APPENDIX 11

Copy Archival Record and Statement of Heritage Impact, AC Saltwater Pump House

STATEMENT OF HERITAGE IMPACT

PROPOSED DEMOLITION OF THE AC SALTWATER PUMP HOUSE

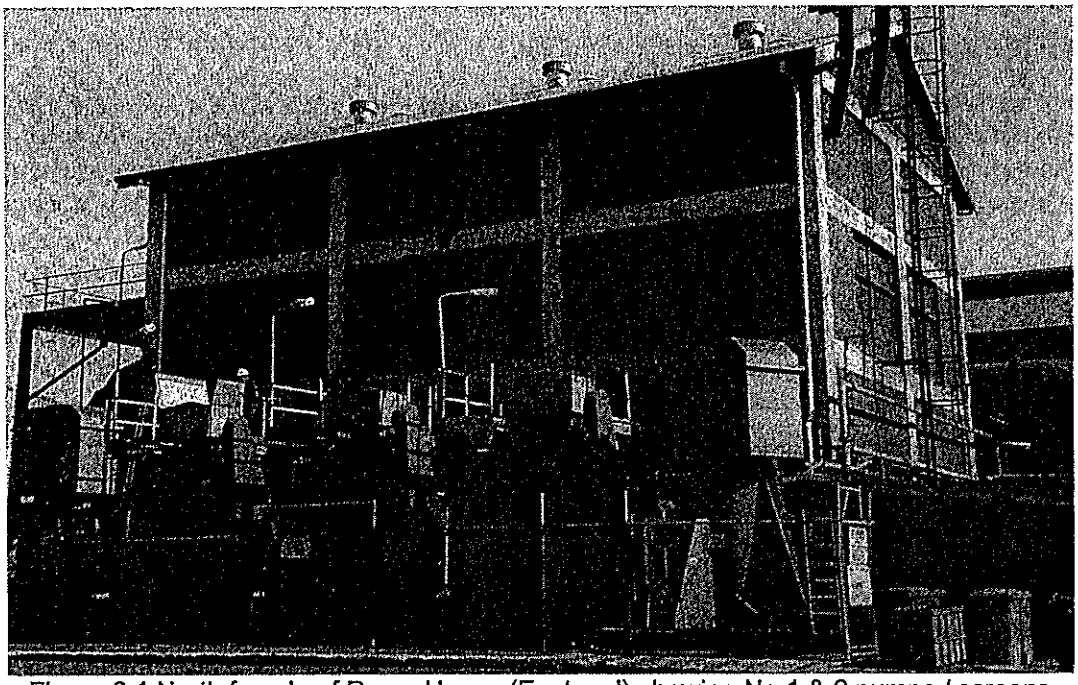

Figure 0.1 North façade of Pump House (East end) showing No.1 & 2 pumps / screens
Source: Cranney, P.P (1999: 136)

Prepared By:

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CONTENTS

1.0 THE PROPOSAL

Major changes have occurred in Newcastle and the hunter Region over the past 20 years. The downsizir and eventual decision to close BHP steel making operations and the rationalisation of the coal industry a a reflection of these changes. The BHP steel making site is strategically placed, not only on a local an regional level, but on a State and National level. It has been proposed that the existing "Front End" site b redeveloped as a Multi Purpose Terminal servicing the east coast of Australia. The area to be develope as the Container Handling Terminal, would require the demolition of all above ground structures locate within this area (see Appendices for location plan) to enable remediation of the land and redevelopment the site. Development of the remainder of the site at a later stage for industrial/commercial purposes is als proposed. The buildings proposed for demolition are:

1. No. 1 Blast Furnace
2. No. 1 Blower House
3. Open Hearth Building
5. No. 1 Bloom & Rail Mill
6. Steel Foundry
10. DC Sub Station
11. Wharves
14. No. 3 Blast Furnace
15. AC Pump House
16. Power House
19. Open Hearth Change House
20. Mould Conditioning Building
21. BOS Plant
23. No. 4 Blast Furnace

2.0 CONTEXT OF THE PROPOSAL

2.1 Physical Context

This building is located in the extreme North Eastern corner of BHP's Port Waratah Steelworks. It is locate to the North-East of the Ladle House, immediately to the South of the Wharves area and to the South – Ea of the No. 3 Blast Furnace.

2.2 Statutory Context

The AC Pump House is identified within the group identification forming Part B of Schedule (Port Waratah – BHP Steelworks and Office) of "The Hunters Heritage" – Hunter Regional Environment Plan 1989. It is identified individually within Schedule 4 of The Newcastle Local Environmental Plan 198 as being an item of Regional – level heritage significance. (This ascribed level of significance is consistei with the level of significance determined in the Port Waratah Steelworks Conservation Plan prepared by EJ Architecture in 1991). The item does not fall within a Conservation Area and is not included on the Stat Heritage Register. Under the EP and A Act, if an item is of State level heritage significance, the Consei Authority is required to obtain the consent and concurrence of the Department of Urban Affairs and Plannir to any major intervention into the item. Under the Integrated Approvals Amendment Act 1998, "Integrate development" is development (not being complying development) that, in order for it to be carried ou requires development consent and approval under other, listed environmental legislation (s 91 (1)). Th "other listed environmental legislation" includes the Heritage Act 1977. Under the new legislation, (in Sectic 91a):

(2) Before granting development consent to an application for consent to carry out the development, th consent authority must, in accordance with the regulations, obtain from each relevant approval body th general terms of any approval proposed to be granted by the approval body in relation to th

development. Nothing in this section requires the consent authority to obtain the general terms of any such approval if the consent authority determines to refuse to grant development consent. A Consent granted by the consent authority must be consistent with the general terms of any approval proposed to be granted by the approval body in relation to the development and of which the consent authority is informed. For the purposes of this Part, the consent authority is taken to have power under this Act to impose any condition that the approval body could impose as a condition of its approval.

(3) A consent granted by the consent authority must be consistent with the general terms of any approval proposed to be granted by the approval body in relation to the development and of which the consent authority is informed. For the purposes of this Part, the consent authority is taken to have power under this Act to impose any condition that the approval body could impose as a condition that the approval body could impose as a condition of its approval.

3.0 HISTORICAL REVIEW

Electric power supply has from the earliest development, of the Steelworks site, been of prime importance to the Newcastle steelworks. The early 3500-kilowatt, 240-volt DC generators, which were driven by reciprocating steam engines, could not keep pace with the ever-increasing power demands. As a result, as early as 1923, 25 cycle AC power had to be supplied by State Railways Zaara Street Power Station while plans were made to provide a new A.C. Power House on site. With the commissioning of the New A.C. powerhouse, came the requirement for cooling water for boilers. The AC Saltwater Pump House built and commissioned in 1924, was built of masonry wall construction with a timber truss roof structure, materials presumably being selected to combat corrosion. The lower level water intakes were below the Hunter River low water level.

The first two pumps drawing water from the Hunter River were steam powered. From the archival records it is evident that these pumps did not work as well as expected and although overhauled, continued to provide problems into the 1920's. By the late 1920's these pumps were driven by A.C. electric motors which saw the introduction of the first of the electric switchgear and motor starting equipment.

In 1937 an extension to the AC Saltwater Pump House was planned and built to house three DC powered axial flow pumps to serve the growing requirements of the AC Power Plant. This building was constructed using a reinforced concrete frame, with masonry walls and a steel truss roof structure and is located at the Eastern end of the older building.

In 1957 another extension was built on to the A.C. Saltwater Pump House to house the No 1 Motor Generator set which was to provide power for the wharf luffing cranes. The transferral of the Motor Generator also required further expansion to electrical switchgear. This extension was constructed of reinforced concrete columns and beams with infill cavity brickwork and steel roof truss structure. All these buildings remained in use until 1999.

An upper storey Staff Canteen building has been added to the Western end of the extended A.C. Pumphouse, in approx. the 1960's. This storey sits on earlier brickwork.

4.0 SUMMARY CONDITION ASSESSMENT

The exterior of the original section of the building and the extensions at both Eastern and Western ends has had a minimum of maintenance. This is evident in the poor condition of the paintwork to the brick walls of the old building and of the concrete framed portions of the newer buildings. At least two former windows within the Southern elevation of the original building have been bricked in and left unrendered. Cable trays have been attached to these walls, in places causing staining. Windows generally are in poor condition (see photos in Building Archival Record document), although window panes remain generally intact. External filters and ducts at the Eastern end of the building remain fenced off and in recently painted, fair to good condition, as do the steel framed structure and associated fence to the Eastern façade. Brickwork generally, is sound. Internal roof structures, (both original timber trusses and new steel truss roof), remain in good

condition, as do the large framed and braced timber doors in the Eastern façade. The part – planked timb flooring in the original section remains in good condition as do:

- the original light fittings
- the gantry crane
- the abandoned pumps and
- the mezzanine switch control panels

The roof cladding material to the combined building is recent and in good repair, with sarking below it. Th external ducts and control gear on the south side of the original building have been well maintained and a in good condition.

The condition of each of the subject buildings is fully described in written and photographic form in th Archival Record document produced to accompany this Statement of Heritage Impact.

5.0 ASSESSMENT OF SIGNIFICANCE

The AC Salt Water Pump House has been assessed (1991 Port Waratah Steelworks Conservation Pla as having Regional significance within the context of the development of the Steelworks.

The following detailed Assessment of Significance has been undertaken to reflect current NSW Heritag Act, Heritage Amendment Act and Burra Charter requirements

Historic Significance

The AC Salt Water Pump House represents a significant linkage tracing the interconnection of ener production, to the industrial processes required within the States most important integrated Steelworks. is associated with the early development of a site of significance to the State and maintains/shows th continuity of a process, which with adaptation remained relevant until closure. This provides significa evidence of its evolution. It identifies changing processes intimately linked with the evolution of the ste making process as a whole. In its totality it must be considered to have STATE HISTORIC significance

Aesthetic Significance

The A.C. Saltwater Pumphouse buildings are not aesthetically – distinctive and do not contain elemen which particularly exemplify a particular taste, style or custom. They are not associated with creative technical achievement because their success was based on a process of trial and error in relation to th pumps. The building does not have aesthetic significance.

Social Significance

Because of the close functional association between the AC Salt Water Pump House, the Power House ar the location of the later Staff Canteen attached to the Western end, the growth in specialist technical skil associated with these functions, these group of buildings have LOCAL SOCIAL Heritage Significance.

Technical Significance

The AC Salt Water Pump House has potential to contribute to a greater understanding of the technologic development and growth of electrical power generation on early 20th century integrated steelworks in N.S.V and Australia in doing so has HIGHEST level TECHNICAL Significance.

Further, since the Pump House was in continuous use and development from 1924, the item has highe level potential to provide evidence of the evolution of technology unavailable elsewhere other than a ve few sites in N.S.W. For this reason it has high-level RARITY of type at the STATE level.

6.0 OPTIONS FOR PHYSICAL INTERVENTION

The Conservation Plan BHP Port Waratah Site Addendum 1999 described the following options:

"After closure of steelmaking, the 27 items of heritage significance identified in the Newcastle LEP 1987 (as well as all other heritage items identified in this Conservation Plan), will remain in situ until:

a) the item becomes unsafe and/or uneconomic to maintain; or
b) the item is to be removed to facilitate remediation of the site; or
c) the item is sold; or
d) the item is to be removed to facilitate the proposed redevelopment

Where "Front End" items are to be demolished they should, where easily transportable and relocatable, be relocated, to a low impact, operating environment within the overall Steelworks site. Components/elements of existing structures/buildings should be similarly relocated or preferably, be relocated to either the proposed Interpretation Centre or, (if that is not appropriate), to the proposed State Industrial Archaeological Repository, both being within the existing Steelworks site. Items capable of continuing to provide service within a steel-making operation, should be relocated to Port Kembla Steelworks or other iron and steel making operation elsewhere in Australia or the world. Where buildings/structures of higher level significance are demolished and removed, interpretation of the building form at ground level is required (Burra Charter and NSW Heritage Act – As Amended).

This item is to be removed to facilitate this proposal. Therefore in accordance with Burra Charter and NSW Heritage Office requirements, recording and interpretation must be undertaken. In this instance it would be preferable to remove and either reuse elsewhere or interpret elsewhere, all switchgear and loose items. Not to do so would run the risk of loss of important, interpretable fabric, to theft or vandalism.

It would be preferable for the building to remain. However this proposition in untenable given:

a) If the AC Saltwater Pump House remains, it cannot be re-used or easily adapted within the MPT proposal and will require continuous expenditure for stabilisation and maintenance, or it will otherwise deteriorate and become a potential health and safety hazard. It may be possible to reuse the spaces if the contents were relocated.

b) Remediation of this area of the site is required. The remediation proposal involves capping the proposed Multi Purpose Terminal site with a flexible wearing pavement.

A range of Pumphouse components are potentially reusable in their present form and removal and reinstallation/reuse at other BHP Group sites elsewhere is supported. Off-site (ie; not in-site) interpretation, will only be undertaken at last resort and will involve samples of highest-level fabric/fittings/equipment.

Possible re-use or interpretation items include:

The pumps.
The gantry crane.
Switch control panels.
Original light fittings.

As part of the overall interpretation strategy it is proposed to identify the location of the A.C. Saltwater Pump House ad the layout of significant equipment using coloured glass bead trafficable applied surface to the MPT pavement. Further interpretation will occur at the Interpretive Centre and the Archaeological Repository.

7.0 THE HERITAGE IMPACT OF THE PROPOSAL

This item is substantiated as having STATE level significance, therefore demolition of the item to enabl development of the Multi Purpose Terminal will impact on the high-level significance of the item. Th closure of operations at the Newcastle Steelworks impacted on the interpretation of the processes of irc and steel making, demolition of the item changes the interpretation of the processes and the significanc of the item.

This impact will be ameliorated by fully recording the item in accordance with the NSW Heritage Counc Guidelines and interpretation and protection of the in-situ remains below the pavement of the propose Multi-Purpose Terminal. The individual site will be interpreted using pavement treatment that can identi the extent of the item and accommodate the operation of the Terminal. The processes associated with th item will be further interpreted on the main site at Port Waratah via the Delprat Interpretive Centre an supplemented by selected items being deposited in the proposed State Archaeological Repository However, the physical site will remain and its location will be identified through interpretive design within th pavement of the Multi Purpose Terminal.

8.0 APPENDICES:

Appendix 8.1 **Site Development Masterplan – showing area of proposed Multi Purpose Terminal in yellow**

Appendix 8.2: Site Development Master Plan – showing identified Heritage items.

Appendix 8.3: Conceptual Paving Patter to existing Heritage items.

ARCHIVAL RECORD

WATERFRONT PRECINCT HERITAGE BUILDINGS, MAIN SITE BHP PORT WARATAH STEELWORKS, NEWCASTLE

AC SALTWATER PUMP HOUSE

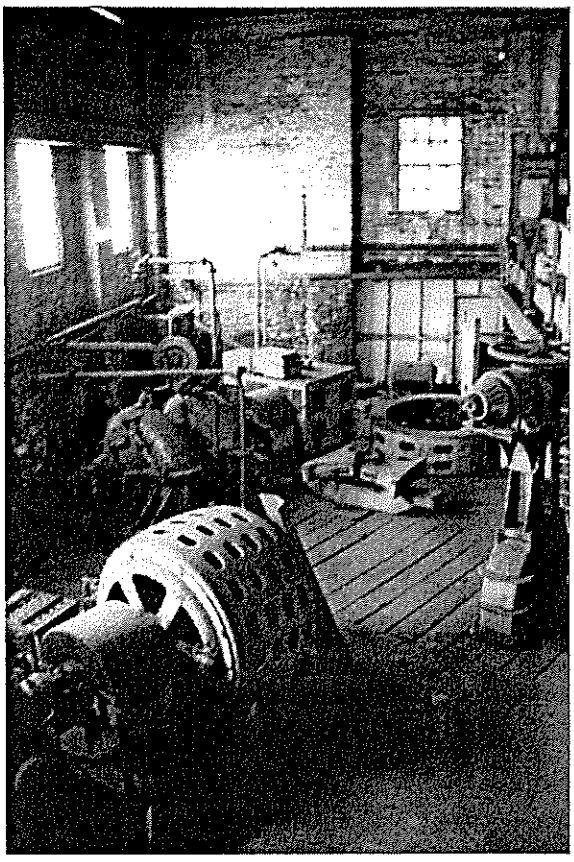

Figure 0.1 interior view of old pumps
Source: Authors image

Prepared by:

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September 2000
Our Ref: 3882-04-rec-011

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 Background to the project

Major changes have occurred in Newcastle and the Hunter region over the past 20 years. The downsizing and eventual decision to close BHP steel making operations and the rationalisation of the coal industry are a reflection of these changes. The BHP steel making site is strategically placed, not only on a local and regional level, but also on a State and National level. It has been proposed that the existing site be redeveloped as a major Container Handling Terminal servicing the east coast of Australia. The area to be developed as the Container Handling Terminal would require the demolition of all above ground structures located within this area to enable remediation of the land and redevelopment of the site. Development of the remainder of the site at a later stage for industrial /commercial purposes is also proposed.

In light of the above, EJE Architecture has been commissioned to prepare detailed archival records of the buildings proposed to be demolished that are considered to have heritage value. These records involve documenting the relevant buildings and items they contain as well as the industrial processes that took place within them. Designed to help ascertain the heritage significance of the buildings and associated processes, these archival records also form a statement for the future interpretation of this now redundant part of Newcastle's industrial culture.

The following document constitutes the Archival Record of the AC Pumphouse - an item classified as having a 'Regional level of heritage significance'

1.2 Archival Recording Methodology

The approach taken in recording these heritage items and the document format is based on heritage consultant input and current NSW Heritage Office's guidelines including those relating to the preparation of archival records and their photographic recording.

A number of important aspects have been identified in the statement of heritage significance included in the report whose recording was necessary to reflect the item's character and value described. Hence it is this statement that drives the rationale for the report and determines the relevance of information collected. Derived from three main elements - buildings (structure and fabric), the individual items they housed and the processes that took place within them - these aspects are elaborated on in a number of different ways, which reflect their respective social, technical and aesthetic qualities.

As a way of dealing with the items various facets of heritage value, the report is broken into 3 main components:

-Written descriptions (history, process and heritage statement),
-Pictorial descriptions (photographs and working drawings)
-Inventories and other supporting information

Together these components create a comprehensive account of the chronological development of both the buildings and the industrial technologies held within them that have invariably changed throughout their lives. At times the components are incorporated into each other to provide a more coherent and illuminating description. All material is cross-referenced to each other and referenced to archival registers and source publications.

The written descriptions provide a background to the building and the functions that it housed and incorporate relevant photographs. As an essential part of the written component, a statement on the item's heritage significance details why the item is valued.

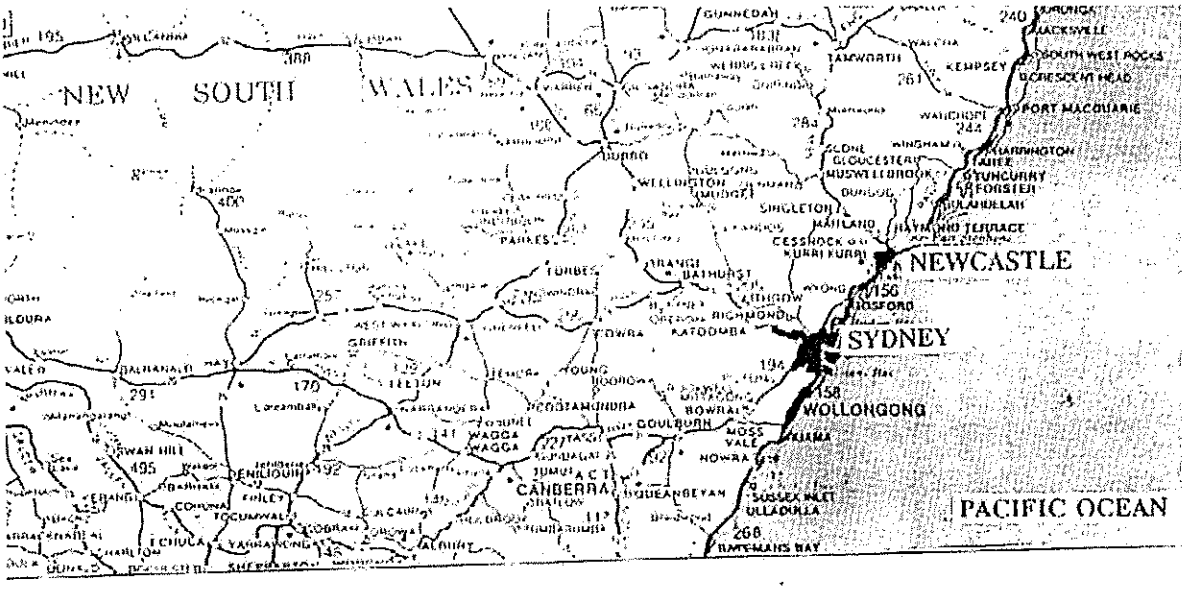
The bulk of the information in this report comes from the pictorial descriptions. Comprising of both historic and contemporary photographs, an account of the building fabric, the various industrial

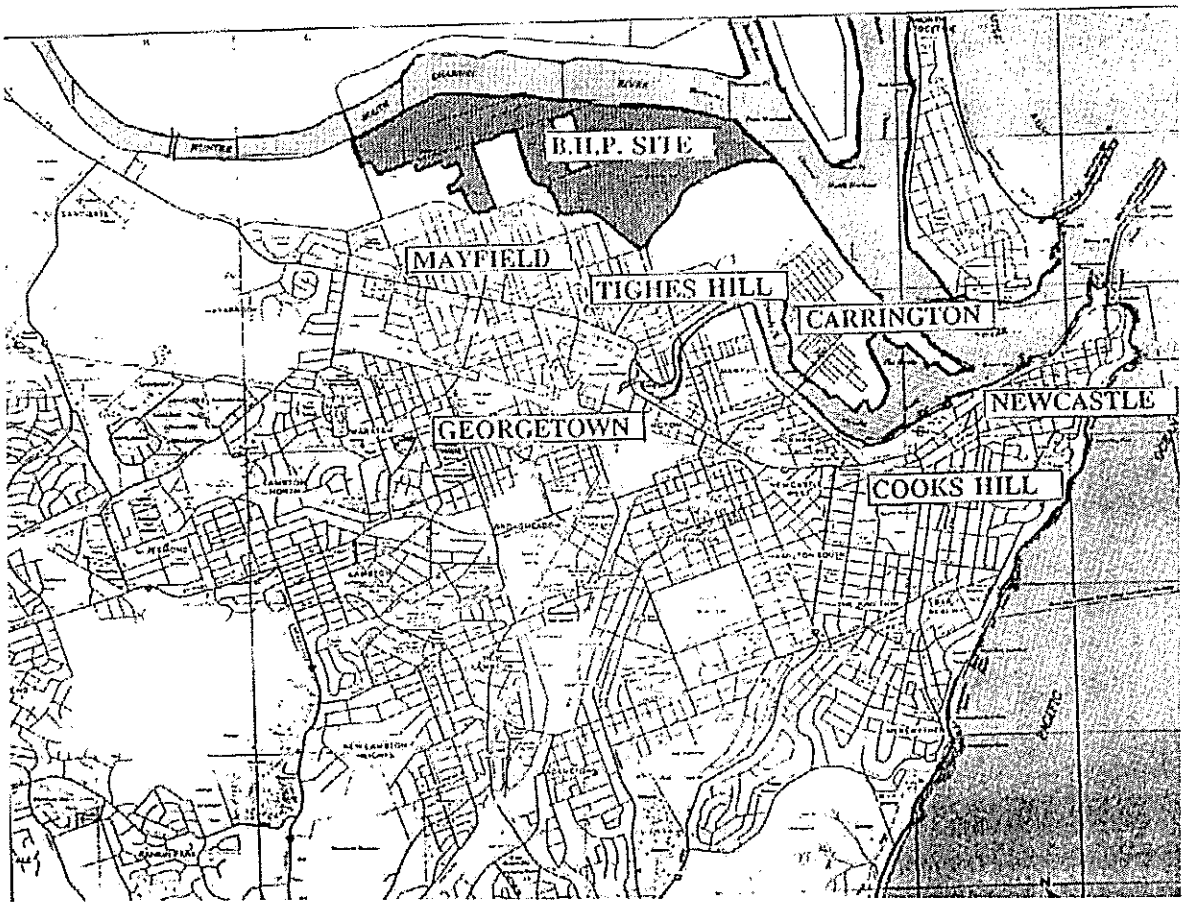
processes contained and the changes that have taken place through time is made. In addition, a selection of original working drawings provide a detailed picture of the construction techniques, structure and fabric details and offer substantial dimensions and measurements, making largely redundant any requirement for contemporary measured drawings or scaled photographs.

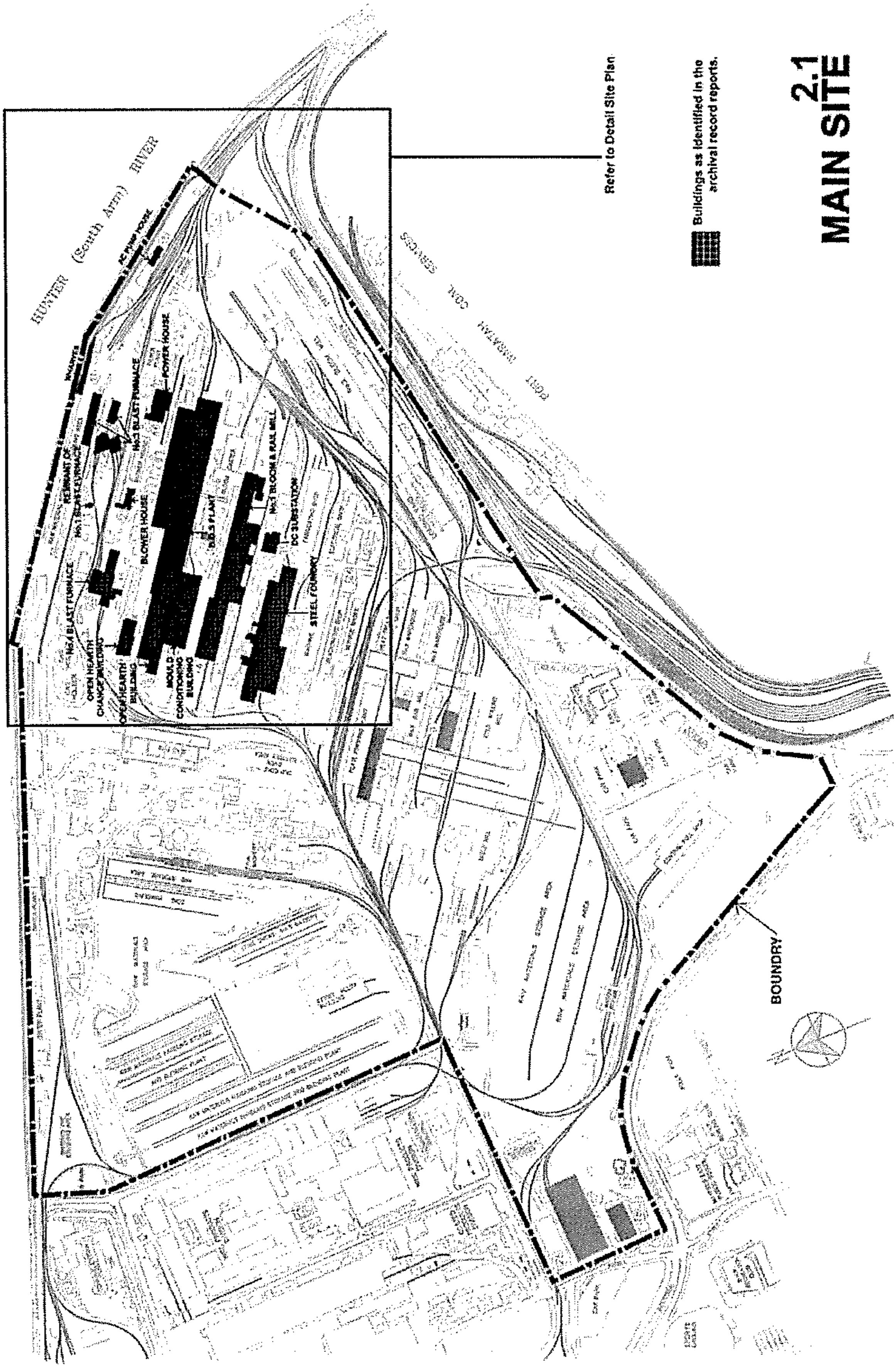
Supporting both the written and pictorial information is a series of inventories and tables which provide details of equipment contained within the building, cross referenced descriptions of photographs and shot locations, and bibliographical information.

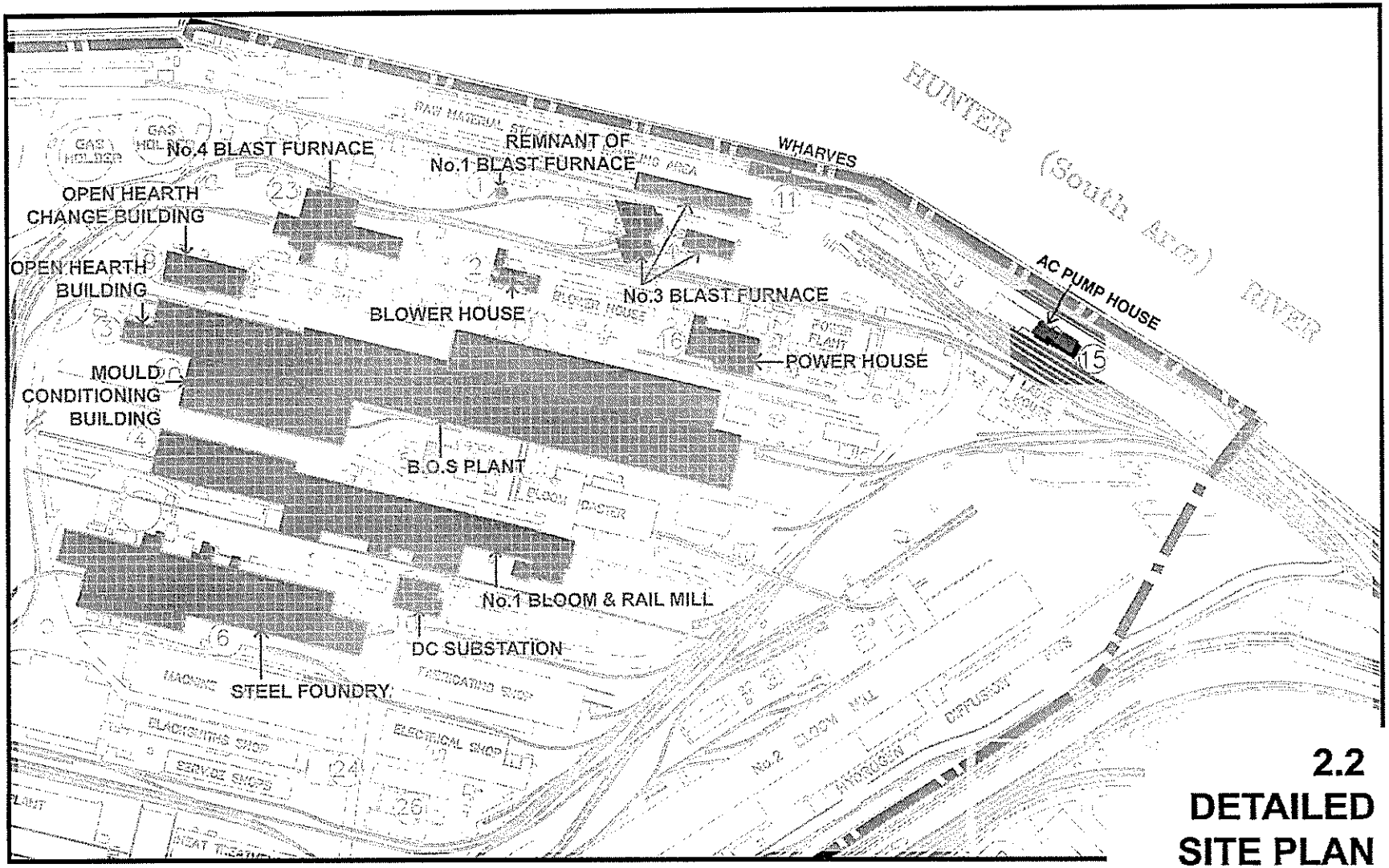
The process of documenting the heritage items involved a number of input teams, of which EJE was the coordinator.

2.0 LOCATION PLANS






Refer to Detail Site Plan
Buildings as identified in the archival record reports.
2.1
MAIN SITE
HUNTER (South Arm) RIVER
AC PUMP HOUSE
POWER HOUSE
No.3 BLAST FURNACE
No.1 BLOOM & RAIL MILL
DC SUBSTATION
STEEL FOUNDRY
BLOWER HOUSE
No.4 BLAST FURNACE
OPEN HEARTH CHANGE BUILDING
OPEN HEARTH BUILDING
MOULD CONDITIONING BUILDING
BOUNDRY



2.2 DETAILED SITE PLAN
AC PUMP HOUSE

BHP NEWCASTLE
ARCHIVE OF RECORDS

EJE

3.0 OUTLINE OF HISTORY, INDUSTRIAL PROCESS & DESCRIPTION

The AC Pumphouse was constructed to provide cooling water for the AC Powerhouse, which was built in 1924. Initially equipped with two pumps, the Pumphouse also served other nearby areas of the plant.

Work on the Pumphouse began in 1924 with excavations for the pumps and main, and the laying of the cast iron mains.[1] Within six months the pumps were installed and supplying more than was required by the AC Power Plant. Nos.4 and 5 Blowing Engine condensers were then connected to the new pumps, relieving the demand on the main salt-water pumps.[2]

However, problems were soon experienced and both pumps had to be completely overhauled and roller thrust bearings fitted.[3] Further problems were experienced early in 1926 when the suction screens gave way, leading to the wooden frames being replaced with steel.[4]

When the AC Power Plant was expanded in 1937, the AC Pumphouse was extended to accommodate an additional three pumps. These were 500 hp 740 rpm 30" vertical spindle axial flow pumps, each with a capacity of 18,000 gallons per minute. They operated until Nos. 3 and 4 alternators ceased being used in 1995.[5]

At some stage, possibly when the 1937 extension was built, a further extension was made to the western end of the original Pumphouse. This extension included a gear room for Port Waratah Stevedoring, amenities for the painters and dockers, and also for the waterside workers.

In 1957 the No.1 MG set was transferred from the DC Substation and installed in the western end of the Pumphouse to provide power for the wharf luffing cranes. This was made necessary by the high voltage drop from the DC Substation to the Pumphouse.[6] Due to the noise of the MG set, soundproofing material was attached to the wall between the Pumphouse and the western section of the building.

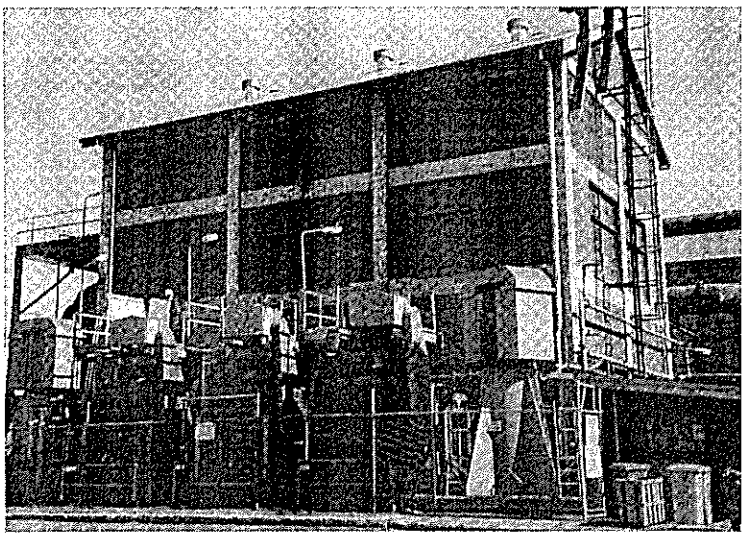


Figure 3.1: Northern Façade of Pumphouse (Eastern end) showing No 1 and 2 pumps and screens
Source: Cranney: 136

In the 1970s a second storey was added to the western end of the Pumphouse extension, above the gear room and amenities rooms, to provide a dining room and changeroom for waterside employees. A storage room was also added at ground level at this stage. At about this time, the roof over the original Pumphouse and the 1937 eastern extension was renewed. A waterside workers' canteen was established in the second storey addition in 1980.[7]

[1] Report for six months ended 31 May 1924.
[2] Report for six months ended 30 November 1924.
[3] Report for six months ended 30 November 1925.
[4] Report for six months ended 31 May 1926.
[5] P.P. Cranney, *Fuelling the Fires of Steel, a History of the Coke and Energy Department*, Newcastle, 1999, p.98
[6] J.W. Turner, *Bright Sparks, an Anecdotal History of the Electrical Department, Newcastle*, 1999, p.87.
[7] Discussion with E. Benje, former Pumphouse Operator.

Two new pumps were installed outside the building in 1983[8]. These pumps, known as Nos.1 and 2, replaced the original No.1 and 2 pumps.[9]

As well as providing salt water to the Powerhouse and other sections of the plant, the AC Pumphouse played a role in the development of the cultural history of the steelworks, as recalled by former BHP electrician, Keith French:

> *In the water supply to the pumps, there were rotating electrical screens and they used to be pretty good at catching prawns and crabs and fish, so we used to have a lot of visits from fishermen round the plant. I think everyone in the plant knew where the pumps were. They knew about getting a feed of prawns, especially after a lot of rain, a lot of fresh water in the river. If there was a lot of rain, and it had been a good season for the prawns, then hundreds of pounds could be caught in a day; I mean people would come from everywhere and pick them off themselves.*[10]

With the conversion of oil firing to the Power Plant boilers between 1968 and 1994, the need for cooling water was considerably reduced and Nos.3, 4 and 5 pumps were decommissioned.[11] This left Nos.1 and 2 pumps in operation but by 1999 only one pump was running at any one time, feeding B, C and D turbo blowers and Nos.1 and 2 turbo alternators. These pumps fed through an underground main to the Powerhouse and Blower House to provide salt water cooling to the turbine condensers and alternator air coolers as well as cooling turbine ancillary equipment.[12]

[8] Report for the Half Year ended May 1983, p.91
[9] Discussion with E. Benje
[10] Quoted in J.W. Turner, *Bright Sparks: an Anecdotal History of the Electrical Department, Newcastle*, 1999, p.88.
[11] P.P. Cranney, *Fuelling the Fires of Steel*, p.136.
[12] *ibid.*, p.67.

3.1 The Building Description & Structure

The building, which forms the original 1924 section of the AC Saltwater Pump House, is unique among the industrial buildings at the site in two major respects:

1. the load-bearing walls are constructed from an early form of concrete block ("Vulcan" brand) which does not seem to appear elsewhere on the site where clay bricks are the norm;

2. The roof structure is of timber trusses (but using iron rod vertical tension members).

The form of construction suggests that the building was designed and constructed by an external contractor, unlike other buildings at the works. Whilst it is possible that the timber trusses could have been specified to resist corrosion, the inclusion of iron or steel elements in them makes this unlikely: the form of truss appears to be a standard industrial design common in the early 20th century.

Examples of the concrete blocks could be preserved for further research, as they appear to be early examples of the type.

Later additions to the building are typical industrial buildings of the period are not considered to have any specific technical significance.

Remarks on condition of building

The 1926 section of the building has some significant structural cracking, which could be related to deterioration of foundation piles. Any proposal for adaptive reuse of the building would require a great deal of additional investigation and it is likely that the cost of repairs would be excessive.

Steel condition & protection at BHP Steelworks site

The BHP site in Newcastle is in a "Marine" to "Severe Marine" zone in accordance with AS/NZ 2312:1994 — "Guide to protection of iron and steel against exterior atmospheric corrosion". Now that the localized micro-climate from the operation of the plant has been removed, protection of the steelwork needs to be considered in terms of this Standard.

Observation at the site indicates that none of the steelwork on site has a coating system complying with this Standard for a design life of greater than 5 years. Some of the steelwork, such as the blast furnaces, is not protected at all and has been designed to operate in a hot environment where corrosion is inhibited by high temperatures driving off moisture; other steelwork was designed with extra thickness to form a sacrificial layer. In almost all buildings and in areas nearby the high temperature operations have been successful in keeping the corrosion under control except where steel has been insulated by brickwork which has trapped moisture and corrosion has been severe. There does not appear to be any general galvanic protection (i.e. galvanizing or zinc-rich coating) on major structural elements.

If major structural elements were to be retained on the site for a period in excess of 10 years the Standard gives the following coating systems:

(i) galvanizing plus a two coat paint system (not possible in situ);

(ii) various two and three coat paint systems applied after abrasive blast cleaning and having either a zinc based primer or high-build epoxy;

(iii) a sprayed metal coating followed by a two coat painting system.

Of these, only (ii) is likely to be practical. All would be extremely expensive and require continuing maintenance.

4.0 STATEMENT OF HERITAGE SIGNIFICANCE

The AC Pump House is identified within the group identification forming Part B of Schedule 4 (Port Waratah – BHP Steelworks and Office) of "The Hunters Heritage" – Hunter Regional Environmental Plan 1989. It is identified individually within Schedule 4 of The Newcastle Local Environmental Plan 1987 as having an item of Regional – level heritage significance. (This ascribed level of significance is consistent with the level of significance determined in the Port Waratah Steelworks Conservation Plan prepared by EJE Architecture in 1991). The item does not fall within a Conservation Area and is not included on the State Heritage Register. The following Assessment of Significance has been undertaken to reflect current NSW Heritage Act, Heritage Amendment Act and Burra Charter requirements

Historic Significance

The AC Salt Water Pump House represents a significant component of energy production, and provides a link with the industrial processes required within the States most important integrated Steelworks. It is associated with the early development of a site of significance to the State and maintains the continuity of a process that, with adaptation, remained relevant until closure. Thus it provides significant evidence of its evolution running parallel with that of the steel making process. In its totality it has variety of type of both Regional and State levels and must be considered to have HIGHEST – level REGIONAL HISTORIC significance.

Aesthetic Significance

The AC Saltwater Pumphouse buildings are not aesthetically distinctive and do not contain elements which particularly exemplify a style, taste or custom. Therefore, the building group does not have any aesthetic significance.

Social Significance

Because of the close functional association between the AC Salt Water Pumphouse, the Powerhouse and the location of the later Staff Canteen attached to the Western end, the growth in specialist technical skills associated with these functions in turn had input into the social fabric of Newcastle. For this reason, this group of buildings has REGIONAL level Social Heritage Significance.

Technical Significance

The AC Salt Water Pump House has potential to contribute to an understanding of the technological development and growth of electrical power generation on early 20th century integrated steelworks in N.S.W. and Australia in doing so has the HIGHEST level of Regional Significance.

Further, since the Pump House was in continuous use and development from 1924, the item has the highest level of potential to provide evidence of the evolution of technology available elsewhere in N.S.W. at very few sites.

5.0 INVENTORY OF ARCHIVAL DOCUMENTS

The Following list constitutes the archival documents used for this report and other documents that contain related material. For archival drawings, the BHP drawings document register (documents located in the BHP archive, Melbourne) may be found on the computer disk located in the appendix.

Cranney, P.P. — *Fuelling the Fires of Steel, a History of the Coke and Energy Department,* Newcastle, 1999.

Turner, J.W. — *Bright Sparks, an Anecdotal History of the Electrical Department, Newcastle*, 1999.

Newcastle Steelworks Half-Yearly Reports:
May 1924,
November 1924,
November 1925,
May 1926, May 1983.

Discussions with:
E. Benje, former Pumphouse Operator.
D. Ruddell, former Chief Construction Engineer

6.0 SELECTED PHOTOGRAPHS

Figure 6.1 View of North East corner of Pumphouse. Concrete framed structure is clearly visible. New No.1 and No.2 pumps along Northern façade.

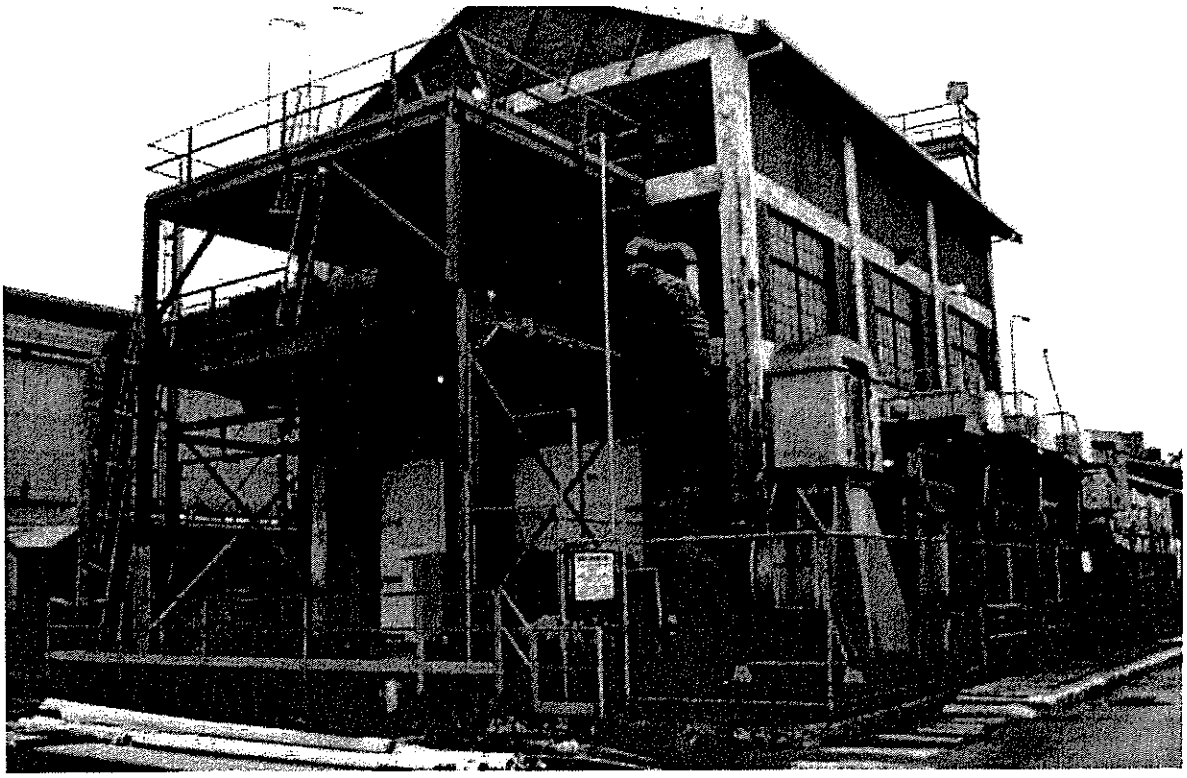


Figure 6.2 View of Northern facade of Pumphouse with new extension at right of image (ie West end).

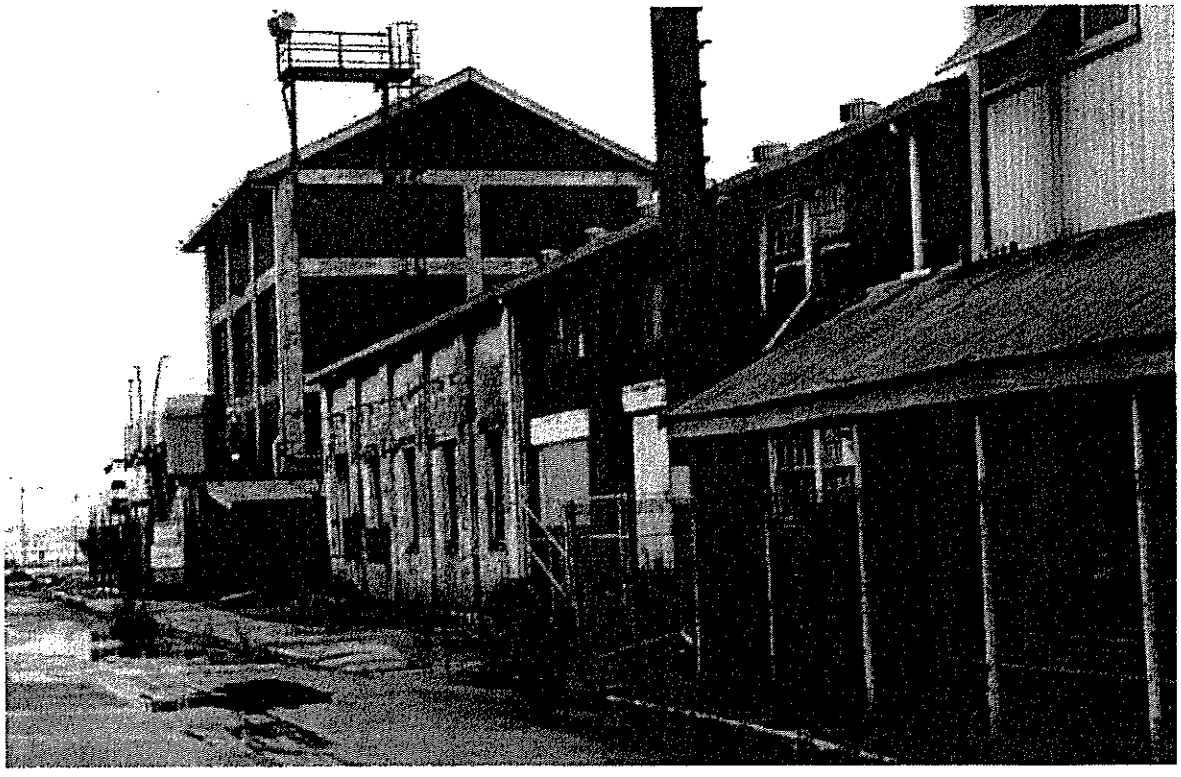


Figure 6.3 View looking North/East of Western façade of new extension to Pumphouse.

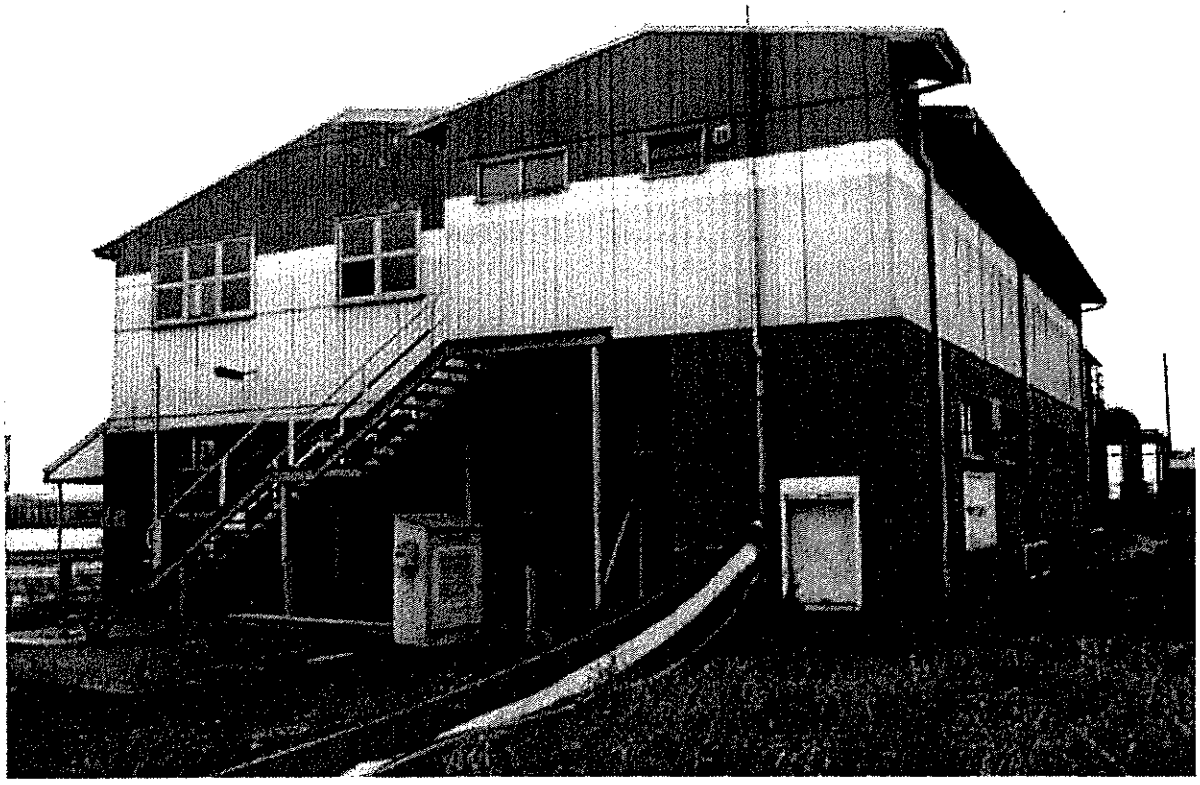


Figure 6.4 View to North – West of South Elevation, indicating new addition at west end.

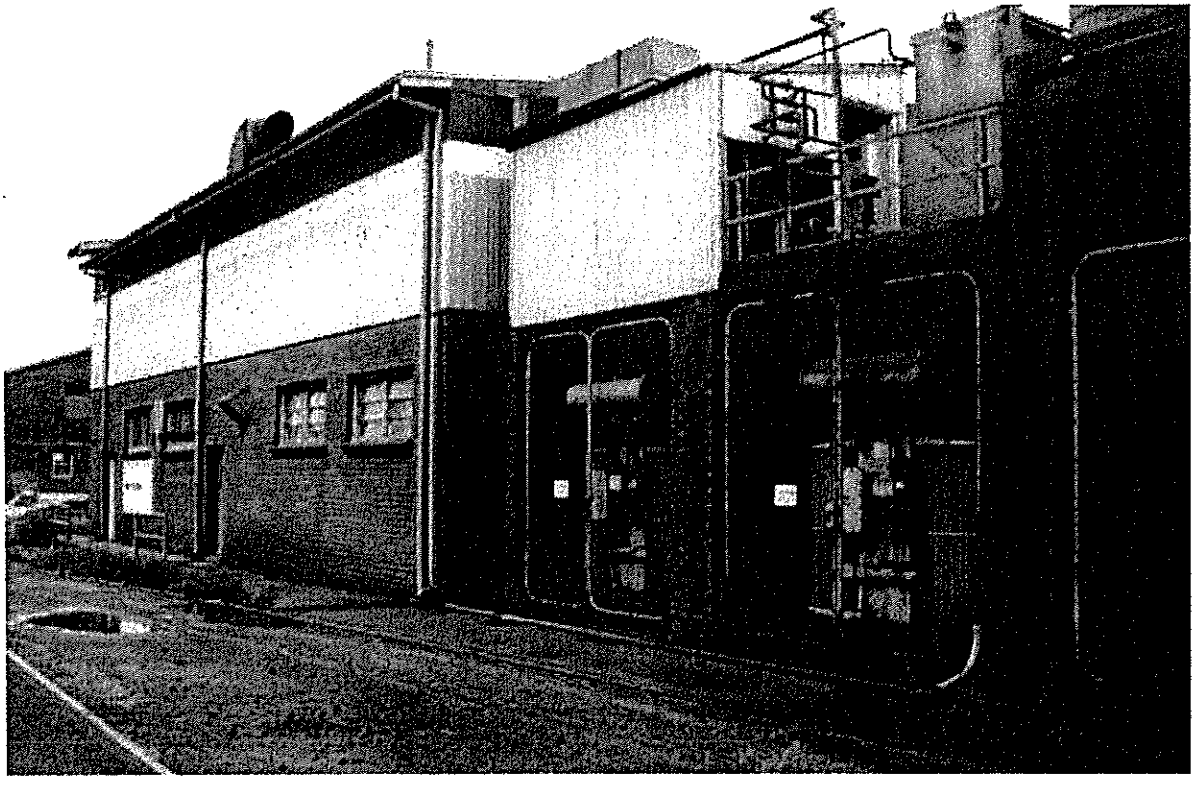


Figure 6.5 View North of South elevation, of storage structure and stair at point where new extensions occurs to the older Western building.
Note: New dark brick extension at West of old section and adjoining new Western extension.

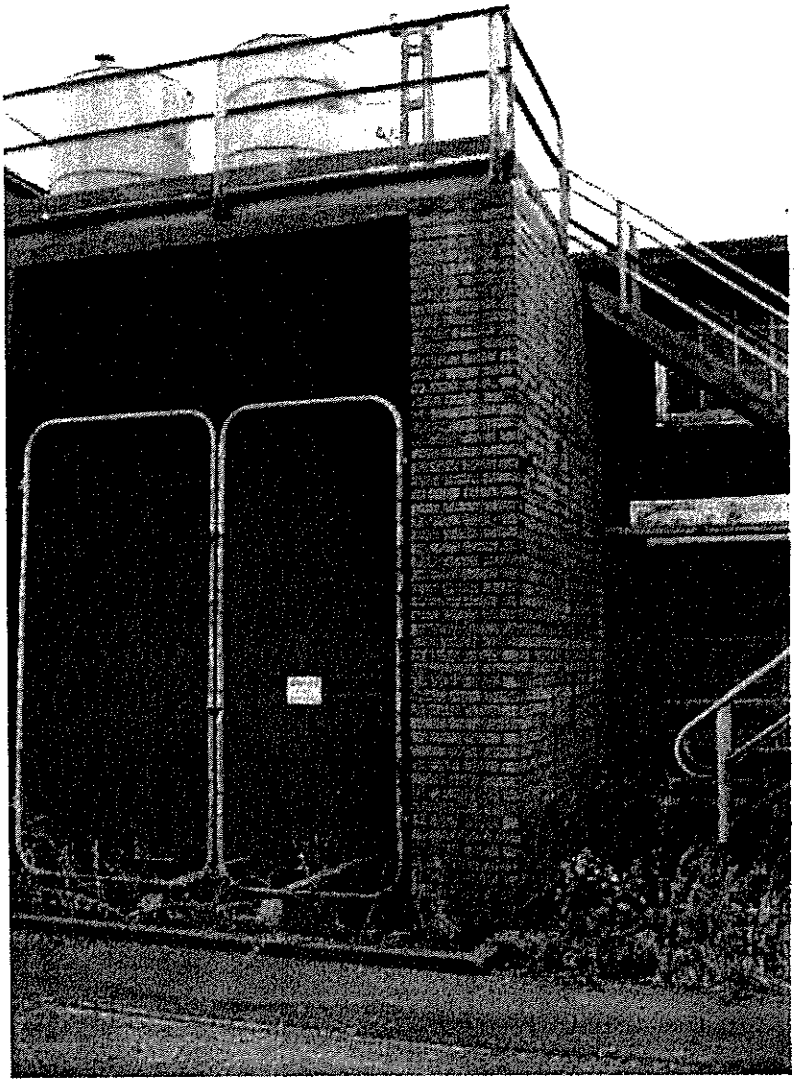


Figure 6.6 View West along South elevation of old West building showing new metal cable trays and old window infill, as well as newer extensions to West.

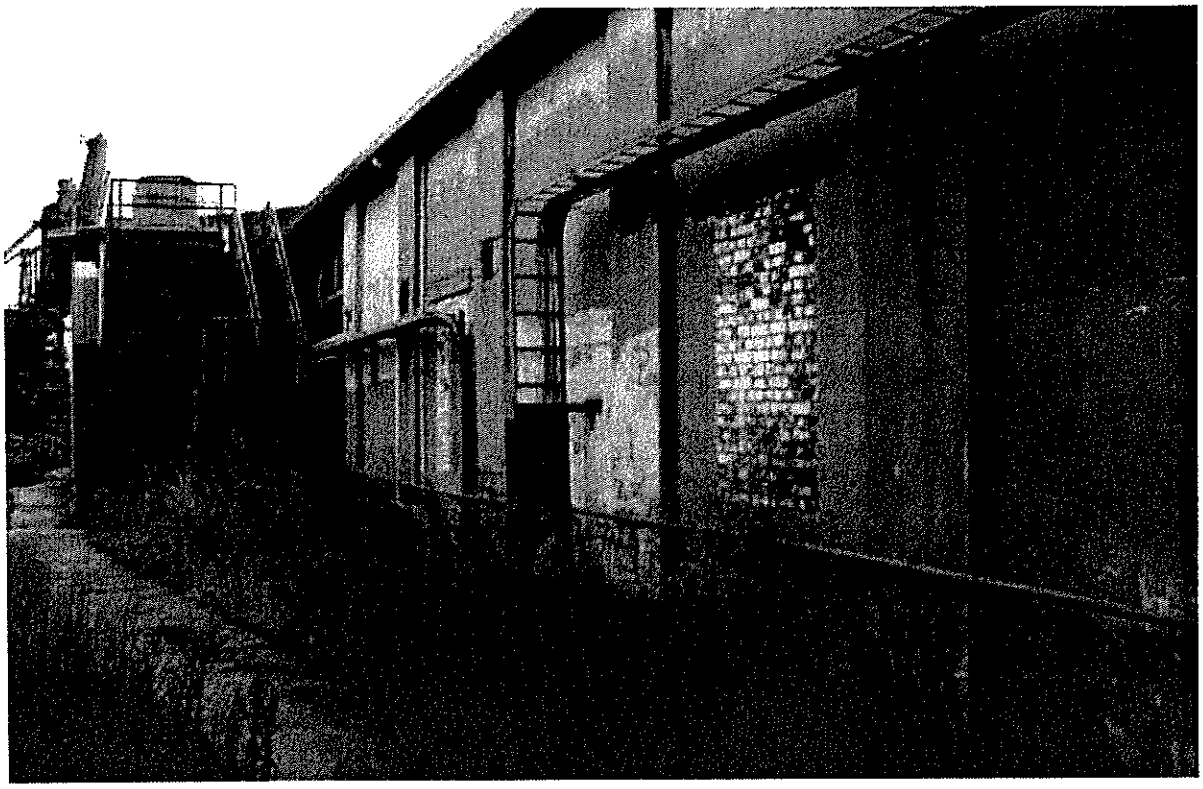


Figure 6.7 View along South elevation to East from midway along East building. Old brickwork and water pipes.

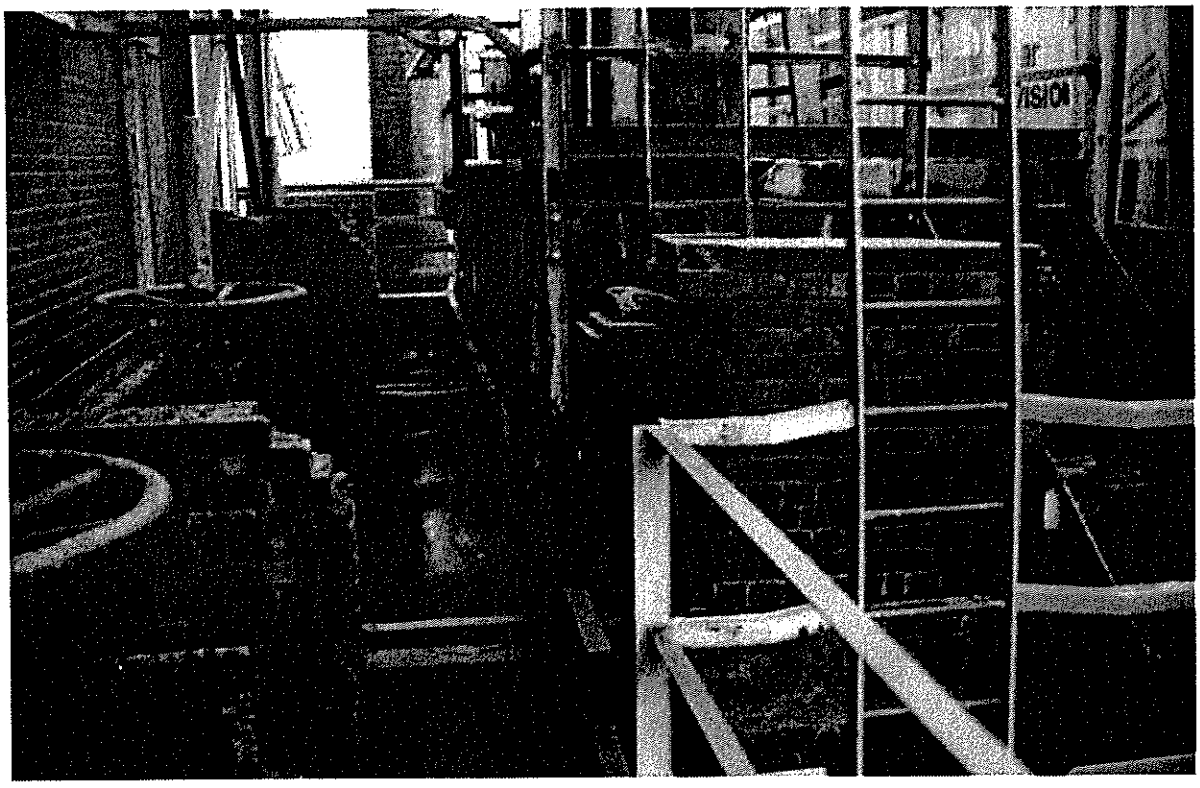


Figure 6.8 View West along South elevation at junction between old West and newer East buildings. View shows old West building, with new bargeboard to roof and newer (1930's) link building in foreground.

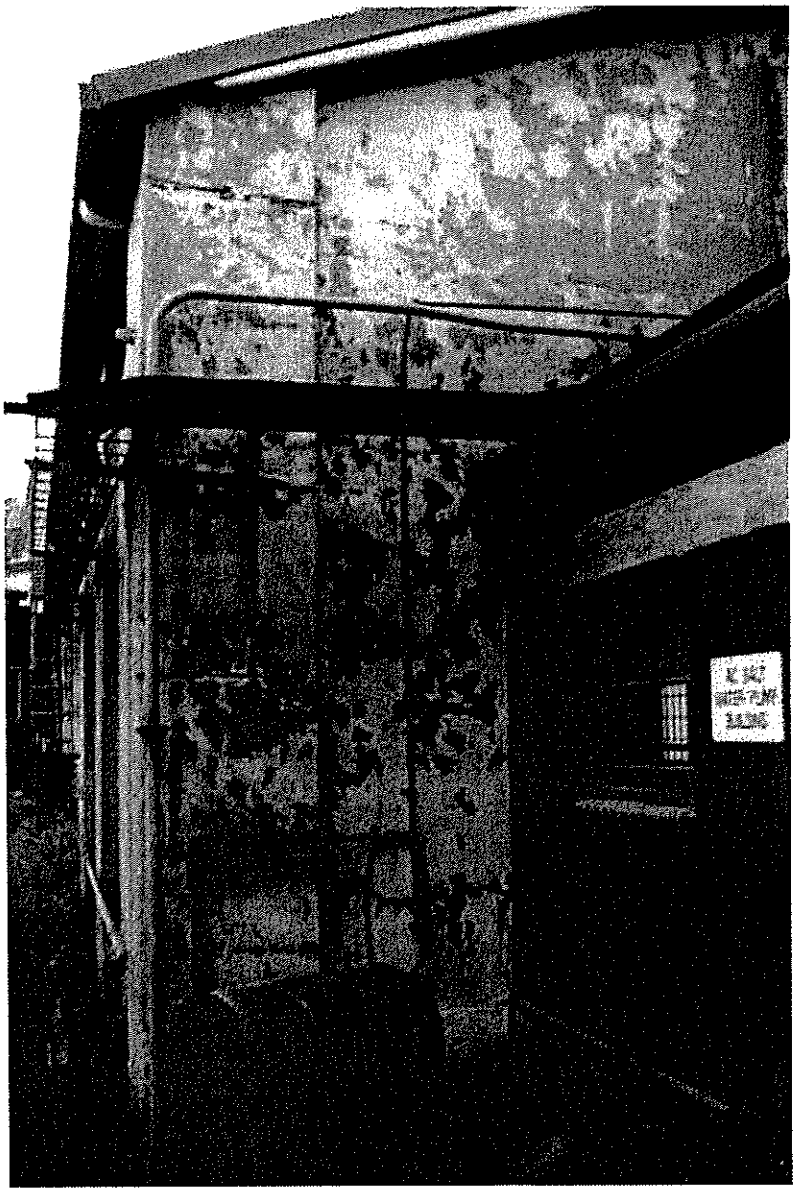


Figure 6.9 View along Southern elevation from East at East building. Old brick walling and old water pipes.

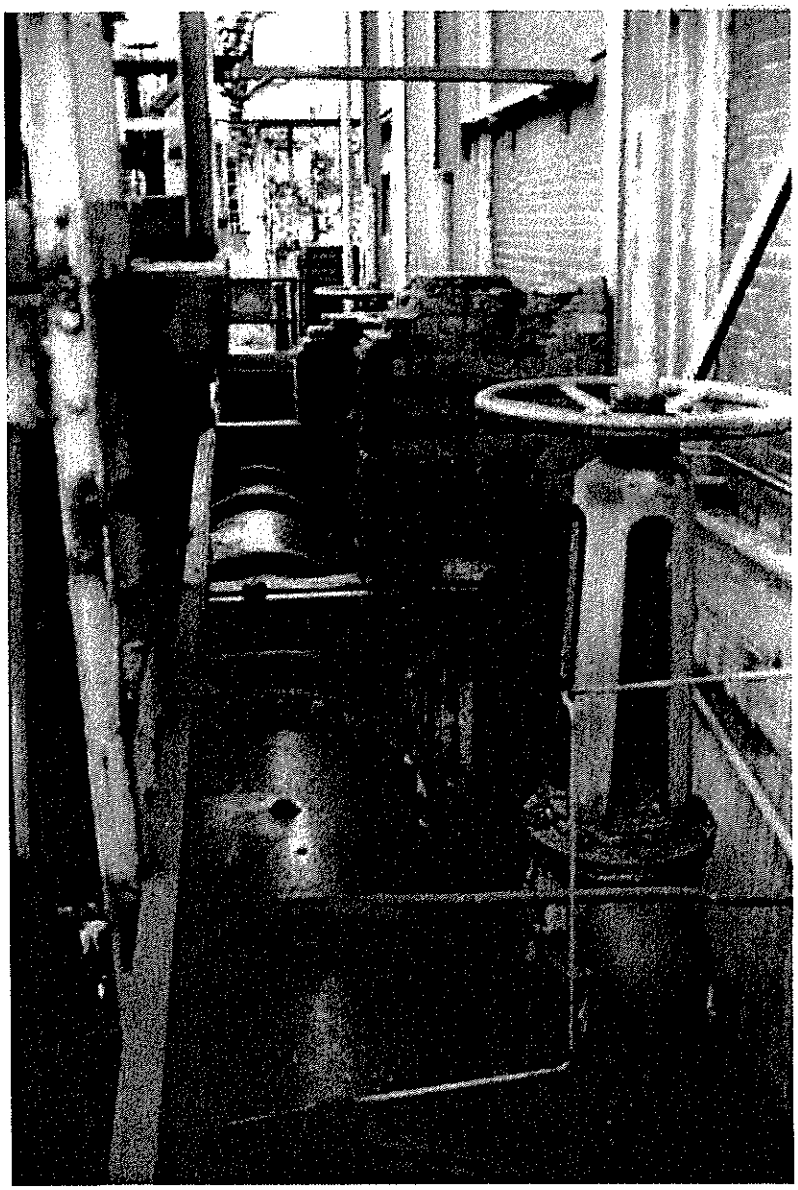


Figure 6.10 East Building. View West from Ground Floor showing steel roof trusses and new roof cladding and new roof vent penetrations.

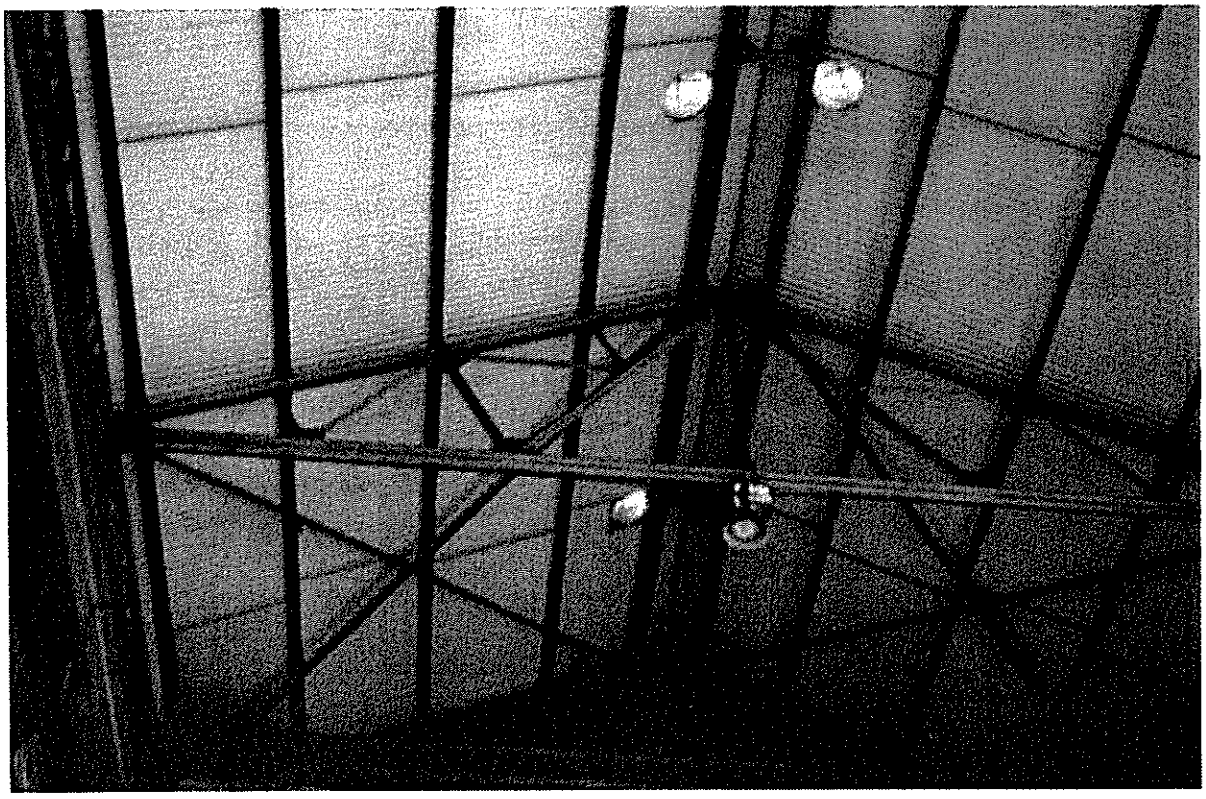


Figure 6.11 East Building. View of West wall and window, showing 8 ton Gantry Crane and steel roof framing. Also shows original window.

Figure 6.12 East Building. View East showing 3.5 KV pumps. Also, twin double timber doors, old light fittings and concrete framed structure.

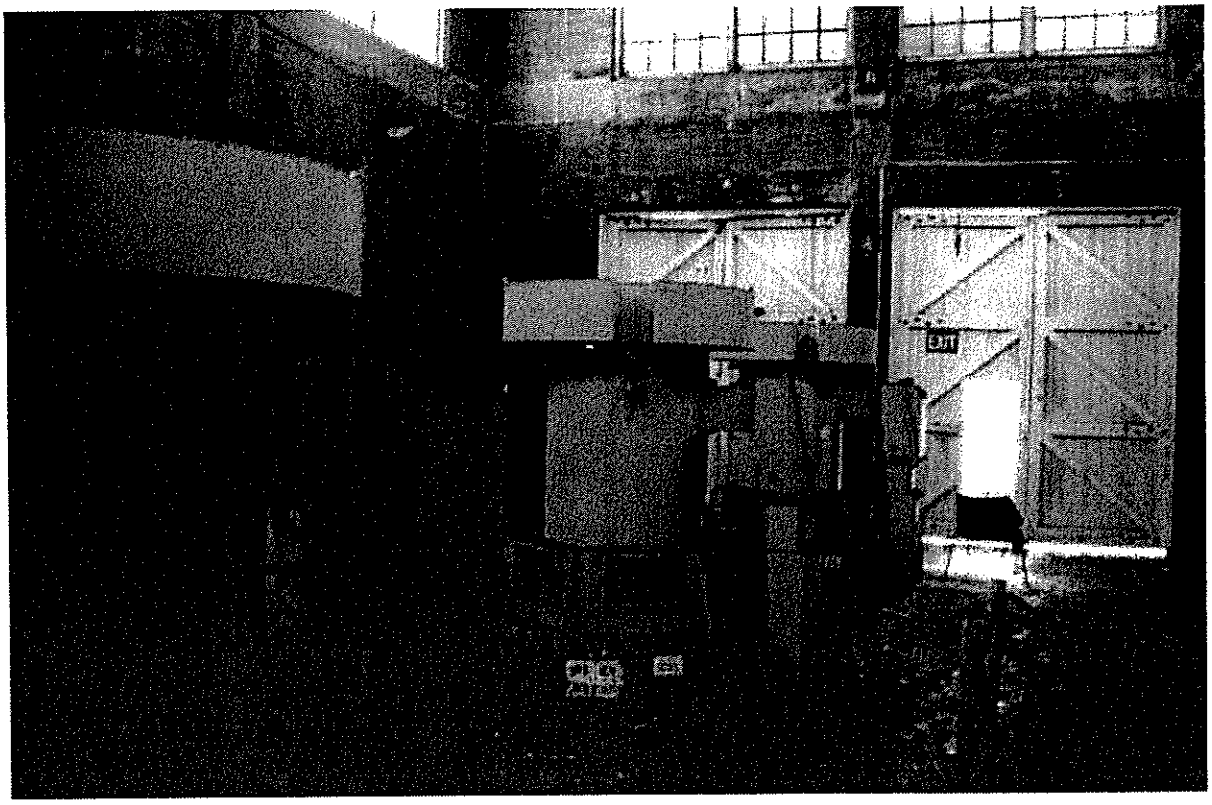


Figure 6.13 Old West Building. East wall showing movement cracking, old timber trusses, conduits and new roof cladding.

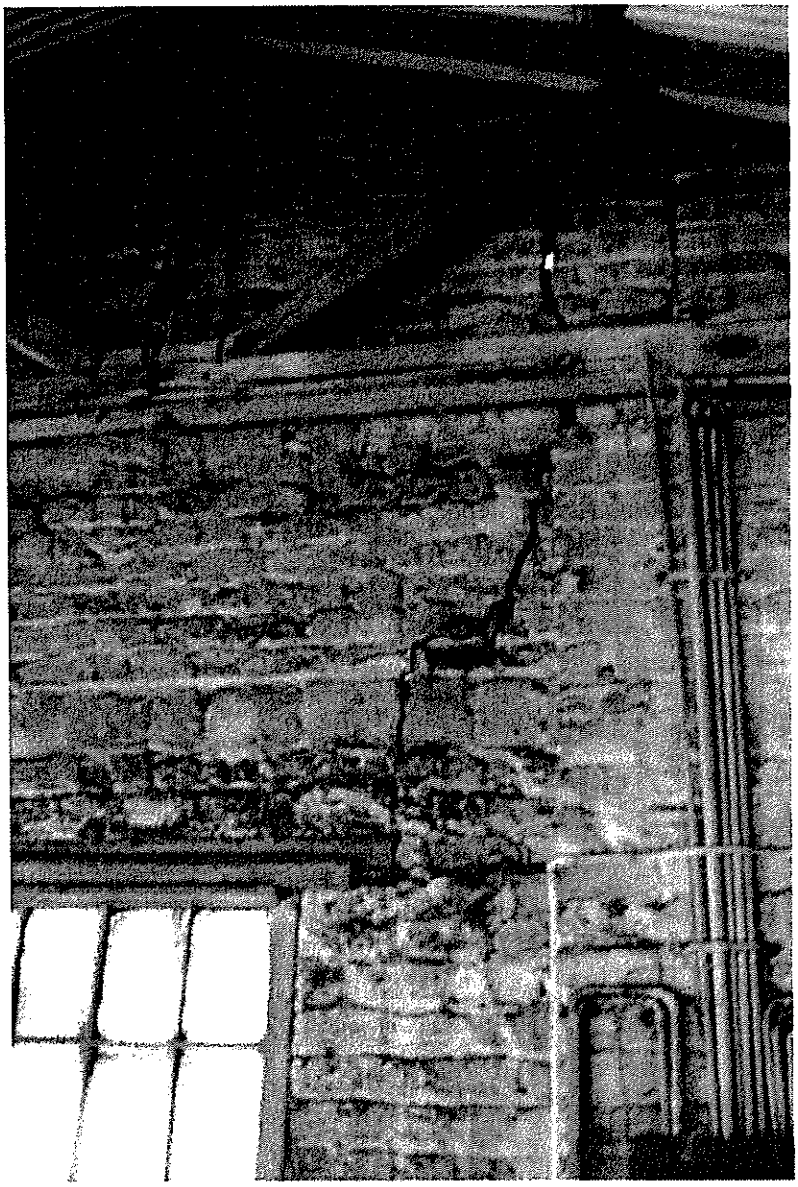


Figure 6.14 Old West Building. View to East from mezzanine level showing heavy timber floor boards, pump equipment and piping.

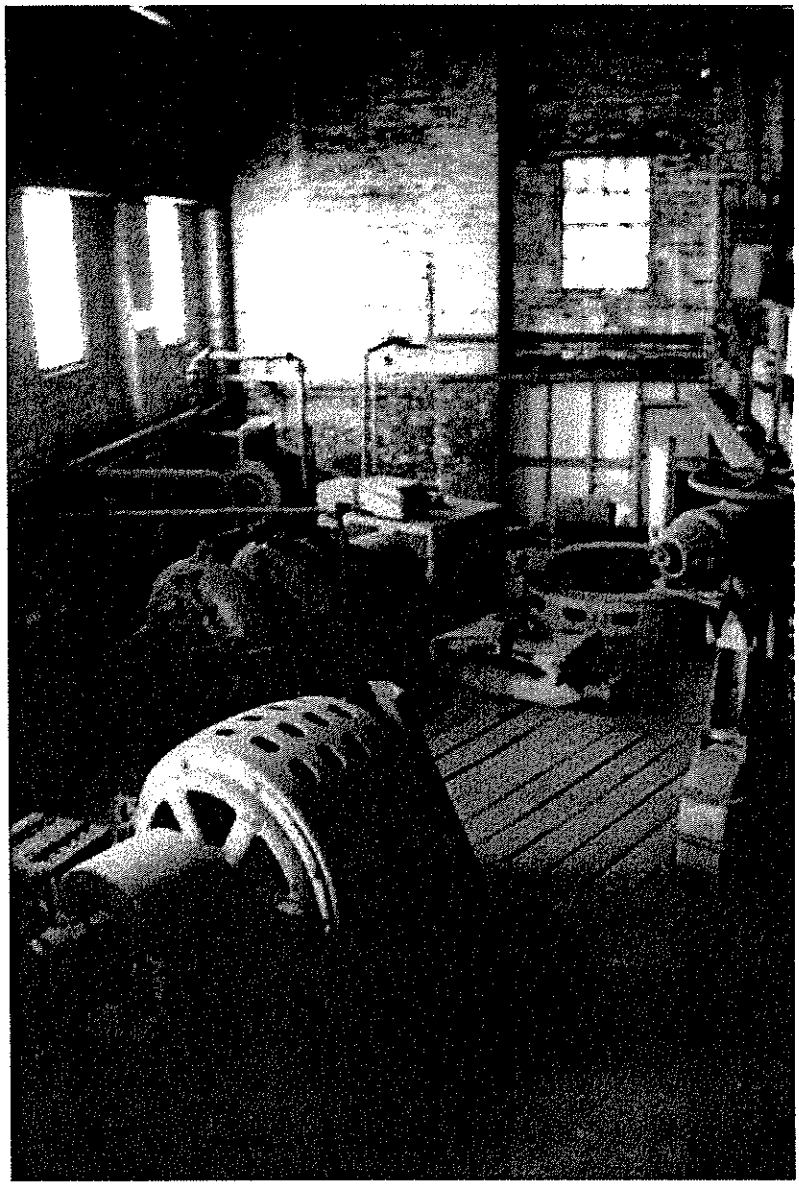
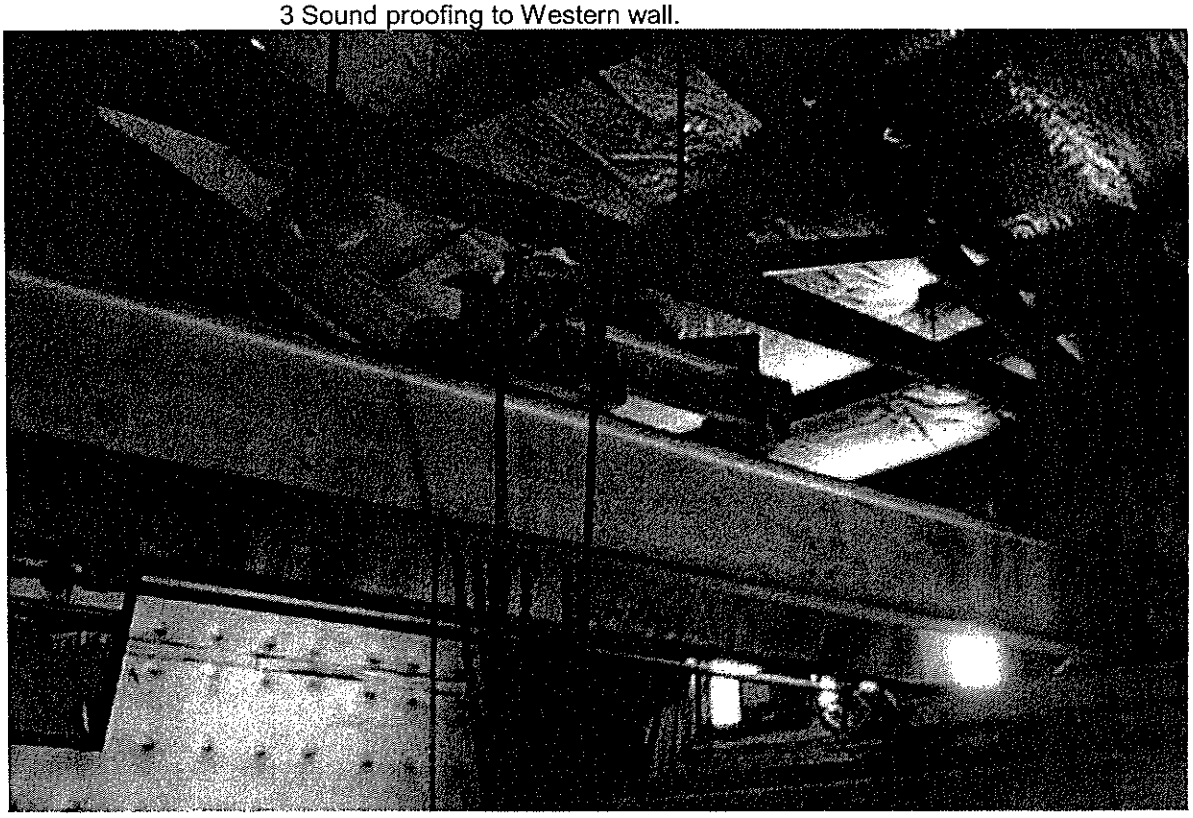


Figure 6.15 Old West building. View South West towards D.C Rectifier Switch Panel on mezzanine level, South wall. Note: Marble facing panel on rectifier panel.

Figure 6.16 Old West Building. View towards North West corner from mezzanine showing old timber roof trusses and gantry crane.
Note: 1 Old light fitting.
2 Later roof insulation to metal deck (not corrugated iron) roofing.
3 Sound proofing to Western wall.



7.0 NEGATIVE REFERENCE LIST

The following information relates to the complete set of negatives taken for the recording of this building. Under each Roll Number is a table containing the negative numbers and a description of each frame taken of that roll. The roll and negative numbers, position and direction of frame taken are referenced in the plan in section 8.0 – photographic reference plan. The numbers in the column titled "Figure No." relate to the selected photographs in section 6.0 of this report. Items marked with a dash in this column have prints located in the appendix along with the complete set of negatives.

ROLL 9857 – 22/03/2000

Camera: Nikon FE. F 1:3.5
Film: Soulcolor coloured film ASA 100

Neg No.	Figure No.	Description
00A	6.3	View looking North/East of Western façade of new extension to AC Pumphouse.
0A	6.2	View of Northern facade of Pumphouse with new extension at right of image (ie West end).

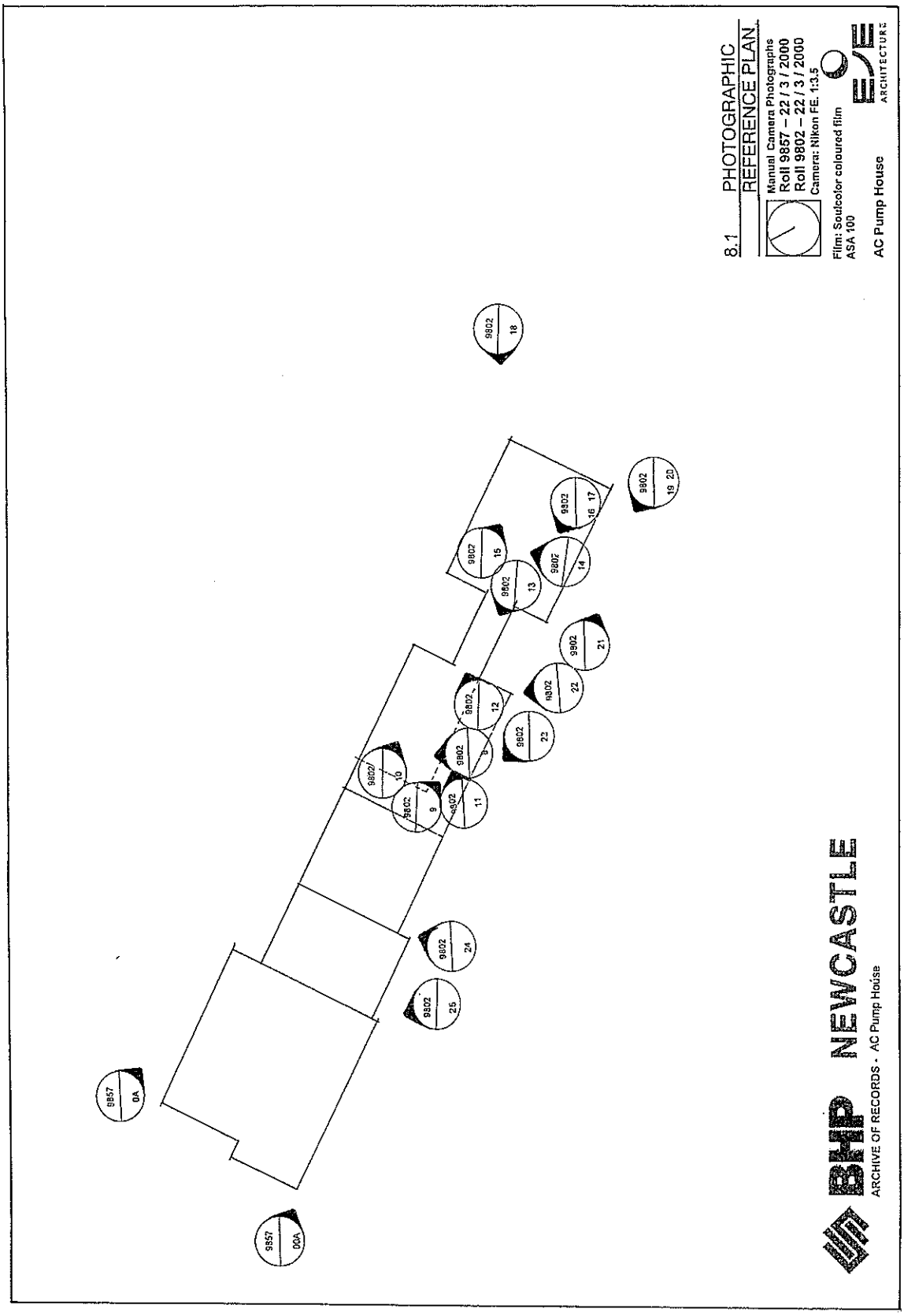
ROLL 9802 – 22/03/2000

Camera: Nikon FE. F 1:3.5
Film: Soulcolor coloured film ASA 200

Neg No.	Figure No.	Description
8	6.16	Interior - Old West Building view towards North West corner from mezzanine showing old timber roof trusses and gantry crane. Note: 1 Old light fitting. 2 Later roof insulation to metal deck (not corrugated iron) roofing. 3 Sound proofing to Western wall.
9	6.15	Interior – Old building view South West towards D.C Rectifier Switch Panel on mezzanine level, South wall. Note: Marble facing panel on rectifier panel.
10	6.14	Interior – Old West Building view to East from mezzanine level showing heavy timber floor board and pump equipment and piping.
11	-	Interior – Old West Building view from mezzanine to North East showing pump speed regulator levers/controls at balustrade.
12	6.13	Interior – Old West Building East wall showing movement cracking, old timber trusses and conduits and new roof cladding. Also note original window.
13	-	Interior – View West along newer link towards Old West Building. Note step up/ie change of level West of rear entrance door.
14	-	Interior - East Building (double height space) water pipes on North facade (which connect to exterior filters). Gantry hook above. Note: New brick work at lower level at pipe entry point.
15	6.12	Interior – East Building view East showing 3.5 KV pumps. Also shos twin double timber doors, old light fittings and concrete framed structure.
16	6.11	Interior - East Building view of West wall and window, showing 8 ton Gantry Crane and steel roof framing. Also shows original window.
17	6.10	Interior – East Building view West from Ground Floor showing steel roof trusses and new roof cladding and new roof vent penetrations.

18	6.1	View of N/E corner. Concrete framed structure is clearly visible. New No1 and No2 pumps along northern façade.
19	6.9	View along Southern elevation from East at East building. Indicating old brick walling and old water pipes.
20	-	East end of Southern elevation view to West. At East building view down into "Basement" space on South side of building.
21	6.7	View along South elevation to East from midway along East building. Again, indicating old brickwork and water pipes.
22	6.8	View West along South elevation at junction of link between old West and newer East buildings. View shows old West building, with new barge board to roof and newer (1930's) link building in foreground.
23	6.6	View West along South elevation of old West building showing new metal cable trays and old window infill, as well as newer extensions to West.
24A	6.4	View to North – West of South Elevation, indicating new addition at west end.
24	6.5	View North at South elevation, of storage structure and stair at point where new extensions occurs to the older Western building. Note: New dark brick extension at West of old section and adjoining g new Western extension.

8.0 PHOTOGRAPHIC REFERENCE PLAN



9.0 DIAGRAMMATIC RECORD AND DRAWINGS

Figure 9.1 AC Power Plant Salt Water Pumps
Arrangement of Brick Pump House
Source BHP. Drawing ref – P 4445

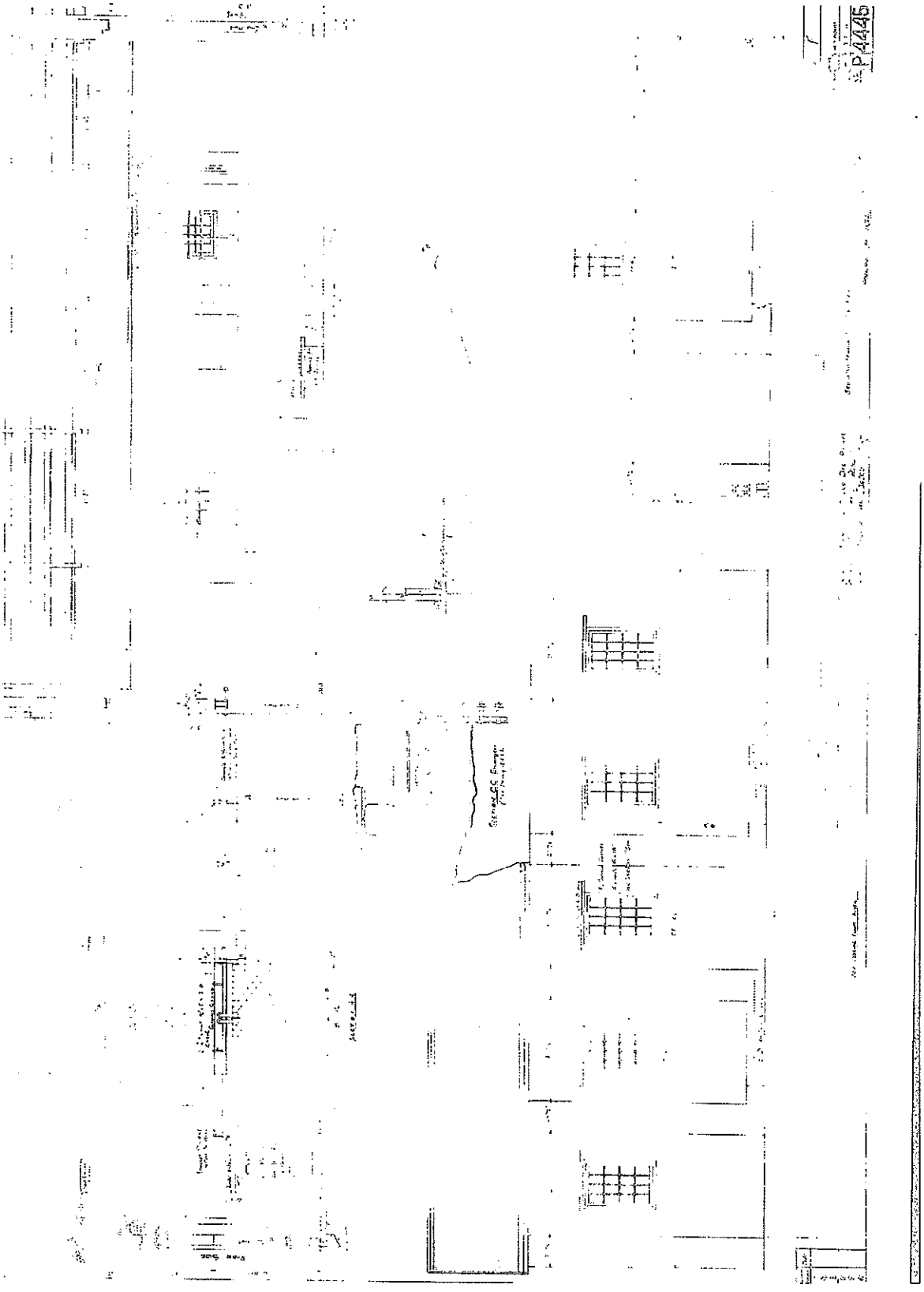


Figure 9.2 S. W. Pumps – Extension Details of Building
Source BHP. Drawing ref - 13280

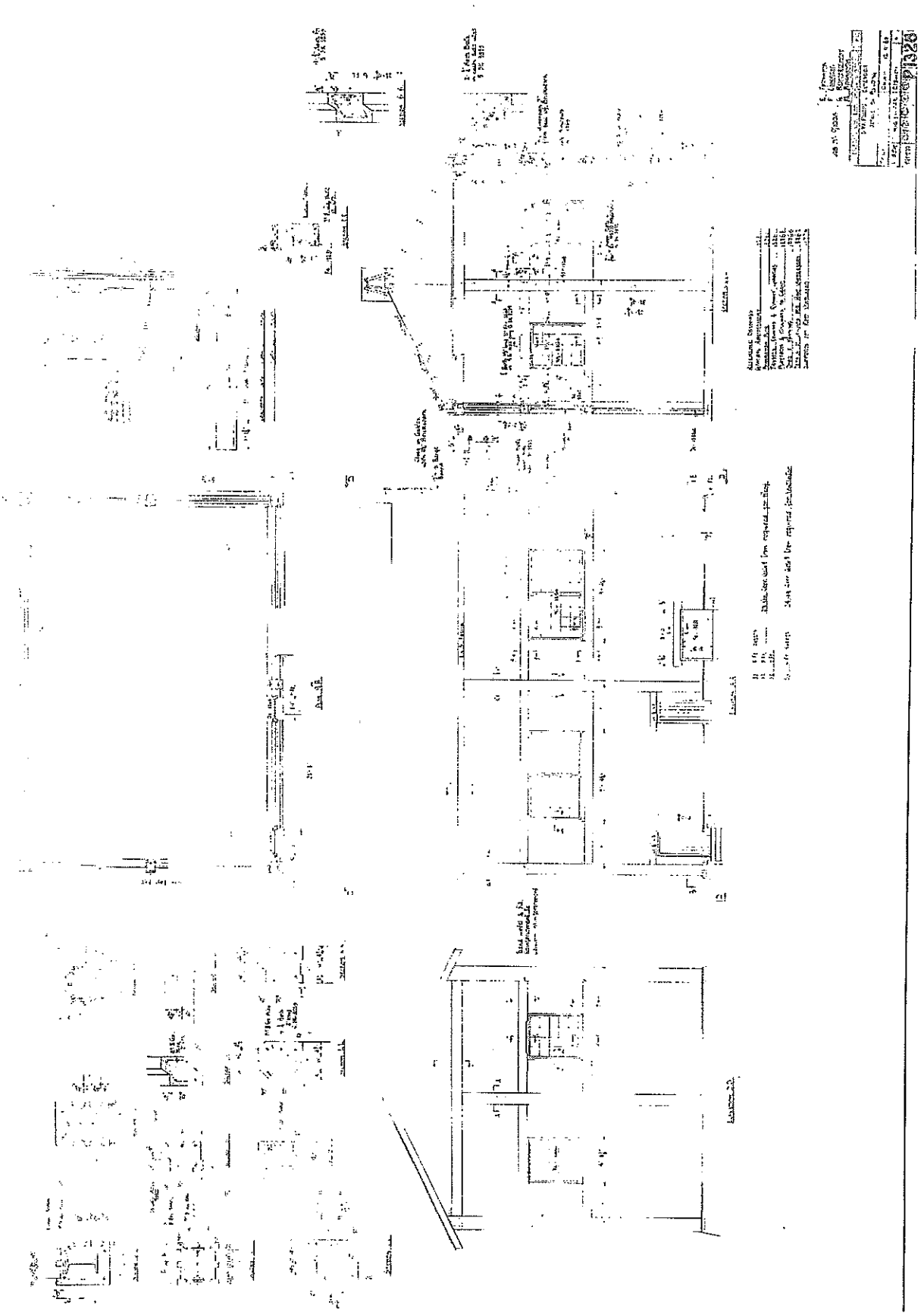


Figure 9.3 Main S. W. Pump Extension
Details of Building – Sheet 1
Source BHP Drawing ref – 51312

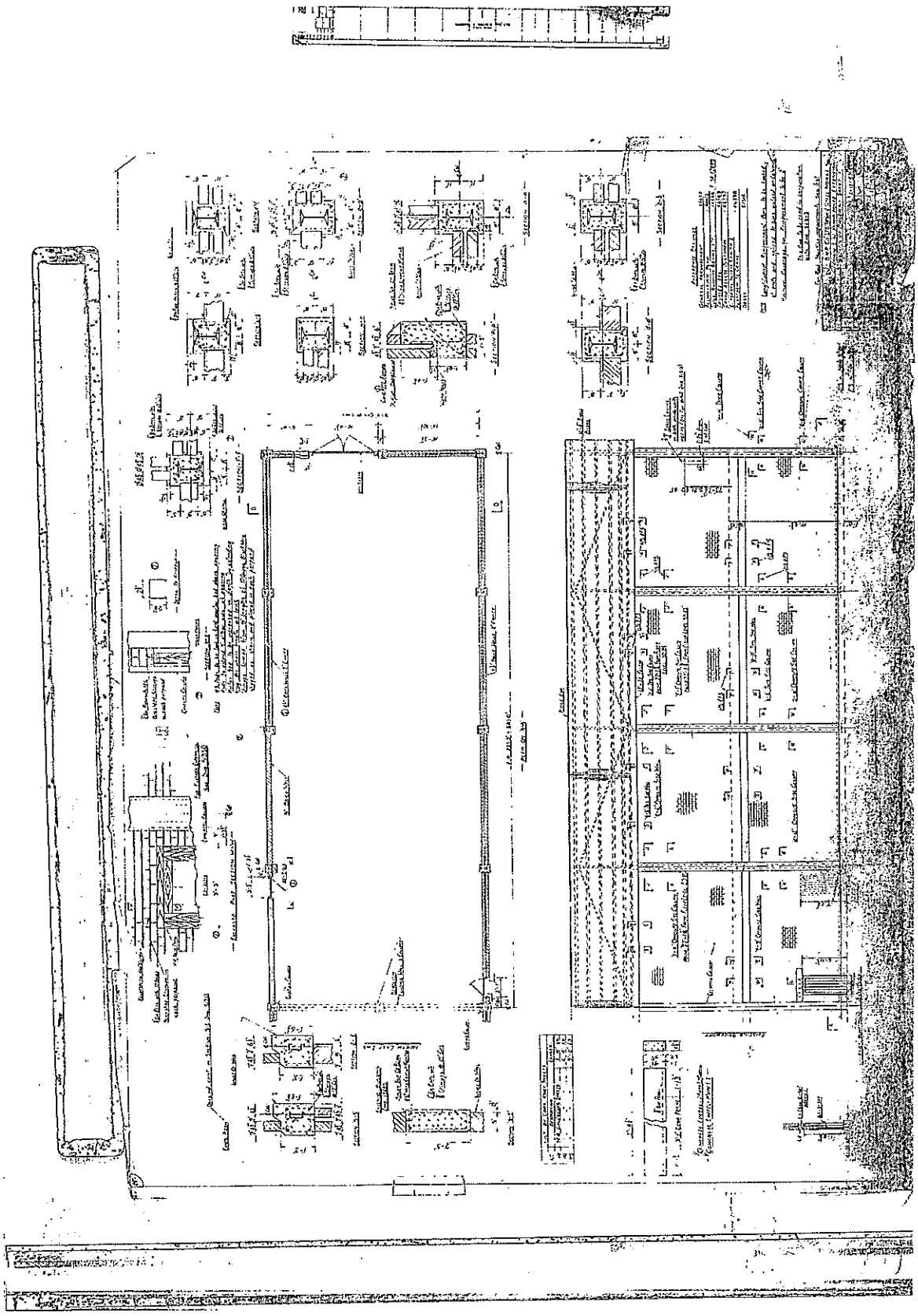


Figure 9.4 Main S. W. Pump Extension
Details of Building – Sheet 2
Source BHP Drawing ref – 51313

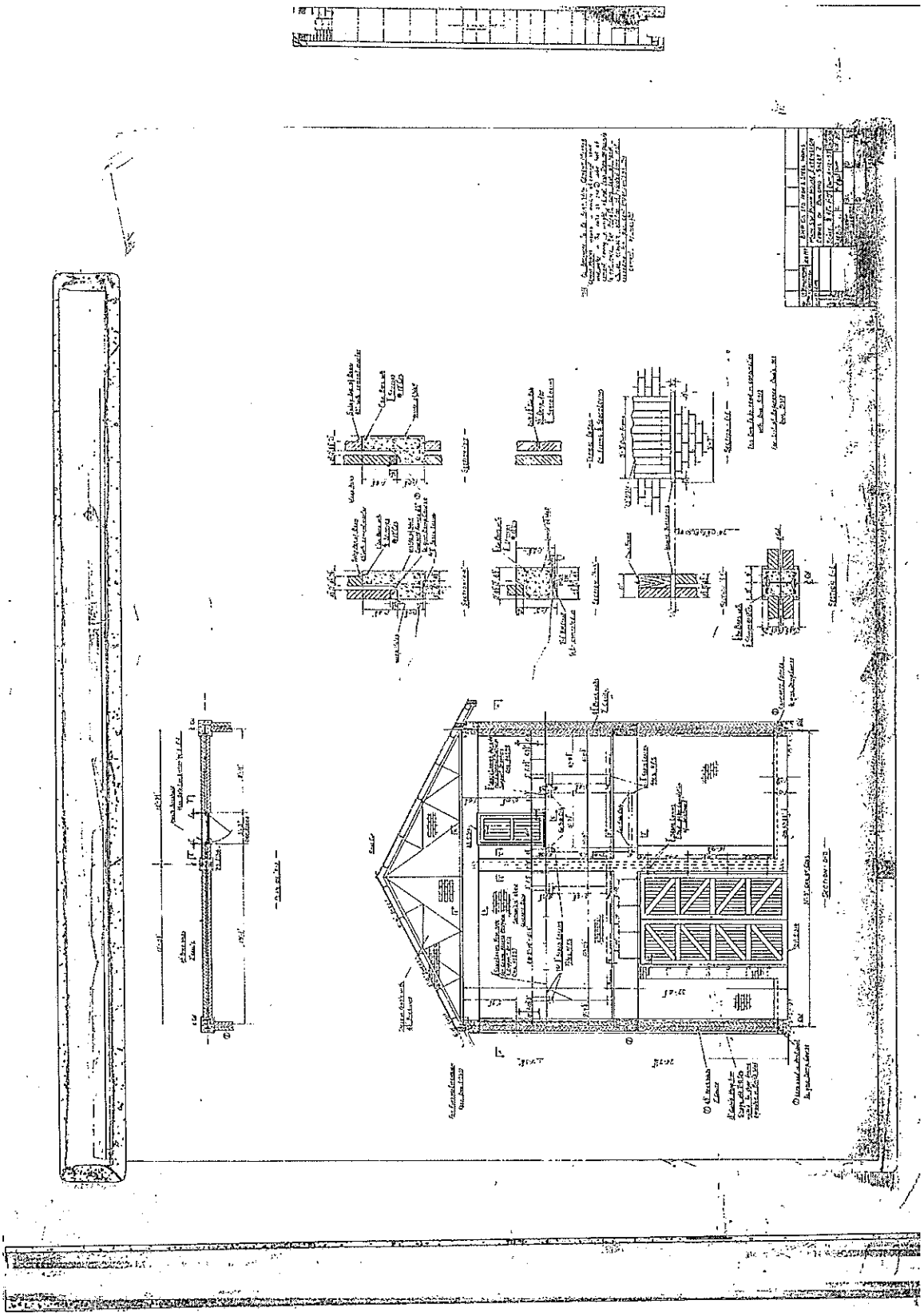


Figure 9.5 AC Saltwater Pump House and Shipping Wharf DC Substation Arrangement plan
Source BHP Drawing ref 76892

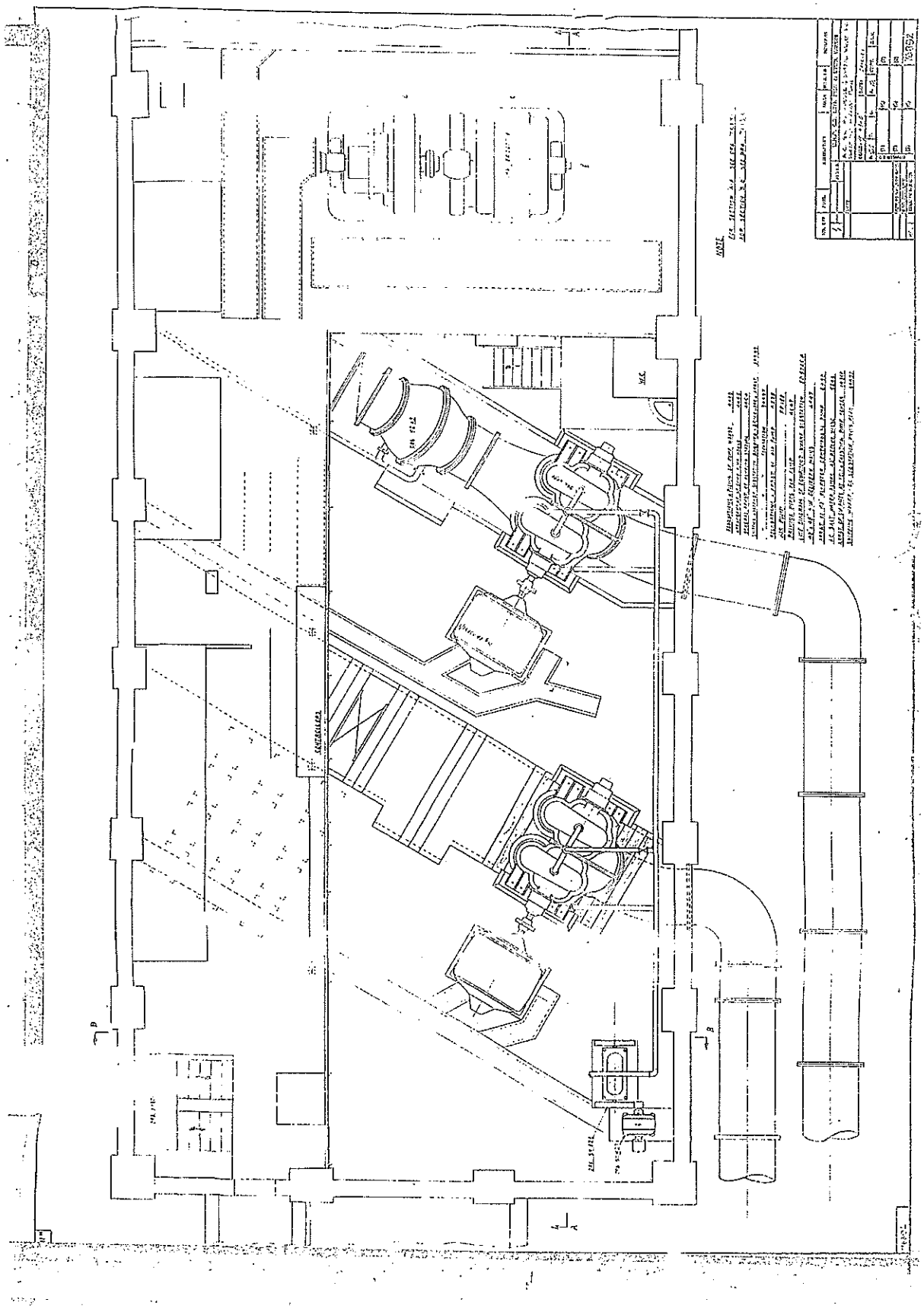


Figure 9.6 AC Saltwater Pump House and Shipping Wharf DC Substation End elevation
Source BHP Drawing ref 76893

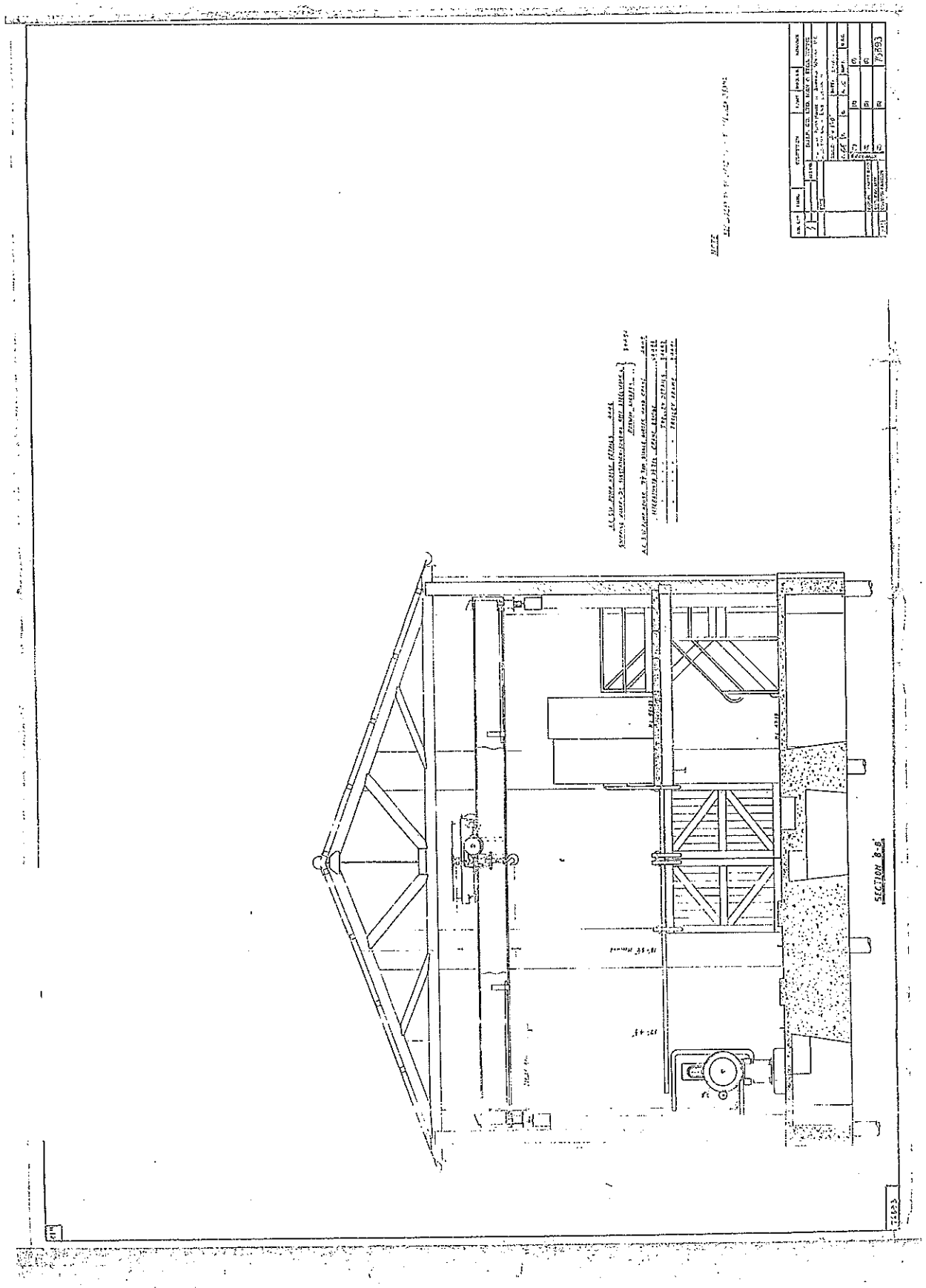
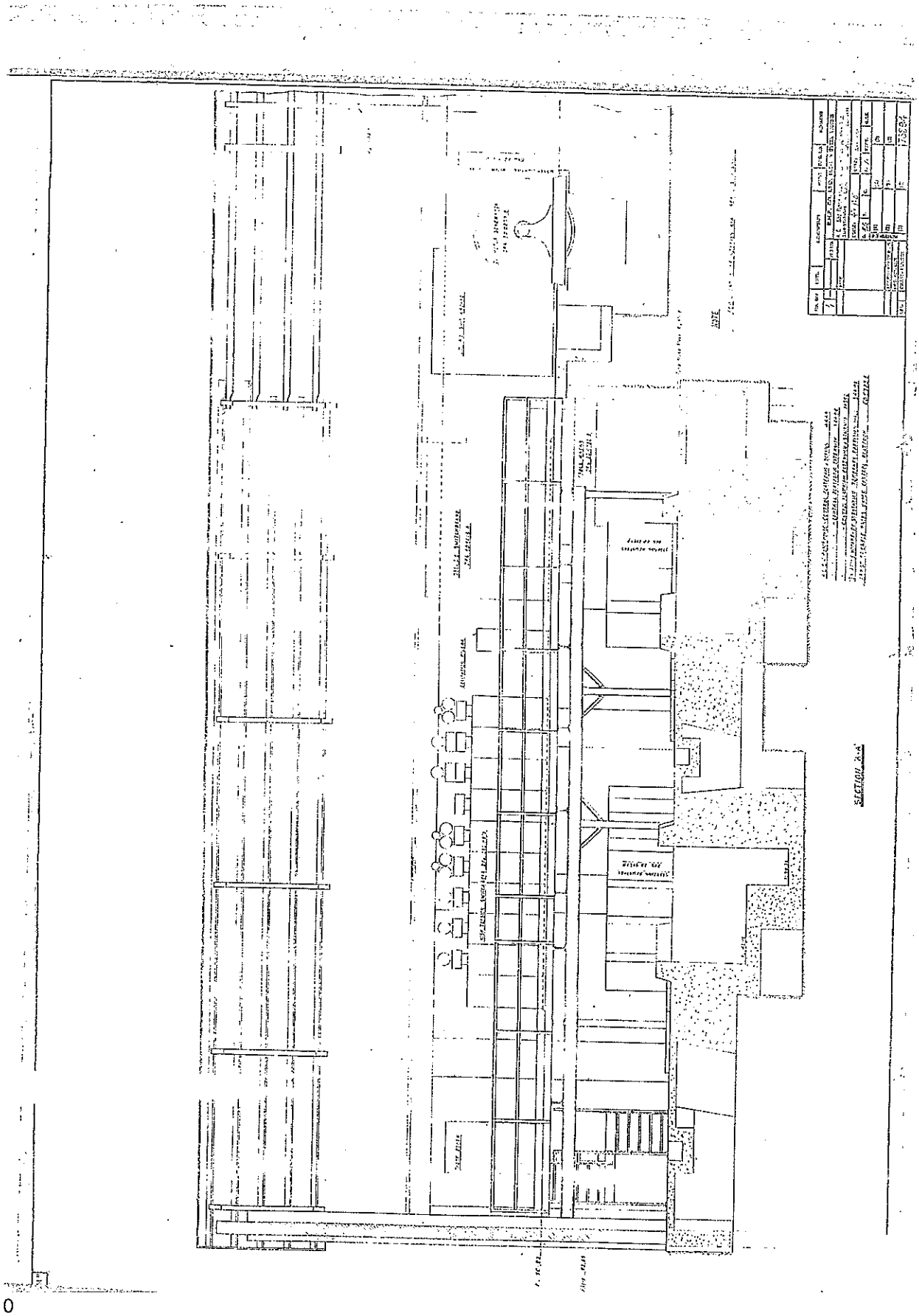


Figure 9.7 AC Saltwater Pump House and Shipping Wharf DC Substation Longitudinal Cross Section
Source BHP Drawing ref 76894



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10.0 HISTORIC PHOTOGRAPHIC RECORD

Note: No historic photographic record found during the compilation of this report.

11.0 FULL FORMAT PHOTOGRAPHIC RECORD

Note: No full format photographic records were accessible during the compilation of this report.

12.0 INVENTORY OF EQUIPMENT FITMENTS AND FINISHES

ITEM	DESCRIPTION
Original Pumphouse - 42' bi-rotor pumps and motors	Original No1 and No2 pumps – partly dismantled – some parts replaced and reconditioned - Manufacturer – Thompson Castlemaine Australia. No 1 motor is assumed to be a General Electric 25 cycle motor. No2 motor has been replaced with modern 50 cycle motor) Origin 1924
Original Pumphouse - Control platform	Containing High tension switch gear, DC switchboard and pump speed regulators. Most components intact. Possible extension to platform in 1937 and 1947. Origin 1924
Original Pumphouse – Crane	7½ Ton single girder hand crane – modified to double girder - alteration around 1947. Seems that many parts including runners and pulleys are original. Origin 1924.
Newer Pumphouse (1937) 3 off 3.5 kV pumps	500hp vertical spindle axial flow pumps, in original positions and intact Origin 1937
Newer Pumphouse (1937) Crane	Double beam Crane No29, 8 ton limit.
Exterior pumps and screens	No1 and No2 pumps and associated screens (replaced original No1 and No2 pumps) Origin 1983

13.0 APPENDICES

Appendix A: Manual camera negatives and photos

Appendix B: Digital Images & Disk – N/A

Appendix C: Archive Drawing Register Disk

13.1 Appendix A: Manual camera negatives and photos

Refer to the final Archive Report master copy, to be submitted to the NSW Heritage Office, for negatives and additional mounted manual photographs.

13.2 Appendix C: Archive Drawing Register Disk

Refer to the final Archive Report master copy, to be submitted to the NSW Heritage Office, for the drawing register disk. Also accompanying the master copy shall be full size prints of the drawings as included in Section 9.0 -"Diagrammatic Records & Drawings".