an equal quantity of the same grade of grain, [but, importantly, not the same grain] at any elevator on payment only of railage and storage charges. This led to trading in elevator receipts.

In an undated, though apparently contemporary catalogue, Henry Simon Ltd, of Cheadle Heath, near Stockport, Lancashire described the machinery installed by them in the Cape Town Grain Elevator. Storage in the working-house was provided for 6,000 tons of maize, and in the annexe for 24,000 tons maize. The catalogue describes how the grain arrived in 40-ton railway wagons, was discharged by 4 hydraulic tipplers into 4 intake systems comprising elevator, conveyors, weighers. The intake capacity was 25 wagons (or 1,000 tones) per hour. Loading-out was done into 4 lines of conveyors to the Collier Jetty, which allowed two ships to berth simultaneously. The catalogue further describes facilities to load-out in bulk or sacks from the working house to railway wagons, and how machinery was installed for cleaning and grain, and for dust extraction from the site. The plant was electrically driven and lit.[34]

Cape Portland Cement was used in the structure. The Cape Portland Cement Company was formed in 1921, when it took over the assets of the 'Hermon Piquetberg Lime Company', at De Hoek approximately 130km north of Cape Town. In 1922, their first kiln produced 70,000 tons of cement, but though their product exceeded the stipulated British Standard Specifications, nonetheless the company had difficulty persuading local architects and builders to buy it in preference to imported products. It seems that a breakthrough in the company's fortunes came about, and its reputation secured, when Cape Portland Cement was specified for the Cape Town Grain Elevator, and it could claim that the forty-two silos were erected "in record time".[35]

4.3.4 What happens between the 1920s and the 1950s?

Very little is little is known at this stage about what happened on the site between the 1930s and the 1950s. Much of what we know about the late 1950s and beyond is based on the oral testimony of former employee Willie de Jager, and current silo manager, Robert Hurn. Willie de Jager's story may be found at Appendix 8.2.

It is known that by 1935 a prefabricated structure was built on top of the silos as a lookout for the Port Captain. No research has yet been undertaken to establish whether the elevator had any strategic use during the Second World War, though it seems likely that it would have been used as a lookout station at the very least.

Proposals in 1963 for SAR&H to hand the elevators over to the Mealie Control Board came to nothing, and in 1966, new office, ablution and mess facilities were built for the staff of the elevator, then numbering about seventy-eight in total.[36]

In 1972 a major intervention was made into the structure with the installation of new dust extraction facilities.

In the 1980s the lookout station on top of the storage annex was regarded as a strategic asset, and kept in service as a backup lookout station for the Port Captain in the event of 'terrorist' attack on the Lourens Muller Building[37]. It is now used as a "pub" by WPK, and also houses cellular telephone equipment.

Cargo Shipped from Table Bay Harbour: 1956 to 1958

all figures expressed as "harbour tons" of 2,000lb

Shipped

Maize and maize meal
1955-56 = 449,620;
1956-57 = 516,399;
1957-58 = 529,095

Grain other than maize
1955-56 = 6,602;
1956-57 = 1,047;
1957-58 = 1,760

Total all goods shipped
1955-56 = 1,763,798;
1956-57 = 2,292,822;
1957-58 = 2,112,308

4.3.5 The recent history of the grain elevator

South Africa now has three port, or 'terminal' elevators, with the most recent being opened at East London in 1966. The elevator at Durban is now operated by Agriport, while the East London elevator continues to be operated by Portnet.

Proposals in 1963 for SAR&H to hand the elevators over to the Mealie Control Board came to nothing[38], and in 1966, new office, ablution and mess facilities were built for the staff of the Cape Town elevator, then numbering about seventy-eight in total.[39]

Government subsidies on the railage costs of maize were gradually phased out, until, by the mid 1980s, it was no longer economically viable to use Cape Town as a major grain port.[40] This coincided with a general decline in the country's economy due to international pressure for political change in the country. The port was virtually at a standstill, and various port facilities were rented out on short term leases to a variety of tenants.

In 1987, Cape Town's grain elevator complex, excluding the conveyor gallery and the ship loaders, was leased by Portnet to W P (Koöp) BPK.

The increased length and draught of modern bulk grain carriers, which means that many are unable to berth at the Collier Jetty, and the high railage costs from the maize producing areas, have resulted in the virtual cessation of grain exports from Cape Town. The last export shipment from the elevator was loaded in July 1995.

4.3.6 The grain elevator today

Today, WPK acts as a wholesaler, warehouser and distributor of various grain products including wheat, yellow maize, white maize, grain sorghum, tapioca, soya, oats, sunflower oil cake, cotton oil cake and malt. Many of these products are imported, being off-loaded elsewhere in the docks, and loaded into railway wagons for delivery to the elevator. Shipment from the elevator is now principally by road transport, although railway wagons are occasionally used.

WPK's lease with the Victoria and Alfred Waterfront was due to expire in 2002, but negotiations between the parties have recently led to WPK agreeing to vacate the site in 2001. No grain was received into the elevator after the end of February 2001, and by the end of July 2001 it had been emptied of all grain. The elevator was vacated by WPK during August 2001.

There are no facilities to which WPK can transfer their operation, and no plans to build one. Consequently there were approximately two dozen job losses at this facility.

Figure 10: The last export shipment from the elevator in July 1995 (ref: DW0251)

4.4 Overview of principle structures

This section should be read closely with Appendix 8.1 and the Site Inventory in the accompanying volume.

4.4.1 The components and functions of Cape Town's grain elevator complex

The term ‘grain elevator’ does not strictly relate to the building form, but to the machinery contained within it. The function of the elevator is to receive grain from one form of transport, railway wagons in this case, and transfer it to another, ships. A secondary function is the long and short term storage of grain in bins, or ‘silos’.

For the purposes of this report, the term ‘grain elevator’ is used to describe the entire complex of buildings and associated structures which were built in Table Bay Docks during 1923 and 1924 for the purpose of receiving bulk grain from the interior by rail, and exporting it by sea.

Additional buildings, erected in 1966 for use by the port authorities, are also associated with the original grain elevator complex, and have thus been included in this report.

4.4.2 Form and function

The form of the grain elevator is solely derived from its function. There are three major factors which influence that form:

- the requirement to gain height in order to allow gravity to pass grain through the storage bins;
- the tendency of grain to act as both liquid and solid;
- and the fire hazard created by the presence of grain dust.

It is when it acts as a liquid that grain is most hazardous, exerting an outward lateral pressure on whatever contains it, and also tending to create a vacuum if that container is suddenly emptied from below.[41] The cylindrical form is best suited to withstand both the outward and inward pressures, although this creates what might be wasted space between the bins. This has been resolved by using those interstices as storage space as well, in what are termed ‘star bins’. The required storage capacity was calculated on the basis of a complete stock turn eight times per year, thus an estimated annual throughput of 240,000 tons required storage capacity of 30,000 tons.[42]

The height of the tall, tower like working house, is also derived from its function. Electrical power is used to raise grain from the basement to the very top of the structure, and gravity is then used to drop it back through a series of scales, spouts and bins.

Whilst it has been emphasised that the form of the grain elevator is derived solely from its function, it is important to remember that this form, as it was seen in the Americas by Walter Gropius and other architects of the International Modern Movement, was to become extremely influential in twentieth century architecture.

4.4.3 The original 1923-1924 complex

[A] The Track Shed

Figure 11: The track shed seen from the south - November 2000 (ref:DW1323)

Four lines of railway serve the track shed, where all grain taken into the grain elevator is first received. Each of the railway tracks serves a below ground hopper, into which grain is discharged from railway wagons. Two types of wagon are used, the first of which is flat bottomed, and needs to be tipped end on to discharge its cargo. The second type, which has hopper shaped sections in its floor, is simply discharged by opening valves in the bottom of the wagon.

Figure 12: The track shed seen from the north – November 2000 (ref:DW1304)

Each of the intake hoppers is served by a hydraulic lift, by means of which railway wagons may be lifted to an angle of approximately 45^{o} in order to discharge grain through gates in the end of each wagon.

Special end opening railway wagons were designed for use in the elevators, with an additional one thousand of these being ordered from the Leeds Forge Company and Metropolitan Carriage Company, England, in 1926.[43] (It is not known whether any of the original wagons survive, though more modern versions are in daily use.)

***Figure 13:** A railway wagon being tipped on track four - November 2000 (ref: DW1325)*

[B] The Working House

The 57 metre tall, tower like structure, known as the working house, serves a multitude of functions. It receives grain from the track shed, lifts it to the top of the building by the use of elevators, and provides facilities for it to be weighed, cleaned, bagged, stored and distributed.

The top floor, known as the machine floor, allows access to the heads of the elevators, and contains all the electric motors and chain drive mechanisms which power the elevators.

Moving down thorough the working house, the first level below the top is the Upper Scale Floor which houses 'pre-weighers' each capable of holding a full wagon load of grain, which is then dropped to the Lower Scale Floor where the scales are located.

Below the scales is a floor containing nothing more than an arrangement of flexible spouts, the articulation of which allows grain to be directed as required to the required place on the next level.

***Figure 14:** The spout floor – 1995 (ref:DW0099)*

On the Distribution Floor there are two horizontal belt conveyors running on the north-south axis through the building, and cross belts which convey grain to the bins in the storage annex..

A total of forty-four rectangular ‘working’ bins in the working house are at what would normally be considered 'first floor level', and underneath them, on the ground floor, are various machines for cleaning grain, and for sewing and lifting full bags.

From the ground floor a gallery with four conveyors (now removed) ran on to the Collier Jetty from where ships were loaded using four electrically powered ‘loaders’, while in the basement there are tunnels leading from the track shed, and from the storage annexe to the bottoms, or ‘boots’, of the elevators.

Figure 15: The basement of the working house – 1995
(ref:DW0119)

The dust collection system has been referred to in the inventory. Much of it has been removed by WPK (with the agreement of the Victoria and Alfred Waterfront)[44] and is considered to have little cultural significance.

In 1972 the earlier system was modified by Simon-MacForman, of Johannesburg, to increase the efficiency of the earlier low pressure system, and to cover additional areas of the working house and gantry.

A high speed fan drew the dust laden air through a ducting system. Before it reached the fan, however, a cyclone dust collector separated the dust from the air, allowing the relatively clean air to be vented through the roof.

Six separate systems covered the intake conveyors from the track shed; the transfer conveyors below the spout floor; the three conveyors above the bins in the storage annexe; the screens and automatic weighers on the four shipping elevators; the four shipping conveyors on the ground floor of the working house; and the four shipping conveyors in the gantry.[45]

Dimensions:
the "average depth of rock below floor of working house assumed to be 27' 6" [8.382m][46];
the larger bins in the working house are 18’1” [5.512m] across with walls 7” [0.178m] in thickness.[47]
vertical dimensions are working floor to base of bins 26’2” [7.976m]; base of bins to distribution floor 63’0” [19.202]; distribution floor to spout floor 20’0” [6.096m]; spout floor to lower scale floor 20’0” [6.096m]; lower scale floor to upper scale floor 18’0” [5.486m]; upper scale floor to machine floor 18’0” [5.486m]; machine floor to apex of roof 21’1½” [6.439m][48]; total height from ground to apex of roof is therefore 56.782m.

[C] The Storage Annexe

The storage annexe stands separated from the working house, but connected by bridges to the scale floors of the working house, and tunnels to the basement of the working house.

The forty-two larger, circular grain bins in the storage annexe, set in seven rows of six, lie parallel to the east wall of the working house. The grain bins are constructed of massed reinforced concrete, each capable of containing approximately 500 tons of grain. Set in the spaces between the larger bins are thirty smaller 'star' bins, each capable of containing approximately 120 tons of grain.

The aluminium clad steel structure on top of the storage annexe was used as an office and look-out station by the Port Captain from about 1935, until it was rendered redundant by the Lourens Muller Building, and it is now houses cellular telephone equipment.

Dimensions:
the larger (round) bins in the storage annexe are 13'4" [4.064m] across with walls 8" [0.203m] in thickness.[49]

[D] The Conveyor Gallery to the 'Collier Jetty'

The raised conveyor gallery housed four conveyor belt systems which delivered grain from the shipping gallery in the working house to the ship loaders.

Figure 16: Laying the rails on the collier jetty – 1923
(ref:DW0194)

[E] The Ship Loaders

Four ship loaders stood on the south side of the collier jetty. Each loader moved along rails laid on the collier jetty, using electricity, and received grain into its own internal elevator, which is simply a smaller version of those to be found in the working house. Telescopic spouts from the top of the loaders, then directed grain into the holds of the ship being loaded. Two of the loaders have been broken up since the original Conservation Study was carried out., and the remaining two have been moved from the south to the north side of the Collier Jetty.

Figure 17: Loading the 'Anangel Wisdom' – July 1995
(ref: DW0218)

[F] The Hydraulic Accumulator House

The machinery for lifting the railway wagons in the track shed is hydraulically powered. This hydraulic power is produced on site by the application of electrical power to pump water to a pair of hydraulic accumulators.

Figure 18: The hydraulic accumulator house – 1995
(ref:DW0056)

[G] The Electricity Sub-station

The sub-station, is also a concrete framed structure, and although all the original switch-gear and transformers were replaced long ago, the sub-station continued to fulfil its original function until July 2001.

[H] The Dust Cyclone House

To the north of the working house is a double volume concrete structure housing the dust cyclone which was installed in1972. This structure originally formed part of the grain drying facility.

[J] Grain Drying House

This small structure housed the boiler for the grain drying facility. The base of a chimney is still extant to the south of this building.

4.4.4 Additional structures built in 1966[50]

[K] Fire Pump House

Houses an electrical pump for fire hydrants

[L] Men's toilet

[M] Men's toilet

This one displays the sign 'Whites Only'.

[N] Oil store

[P] Mess block

This single storey brick building contained the mess facilities for the 'non-European' staff, who numbered about forty in 1980. Today it houses the mess facility for the non-supervisory staff, who number about twenty.

[Q] Workshops

In 1980 there were three fitters, three millwrights, and an electrician who all used this space. It is still a workshop, though the specific trades have long gone.

[R] Garage

[S] Offices and mess facilities

This double storey brick building was designed to provide mess facilities for thirty-eight 'European' staff, together with offices for management, clerical staff, and grain graders.

Figure 19: ***The office and mess facilities built for the 'European' staff of the grain elevator – November 2000*** ***(ref: DW1342)***

Notes to Section 4

1 Trinder 2000 p53
2 Ports of South Africa 1958 p53
3 Worth 1994
4 Official Year Book 1925 p424
5 Burtt-Davy 1914 p565
6 Playne 1910 p267
7 Price 1911
8 Government Report 1918
9 Littlejohn-Philip 1919
10 Government Report 1918 p12
11 South African Railways and Harbours Bulletin #54 1923 p99
12 Littlejohn-Philip 1919 section 3
13 Government Report 1911 p2
14 South African Railways and Harbours Magazine 1928 p1472
15 Government Report 1911 para207
16 South African Railways and Harbours Magazine 1923 p341
17 South African Railways and Harbours Annual Report 1923 p9
18 Plan: Table Bay Harbour 106 L3-2000 signed by Engineer-in-chief A M Tippet (1920) with amendments 12-Oct-1922.
19 South African Railways and Harbours Bulletin #51 1923 p26
20 Cape Argus 17-May-1924
21 UCT Manuscripts and Archives BZE 90/24 - 47
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25 South African Railways and Harbours Annual Report 1923 pp9-12
26 Personal communication: Natalie Andrews, daughter of Xavier Brain, 09-Aug-1994
27 South African Railways and Harbours Magazine 1924 p897
28 South African Railways and Harbours Annual Report 1925 p55
29 South African Railways and Harbours Bulletin #81 1924 p262
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31 South African Railways and Harbours Annual Report 1925 p105
32 South African Railways and Harbours Annual Report 1925 p11
33 South African Railways and Harbours Magazine 1927 p1442
34 Henry Simon Ltd, Cheadle Heath, Stockport; undated catalogue
35 Shorten 1963 pp616-617
36 Plan: Table Bay Harbour 106/301 21-Apr-1966
37 Personal communication: Steven Bentley, Victoria and Alfred Waterfront, 22-Nov-2000
38 Archives: [CC 3/4/166 UN15] correspondence file
39 Plan: Table Bay Harbour 106/301 21-Apr-1966
40 Personal communication: Francois Van Der Merwe, former manager, WPK, 24-Nov-2000
41 Banham 1986 p115
42 Government Report 1918 p2
43 South African Railways and Harbours Magazine 1926 p83
44 meeting of Victoria and Alfred Waterfront and WPK: 29-Jun-2001.
45 Operating manual supplied by Simon-MacForman, Johannesburg, 1972
46 Plan: Table Bay Harbour L3-2005/18
47 Plan: Table Bay Harbour L3-2005/10
48 Plan: Table Bay Harbour L3-2005/10
49 Plan: Table Bay Harbour L3-2005/10
50 Plan: Table Bay Harbour 106/301 21-Apr-1966

5 Assessment of significance

5.1 Introductory remarks

"The general approach to assessing the nature of significance is adapted from that set out in the 5th edition of The Conservation Plan published by the National Trust in 2000. It relies on an understanding of the physical attributes, uses, relationships and associations of the place up to, and including, the present."[1]

[James Semple Kerr]

This is the core element of the conservation plan. It begins with any existing assessments, and involves two basic processes.

Firstly, an overview of all of the values inherent in the site are distilled into a single core statement which should be negotiated between and agreed by all stakeholders. The broad statement of significance set out below is drawn directly from the earlier Conservation Study.

It is part of the function of this Conservation Plan to interrogate that earlier statement, and to provide material evidence to either support or refute it by translating those values into the fabric of the site. Appendices 9.1 and 9.2 provide an overview of the various components of the site, and a detailed inventory identifying significance in the site.

In the appendices, levels of significance have been attached to the items discussed. A four rung ladder[2] is a useful analogy for setting these levels of significance in context.

- element of exceptional significance
- element of considerable significance
- element of modest significance
- intrusive element

The assessment of significance is based on understanding of the site, and takes no account of the practical issues which are addressed in Section 5, and which must be resolved by policies designed in Section 6.

Figure 20: ***The Cape Town Grain Elevator illustrated in the South African Railways and Harbours Magazine – 1923*** ***(ref: DW0134)***

The second process, referred to above, is to agree policies for retention of significance. This is discussed at length in section 7 of this report.

The significance of the Cape Town Grain Elevator

It is suggested that in terms of Section 7 of the National Heritage Resources Act the Cape Town Grain Elevator should be categorised as Grade 2 - a site of regional historical significance.

The Cape Town Grain Elevator is of significance for the following reasons:

It is the most visible symbol of the industrial heritage of the docks

- visible as a landmark from within and above the city, and to seaward
- the highest building in the country when constructed
- provides the highest point within the Victoria and Alfred Waterfront to view the city and the harbour

It is unique in that it is an intact and largely original working complex

- all major component structures remain largely intact and unmodified
- virtually all machinery intact and in working order
- it contributes to the "working harbour" component of the Victoria and Alfred Waterfront

It is a symbol of the importance of grain in the South African economy

- the building of the elevators was instrumental in significantly increasing South Africa's grain exports
- in recent years it has been the major hub of the grain trade in the Western Cape

It has educational potential

- the construction of the elevator is well documented, with contemporary reports, original drawings, and photographs

It is a rare surviving example of an early twentieth century elevator

- Cape Town's elevator is largely unmodified whereas the Durban elevator has undergone significant change and the inland 'country' elevators are all thought to be demolished
- many overseas port elevators have been demolished in recent years, and this is a rare working example
- it represents a country-wide system connecting the railway to the sea, and South Africa's agricultural economy to its export markets

It is of aesthetic and architectural importance

- elevators are an important influence in International Modern Movement architecture in the twentieth century
- its form is closely defined by its function in terms of the materials used, and the relative scale of each component structure

It is an example of South African innovation

- a local contractor was employed as contractor for the entire elevator system
- the use of concrete on this site was one of the first major construction projects to use Cape Portland Cement, and was thus a landmark in the history of the Pretoria Portland Cement Company, known as PPC

It demonstrates the international transfer of technology

- all designs, machinery and fittings were brought from overseas

It represents an important historical aspect of banking and money supply in South Africa

- 'elevator receipts' were negotiable instruments, and could be used in a variety of financial transactions

5.2 The significance of the peripheral buildings

It must be stressed that the intactness of the site contributes to its significance. Thus the working house, the storage annexe, the conveyor gallery and the track shed are seen as forming a whole. However, it should be noted that individual components, such as the track shed and the conveyor gallery, are in themselves no longer intact, having now been partly demolished.

- the **Hydraulic Accumulator House [F]**, dating to **1924**, has considerable significance and should be regarded not as a peripheral building but as part of the main structure;
- The **Dust Cyclone House [H]** and the **Fan House / Grain Drying House [J]** are also part of the main structure; the structures themselves date to **1924**, but they were **extensively re-equipped in 1972**; in themselves they contribute little to the significance of the site other than to its industrial nature; (n.b: this report suggests elsewhere that these structures could nonetheless prove useful in interpreting the site);
- the **Electricity Sub**-Station **[G**], dating to **1924**, is of modest significance, having been stripped of all historic fittings;
- the various brick structures comprising **mess, ablution and workshop facilities [K], [L], [M], [N], [P], [Q] & [S]**, dating to 1966, have minimal or no cultural significance;
- the **Garage / Car Port [R]**, dating to 1966, has no cultural significance.

Notes to Section 5

[1] Kerr 1994 p22

[2] Kerr 1994 p23

6 Vulnerability

It is necessary to identify those factors which have made the significance of the site vulnerable in the past, or are likely to do so now or in the future. The concept derives from sustainability as applied to the natural world.

6.1 Long term strategies

There is currently no Site Development Plan for the grain elevator, and no proposed new use. This means that the entire site is vulnerable in its most extreme sense. Its future depends on a new use being found that is compatible with the Development Framework and the Clocktower Precinct Plan while being economically feasible, yet which recognises and conserves the cultural significance of the site. With regard to the possible demolition of the conveyor gallery, and possible re-development of the collier jetty it is noted that is there no formal commitment to develop the site on the part of the Victoria and Alfred Waterfront or any potential client, and that no specific development rights exist in terms of the approved Precinct Plan. However, there are sufficient 'bulk' rights available in the precinct for development on the collier jetty.

Victoria and Alfred Waterfront have indicated[1] that they intend applying for permission to demolish everything except the working house and storage annexe, including the remaining portion of the track shed, the sub-station, the dust house and the remaining portions of the conveyor gallery. In the event of such approval being given, the fate of the remaining track lift would need to be reconsidered. The Victoria and Alfred Waterfront also signalled its intention to mount floodlights from the silos, to make them safe and clean, and then to seal up all openings and make secure.

6.2 Short term strategies

There is the possibility of formal (or informal) uses being made of the site in the short-term. The offices and mess facilities, for example, are to be occupied by construction companies on a short lease until the site is further developed.

Victoria and Alfred Waterfront have made it clear that they do not favour short term uses for the site.[2] Short term uses would bring with them associated threats to the cultural significance of the site, and it would be important that these are properly managed. This does not mean, however, that short term strategies may not be appropriate. This issue is discussed further in the section 6: Policies.

6.3 Retention of the working harbour

As long ago as 1995, Portnet indicated a "need to relocate the bulk storage facility from the grain elevator to an area bordering Table Bay Boulevard". Peter de Tolly, then deputy city planner, posed the question "Is Table Bay harbour's core role that of a working harbour servicing the needs of industry, or should its major role be as a stimulus to the tourism and leisure industry?"[3]

Due to modern shipping requirements, the grain elevator ceased loading ships 1995 - the first stage in bringing to a close its role in the working harbour.

6.4 Site and setting

The landmark quality of the grain elevator derives from its exceptional height in the context of the Victoria and Alfred Waterfront, and as one of the few landmark industrial buildings visible from the city, the mountain and the sea. Using the height of the elevator to establish the height for new development diminishes that landmark quality.

The grain elevator was constructed as part of a country-wide system designed to export to the world. There has already been some loss of significance as railway connections to the site have been destroyed, and there would be further loss of significance if the connection to the sea was also vanish.

6.5 Retention of scale and form

The scale and form of the individual components, and their relationship to each other, can easily be destroyed by ad hoc partial or total demolitions and alterations.

6.6 Access to, and continuing development of, the Clocktower Precinct

Access to the Clocktower Precinct is an imperative, and thus provision needs to be made for pedestrian and vehicle access for visitors and tourists, bus and taxi stops, a light rail system, parking, delivery and service vehicles, and the fishing industry.

Nonetheless, the planned boulevard linking the Dock Road entrance of the Victoria and Alfred Waterfront with the Clocktower has impacted significantly on the track shed and led to its partial demolition. The Victoria and Alfred Waterfront Company has indicated that it now wishes to demolish all the peripheral buildings around the Working House and Storage Annexe, including the remaining portion of the track shed and the remaining portion of the conveyor gallery.

6.7 Access to the grain elevator

As there is cellular telecommunications equipment on the roof of the storage annexe, it will be necessary to maintain electrical power to at least part of the site. With the elevator otherwise largely vacated this will lead to additional problems relating to security, access for emergency services, etc.

6.8 Management

As the site is, and is will continue to be, owned by the Victoria and Alfred Waterfront then the question of who is legally responsible for it does not arise. However, the grain elevator site needs to be subject of ongoing management and care if it is not to become derelict. Particular care needs to be taken to ensure the integrity of the building, particularly its roofs, gutters and services (electrical, plumbing, drainage, etc).

6.9 Maintenance and repair

The structural integrity of both the working house and storage annexe, and the load-bearing capacity of each, is unknown. Victoria and Alfred Waterfront have indicated their intention to commission a structural engineer to report on these issues. It will not be possible to formulate any long term plans for the site until such report has been received.

Such a report became particularly important after the damage incurred in February 2001 when damage to Bin 135 was sustained after the collapse of 400 tons of soya oil cake. This incident is now the subject of a pending insurance claim. It signals the possibility that similar damage may have affected other bins in the past, and could impact on the structural integrity of the storage annexe. Visual inspection of the perimeter bins indicates that similar damage may been incurred to other parts of the structure in the past.

The site *appears* to be in a generally good condition (with the exception of the conveyor gallery and the damaged bin), with repair and maintenance work having continued to keep the buildings and equipment in good working order. When the site is vacated by WPK there is an increasing possibility that the site will be neglected.

The demolition of the track shed has led to significant water ingress into the basement of the elevator, through the intake tunnels. The pump that WPK have used until now will probably be removed by them.

The working house is likely to present a different set of questions for the structural engineer. As has been reported elsewhere, this building is in part steel framed, and part concrete. Whilst it has been constructed to bear enormous loads, those loads are borne by the structure itself. The floors (approximately 15cm thick) are clearly not designed to carry significant loading. Furthermore, the walls show signs of spalling in some areas, particularly in the north west corner of the machine floor on level five. (Plans indicate the use of “Clinton” fabric as reinforcement in the walls, roof and floors of both the working house and storage annexe.)[4]

The conveyor gallery presents the most immediate problem for the Victoria and Alfred Waterfront as owner of the site, responsible for its maintenance in terms of the approved Precinct Plan. The future of the gantry has been the subject of much debate by both the Victoria and Alfred Waterfront Conservation Plan Working Group and the Victoria and Alfred Waterfront Design Review Committee. In the forum of the Victoria and Alfred Waterfront Conservation Plan Working Group, SAHRA have rejected the proposed demolition of the gantry without having firm proposals for future development and design guidelines in place. This view has been supported by the City of Cape Town's Urban Conservation Unit. Notwithstanding their intention to formally apply to SAHRA for a demolition permit, the Victoria and Alfred Waterfront is in the meantime spending R1m to maintain the structure and make it safe.

Members of the Design Review Committee endorsed the demolition of the gantry given the working nature of the jetty, the condition of the gantry, and that a new steel structure would also deteriorate. There was support for the notion that a section of the gantry at the end of the jetty be retained and conserved.

6.10 Machinery and other artefacts

The machinery in the grain elevator ranges from the huge truck lifts to the small stainless steel buckets attached to the elevator belts. Most of the machinery is currently in good working order, but as soon as it is no longer in use it will start to deteriorate. It is also possible that there will be the temptation to break it up for scrap, either with or without the authority of the Victoria and Alfred Waterfront. Security of the site is therefore likely to be a problem.

In designing future uses for the elevator, the machinery can either be seen to be taking up valuable lettable floor space, or to be an asset in the development of the site.

Much of the machinery in the elevator dates to its origins, and could potentially be considered as a collection of "heritage objects" under section 32 of the National Heritage Resources Act (No.25 of 1999).

Agreement has been reached between Victoria and Alfred Waterfront and WPK that the latter will remove the following machinery by the time it vacates the elevator:[5]

B.062 screenings conveyor
B.031 cyclones and rotary seals on 3rd floor
B.061 load cells being part of Massamatic scales
B.002 dust extraction equipment
B.200 & B.201 scales
B.190 stacker for bag conveyor
also loose steel buckets on 3rd floor, loose conveyor belts, cyclones, loose furniture, fire extinguishers and air-conditioning. It is noted that these items have little or no cultural significance.

6.11 Documentation

Collections of plans and drawings were held by WPK and the Victoria and Alfred Waterfront. Much of the WPK material was subsequently passed to the Victoria and Alfred Waterfront, and it is important that all this material is now properly conserved in terms of the National Archives Act.

6.12 Oral History

Much in-depth knowledge of the operation of the grain elevator is held by staff who have worked there for up to twenty years. With their retrenchment that information will be dispersed and possibly lost.

Notes to Section 6

[1] meeting of Victoria and Alfred Waterfront Design Review Committee, 28-May-2001.

[2] meeting of Victoria and Alfred Waterfront Conservation Plan Working Group, 21-May-2001.

[3] Cape Business News July 1995 p1

[4] Plans: TBH 106 L3-2005/35 (roof of working house uses "Clinton" No.9); TBH 106 L3-2005/14 (detail of 8" walls including use of "Clinton" No.8 fabric and vertical wires); TBH 106 L3-2005/35 (floors over storage annexe bins reinforced with "Clinton" No.7 fabric; roof of annexe uses "Clinton" No.9)

[5] Meeting of 29-Jun-2001 with Andre Blayne and Stephen Bentley representing the Victoria and Alfred Waterfront Company; and Tienie du Plessis, Jan Breytenbach and Robert Hurn representing WPK.

7 Conservation Policies

The policy section of the conservation plan requires the provision of guidelines for the retention of significance in any future use, alteration, management or conservation. The policy guidelines must balance statutory requirements with the needs of the site owners and managers, and those of others involved with the future of the site.

Thus policy frameworks need to be developed for:

- Conservation Philosophy
- Care for the setting of the place
- Care for the culturally significant fabric and other significant attributes
- Interpretation in a manner appropriate for its cultural significance
- Appropriate uses
- Maintaining educational values
- Ongoing consultation and participation
- Maintenance and repair priorities
- Balancing commercial requirements and conservation
- Recording the fabric of the site as well as recording decisions and actions affecting the site
- Access (physical and intellectual)
- Security

Important note

These suggested policies address a mix of short-term and long-term issues. Some will be appropriate during the time in which the site is vacant, or temporarily occupied; and others will be appropriate in the long term. Thus the policies set out here are identified as immediate [IM]; short-term [ST] and/or long-term [LT].

Enabling Development

The concept of 'enabling development', which is part of public policy in England,[1] is not policy in South Africa. This does not mean, however, that we should not look to models successfully employed elsewhere if there are useful ideas that can inform our own discussions.

Enabling development refers to situations where a development proposes to benefit a heritage asset in ways that would not normally conform to planning guidelines. But it does mean that the benefits of such development must outweigh disbenefits to the broader community, not just the owner. This means recognising that the optimum viable use compatible with fabric, interior and setting is not necessarily the most profitable use, especially if that would entail destruction of the heritage asset. To be successful, therefore, the integrity of the heritage asset must not be materially compromised by the development.

This concept is particularly appropriate in the discussion around the proposed demolition of the remaining portions of the conveyor gallery and track shed. However, it needs to be acknowledged that development of individual components of the site may not take place concurrently, and that parts of the site may need to be developed independently, albeit within a broadly agreed framework.

Sustainability

It is important to remember at all times that whatever proposals are made for the future of the elevator complex, they have not only to make a sustainable contribution to the historic environment, but also be financially viable.

7.1 Acceptance of general approach

7.1.1 *The statement of significance set out in Section 5, together with the individual assessments of individual elements contained in the appendices, should be accepted as the bases for future planning.* **[IM/ST/LT]**

7.1.2 *The future conservation and development of the place should be carried out in accordance with the principles of the Burra Charter, as adopted by the Victoria and Alfred Waterfront in its Urban Conservation Policy.* **[IM/ST/LT]**

7.1.3 *The policies recommended and options discussed throughout this document should be endorsed by the Victoria and Alfred Waterfront, the South African Heritage Resources Agency and the City of Cape Town as a guide to future work.*[2] **[IM/ST/LT]**

Note:
Whilst it must be acknowledged that the Conservation Plan does not carry the status of a legal document, its endorsement by SAHRA and the City of Cape Town should ensure that the Victoria and Alfred Waterfront is able to proceed with any development proposals which conform to the policies agreed in the Conservation Plan without delay or unnecessary exposure to financial cost. This does not suggest that the relevant permissions do not have to be sought when appropriate, but rather that the existence of pre-agreed conservation policies should streamline the process.

7.1.4 *This document should be made available to all stakeholders in order to allow for informed consultation and discussion.***[IM]**

7.2 Context and setting

7.2.1 *The context and setting of the site should be retained as far as possible, particularly providing views of the north and south elevations, which allow for a functional understanding of the site.* **[ST/LT]**

7.2.2 *The track shed should be acknowledged in any future development, while a hydraulic tippler should be retained, preferably in situ. The working house, the storage annex, and a section of the horizontal gantry should be retained.* **[ST/LT]**

7.2.3 *Access should be provided for persons with specialist interests in the structure. Public access for viewing from the highest areas cannot be granted due to contractual obligations with BOE.* **[LT]**

Note:
Article 8 of the Burra Charter stresses the importance of the visual setting; form, scale, colour, texture and materials; and the importance of views of and views from a place.[3]

7.3 Access to the Clocktower Precinct

7.3.1 *All remaining above ground and below ground elements of the track shed should be carefully surveyed, with reference to the original drawings and photographed before any element is disturbed or altered in any way.* **[ST/LT]**

7.3.2 *If any further demolition of the track shed is to be approved, it should be on condition that above and below ground structures are carefully recorded with reference to the original drawings; and that the remaining tippler be carefully dismantled and stored for future re-use*

Note:
The Victoria and Alfred Waterfront has indicated that it intends to lay a temporary roadway over the remaining tippler, pending any long term solution to the site. The tippler will be protected by plastic sheeting and sandbags during this phase.

7.3.3 *There should be archaeological oversight of any groundworks with the potential to disturb any other archaeological material which might exist beneath and around the foundations of the elevator.* **[IM/ST]**

Important Note:
Any demolition and subsequent excavation of groundworks on this site may reveal archaeological evidence of the former grain and coal sheds, and/or archaeological evidence of shipwreck material.

7.4 Access to the Grain Elevator

7.4.1 *Whilst means should be sought to raise awareness of the site, and to encourage discussion around possible futures for it, access to the site should be strictly limited to those with bona fide reasons to be there.* **[ST]**

Note:
Victoria and Alfred Waterfront have expressed concerns that the physical condition of the building imposes its own limitations. They are committed to making the site safe (in terms of the Occupational Health and Safety Act), and secure against fire, theft, vandalism and unauthorised occupation.

7.5 Appropriate uses

7.5.1 *An appropriate use, or combination of uses, needs to be found that allows the cultural significance of the place to be retained, whilst providing an economically sustainable basis for the site.* **[ST/LT]**

Note:
Article 7 of the Burra Charter states that the conservation policy will determine which uses are compatible.[4] It must also be stressed, however, that the structural integrity and load-bearing capacity of the structure will also determine which uses are compatible. It is therefore imperative that a structural engineer's report is commissioned before any firm decisions are taken on the future of the site.

The Victoria and Alfred Waterfront have indicated that they are not in favour of short-term uses for this site, pending its longer term future being secured. This is unfortunate as adoption of short term strategies, involving minimal intervention in the historic fabric, can often lead to the development of longer term solutions if properly managed. A review of the silo conversion case studies presented in Appendix 8.6 demonstrate a range of imaginative ideas for the re-use of such sites.

The idea of a temporary art exhibition, comprising installation art, sculpture, music and performance, has found favour with sculptor Gavin Younge (Director, Michaelis School of Art, University of Cape Town) and artist, printmaker and poet Peter Clarke. Temporary art exhibitions, linked with displays interpreting the history of the site, would undoubtedly generate interest in the site itself, and potentially lead to the generation of creative ideas about possible future uses.

In the longer term a mixed use cultural centre may provide an appropriate way of conserving the cultural significance of the site – the challenge would be to make that economically sustainable. Possible uses envisaged include performance space, gallery space, restaurant and coffee shop, health club / gymnasium, and museum. The Maritime Museum is one obvious choice for this site, as would be any representation of labour history at the docks. This kind of mix suggests that some form of partnership between the Victoria and Alfred Waterfront and provincial or local government may be appropriate here.

There are many examples overseas of industrial buildings being given mixed uses, a key element of which may be social and cultural activities such as music, dance and sports, supported by income generating activities such as restaurants, shops, offices and residential apartments.[5] Conservation is often only a by-product of the social and economic regeneration that such use can create.

The close proximity of the site to both the Chavonnes Battery and the planned Robben Island Gateway Museum suggest possibilities for further museum related use on this site. With the Maritime Museum due to move from its current location, the grain elevator could perhaps provide a new site. Another possible museum related activity to consider here would be one that addresses labour history and the development of the docks. (For this kind of activity it is highly probable that foreign donor funding could also be sought.)

The exterior appearance of the silos in the storage annexe would be diminished by the creation of fenestration, but they present all sorts of possibilities for the provision of light wells. A use for this area that does not require external light sources would seem to be best, such as a cinema or theatre space.

Various floors in the working house have potential as gallery space, allowing some of the elevator machinery to remain in place as static exhibits around which to work.

**** For examples of other silo conversions - see Appendix 8.6.***

7.6 Significance of fabric as evidence

The importance of the original fabric as material evidence can not be over-emphasised. However, it will not always be appropriate to demand retention of original fabric, and an alternative range of responses needs to be considered. It is suggested in this report that much of the machinery in the grain elevator is of considerable significance, but many of the elements are repeated and a representative example should suffice. In some cases (for example the pre-weighers and scales) the machinery is simply too large to allow for any other use of the space in which they are situated.

In the light of the above, it is going to become particularly important to re-assess possible options and opportunities for dealing with the remaining machinery when there are definite proposals for the future use of the site. Until then, it would be inadvisable to limit those options by removing any equipment prematurely.

It can be argued that the historic function of the elevator is expressed in the vertical nature of the working house structure itself, and the void spaces within it. It may be appropriate to work some of these elements into future design, rather than necessarily keeping 'one of everything'.

Aspects of the mechanics of grain handling may well best be expressed a in a large scale working model of the site. This approach may in exceptional circumstances be supported where there is no viable alternative to removing original fabric, but it should not be used as justification for removing that fabric.

Similarly, drawings, photographs and video material may also serve as interpretive media for the site.

7.6.1 *At least one of the hydraulic accumulators, one of the truck lifts, and one of the elevators should be retained and presented in such a way as to demonstrate their working principles.* **[LT]**

Note:
The tippler on track two, together with elevator #3 are likely to be best suited to this.

7.6.2 *At least one full set of elevator equipment, including the conveyors from the track shed, and to and from the storage annexe, should be retained for future interpretation. It is important to retain enough of the machinery to indicate the logical sequence of operation of the elevator from point of loading, to storage, and shipping.* **[LT]**

Note:
Once these machines are abandoned it will be far more costly and difficult to ever restore them.

> "There is nothing like quite like the sight, sound, and smell of working machines." [Streeten 2000 p14]
>
> English Heritage assessment of the implications of public access to industrial sites "where appreciation, education and enjoyment are encouraged through displays and interpretation."

7.6.3 *The spouts, scales, conveyors and other equipment in the working house and storage annexe should not be dismantled or disturbed in any way, until comprehensive plans for the future of the site have been formulated. At that point it will be necessary to make further decisions on the future of this equipment in the context of those future plans.* **[IM/ST/LT]**

Note:
Article 10 of the Burra Charter deals with removal of contents[6] and the importance of the completeness of a collection and Article 22 says if it has to be removed it must be safely stored for the future.[7]

7.7 Character and interpretation

7.7.1 *Interpretative material should be provided around the site to explain the significance of the site and its workings. Proposals for interpretation should be provided in Site Development Plans.* **[ST/LT]**

Note:
Appropriate methods of interpreting the history of the elevator should be integrated into any development proposals. It is recommended that people with working experience of the site (such as Robert Hurn) be asked to assist in the preparation of any interpretive material.

7.7.2 *A video record of the workings of the silo should be produced.* **[ST/LT]**

Note:
The video material recorded in 2001 should be integrated with that recorded in 1995. The two recordings should be properly 'storyboarded'; edited into a single resource; and commentary added.

7.7.3 *Consideration should be given to the building of a working model of the elevator.***[LT]**

Note:
The scale and proportions of the dust house suggest that this could be an appropriate place in which to display such a model.

7.8 Maintenance and repair

7.8.1 *A comprehensive repair and maintenance schedule should be initiated to ensure that the building does not deteriorate while new uses are sought.* **[IM/ST]**

7.9 Signage

7.9.1 *External signage and signage in the track shed should be taken down and conserved pending future decisions on the use of the site.* **[ST]**

7.9.2 *Some signage should in future be re-erected as appropriate.* **[LT]**

7.10 Record keeping

7.10.1 *A comprehensive record of the site should be made before any changes are made, together with details of changes made, and the reasons for them.*[8] **[ST/LT]**

7.11 Ongoing review of Conservation Plan

7.11.1 *This Conservation Plan should be the subject of ongoing management review, and, should be updated as appropriate.*

7.12 Proposed demolitions

7.12.1 *It is recommended that demolition of the remaining portion of the track shed and the sloping portion of the conveyor gallery be approved subject to the historic function and location of these structures being appropriately acknowledged in the approved Site Development Plans.*

7.12.2 *The Hydraulic Accumulator House [F] has considerable significance and should be retained at least until an alternative has been found for conserving the hydraulic machinery contained therein.*

7.12.3 *It is suggested that there are no reasons not to allow the demolition of the peripheral buildings listed below:*

the Electricity Sub-Station [G], dating to 1923/4;

the various brick structures [K] , [L], [M], [N], [P], [Q] & [S], built in 1966, and the Garage / Car Port [R].

Important Note:
Any demolition and subsequent excavation of groundworks on this site may reveal archaeological evidence of the former grain and coal sheds, and/or archaeological evidence of shipwreck material.

Notes to Section 7

[1] *Enabling Development and the Conservation of Heritage Assets, 1999* and *Proposals for Enabling Development affecting Heritage Assets: a practical guide to assessment, 2000.*

[2] This policy closely modelled on Kerr 1992 p5

[3] Marquis-Kyle and Walker 1992 p38

[4] Marquis-Kyle and Walker 1992 p35

[5] Stratton 2000 p44

[6] Marquis-Kyle and Walker 1992 p45

[7] Marquis-Kyle and Walker 1992 p56

[8] Marquis-Kyle and Walker 1992 p14

8 Next steps

As has been made clear, this document is provided as a discussion document. It is therefore appropriate to outline what steps need to be taken in the next phase of the Conservation Plan process.

8.1 Structural Engineer's Report

The need for a Structural Engineer's Report is now paramount. This needs to report not only on the structural integrity of the working house and storage annexe, as it stands now, but also on the likely implications of removing interior vertical divisions (such as some or all of the bins in the working house or the storage annexe) or horizontal divisions (the floors in the working house). It would need to give particular consideration to the state of the steel reinforcement in the concrete, as well as the steel structure forming the upper parts of the working house.

Without such a Structural Engineer's Report it is impossible to consider what are likely to be financially viable new uses, and therefore to make firm recommendations for retention of significance.

8.2 Information

This report should now be made available to all stakeholders, but most particularly to the South African Heritage Resources Agency and the City of Cape Town's Urban Conservation Unit.

The 1994 Conservation Study had already deemed the grain elevator complex worthy of retention. Nonetheless, declaring that it is a "cultural resource" with a "heritage value", proves to be arguable. It is clear that notions of value and significance cannot be taken for granted, that they may shift and change through time, and that different people and interests will have different values. The landmark value of the Cape Town Grain Elevator might, for example, be taken for granted by the owners and developers of the site, while those most recently employed in it may have entirely different ideas. Many people in Cape Town, including many visitors to the Waterfront, will never even have noticed this 'landmark', and know or care nothing about its past or continued existence.

Stratton clearly states the importance of public opinion. "The purist approach, developed and applied by conservationists, historians and industrial archaeologists, is now being undermined as much from within the preservationist movement as by its critics. The boat has been rocked though not yet capsized by the commitment to public participation, and more specifically the study and protection of twentieth-century commercial and industrial buildings. These are often large structures that need commercial uses to fund their maintenance . . . the broad public can only be expected to share such enthusiasms if these buildings are made attractive and usable."[1]

The preparation of a conservation plan requires access to a range of skills and knowledge, and consultation should be built into the programme. During 2001 an informally constituted Conservation Planning Working Group has met regularly. This group has comprised representatives from the Victoria and Alfred Waterfront, the consultants employed to draft the Conservation Plan, and representatives of the South African Heritage Resources Agency and the City of Cape Town's Urban Conservation Unit. One meeting has been held with the Victoria and Alfred Waterfront's Design Review Committee, which comprises some of Cape Town's better known architects working in the conservation field, and former V&AW chairman David Jack. The Victoria and Alfred Waterfront Liaison Committee (which includes representatives from SAHRA, Institute of Architects, SACHM, Cape Town Tourism etc.) has also been informed that this report is in preparation.

8.3 Consultation

It is recommended that once a Structural Engineer's Report has been completed, a workshop be convened by the Victoria and Alfred Waterfront. Participants should include, as a minimum, management of the Victoria and Alfred Waterfront, the consultants tasked with drafting the Conservation Plan, and representatives of both the South African Heritage Resources Agency and the City of Cape Town's Urban Conservation Unit.

Notes to Section 8

[1] Stratton 2000 p22

9 Appendices to the Conservation Plan

9.1 Overview of site components

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
A	**The Track Shed** This is an integral part of the complex, though structurally a 'bolt-on' addition, the track shed is where grain is received into the elevator. Whilst it is a lightweight structure, with little in the way of foundations to support its walls and roof, there is a huge amount of concrete underground which supports that hydraulic truck lifts.	The track shed is of considerable significance because • it is essential to a proper understanding of the function of the site as a whole • its scale and proportion are directly related to the functional operation of the elevator • its scale and proportion contribute to an aesthetic of the site as a whole • its structure and form clearly signify the period and idiom in which it was built, contributing to the industrial nature of the site	The westernmost two lines of the track shed were demolished in February 2001, to make way for the Boulevard and underground parking. There are no current plans for economic re-use of the remaining portion of the track shed. Early plans of the track shed show concrete mountings and structures penetrating approximately seven metres down to bed rock.[1]	Demolition of the remaining portion should be approved subject to the historic function and location of the structures being appropriately acknowledged in the approved Site Development Plans. A hydraulic tippler, length of track should be retained, preferably *in situ*, and presented in such a way that its functional connection with the elevator is legible. Repositioning of a truck on the tippler provides opportunities for interpretation of the elevator complex. A more detailed planning phase will be necessary to determine the best possible way of incorporating the mechanical aspects of the track shed, once plans for re-use of the elevator area become more firm.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
A	Four lines of railway served the track shed, where all grain taken into the grain elevator is first received. Each of the railway tracks served a below ground hopper, into which grain was discharged from railway wagons. Each of the intake hoppers was served by a hydraulic lift, by means of which railway wagons were lifted to an angle of approximately 45^{o} in order to discharge grain through gates in the end of each wagon.	The railways lines, hoppers, tipplers and associated capstans are of considerable significance because • they form an integral part of an intact and largely original complex still in working order • they demonstrate the transfer of technology • they are rare surviving examples of hydraulic technology • they have educational potential • the railways are the essential link to the broader economic landscape which the elevator was built to serve	The truck lifts require an hydraulic accumulator to remain serviceable if they are ever to be operated. However, if they were to be operated regularly for display purposes it is clear that they quite require considerable maintenance and spare parts which are no longer available – in short – they will eventually wear out.	Every effort should be made to retain at least one hydraulic truck lift *in situ.* A maintenance schedule should be drawn up for the truck lifts and the hydraulic accumulator to ensure that they remain in good order and capable of being operated. One truck lift in the raised position would have the potential to form the basis of a good interpretative static display.
	Two types of wagon are used, the first of which is flat bottomed, and needs to be tipped end on to discharge its cargo, and the second type, which has hopper shaped sections in its floor, is simply discharged by opening valves in the bottom of the wagon.	The wagons are of modest significance because • they represent historical change in methods of grain handling • they represent the close economic ties between South Africa and Great Britain during the 1920s	The railway wagons are not owned by the Victoria and Alfred Waterfront, and are not physically part of the site.	Negotiations should be entered into with Spoornet to retain on site one FZ wagon for display with the truck lift.
	Signage	The signage (inside and outside) is of modest significance because • it indicates spatial control • it serves as a reminder of the fire hazard implicit in grain handling and storage	The signs are all painted on wooden boards. They are likely to have no commercial value, and could easily be discarded as worthless.	The signs should be recorded in situ and taken down for storage pending decisions on the future of the site.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
B	**The Working House** The Working House contains all the machinery for receiving grain from the track shed; then elevating, weighing, cleaning and storing it prior to shipment. The basement and ground floor are constructed of steelwork, the basement steel being enclosed in concrete, presumably as a fire precaution. The storage annexe and the grain bins in the working house are built of reinforced concrete, cast on site using the 'slipform method'. Above the grain bins the construction is of a steel frame with concrete panels.	The working house is of exceptional significance because: • it is the landmark building, giving height to the site; • it provides views of the sea, the docks and, the city and the mountain • it is the core of the entire site	The working house seems at first to provide good opportunities for office or residential space. However, floor loadings are unlikely to be meet modern standards. Whilst the building as a whole was designed to take considerable loads, this is all borne on the vertical steel work and concrete structures., not the floors. The bins in the working house, which are rectangular in form, would need to be removed if the space contained was to be effectively re-used. This would entail strengthening and supporting the upper floors.	The retention of the working house and storage annexe (silos) is paramount. The form, structure and historic function should be appropriately acknowledged in any new proposals, although removal of some interior walls between bins is going to be an imperative if an economic future is to be found for the site. **A structural engineer's report is needed before any firm proposals can be formulated for re-use.**
	Each elevator consists of a chain-driven endless rubber belt, to which is attached a series of steel buckets. As the full buckets reach the top of the elevator, they are inverted, spilling the grain into chutes which direct it to the next level.	The bucket elevators are of considerable significance. Modern elevators work on pneumatic principles, and do not employ continuous bucket systems. The elevators are the principle component that gives the form to the building.	The remaining 24" intake and shipping elevators are all in working order. The 12" and 18" elevators that served functions such as the drying and cleaning facilities were removed some years ago.	One bucket elevator system should be retained.
	Rectangular grain bins in the working house are constructed of reinforced concrete, with steel bases. The bins are built on a steel structure extending into the basement.	The bins are of modest significance.	The bins are an integral part of the structure. If they are partially removed, by taking out internal dividing walls, it will be necessary to provide other structural support.	**A structural engineer's report is needed before any firm proposals can be formulated for re-use.**

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
	On the intake (west) side of the building, there are three 48 ton pre-weighing scales, known as 'garners' or 'dormant scales', each serving a single intake elevator. On the shipping (east) side of the working house there are three automatic scales of 6 tons capacity, serving the shipping elevators. A fourth automatic scale is located on the west side as a spare.	The pre-weighers are of modest significance. The three units on the intake side are original, and still fully functional. They demonstrate the level of manual operation need, especially compared to the later machines fitted in the 1960s and beyond. The more modern scales are of lesser significance.	The original pre-weighers and scales are extremely bulky and solid. It is difficult to see how any use could be made of them, and it is therefore likely that they will have to be removed in order for the site to become economically feasible.	The operation of the pre-weighers and scales would best be demonstrated by the use of a scale model.
	There is a series of man elevators and slide poles provided inside the working house, (though only at the level of the top five floors). Each man elevator consists of an endless rubber belt, running vertically, which has handles and small ledges attached at regular intervals, allowing a man to step on to it and ride up or down one floor at a time as required. The slide poles (like the traditional fireman's pole) allow rapid descent from each floor to the next.	The man elevators and slide poles are of considerable significance. They serve to emphasise the vertical nature not only of the building but its operation.	The man elevator is operable, but many of the hand and foot holds are missing and would need to be replaced. Both elements pose significant Health and Safety hazards while in their current state.	One example of each of features could be retained by incorporating them into imaginative design approaches. Enclosing the man elevator in Perspex (or similar) would enable it to be properly understood.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
	Above the working house bins, a series of 'crossbelts' are raised on a mezzanine structure. Each is provided with a chain-driven movable 'feeder', which collects the grain directed into it from the Spout Floor above, and a movable 'tripper' which takes the grain from the moving belt, and delivers it to the spout below. Grain taken from these conveyors is then passed either directly into the working bins, or onto another set of conveyors, running on the east-west axis, to be taken to the storage annexe.	The crossbelts are of modest significance. There is nothing unique about their operation, which is replicated by the annexe and tunnel belts (on this site) and by similar systems on other sites.	For this floor to have any viable use it will be necessary to remove the crossbelts and mezzanine structure in their entirety.	
	On the ground floor there are various machines, such as a Cleaning Machine, a Bag Sewer and a Bag Lifter. Along the eastern side of the building, a conveyor running from south to north takes grain to the north east corner, where it is in turn loaded onto another set of belts serving the conveyor gallery.	The cleaning machine is of modest significance, and demonstrates the technological processes required to sieve and clean the maize. It is thought to be contemporary with the site. The other equipment is to be removed by WPK.	WPK have indicated that they would like to remove the cleaning machine.	The cleaning machine should be cleaned and stored for possible future use as part of an interpretation scheme.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
	The shipping side of the Basement is fitted with a steel mezzanine floor, onto which lead six tunnels (two per elevator) leading from the six lines of bins in the storage annexe. Horizontal conveyors move the grain from the bottom of the bins to chutes, which in turn lead to the boots of the shipping elevators. At the lowest point of the working house, in the basement of the working house, are the 'boots' of the bucket elevators. On the intake side of the building, there are tunnels leading from each of the receiving hoppers in the track shed.	The tunnels and belts are of considerable significance. They represent the literal connections between the track shed, the working house and the storage annexe.	One complete tunnel and belt system (including feeders and trippers) should be retained, together its the elevator. If one of the truck lifts in the track shed is to be retained, then ideally it should be that set that is retained with it.	If it is not possible to retain one of the intake sets, then one of the shipping sets should be retained.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
C	**The Storage Annexe** The storage annexe stands separated from the working house. However, it is connected by bridges to the scale floors of the working house, and tunnels to the basement of the working house.			
	Above the bins are three identical horizontal conveyor systems, running at right angles to the east wall of the working house. Each system uses endless rubber belts to carry grain from the working house and deposit it, by means of a 'tripper' and a chute, into the required storage bin.	See above for comments on belt systems.		The “memory” of a connection between the working house and the storage annexe should be a requirement of any new design proposals.
	Six below ground tunnels allow for the transfer of grain back to the working house from the storage annexe. Grain is dropped from the base of the silo into a 'feeder' which directs it onto a continuous rubber belt, from where it is carried into the basement of the working house.	See above for comments on working house tunnels and belt systems.		
	The aluminium clad steel structure on top of the storage annexe was used as an office and look-out station by the Port Captain from about 1935, until it was rendered redundant by the Lourens Muller Building. It is now being used by Vodacom to house telecommunications equipment.	The former look-out is of modest significance.	It will almost certainly be a requirement of any re-use scheme that a new structure is built on top of the storage annexe. In the short-term it will continue to be necessary for the telecommunications companies to have access.	Removal of the old look-out should be allowed.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
D	**The Conveyor Gallery to the Collier Jetty** The raised conveyor gallery, is constructed of steel members, and is clad at the landward end in cast iron sheeting. Until recently, similar sheeting remained in place on the portion of the gallery above the collier jetty, but it was apparently removed because of a perceived danger of corroded sheets falling onto people working on the jetty below. With the sheeting now removed, the steelwork and machinery are quickly deteriorating in the corrosive atmosphere of the quayside, and the rubber conveyor belts are being damaged by the wind.	The conveyor gallery is of considerable significance. Apart from the strong industrial aesthetic (now compromised – but in the view of many, improved, by having had the cladding removed), the conveyor gallery is an integral part of the elevator complex. Forming as it does the connection between the elevator and the sea, it is vital to a proper understanding of the site. The purpose of the elevator was, after all, not principally to receive grain, or store it, but to ship it to the export markets. Sketch proposals prepared by Evon Smuts Architects for the gantry were enthusiastically accepted by the Design Review Committee. However, it must be noted that there no potential client for any development and that the existing Precinct Plan makes no allowance for any development on the jetty itself.	The Design Review Committee considered options for the future of the gantry on the collier jetty. The V&AW has made previous commitments to retaining and maintaining the gantry, and these commitments are provided for in the Clocktower Precinct Plan (approved by the City of Cape Town 29-Jul-1999) and its annexures. In a report on the Grain Elevator included in The 'Grain Silo and Fish Quay Precinct' Conservation Study (December 1994) it was recommended that repairs be made to the gantry in order to prevent further deterioration. No action having been taken, the gantry is now in a poor state of repair, and will cost in the region of R1m simply to make safe. V&AW management is understandably anxious to ensure that shareholders money is not wasted, and now suggests that the gantry be demolished in its entirety. Lack of adequate maintenance is now being used as post hoc justification for demolition of a structure which has been deemed to have cultural significance, and is an integral part of the grain elevator complex.	At the meetings of the Conservation Planning Working Group, both SAHRA and the City's Urban Conservation Unit have expressed concerns around the proposal to demolish the gantry without firm proposals being put in place for future development, and without an agreed design framework have been agreed. This report suggests that creative ways of using the existing form and fabric need to be realised. A low cost, low return solution is likely to prove most appropriate, with simple timber decking replacing the decaying concrete, and a lightweight Perspex or similar covering being applied to the gantry. The gantry could then be opened to public access, creating a corridor into the sea, allowing views of the working fish quays and back towards the city. It would be necessary to amend the Precinct Plan, both to allow removal of the existing structure, and to allow other development.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
	Four horizontal conveyors, with trippers, run the length of the gallery; chutes in the floor receive grain taken off the belts by the tripper, which then drops into the boot of one of the ship loaders.	See above comments on working house belts.		
E	**The Ship Loaders**			
	Four loaders moved along rails laid on the collier jetty, using electricity supplied, to the chute nearest to where it was needed. Receive grain into own internal elevator, then by telescopic spouts from the top of the loaders, into the holds of the ship.	The loaders are of exceptional significance because: • they are essential to a proper understanding of the site • they are rare surviving pieces of historic machinery • it has educational potential	Video footage of last ship being loaded. Two loaders already broken up, remaining two displaced out of context to wrong side of collier jetty. This relocation was required by I&J in order to facilitate operational requirements of the fishing industry. The remaining loaders are in a poor state of repair and in urgent need of remedial work.	The remaining loaders should be conserved as a matter of urgency in order to mitigate further deterioration.
F	**The Hydraulic Accumulator House**			
	The hydraulic power for the truck lifts is produced on site by the application of electrical power to pump water to a pair of hydraulic accumulators. Each of the two accumulator 'tables' is supported on three steel pylons and is filled with concrete, scrap railway line and similar steel. The accumulators each have a simple trip mechanism which shuts off the pump when they have reached full height, or re-activates it when they have dropped to half height.	The contents of the hydraulic accumulator house are of considerable significance because: • it is essential to the functioning of the track shed • it is a rare working surviving piece of historic machinery • it has educational potential	The hydraulic accumulators are thought to be quite rare; important that the necessary pumps and motors are retained with the accumulators; it will be very difficult to operate this machinery once the skills of the existing staff are lost, and when the machinery is allowed to stand idle and deteriorate; however, regularly running of the machinery will also lead to breakdowns for which neither skills nor spares are available;	Demolition of the structure itself .should be allowed on condition that the equipment within it is properly conserved. Ideally one of the accumulators should be retained in working / workable order, and with appropriate display / interpretation; vital to retain narrative link between hydraulic accumulators and operation of the remaining tippler; second accumulator might need to be cannibalised to provide spares for first; a lot of thought needs to go into the conservation of these units, and mechanical engineers will need to be consulted.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
G	**The Electricity Sub-Station – 1923/4**			
	Built with the elevator in 1923 as there insufficient power available. The construction is similar to the upper parts of the working house, being cast concrete panels on a steel frame. All the original equipment has been stripped and replaced by more recent switchgear. Due to be decommissioned July 2001.	This sub-station is of modest significance. It is contemporary with the elevator as there was insufficient electrical power to supply the elevator;		In the context that the working house and storage annexe are to be conserved, demolition of the electricity sub-station should be allowed;
H	**The Dust House – 1923/4** The dust house is contemporary with the main structures. It was extensively refitted by Simon-MacForman, of Johannesburg, in 1972.	The dust house is of modest significance, being an essential part of the original structure, adapted for changing circumstances, and adding to the industrial feel of the site.	Whilst this may at one level be considered a relatively unimportant and even intrusive annexe to the working house, nonetheless it does contribute to the industrial nature of the site.	The dust house & fan house / grain drying facility have similar proportions to the working house. It is suggested that if a working model of the elevator were to be built, then this would be an appropriate place to house it.
J	**Fan House / Grain Drying Facility - 1923/4** See comments above for Dust House [H] The base of a chimney for the drying house is still extant to the immediate south of the structure.			Demolition of this structure should be allowed.
K	**Fire Hydrant Pump House – 1966** Single storey small brick structure with flat concrete roof; contains electrical installation to pump water in event of a fire in the elevator.	This may be considered an intrusive element	The equipment is relatively modern. Need to establish whether it is necessary for future fire protection of the site.	Demolition should **NOT** be allowed unless adequate fire fighting capability is established elsewhere.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
L	**Men's toilet – 1966** Single storey small brick structure with steel windows; corrugated iron roof; secured with steel gate.	Of minimal significance.		Demolition should be allowed.
M	**Men's toilet – 1966** Single storey small brick structure with steel windows and corrugated iron roof. Signs painted "Whites Only" on exterior wall. Secured by padlocked gate.	Moderate significance. The duplication of ablution facilities is a vivid reminder of the political regime operating in the 1960s when these buildings were erected;	Apartheid era signage is now rare and marketable, but in this case it is painted on the brickwork and not easily removable.	Record signage in situ. Demolition should be allowed.
N	**Oil Store – 1966** Single storey brick structure with concrete roof and steel doors.	None		Demolition should be allowed.
P	**Mess Room – 1966** Single storey brick building with corrugated asbestos roof; used by 'non-European' staff; comprises toilets and showers, a locker / changing room, and mess / kitchen area.	Minimal significance – but see remarks at [M] above.		Demolition should be allowed.
Q	**Workshops – 1966** Single storey brick structure with corrugated asbestos roof; comprises workshop, stores and garage.	None		Demolition should be allowed.

Overview of site components (should be read with detailed Site Inventory presented in separate volume)				
ID	**Understanding**	**Significance**	**Issues**	**Policies**
R	**Garage / Car Port – 1966** Single storey timber frame structure clad in corrugated iron and open on the east side; provides covered parking for four vehicles	None		Demolition should be allowed.
S	**Office and Mess Facilities – 1966** Two storey brick structure with corrugated asbestos roof and steel windows; built from plans dated 21/04/1966 - mess accommodation for 38 staff - note these would all have been white - 'non-Europeans' were, and still are, provided with separate facilities [P]; ground floor comprises locker room, shower & toilets, pay office, clock room for non-whites, grain grader's office; upper floor comprises kitchen / mess, various offices.	minimal	likely to be useful in the short term; the offices and facilities are in good condition and perfectly functional.	demolition should be allowed.
T	**Documentation** Plans and documentation currently held by Victoria and Alfred Waterfront that were previously held by Port Engineer's Office. Large pile of badly damaged plans (stored in workshops) from Simon MacForman of Johannesburg, dated 1971 - all relate to major refit of dust extraction and broken grain handling systems.	Some of these plans, dating to 1920, are of considerable significance.	Vulnerable to theft, insect, rodent and water damage.	Should be properly archived and conserved.

Notes to section 9.1

[1] South African Grain Elevators Cape Town Harbour Installation – Hydraulic Gear for End Tipping Truck - Drawing LE-2009

9.2 Willie de Jager's story

[02/07/2001] interviewed Willie de Jager (with Robert Hurn)

In January 1955, eighteen year old Willie de Jager went to work for South African Railways and Harbours, first as a trainee steward, and then as a messenger. After three months in the army, at the beginning of 1956, De Jager was posted to the Cape Town Grain Elevator in June that year. Here, as a "second assistant", his principle task was to operate the levers on the truck lift tables.

Labourers at that time were all Xhosa. Their duties included pulling the wagons through the track shed, operating the capstans, opening the trucks, and cleaning. Some lived in the hostels in the docks, while others stayed in Langa.

Only the foreman was English speaking, with all other white staff being Afrikaans.

There were no 'coloured' staff employed at the elevator.

Casual staff were secured from SAR&H on a daily basis, as required.

Instructions to the labourers were communicated through an "induna" or "sarang" who acted as foreman for the labourers.

Mess and ablution facilities were originally in corrugated iron huts, with separate facilities being provided for "black' and 'white' staff. In the 1960s, when new brick facilities were built on the sites of the old, these discriminatory arrangements were repeated. As witness to this, one toilet block still bears the words "Whites Only" stencilled in paint on its brickwork.

One of De Jager's most enduring memories of this period is the hours the elevator staff worked during the Suez Crisis of 1956-1957. With the Suez Canal closed, ships that would normally have gone to Durban to load grain came instead to Cape Town. With the port working at capacity, the elevator staff worked from seven in the morning until ten at night five days a week, with only slightly shorter working days at the weekends.

At that time there were approximately 56 labourers on the site, together with a dozen "second assistants", two "first assistants, class two" and two "first assistants, class one". These reported to the Weighing Foreman and the Elevator Foreman, who in turn reported to the Supervisor of the elevator. The Supervisor's role entailed office management; dealing with SAR&H and the shipping agents; and reporting to the Port Manager.

The Elevator Foreman carried all the day to day operational responsibility for the elevator, and had as his deputy one of the "first assistants, class one", with the "induna" and twelve "second assistants" in turn reporting to him.

The Weighing Foreman had responsibility for the working house bins, and the floors above them, and all of the storage annexe. Thus his duties excluded the intake and shipping operations. The second of the "first assistants, class one" reported to the Weighing Foreman, and his principal function was to write the weighbills. Two "first assistants, class two" worked on the shipping side, with three "second assistants" on the intake side and one "second assistant" in the storage annexe.

The other important function to be carried out at the elevator was that of the "Grain Graders". Two Grain Graders were permanently employed at the elevator, while another three would be used when necessary at the quayside.

De Jager stayed in Cape Town until June 1959, and then, with the grade of "first assistant, class two" and a salary of £5 per month, left for Westminster, in the (former) Orange Free State. This was the site of one of the smaller, "inland elevators" that served the port elevators of Cape Town and Durban. Working with a supervisor named Gert Rousseaw, and two labourers, De Jager was responsible for receiving and grading maize received from the local farmers, and loading it for rail shipment to Cape Town.

In August 1962, De Jager moved from Westminster to Balfour North in the Transvaal. This was one of the larger inland elevators, and shipped grain to Durban rather than Cape Town, but its basic operation was the same.

Just over a year later, in November 1963, De Jager returned to Cape Town elevator. He remembers working practices and staffing levels being as they were when he left.

There was a seasonal element to the work, and after maize exports peaked, De Jager would go to the country elevator at Mooreesburg to work with wheat for much of November and December each year. This continued until 1970, when Mooreesburg Co-op built a new elevator, and the old one was demolished.

During De Jager's career in Cape Town he worked himself up through the grades as "first assistant, class one", Grain Grader, Weighing Foreman, Elevator Foreman, and finally Supervisor.

By the 1980s, as railage costs became prohibitive, only grain from the western Transvaal was being shipped through Cape Town. Free State elevators were using East London, and the eastern Transvaal, Durban.

In 1987 the entire elevator complex was leased to WPK, and only five of the white SAR&H staff were kept on, together with some of the labourers. The elevator was renovated, at this time, with cracks being repaired, the silos painted with a waterproofer, and the bagging system changed.

Willie De Jager was forced to retire through ill health in 1992. Maize dust, he says, does not tend to affect the health of those working in the elevator, but as an asthmatic, the dust encountered in the new products such as soya oil cake was much worse.

9.3 Re-use of Industrial Buildings

This section simply gathers together some notes and quotes on current thinking on the adaptation and re-use of industrial buildings.

In the United Kingdom, 'Regeneration Through Heritage' was established in 1996 to promote awareness of the potential which heritage industrial buildings offer for developing new and sustainable economic, social and cultural uses.[1]

"Many of the projects featured in The Heritage Dividend have contributed to addressing social inclusion through the creation of new jobs, safeguarding existing jobs and creating high quality physical environments in previously decaying areas."[2]

HRH Prince Charles quotes Lewis Mumford about our need to understand the historic nature of the city, and suggests finding successful new uses for industrial buildings is a very tangible way of retaining that understanding.[3]

" . . . . the key to success in conservation and regeneration is to combine the economic pragmatism of re-use in the past with the inspirational qualities and community benefits of successful modern projects."[4]

There is increasingly "recognition that heritage industrial buildings represent a sustainable resource from past generations capable of being 'recycled' for new uses."[5]

"The National Trust (NSW) recognises that, irrespective of the importance of a particular site, a primary practical issue is the need to pay the costs associated with its maintenance and repair".[6]

Nicholas Falk suggests the following ingredients are essential for a successful project:

- Shared vision that unites both the owner of the property and the local authority and other regulatory bodies, so that there is the minimum of time wasted in conflict.
- Impetus for collaboration
- Balance of uses
- Driving force
- Financial package[7]

A very useful contextualisation of the adaptive reuse of industrial buildings in Cape Town has recently been provided by Hadewig Quaghebeur. In a thesis submitted for her Masters degree in Architecture, Quaghebeur examines three case studies: Castle Brewery, Woodstock; Longkloof Studios, Gardens; South African Breweries, Newlands.

After reviewing international practice, she uses various criteria to assess the ways in which the adaptation and reuse of these sites had been implemented. For example, Quaghebeur shows how international practice stresses the importance of not only assessing the structure and settings of industrial buildings but also associated artefacts. Case studies, she suggests, "indicate that the integration of artefacts into new design contributes considerably to an overall appreciation of the original building and use, and thus, the design quality of the reuse project."[8]

Quaghebeur then goes on to examine the ways in which the sites in the selected case studies addressed this issue, and concludes that assessment of cultural values was not done at all at the Castle Brewery, done "to some degree" at Longkloof Studios, and that it was done thoroughly for South African Breweries Museum in Newlands. However, she also notes that the brewery was probably treated more rigorously because of the clients desire to get 'National Monument' status for the site.

Quaghebeur also examines the "functional opportunities" associated with industrial buildings, showing how these need to respect existing fabric if the design quality of the conversion is not to be compromised.[9]; and also reviews the funding and development models necessary for economic viability.

Notes to Section 9.3

1 Proceedings of 'Making Industrial Buildings Work' 1999 p2
2 *Heritage Dividend* 1999 p10
3 HRH Prince Charles in Stratton 2000 p6
4 Stratton 2000 p9
5 HRH Prince Charles in Stratton 2000 p3
6 McKay 1988 p28
7 Nicholas Falk in Stratton 2000 p90
8 Quaghebeur p221
9 Quaghebeur p223

9.4 Statutory and Planning information

9.4.1 The National Heritage Resources Act (No.25 of 1999)

Some relevant extracts are noted here.

Section 3: (1) and (2) National estate

. . . of cultural significance or other special value for the present community and for future generations and includes:

(a) places, buildings, structures and equipment;

(b) living heritage;

(c) townscapes;

(d) landscapes;

(i) movable objects including those of scientific and technological interest; books, records and photographs.

Section 3: (3)

. . . criteria include:

(a) importance in the community and patterns of history;

(b) rare aspects of cultural heritage;

(d) demonstrates characteristics of class of object;

(e) aesthetic characteristics;

(f) demonstrating technical achievement;

Section 7: Heritage assessment criteria and grading

Grade 1: Heritage resources with qualities so exceptional that they are of special national significance;

Grade 2: Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or region;

Grade 3: Other heritage resources worthy of conservation.

Section 32 Heritage Object

This section deals with collections of heritage objects, which could be applicable to the equipment and machinery in the elevator

Section 34 (1) Structures

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.

9.5 Drawings and Photographs

Drawings

A comprehensive set of drawings has now been passed from the Port Engineer's office to the Victoria and Alfred Waterfront Company.

A letter from the Port Engineer to V&AW (ref: HAM 2/9/3 of 15-Feb-200) states that the latter is now the official custodian of the drawings "in terms of the National Archives Act & Legal Succession to The South African Transport Services Act (No.9 of 1989).

The drawings, which are scheduled in an attachment to the above letter, have been microfilmed by the V&AW and are an invaluable resource. It is important that proper measures are taken to conserve the drawings for future reference. Many, though copies, are dated 1920, and signed by Littlejohn-Philip, the Canadian designer of the elevator, and form an important historic artefact themselves.

A plastic bound document dating to 1972, details the modifications carried out at that time by Simon-MacForman of Johannesburg. As has been stated elsewhere, these modifications principally relate to the installation of new dust collection plant.

The following is a list of some of the more important drawings:

• Site Plan	L3-2000	10/11/1920
• Block Plan	L3-2001	16/04/1919
• Side and end elevations	L3-2005 (6)	18/07/1926
• East and north elevations	L3-2005 (7)	12/07/1926
• Section	L3-2005 (10)	12/07/1926
• Hoppers, Bins and Silos	L3-2005 (11)	12/07/1926
• Working House	L3-2005 (12)	12/07/1926
• Upper Hopper / Weighing Floor	L3-2005 (13)	12/07/1926
• Lower Hopper / Weighing Floor	L3-2005 (14)	12/07/1926
• Spout Floor	L3-2005 (15)	12/07/1926
• Truck Tipplers	L3-2009 (1/2/4)	12/07/1926
• Cubic capacity of silos	L3-2031	12/07/1926

Archive Photographs (1923)

The following is a list of photographs of the Cape Town Grain Elevator under construction, held at the Manuscripts and Archives Department of the African Studies Library, University of Cape Town. [Ref: BZE 90/24]

Each photograph is annotated and these notes are assumed to be contemporaneous.

46 "You will notice the ships ribs lying flat owing to the weight of the ground pressure on some."

47 "You will notice the ship's capstan in this photo, this being the position where the wreck was."

48 "Building operations."

50 "View of sheeting for one of the six tunnels – Annexe Storage."

51 "Laying rails for travelling loaders on Collier Jetty."

52 "View of square bins at top showing decking cleared."

53 "Track shed placing tipping platform in position."

54 "Placing tipping platform in position in track shed."

55 "Placing pre-cast concrete slabs in position – floor over bins of working house."

56 "Starting bin building (working house)."

57 "Starting bin building (storage annexe)."

58 "Circular bin moving frames in course of construction."

59 "View of track shed, hoppers and tunnels, with working house. Columns laying horizontal ready to lift into place. Columns are 47' long and weight approx 9 tons each."

60 "View of No.4 hopper and tunnel in track shed."

61 "Caterpillar brown hoist."

62 "Building operations."

64 "Building operations."

not numbered :
"After the last crust – the inclines white bottom showing cement having worked through into excavation in the attempt to close up the hole made by the crust."

Another set of approximately 150 photographs (of variable quality) shows the construction of the working house and storage annexe. These have been re-photographed and digitised.

9.6 Silo conversions: some comparative case studies

Whilst the Quaker Square development, in Akron, Ohio, is well known, there are a number of other examples internationally of silo complexes being re-used. In some of the examples quoted here, websites can be accessed for more detailed information, and it has therefore not been thought appropriate to include all the additional material here.

Three of the projects included here have focussed on cultural activities, while four have been, or are planned to be, converted for commercial purposes, and one is simply an archaeological memory. It is not intended to suggest that any of these be regarded as the perfect model for the Victoria and Alfred Waterfront, but it is useful to review them in order to stimulate discussion about possible futures for the Cape Town Grain Elevator.

Note: uncredited photographs in this section should be assumed to have been taken from the relevant website.

9.6.1 Montreal, Canada

The remains of an elevator in the old port of Montreal are preserved as an archaeological site in much the same way as many Roman and Medieval sites in Britain and Europe. Stratton and Trinder describe the site in the following terms: “In the Old Port of Montreal visitors can observe the outline of the concrete foundations of a thirty-two-storey grain elevator erected in 1912, together with associated fragments of rubber belting, twisted steelwork and rusting electric motors. The conserved ruin conveys a vivid sense of the scale of the Canadian grain trade and provides enlightening evidence of the new materials of the early twentieth century. The elevator encapsulates the fundamental, if elementary, concept that our understanding of the twentieth century is increased by an awareness of its archaeology, of the artefacts, images, structures, sites and landscapes of the past 100 years.”[1]

9.6.2 Quaker Square, Akron, Ohio

The best known adaptation and re-use of a silo complex is that of Quaker Oats silos, in Akron, Ohio. During the late 1970s the complex was converted into a hotel which opened in 1980. This was something of a leader in the field of silo conversions, and hence has been frequently noted in the literature.[2] Nowadays the visitor is encouraged to 'sleep in a silo' and 'dine in a mill'.

Following a visit to the site, Mike Stricker, of MLC, presented a report to the V&AW detailing his impressions of the project. He noted that after twenty years, the original conversion was now in need of major refurbishment, and gave a reminder that "any building, irrespective of age, needs to remain relevant to the needs of society at any given time, or face the reality of dereliction and the risk of demolition".[3]

Figure 21: Quaker Square, Akron, Ohio

Advertising for the Crown Plaza Quaker Square declares "All the Rooms Are Round!", and stakes a claim to be “one of the most unique and exciting hotels in the world.” It describes “luxurious guest rooms and 1000 square ft. suites are constructed right into a cluster of 36 turn-of-the-century grain silos. The silos, listed in the National Register of Historic Places, are a soaring 120 feet tall, and each of the ultramodern guests rooms measure 24 feet in diameter. And like the silos themselves, each oversized room is perfectly round!”.[4]

The Ohio Division of Travel and Tourism has published an analysis of the Quaker Square on its own website.[5] It describes, in fairly enthusiastic terms, how the “success of this large-scale development, undertaken despite a growing uncertainty about the future of downtown, is a catalyst for social and economic revitalization of Akron.”

Seed money to renovate part of the complex was raised by selling equipment from the disused mill. The revenues generated from the letting of four shops and a restaurant were in turn used to open another 26 shops. With this kind of critical mass having been achieved, the development was then able to raise loans for further rehabilitation of the site. At that time it was considered that the cost of rehabilitating the site was approximately one third of the cost of a new building.

[website: www.hiltonakron.com]

9.6.3 Salamanca, Hobart, Tasmania

In Hobart, Tasmania, a silo complex has been developed into apartments as part of an extensive "Waterfront" development.[6] The architects of this development, Heffernan Button Vos, have provided the following documentation which it is hoped will assist in considering possible futures for the Cape Town Grain Elevator.

- Site Survey
- Notes from submission to council
- Typical plans and elevations of both the Silos Building and adjacent structure
- Site History Investigation
- Site Development Plan - required after we commenced work on the project because of the introduction of a new Planning Scheme
- Concrete Tests Report
- Photos of the adjacent buildings along south side of Silos
- Computer images of existing and new proposal

Figure 22: Salamanca, Hobart, Tasmania

[web site: www.salamanca.com.au]

9.6.4 Baltic Flour Mills, Gateshead, UK

In the north-east of England, at Gateshead, the 'Baltic' is the flagship project in a £250m urban regeneration scheme.

Here, a flour mill built in 1950 is being transformed into a major centre for the arts, with temporary exhibitions being mounted even whilst construction is still under way.

During two 'reunion days' at the Shipley Art Gallery in 1998, over forty former workers at the Baltic Flour Mills came forward to record their memories, providing a vernacular history of the building from its construction in the 1950's through to its closure in 1980. 'Baltic Memories' was an exhibition that combined living recollections with industrial archaeology. It consisted of textual material and period photographs with projections, and provided information about where the wheat came from, and the methods of testing and baking as well as providing insights into the social lives of the workers at the mill.

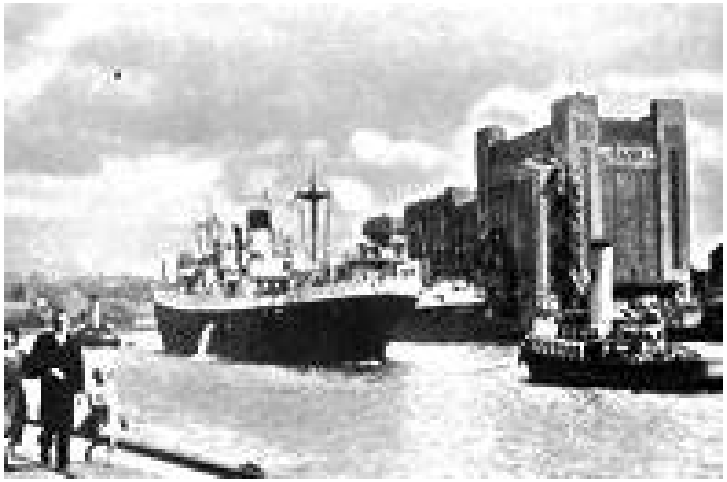

Figure 23: Baltic Flour Mills c1950[7]

[website: www.balticmill.com/popup/pubalticmems.html]

9.6.5 Silophone, Montreal, Canada

An imaginative project in Montreal explores the acoustic properties of a giant disused elevator, by playing sounds through the silos. This project, which ran for almost a year, aimed to "raise popular awareness of the building and to catalyse activity that will eventually result in the discovery of an appropriate new function for the abandoned elevator."

Figure 24: Silophone Logo

"Located in Montréal's old port, Silo #5B-1 was built in 1958 and has been cited by Le Corbusier as a masterpiece of modern architecture. The elevator was used to store grain which came to Montréal by rail and departed by sea. Due to changes in the global grain market the elevator became obsolete and was closed in 1996. Since then it has remained empty and, for reasons of security, closed to the public. The structure, constructed entirely of reinforced concrete, is 200 metres long, 16 metres wide and approximately 45 metres at its highest point. The main section of the building is formed of approximately 115 vertical chambers, all 30 metres high and up to 8 metres in diameter. These tall parallel cylinders, whose form evokes the structure of an enormous organ, have exceptional acoustic properties: a stunning reverberation time of over 20 seconds. Anything played inside the Silo is euphonized, made beautiful, by the acoustics of the structure. All those who have entered have found it an overwhelming and unforgettable experience.

Silophone makes use of the incredible acoustic of Silo #5 by introducing sounds, collected from around the world using various communication technologies, into a physical space to create an instrument which blurs the boundaries between music, architecture and net art. The project takes cues from transformations of similarly imposing industrial sites in Europe, and aims to raise popular awareness of the building and to catalyse activity that will eventually result in the discovery of an appropriate new function for the abandoned elevator."[8]

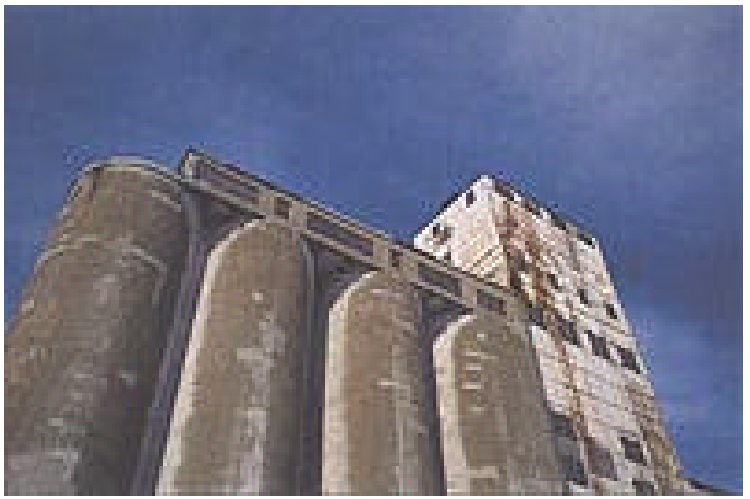

Figure 25: The Silophone project,, Montreal, Canada

[website: www.silophone.net]

9.6.6 Metronome Canada, Toronto, Canada

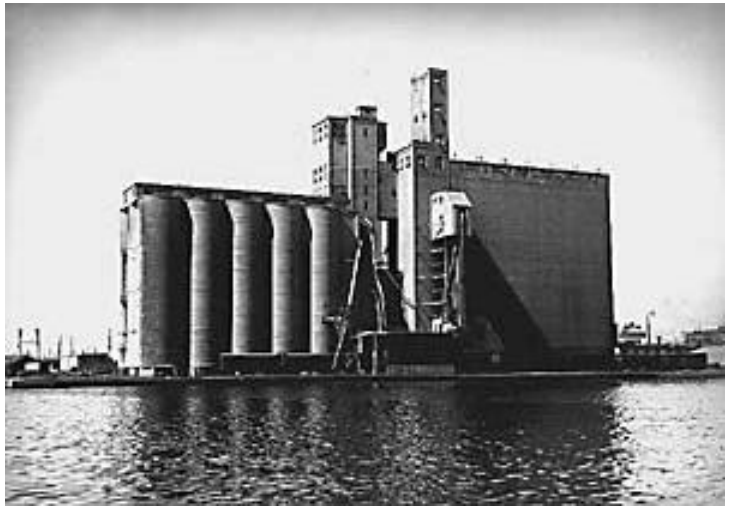

Figure 26: Metronome Canada, Toronto, Canada

Another Canadian project, this time in Toronto, is an ambitious scheme to convert “the Canada Malting Silo Complex on Toronto's waterfront into 'The World's First Music City', featuring Canada's Music Museum, an 800 seat concert theatre, offices for the music industry, The Music Education Centre, music related retail, The Canada Malting Museum, restaurants, a music themed children's playground and The Riverboat, a floating exhibit celebrating Yorkville Avenue in the 1960s.” The promoters of Metronome Canada intend that it become “the jewel in the crown of Toronto's rejuvenated waterfront and a lasting legacy to Canada's Millennium”, which “will integrate, educate, celebrate and promote all facets of the Canadian music industry.” [9]

[website: www.metronomecanada.com]

Figure 27: The architect’s vision for Metronome Canada - exterior

Figure 28: The architect’s vision for Metronome Canada - interior

9.6.7 Architects Studio, Barcelona

Architect Ricardo Bofill found a disused cement factory, an industrial complex from the turn of the century consisting of over 30 silos, subterranean galleries and huge machine rooms, and transformed it into the head office of Taller de Arquitectura.

"Remodelling work lasted two years. The factory, abandoned and partially in ruins, was a compendium of surrealist elements: stairs that climbed up to nowhere, mighty reinforced concrete structures that sustained nothing, pieces of iron hanging in the air, huge empty spaces filled nonetheless with magic. The transformation process began with the demolition of part of the old structure to leave hitherto concealed forms visible, as if the concrete had been sculpted. Once the spaces had been defined, cleaned of cement and encompassed by new greenery, the process began of adaptation to the new programme. Eight silos remained, which became offices, a maquette laboratory, archives, a library, a projections room and a gigantic space known as "The Cathedral", in which exhibitions, concerts and a whole range of cultural functions linked to the professional activities of the architect. The complex stands in the midst of gardens with eucalyptus, palms, olive trees and cypresses. This project is evidence of the fact that an imaginative architect may adapt any space to a new function, no matter how different it may be from the original one."[10]

Figure 29: Silos at the old cement factory, Barcelona, Spain

Figure 30: Silos transformed into studio space, Barcelona, Spain

[website: www.bofill.com/change/website-ingles/index2.htm]

9.6.8 Centex Housing Corporation, Minneapolis, U.S.A.

In the city of St Paul, on the Mississippi River, another disused elevator awaits redevelopment. The following article is taken from the journal “Minneapolis – St Paul City Business”[11].

What to do with a 60-year-old grain-transfer facility on the Mississippi riverfront is the last major design detail to be hammered out on the $140 million Upper Landing housing project in downtown St. Paul.

It has been a subject of negotiations for the past six months, but neither the developer nor city officials think the issue will hold up the project.

Dallas-based Centex Housing Corp. is in the final planning stages for 620 housing units on the riverfront property, known as the Upper Landing, located between the new Xcel Energy Center and the river. Centex was selected by the city as the tentative developer in August 1999.

In two or three weeks, Centex project manager Roger Fraley expects a redevelopment agreement will be sent to the St. Paul City Council for final adoption. But first, a decision must be reached on the grain elevator. "My personal hope is that we can save it. It's a fascinating structure," Fraley said.

Planning officials at the city have asked Centex to take on the redevelopment of the structure as part of its plans.

"And we're happy to embrace that challenge," Fraley said, but there are still unknown factors about the cost of renovating the structure and its potential uses. Centex has proposed turning the elevator, also called a head house, into eight to 10 housing units, Fraley said. An attached wood frame structure would be turned into a riverfront restaurant.

Other possible uses include a public lookout, an artists studio or perhaps a hostel for bikers.

Design challenges include stabilizing the building and bridging a gap created by a public bike trail between the structure and the rest of the housing units. The inability to build indoor parking also is a concern, Fraley said.

Centex is still studying whether any of that is technically feasible and how much it would cost to renovate the structure. If the price is too high, the building would be left alone. "We acknowledge its historical significance and want to, if it's possible, do something about it. You can't bankrupt a whole development doing it, but you can certainly give it a shot," Fraley said.

St. Paul Riverfront Corp. President Patrick Seeb said he has worked for many years to make sure that developers looking at the Upper Landing understand the historical significance of the head house.

"Some people not familiar with the area might just see it as a concrete building," he said.

It was placed on the National Register of Historic Places because it was built by Harvest States Cooperative, which was one of the first grain co-ops in the country and is now part of St. Paul-based Cenex Harvest States.

Centex has given the building a good look, Seeb said, and he's "pretty certain" that it will be incorporated into the development, even if a decision on its future use is put off until after the redevelopment agreement is signed.

There is only one obstacle for renovating the head house, said Seeb, and it isn't design or engineering problems: "It's just the money."

The city has applied for and received $3.7 million in state and local grants to clean up the pollution on the site, but no money has been earmarked for the rehab of the head house.

The elevator is usually referred to as a head house and sometimes called a pilot house, but it has nothing to do with river navigation. It was used to transfer grain that was shipped on Mississippi barges. The head house has been empty since 1986, when the St. Paul Port Authority bought 22 of the 23 acres known as the Upper Landing.

The building was the target of urban renewal efforts in the late 1980s, and the city had included $300,000 in its budget to demolish the structure. Those funds are still on reserve.

But Bob Schreier, director of development for the city, said the building won't be razed.

Schreier suggested a decision could put off and dealt with as a separate phase of development. The head house redevelopment will be easier to get done once the other housing units and the 23,000 square feet of commercial space are completed, he said.

If the development agreement can be reached and is approved by the City Council, then Centex could begin cleaning up the pollution on the site this fall and start construction on the housing units a year from now.

Notes to Section 9.6

[1] Stratton & Trinder 2000 p1

[2] Trinder 1992 p5, *Heritage Dividend* 1999 p10 and others.

[3] Stricker 2001

[4] website: www.hiltonakron.com

[5] website: www.ohiotourism.com/industry/heritage/outreach/quaker.html

[6] website: www.salamanca.com.au

[7] © Tyne and Wear Archives Service

[8] website: www.silophone.net/eng/about.html

[9] website: www.metronomecanada.com

[10] website: www.bofill.com/change/website-ingles/index2.htm

[11] Black, S; in *Minneapolis – St. Paul City Business*; 29-Sep-2000

9.7 Description of the slipform construction method for reinforced concrete

This text is quoted directly from the web site of the Buffalo History Works. Author Aaron Heverin in turn acknowledges "Grain Elevators" by Henry H. Baxter; Volume 26 in the "Adventures in Western New York History" series, published by the Buffalo and Erie County Historical Society.
[http://bhw.buffnet.net/grain/welcome.html]

“Building a grain elevator either of wood or concrete required special skills in engineering and design. One bushel of wheat weighs roughly 60 pounds, so a 1,000,000 bushel capacity elevator contains about 30,000 tons of grain. This creates an average load on the foundation of about 10,000 pounds per square foot.

In 1907, the American Elevator was built of reinforced concrete, a method of taking steel rods and embedding them in the concrete to provide the reinforcement. This method was used to keep the bins from bursting open due to the outward pressure of the grain while at the same time directing the massive load of the grain down to the foundation. And obviously, concrete is fireproof.

A method known as "slipform construction" was generally used to build reinforced bins. In the earliest stages of the elevators construction, a form usually four feet high was build on the foundation slab. Screw jacks placed at intervals of about seven feet were used to raise the form. Workers operated the jacks at a rate calculated to raise the form about 6 inches and hour giving the concrete time to set at the bottom before being exposed by the slowly rising form.

Using this method it took about 10 days for the Standard Elevator to reach the height of 125 feet, which was the average height of most bins. After the bins were complete, the workhouse was slipformed up until the elevator reached a height of 200 feet. Because of its complicated design, the workhouse was often built of steel rather than reinforced concrete.

The top deck of a grain elevator under construction was a very busy place. Placement of steel rods, pouring of concrete, and jacking of the form were continuous processes. Generally, each jack man had twelve jacks to tend to. A whistle sounded as the signal for each man to make one turn on each jack. Raising the form six inches required 288 turns -- almost five a minute -- on his jack. Understandably a jack man occasionally got tired enough to miss a few turns causing his section of the form to be lower than the rest, resulting in considerable stress on the form. For obvious reasons, this was not looked upon favourably by the job superintendent.

Supervising and inspecting the construction of a grain elevator by the slipform method was a formidable task. Concrete had to be poured properly and steel rods needed to be placed correctly so that they provided the required strength in the bin walls. Before construction began, workers would store enough reinforcing steel at the site to complete the job. After the job, having some of the steel left over caused some head scratching as the men wondered why they had any left at all. This led to the suspicion that some steel might have been left out, possibly at critical points. What followed next was pandemonium as the men wondered if the structure was up to design specifications.”

6

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David Worth
for the Archaeology Contracts Office
University of Cape Town, Rondebosch 7700

telephone: 021.650.4238
fax: 021.685.5045
cell: 082.931.1557

e-mail: dworth@ched.uct.ac.za
website: http://www.meg.uct.ac.za/worth/