# IEAust National Office - New File Request

The Institution of Engineers, Australia

**File No:** 3/6/112

**TITLE:** IEAUST COMMEMORATIVE PLAQUE PROGRAM - ROTTNEST ISLAND & SIGNAL STATION

**ORIGINATORS NAME AND DATE:** P Buckland 26/7/96

**OFFICE USE ONLY**

**Index** ☐

**Index Strips** ☐

**Pocket** ☐

**Diary** ☐

From: Richard Usher
To: NAT_OFF.PSUTHERLAND
Date: 4 September 96 9:40am
Subject: Rottnest Plaque

Penny,
Very many thanks for all your help Penny in obtaining the plaque for the memorial over at Rotto.

The Plaque arrived on Thursday, so we were able to get it over to the Island in advance. All the arrangements went very well, and we got some very good press coverage for the ceremony.

There was only one snag. Monday was a beautiful day, and today is another paradise. Murphy was alive and well yesterday, and arranged a full scale gale in the morning. The ferry trip took about 30 minutes longer than usual because of the rough seas, and a few people didn't make it as they had not had such a large breakfast!!

However, about 40 people made the trip, and it went well. As I said before, many thanks to you for your special efforts on our behalf, they were very much appreciated. I'll forward a photo in due course.

Regards Richard Usher

CC: NAT_OFF.DHOOD

# COMMEMORATIVE PLAQUE NOMINATION FORM

DATE: 20 August 1996

TO:
Commemorative Plaque Sub-Committee
The Institution of Engineers, Australia
Engineering House
11 National Circuit
BARTON ACT 2600



FROM:
Engineering Heritage Panel
WA Division
Nominating Body

The following work is nominated for an Historic Engineering Marker:

Name of Work
Rottnest Island Lighthouse and Signal Station.

Location
Wadjemup Hill Rottnest Island, Cockburn Sound, West Coast, Australia.
Lat 32°0'30" S, Long 115°30'10"E. (Public Works Department, Western Australia Chart N°. 54153, RF 1:25000).

Owners
The Rottnest Island Authority and the Australian Maritime Safety Authority.

The Manager and the Rottnest Island Authority Board have been advised of the nomination. They have indicated their agreement and will assist in the organising and financing the plaquing ceremony.

Access
The whole of Rottnest Island is State Government Reserve open to the public for recreational activity including the Light and Signal Station site. The site is also included in organised tours.

Future Care & Maintenance
One of the functions of the Rottnest Island Authority is the care and maintenance of tourist facilities. The Authority is willing to provide for the future care and maintenance as part of this function. It is aware that elements of the site are in need of maintenance.

Plaque Location
At the lighthouse site.

Plaquing Ceremony
Scheduled to be held on Tuesday 3 September 1996.

Name of Sponsor
Engineering Heritage Panel, WA Division

Additional supporting information attached.

Chairman, Nominating Committee

Chairman, Division Heritage Panel

## SUPPORTING INFORMATION

Name of Work
Rottnest Island Lighthouse and Signal Station.

Description of Work
The Station occupies approximately five hectares on the summit of Wadjemup Hill. A sketch of the site is attached at "A".

At the top of the hill the Lighthouse precinct comprises a compact group of buildings: the lighthouse, a store being part of the original lighthouse, power house, two water tanks and remains of the footings of the original keepers quarters and stores. Plans of these elements are attached at "B".

The signal station precinct is on an adjacent ridge some 150 metres distance, and comprises the signal station and tankstand, flagstaff foundations, store and accommodations units, and a battery and fortress observation post.

Between the two precincts a lightkeepers house is located, and lower down the hill, about 80 metres away from the light, is the headkeepers residence and domestic outbuildings. Attachment "C" displays photographs of the site.

Time of Construction and Operational Period
The original light tower was commenced in 1842 and the light was lit in June 1851, twenty two years after the Colony's foundation. Tenders were called to erect the second, and currently existing tower, in August 1894. Construction began in March 1895 and the new light commenced operation in March 1896.

The original tower was demolished soon after but the living quarters at its base were kept for the assistant lightkeeper. A new residence was provided for the head lightkeeper. At some time after World War 1 two extra bungalows were erected and the quarters at the base of the original lighthouse were reduced to a small oil store.

These two dwellings became surplus when the station was electrified and in 1952 were moved to Thomson Bay to become tourist cottages.

Today the lighthouse operates as a fully automatic unattended station using the Island's power supply.

With the appointment of a pilot at Rottnest late in 1848, a system of signalling for pilotage was established ahead of the lighthouse kindling in 1851, by means of flagstaffs at the lighthouse site. The role was taken over by the lightkeepers until early 1904, when a 10ft x 10ft timber and galvanised iron cabin with a verandah all round, was removed from Bathurst Point and re-erected together with a flagstaff on the ridge near the main lighthouse. This building housed the lookout/signalmen, the telephone switchboard and signalling equipment.

In October 1939 the existing three storey structure was completed by the Commonwealth Government and used by the Fremantle Harbour Trust under agreement. The signalmen were moved from the Settlement to live in bachelors quarters near the signal station in early 1942. A fog signal installation consisting of a small steel cabin and 40ft mast was erected in 1906 near the signal station. The signal station was closed down in November 1949.

The precinct is also the site of a four storey combined military fortress command and battery observation post. This post was associated with the command and control of a 9.2in gun battery on the nearby Oliver Hill. The post was established on the site in 1938. In 1945 the guns and associated infrastructure were put into combat storage until 1963 when most of the equipment was removed. The Oliver Hills guns, however, remain in place as a tourist attraction. The post does not form part of this marker nomination, but it is an important part of the gun battery infrastructure.

Operational Details

The light has operated continuously over the past 144 years since being lit in 1851. It was constructed as a revolving catoptric light exhibiting a flash of five seconds per minute. The light originally burned coconut oil. By 1862 colza oil was being used and later in the century kerosene was substituted. No great change occurred until a new lantern and glass was fitted in February/March 1881. The new light was first order dioptric. In 1887 a new locally made revolving apparatus was fitted.

The new lighthouse opened in 1896, used a first order dioptric holophotal lantern and this optical system is still in use today. In 1908 the wick burners were replaced by a Chance Bros incandescent petroleum vapour burner, increasing the power from about 45,000 to 200,000 candlepower. In 1927 the power of the lamp was increased 327,000 candlepower. A new mercury float pedestal and clockwork revolving mechanism were fitted in 1929.

The current power and character of the light were set when electrification was effected on 15 January 1936 when the power was increased to three million candlepower and the rotational speed and lens system altered to flash at a periodicity of 7.5 seconds. Power was provided by petrol engines driving 2 x 110v 15kw DC generators with an associated battery system. About 1966 diesel engines driving 240v alternators replaced the original system, and on 11 November 1968 the lighthouse together with the entire lightstation was connected to the Settlement powerhouse. Today the lightsource is a 1000 watt 120 volt tungsten halogen lamp with an intensity of 1,000,000 candles and a nominal range of 26 nautical miles.

With the appointment of a shipping pilot to Rottnest late in 1848, a system of signalling for pilotage was established ahead of kindling the lighthouse in June 1851. Flagstaffs at the lighthouse site and at Fremantle were used to signal, by means of shapes and flags, the pilot at the Rottnest Settlement, to board either an incoming or outgoing vessel. From Fremantle the approach of a ship was relayed to, and repeated by, a flagstaff near Preston Point in view of Perth. Thus the colony was made aware of the approach of ships at an early time.

The system was improved in the 1860's by the addition of a pilot's lookout tower and flagstaff on Bathurst Point near the settlement and in 1865 a 10ft square lookout building was erected. The flagstaff was used to signal a ship by day and flares were used by night.

Thus until 1879 communication to and from Rottnest was by flag, fire, lamps, boat, rockets and guns. In 1879 use of the heliograph was introduced. The first telephone line on Rottnest was commissioned in 1892. It stretched from the lighthouse to the pilot establishment at Thomson Bay, and the pilot lookout tower at nearby Bathurst Point may have been on the circuit. A submarine telephone cable was laid to the Island from Cottesloe in 1900.

Following the construction of a lighthouse at Bathurst Point in September 1900, the Rottnest Pilot Station was abolished in August 1903 and the pilots shifted to Fremantle. As a consequence, the Island's three telephone attendants were relocated to Bathurst Point to man the relocated switchboard, to undertake lookout duties and to signal the pilot launch when nearby. The signalling function to ships was allocated to the main light keepers on Wadjemup Hill.

After a ship ran aground in November 1903 when attempting to use the South passage, which could not be seen by the Bathurst Point lookout men and was not seen by the lighthouse keepers, it was resolved not to rely on the lookout system kept by the light keepers. Thus in early 1904 the signal cabin and signal/lookout men were relocated near the main light by the Fremantle Harbour Trust.

In 1905 a ship lost her way in mainland bushfire haze and ran aground. As a consequence, a fog signal was installed in 1906 near the signal station. A signalman entered a small cabin at the base of a mast and then hoisted an eight ounce explosive charge. When the charge reached the masthead it was electrically fired automatically. The detonations could be heard on the mainland 21 km away. The signal was in use until the signal station was closed down

At the outbreak of hostilities in 1939 the RAN joined with the Fremantle Harbour Trust in running the signal station. Throughout the war this establishment was known as the Port War Signal Station. The FHT handed over the station completely to the RAN in September 1943 and resumed control in September 1945.

The signal station was closed in late November 1949. With the advent of improved radio communications, the closure was brought about by the abolition of compulsory pilotage from the sea. Ships could then come into Gage Roads to pick up a pilot or to anchor. They were required to notify the Fremantle Harbour Master 24 hours in advance through the Applecross coastal wireless station. (The Applecross station served as the main coastal radio communications centre from 1912 and is plaqued with an Historic Engineering Marker).

Physical Condition

All of the original stone buildings remain in good functioning and habitable order. The alterations which have been undertaken to the residences have not greatly reduced the heritage significance, and it would be possible to restore the buildings to their earlier state. The foundations of the original lighthouse structure are clearly identifiable. The existing lighthouse remains in sound working condition.

The timber framed and weatherboard clad signal station, although dilapidated and in need of maintenance, is in a structurally sound condition. The foundations of two flagstaffs, together with guy anchors, remains in position.

## ENGINEERING HERITAGE SIGNIFICANCE

### Technological/Scientific Value

The original light was the first revolving light on the Western Australian coast and was preceded by only eight other lights on the Australian coast. The revolving apparatus was locally designed by Assistant Surveyor Augustus Gregory and a contract was let to Alfred Carson, mechanic and inventor, to construct it. Everything except the lanterns were of local manufacture. Governor Fitzgerald awarded Gregory a gratuity remarking that his work enabled the light to be kindled a year earlier than had the apparatus been imported from England.

The existing light represents the continuous evolution of visual navigational aids on the Australian coastline in the nineteenth and twentieth centuries. It represents evolution from a vegetable oil wick burning apparatus with catoptric optics to an electric powered automatic system with holophotal optics.

The existing tower provides an example of early craftsmanship and technology in its construction and represents one of only a few in Australia designed by British engineer WT Douglass.

The signalling station represents the culmination of 101 continuous years, between 1848 and 1949, of the communication services given to shipping from Rottnest. The evolution of the services provided represents the Colony's efforts to adapt changing signalling technology to meet its needs. The technology used ranged from early forms of visual and sound signalling through to marine radio and radar which eventually made the use of Rottnest redundant.

### Historical Value

The Rottnest Island Lighthouse and Signal Station is located on one of the earliest parts of Australia discovered by Europeans. Three hundred years ago this year, in 1696, the Dutch navigator Vlamingh named and charted Rottnest Island and the Swan River mouth. Earlier, in 1658, Dutch explorer Captain Valkersen reported the existence of the Island.

The Station has important associations with shipping in Western Australia, the development of the Port of Fremantle, and the growth of Perth as the capital city of the State.

The light, together with a light at Arthur Head Fremantle, was lit twenty two years after the formation of the colony in 1829. They were preceded by only eight other lights on the Australian coast constructed between 1818 and 1848.

The site of the lighthouse was selected by the State's first Surveyor General, John Septimus Roe and Officers of the HMS Beagle sailing on her third voyage of discovery. The original lighthouse was constructed by native prisoners under the superintendence of Henry Vincent, the builder being Bayley Maycock. The present lighthouse was built by Messrs Parker and Rhodes under contract to the State Public Works.

Signalling and lookout activity commenced on the site in 1848 and its role in shipping control continued until 1949, when radio and radar overcame the distance problems of signalling. When the signal station was located at Bathurst Point prior to 1904, the station was included in the list of signal stations which was published by Lloyds to be used by owners to communicate to their vessels. With this, it joined the other two Lloyd's reporting stations on the west coast at Breaksea Island, Albany and Cape Leeuwin.

The Light Station is on the registers of the Australian Heritage Commission, the National Trust of Australia (WA) and the Heritage Council of WA.

Social Value

It is the most prominent landmark on Rottnest Island and is also a major landmark on the Perth coast. Rottnest Island itself is of major historical significance in WA history and a popular tourist destination.

The lightstation area is open to the public and a conducted tour destination. The signal station has the potential to house a substantial interpretive display in security as well as providing a tourist lookout over the expanse of the island.

Landscape Value

The lighthouse is located on the highest part of the island in an unimproved wilderness area. It is, however, in harmony with the island context. As the most prominent feature, it is seen from virtually everywhere on the island, day and night, It is an important distance marker and orientating component in the landscape.

At the site, the complimentary height of the three storey signal station, together with the four storey military battery and fortress observation post, reduce the dominance of the lighthouse and give the site width and depth as well as highlighting its multi-functional significance.

Rarity

The existing lighthouse is a fine example of a Type 8.3D lighthouse structure, the other Western Australian example being at Cape Leeuwin, which was also designed by William Douglass. It is a National Trust assessment that few other examples exist in Australia.

The store is significant for comprising the remains of one of very few lighthouses built in Australia which incorporated the lighthouse keeper's quarters at its base.

The signal station is one of the few remaining examples on the Australian coast that has sufficient integrity remaining, together with a location such that it can be used for interpretation of early visual communications and pilotage systems.

Representativeness

The Rottnest Island Lighthouse and Signal Station and the lighthouse and signal building within it is a representative example of the role that such stations played in protecting the coast of Australia, as well as a fine example of their design and the development of navigational and signalling technology.

Contribution to the Nation and Region

Fremantle was established as the main port for Western Australia and its principal settlement at Perth soon after the Colony was founded in 1829.

Early ship wrecks and groundings from the 17th century onwards to the present, are evidence of the danger that existed on this part of the coast. The light and signalling facilities have been developed progressively over a period of some 140 years in response to this danger, thus enhancing the viability of the port and development of the region.

Contribution of Engineering

The site represents the evolution of marine navigational and signalling technology over some 140 years. More importantly, however, it represents the adaption of this technology to meet the needs of local circumstances by local engineers and technologists residing in what was one of the most isolated settlements in the world.

Persons Associated with the Work

1851 Lighthouse

Design and construction of the tower and infrastructure was associated with Henry Trigg, Superintendent of Public Works; Capt (later Col) Sir Edmund Henderson RE; James Manning, Engineer and Supervisor of Works; Bayley Maycock, Building Contractor; Assistant Surveyor Augustus Gregory, Revolving apparatus designer; and Alfred Carson, Revolving apparatus constructor.

John Septimus Roe, Surveyor General; and Captain Wickham of the HMS Beagle selected the site.

1896 Lighthouse

British engineer William Tregarthen Douglass, Consultant engineer and architect was responsible for the initial design. Douglass was the son of Sir James Douglass (1826–1898) who was responsible for the design of twenty lighthouses in the United Kingdom.

Under supervision of the Colony's Engineer-In-Chief of Public Works, Charles Yelverton O'Connor; George Temple Poole, Assistant Engineer-in-Chief; and Mr Edward Stables, Assoc MICE were involved on the planning and construction engineering, including alterations to the Douglass lighthouse design. Messrs Parker & Rhodes were the contract builders, and Chance Bros & Co Ltd, Birmingham, supplied the light mechanism

1904 Signal Station

Captain Charles James Irvine, Chief Harbour Master and Eric Carlin, Fremantle Harbour Trust Engineer (on secondment from the PWD) were associated with the project.

Integrity

The integrity of the lightstation and signal station is high. The top floor of the signal station still contains the labelled signal flag shelving. The foundations of two flagstaffs exist together with some guy anchors. One of the foundations may be the remains of the 1904 flagstaff installation.

Authenticity

The buildings retain a high degree of authenticity. The light apparatus remains in use. The signal station has had no major modification for alternative uses.

Comparable Works

At the same time the Rottnest light was kindled (1 June 1851), a fixed light at Arthur Head, Fremantle, was also lit.

The lights at Rottnest and Fremantle were preceded be eight other lights on the Australian coast:

| | |
|---|---|
| Macquarie Light, North Head, Sydney | 1818 |
| Iron Pot, Tasmania | 1832 |
| Low Head (Port Dalrymple), Tasmania | 1833 |
| Bruny Island, Tasmania | 1838 |
| Swan Island, Bass Strait | 1845 |
| Goose Island, Bass Strait | 1846 |
| Kent Group, Bass Strait | 1848 |
| Cape Otway, Victoria | 1848 |

The next coastal light to be lit after Rottnest and Fremantle was at Cape Willoughby, Kangaroo Island, South Australia in 1852.

WT Douglass also acted as a consultant engineer and architect for the similar but shorter lighthouse at Cape Leeuwin, Western Australia, built after the 1896 Rottnest Light.

Other signal stations existed on the Western Australian coast at Breaksea Island, Albany, Cape Leeuwin, Hamelin Pool and the Hopetoun Maritime Beacon.

Statement of Significance

The Rottnest Island Light and Signal Station has engineering heritage significance for the following reasons:

- A light has operated on this site continuously for the past 145 years. When lit in 1851 it was the first revolving light on the Western Australian coast and was preceded by only eight other lights on the Australian coast.

- The existing light represents the continuous evolution of visual navigation and in the nineteenth and twentieth centuries it represents evolution from a vegetable oil wick burning apparatus with catoptric optics, to a three million candlepower electric automatic with holophotal optics.

- The first revolving apparatus was locally designed by Augustus Gregory and constructed by Alfred Carson. Several subsequent modifications in both the new and old lights were undertaken by local engineering technologists.

- With the appointment of a shipping pilot to Rottnest late in 1848, a system of signalling to ships and to Fremantle was established on the site ahead of kindling the lighthouse in 1851. In early 1904 a signal cabin was erected near the light. This site remained in use for signalling and lookout duties until 1949 when the advent of improved marine radio and radar made the function redundant.

- Thus the existing signalling station represents 101 years of the evolution of communication services given to shipping from Rottnest. The technology used ranged from early forms of visual and sound signalling such as flags and shapes, set fires, lamps, rockets and explosives. In 1879 use of the heliograph was introduced, the first telephone line was commissioned on Rottnest in 1892 and a submarine telephone cable was laid to the Island in 1900. In 1912 coastal radio telegraph came into operation and during World War 2, radar installations were brought into use on Rottnest.

The Rottnest Island Light and Signal Station therefore represents the adaption of marine navigation and signalling technological development over more than 140 years by Australian Engineers and Technologists to meet the needs of the Port of Fremantle and Australia.

RECOMMENDED CITATION

HISTORIC ENGINEERING MARKER

ROTTNEST ISLAND LIGHTHOUSE AND SIGNAL STATION

In 1851, Western Australia's first lighthouse was erected on this 1848 Signal Station Site. It incorporated a revolving catoptric light designed by assistant surveyor Augustus Gregory and built by local inventor Alfred Carson. In 1896, contractors Parker & Rhodes, directed by Western Australia's Engineer-in-Chief, CY O'Connor, built this second lighthouse, embodying a 45,000 candle power revolving first order dioptric light.

These improved maritime navigational and signalling facilities were developed by Australian engineers providing a safer shipping passage to Fremantle.

Dedicated by
The Institution of Engineers, Australia
1996

Plaquing Ceremony
It is proposed that the site of the plaque be at the Lighthouse and the ceremony be held on Tuesday 3 September 1996.

Attachments

"A": Site and Locality Plan
"B" Lighthouse Plans
"C": Site Photographs

References

(1) Moynihan J "All the News in a Flash. Rottnest Communications 1829 - 1979" (Telecom Australia and the Institution of Engineers, Australia. Western Australia Division, 1988)

(2) "Register of Heritage Places: Rottnest Island Lightstation 20 January 1994" (Heritage Council of Western Australia)

(3) "Conservation Plan - Rottnest Island Lightstation Western Australia" November 1993 Danvers Architects Pty Ltd, Adelaide. (Australian Maritime Safety Authority)

## ATTACHMENT A: SITE PLANS

Fig 1: Location on Rottnest Island.

Fig 2: Lighthouse & Signal Station site layout.

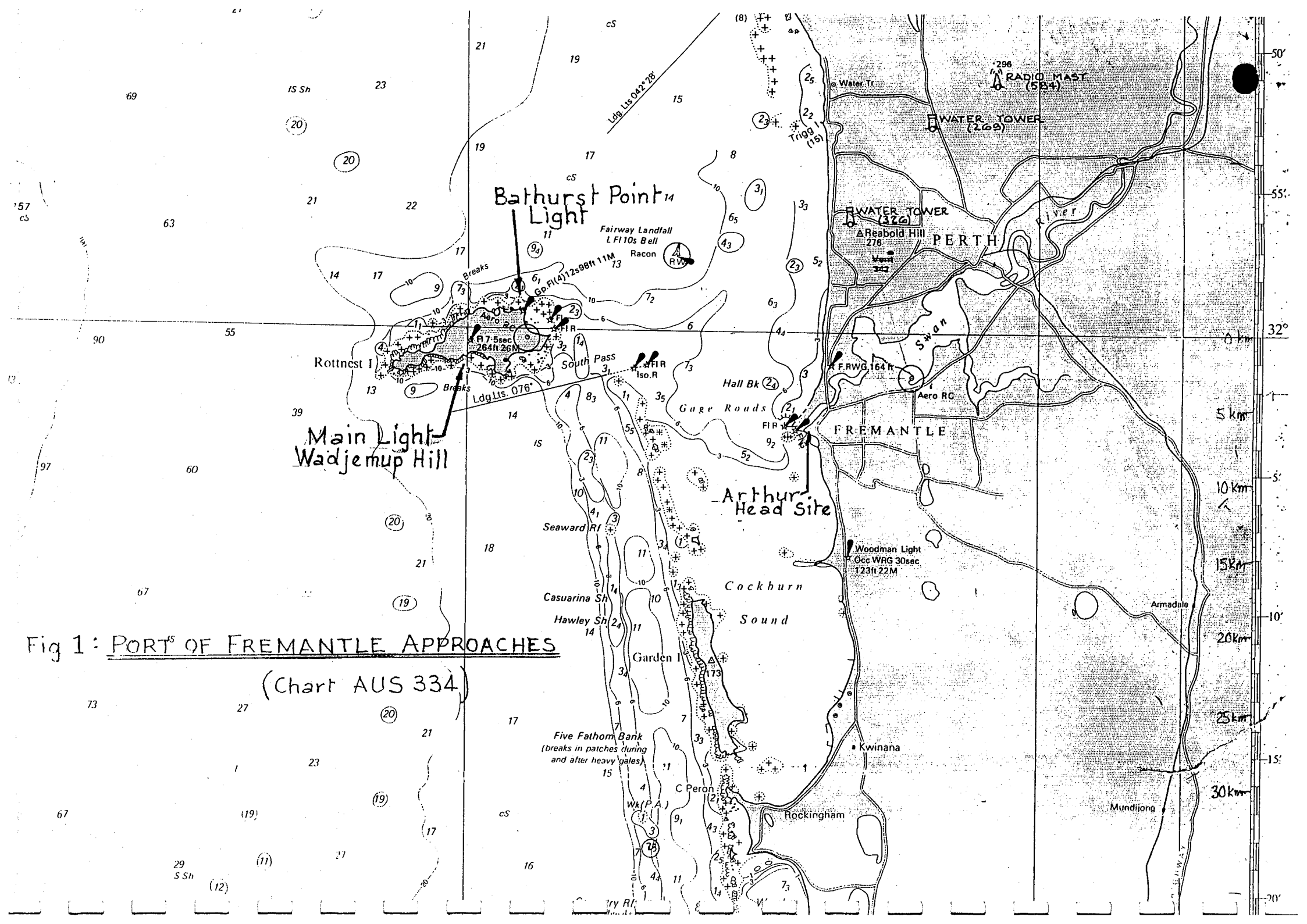



Fig 1: PORT OF FREMANTLE APPROACHES

(Chart AUS 334)

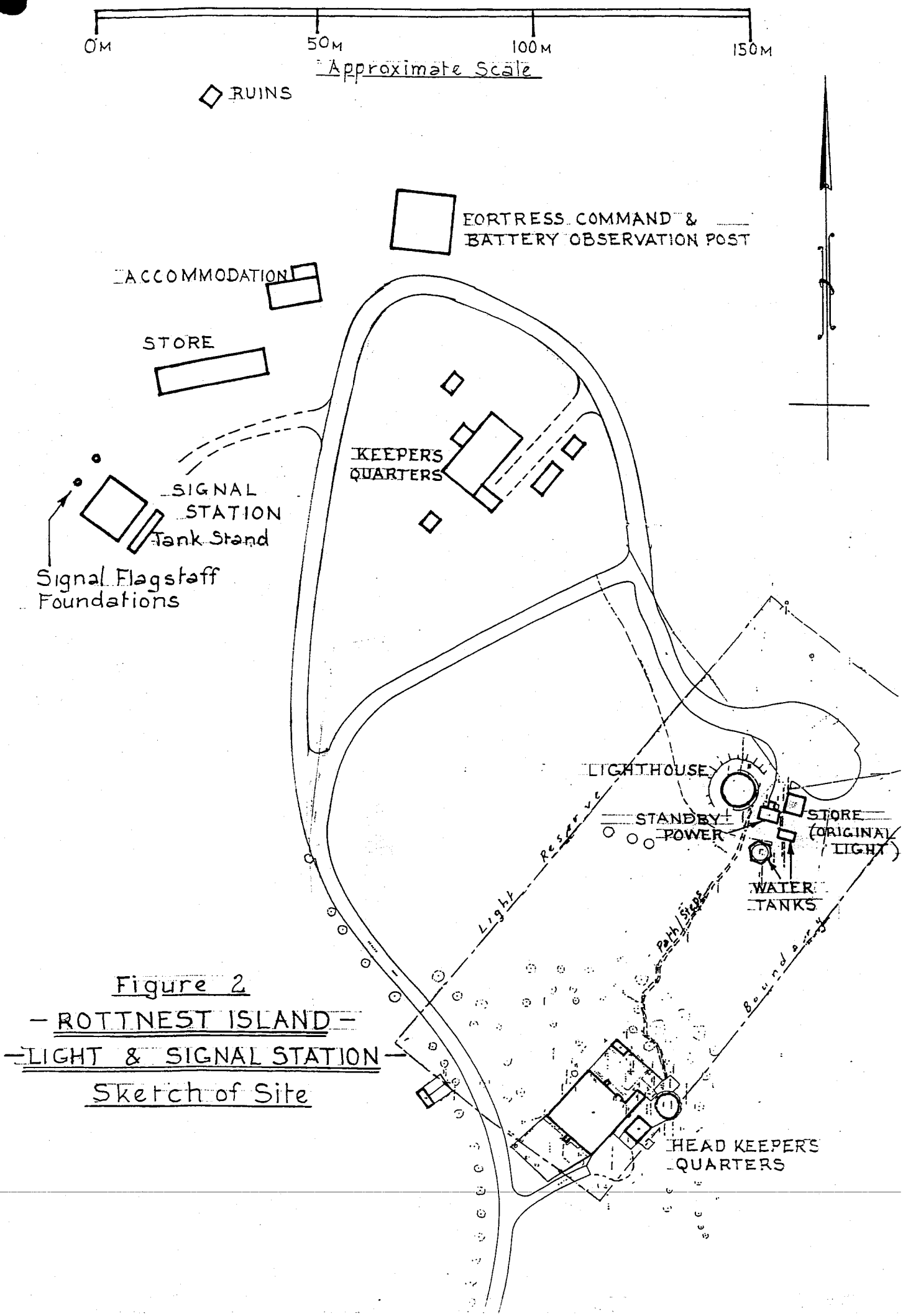



Figure 2

— ROTTNEST ISLAND —

— LIGHT & SIGNAL STATION —

Sketch of Site

## ATTACHMENT B: LIGHTHOUSE PLANS

Fig 1: Plan of original lighthouse, keeper's quarters, kitchen and stables.

Fig 2: Original 1851 Lighthouse.

Fig 3: Plan of existing lightstation site.

Fig 4: Elevation & section of 1896 Lighthouse.

Fig 5: First order lantern & revolving light.

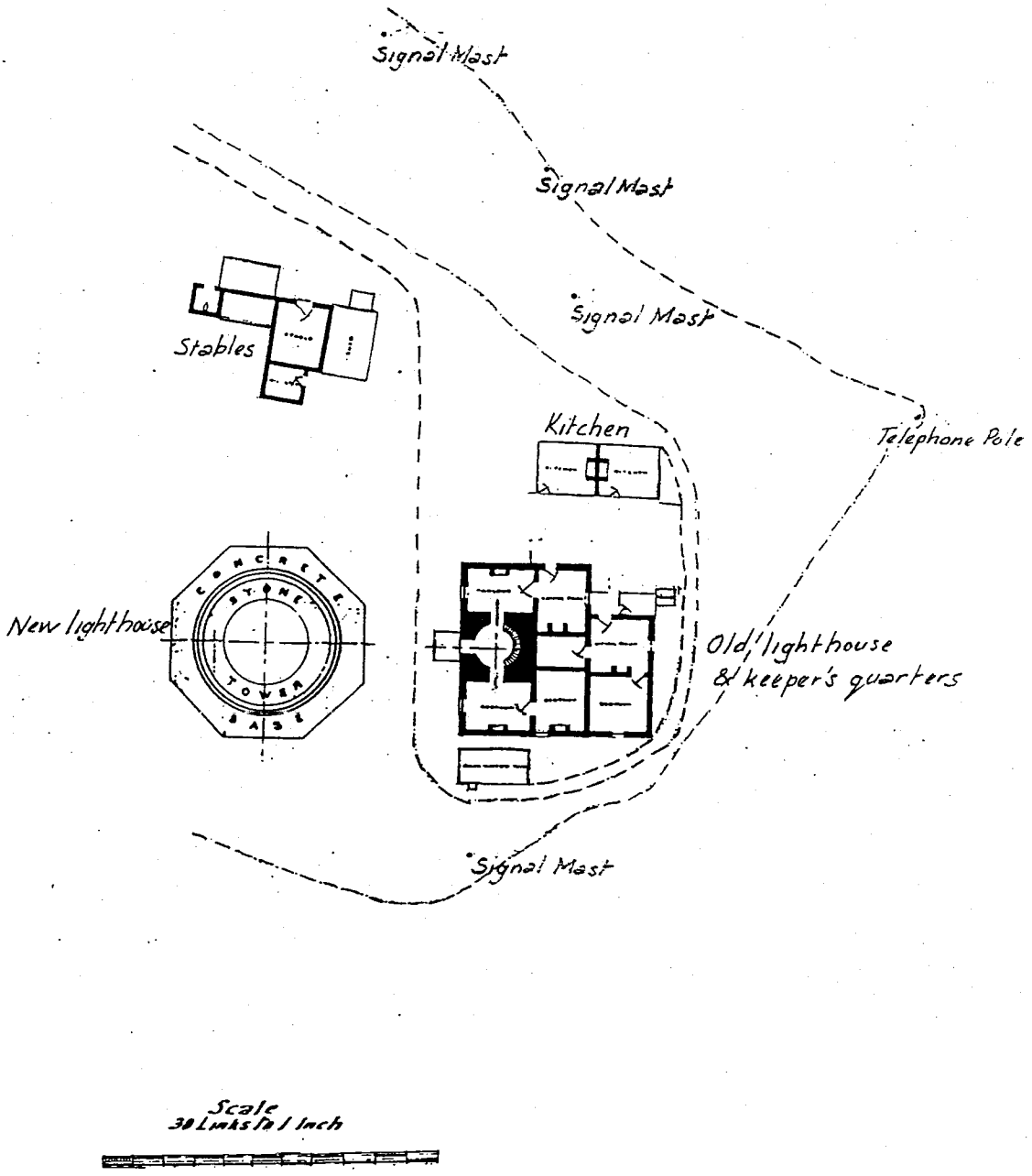



**Figure 1. Rottnest Island Lightstation, Historical**
Plan of original lighthouse, keepers' quarters and kitchen and stables, n.d. (AMSA, drawing WN-13-065/01).

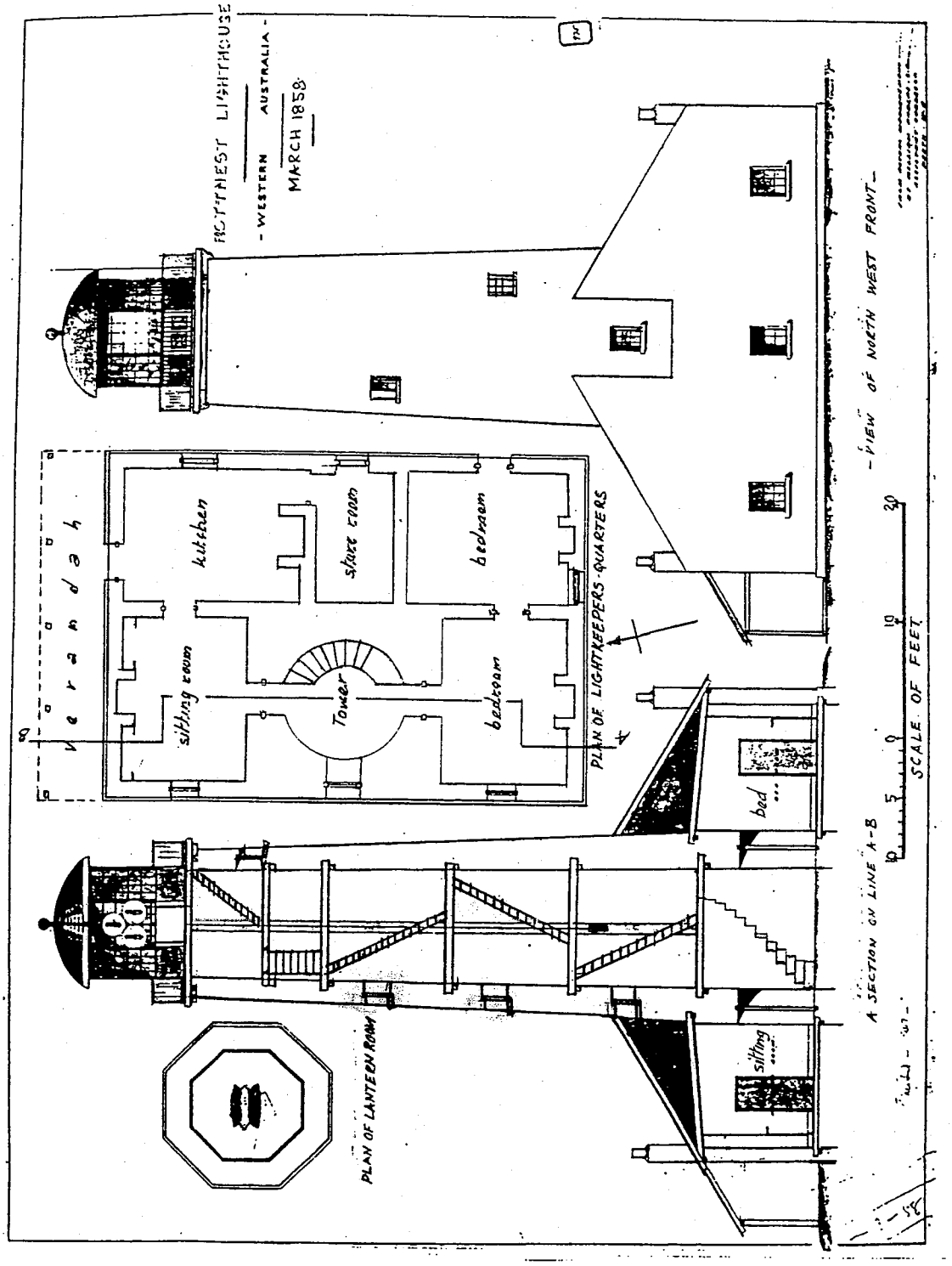
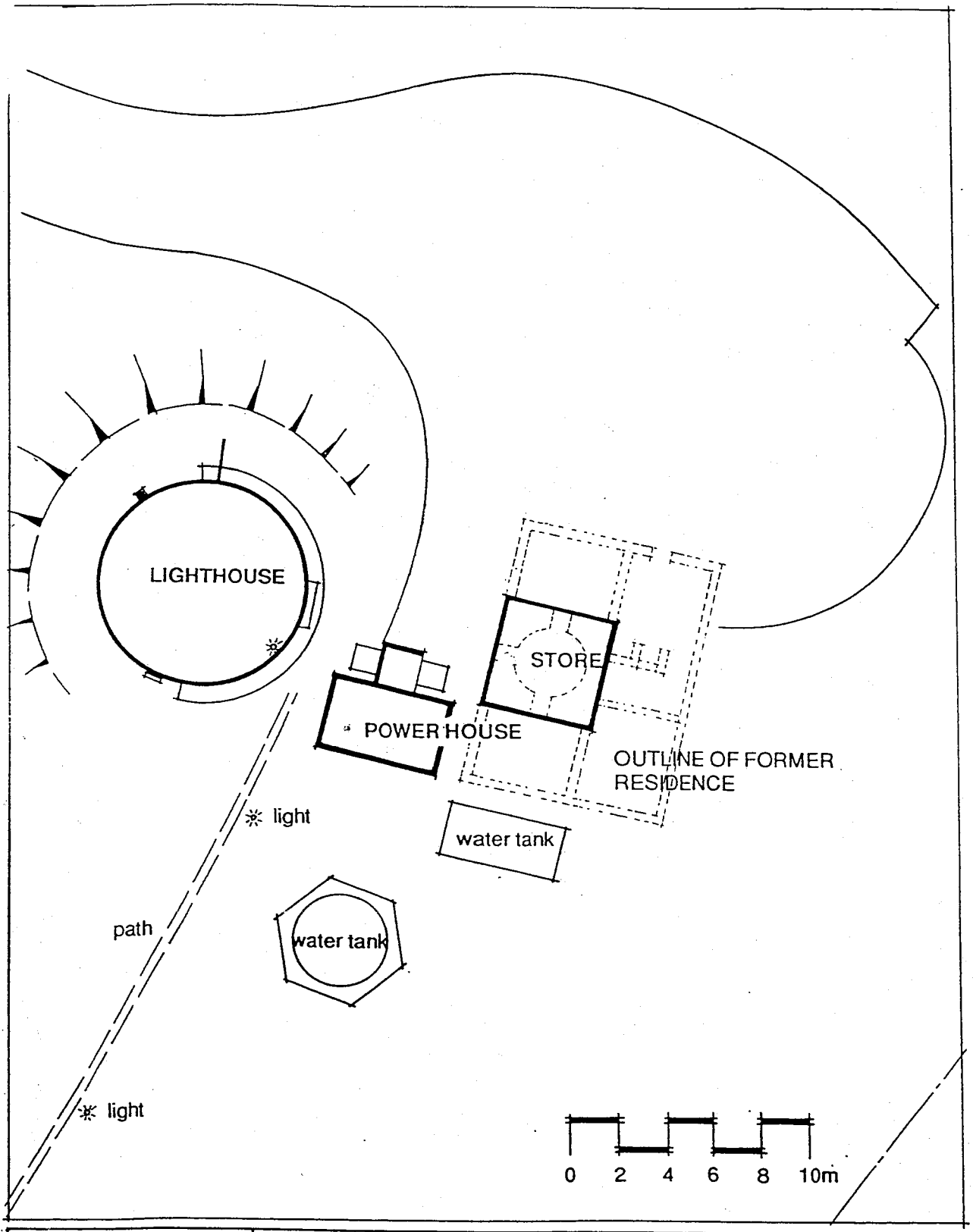



**Figure 2.** **Rottnest Island Lightstation, Historical**
Measured drawing of original Lighthouse (Building 3), dated 1858 (Ferguson, p. 20)




ROTTNEST ISLAND
Lightstation
Western Australia
Lat : 32°00' S
Long : 115°30' E

# LIGHTHOUSE PRECINT
## Detail Plan

Figure No: 3.

Scale : 1 : 250

DANVERS
ARCHITECTS
204 Grenfell Street
ADELAIDE SA 5000
Telephone: (08) 232 2278
Facsimile: (08) 232 5024

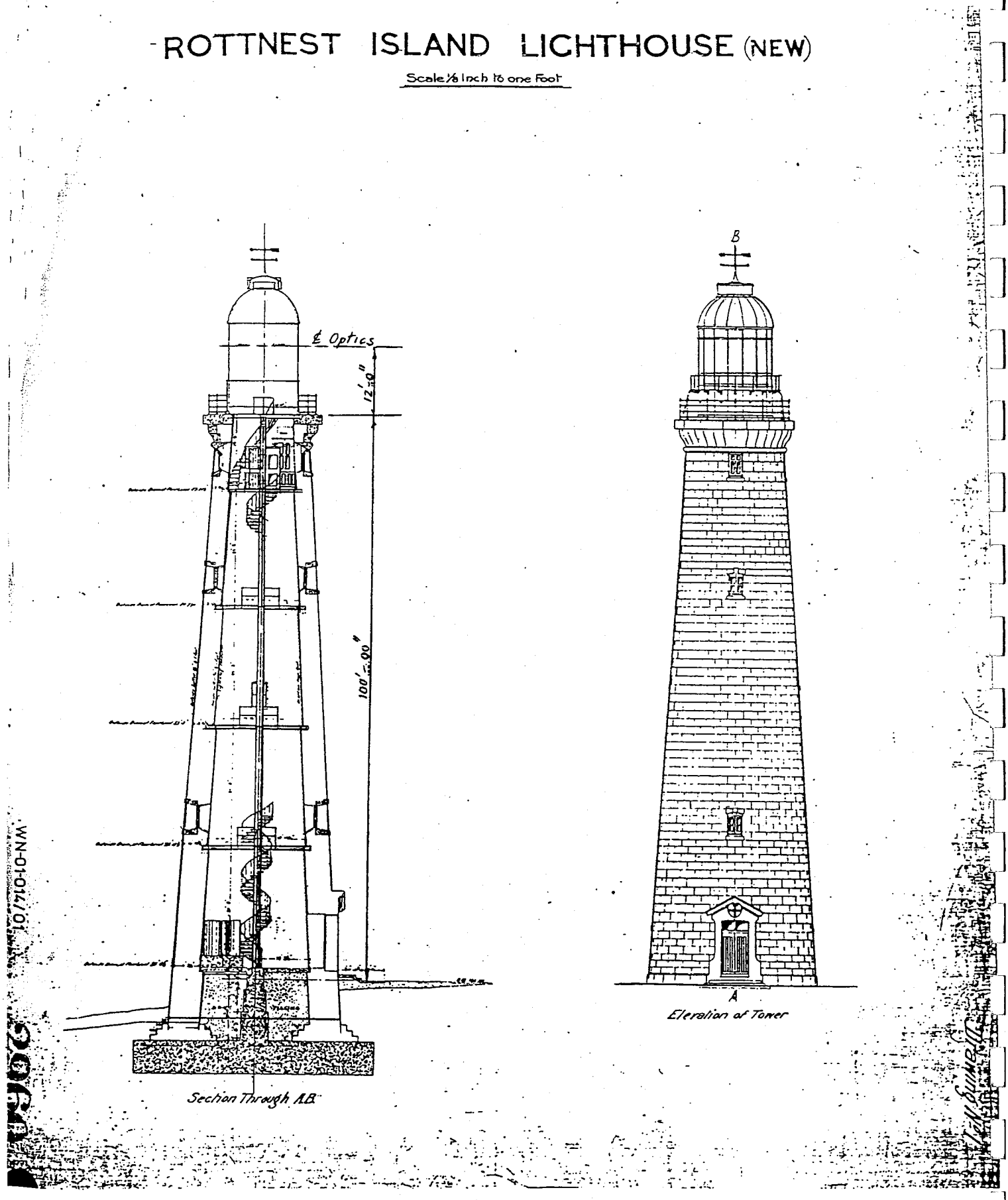



**Figure 4.** **Rottnest Island Lightstation, Historical**
Elevation and section of Rottnest Island Lighthouse, n.d. (AMSA, drawing WN-01-014/01)

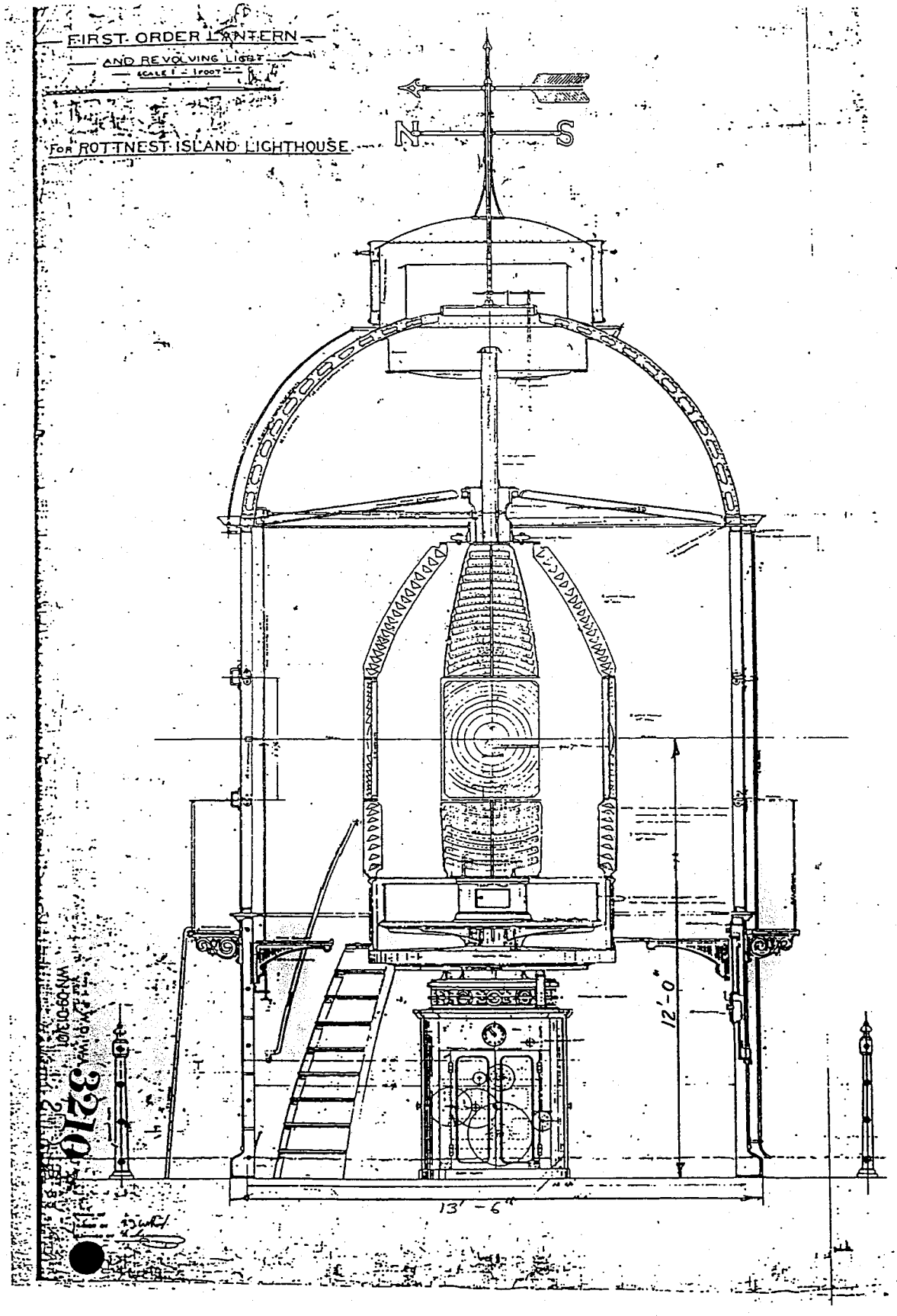
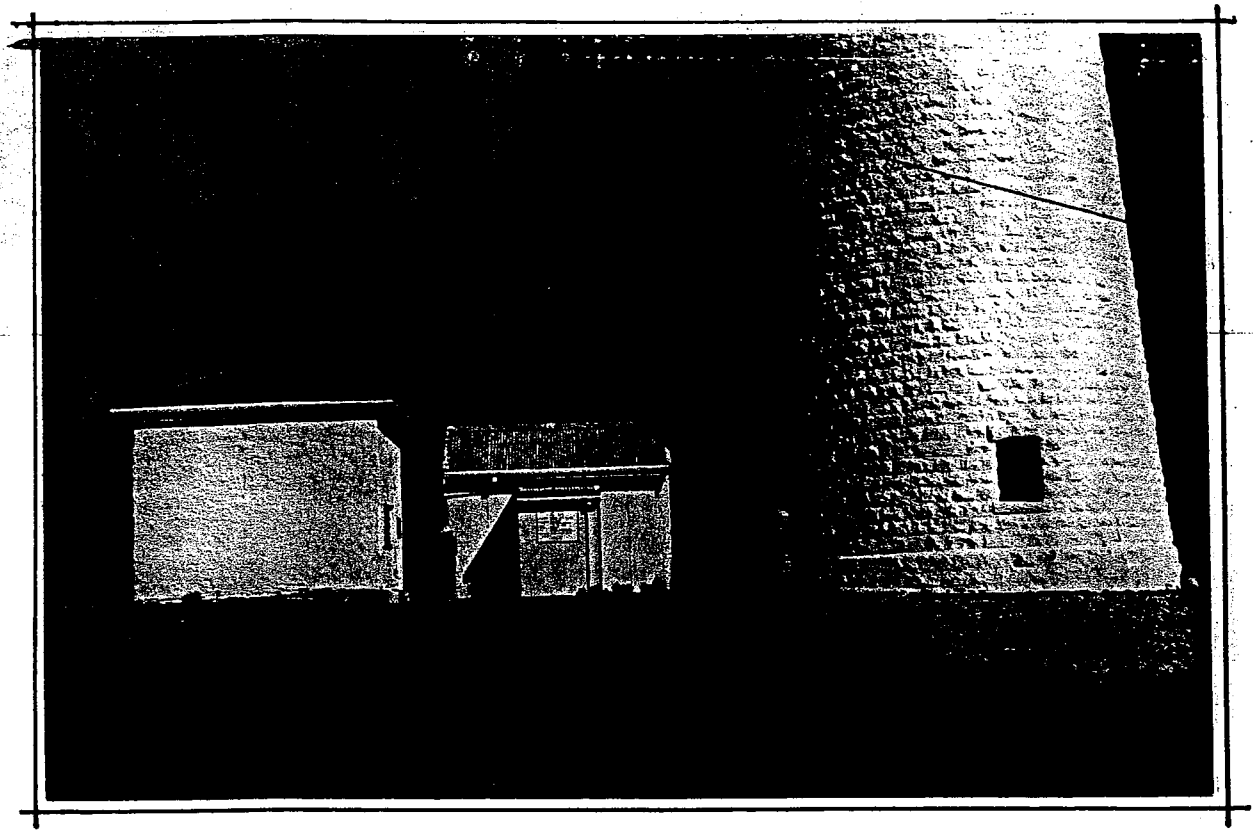
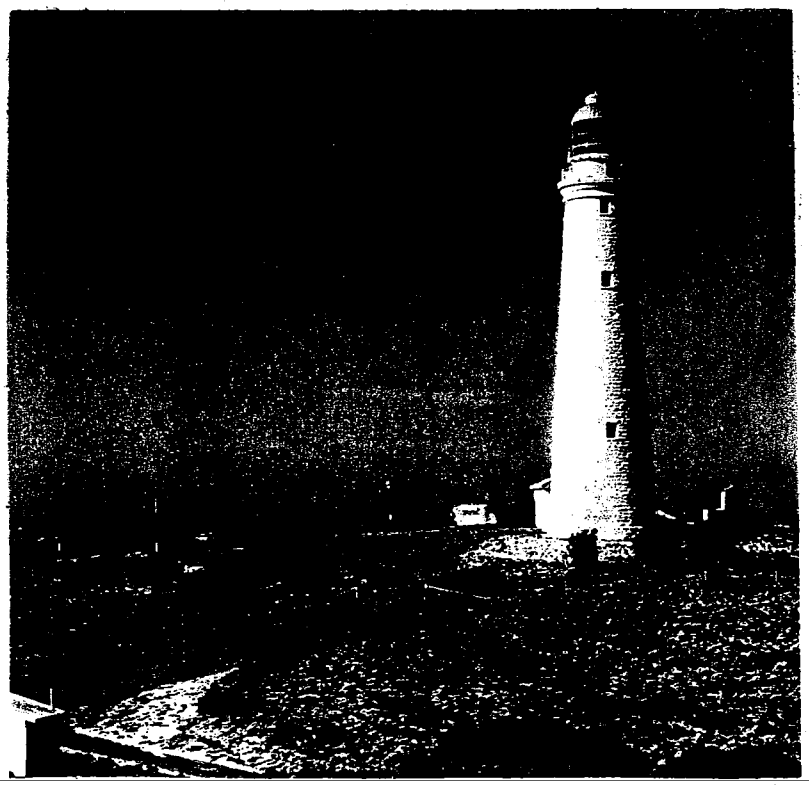



**Figure 5.** **Rottnest Island Lightstation, Historical**
First order lantern and revolving light, n.d. (AMSA, drawing WN-09-013/01)

ATTACHMENT C: ROTTNEST LIGHT & SIGNAL STATION – PHOTOGRAPHS

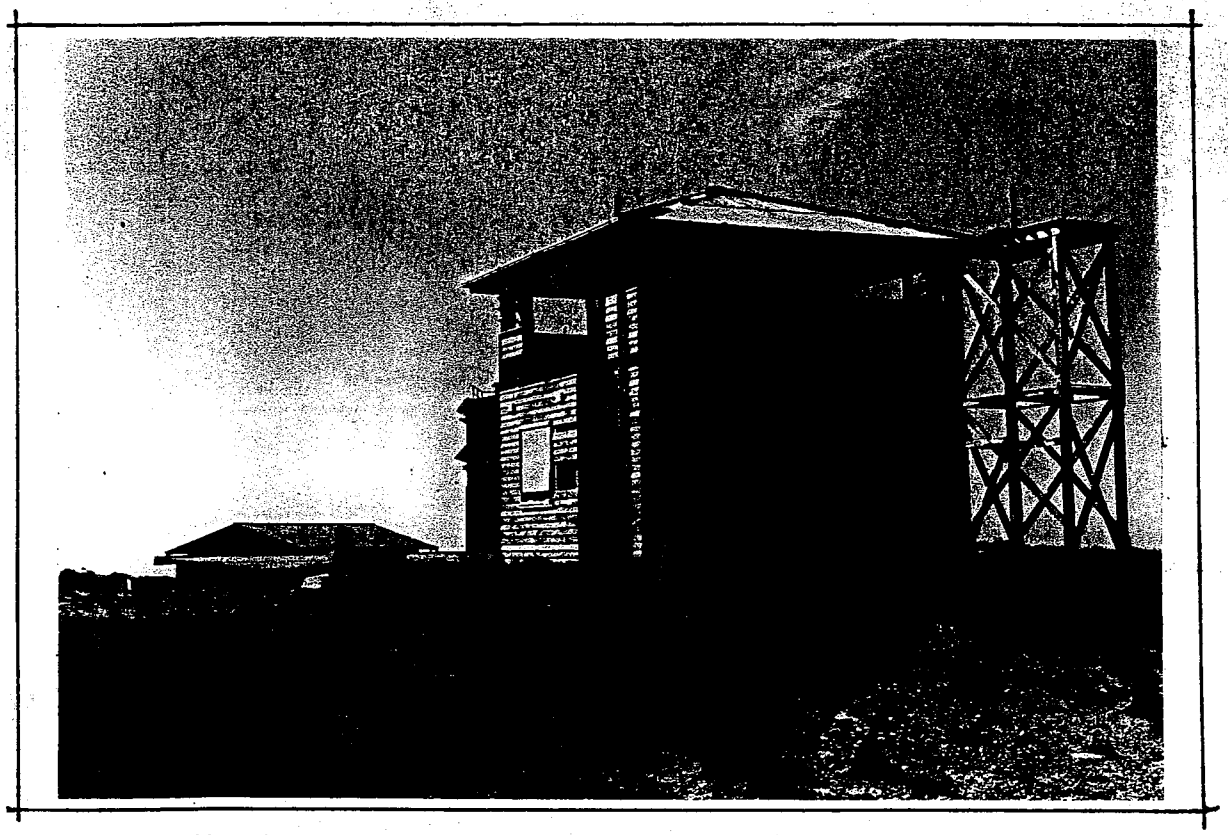


View of Light Station showing the only remaining part of the original tower & attached quarters on the left. The central building houses the stand–by power plant.



General view of the Light Station from the Signal Station. The concrete water tanks are to the right of the tower.

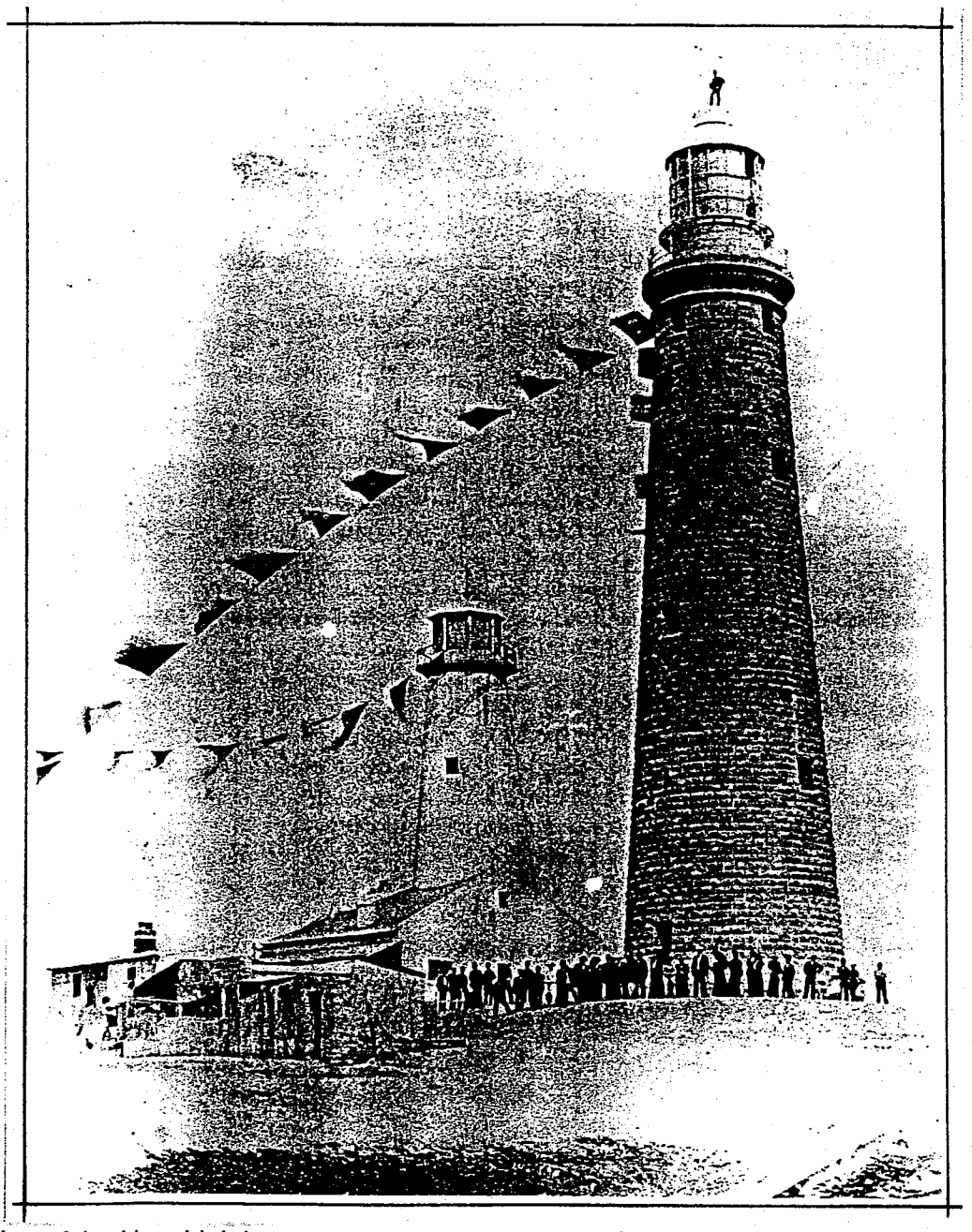
ATTACHMENT C: ROTTNEST LIGHT & SIGNAL STATION – PHOTOGRAPHS



View of the Signal Station showing main entrance & water tank stand. In the left foreground is the foundation of one of two signal flagstaffs on the site.

General view from the Light Station looking west showing the Signal Station to the left & the Battery & Fortress Observation Post to the right. Lightkeepers accommodation is in the right middle ground.

ATTACHMENT C: ROTTNEST LIGHT & SIGNAL STATION – PHOTOGRAPHS



Kindling of the New Lighthouse 17 March 1896
showing the 1851 Lighthouse before demolition
(Courtesy Battye Library – 1154B)

The Institution of Engineers, Australia
WESTERN AUSTRALIA DIVISION

ENGINEERING HERITAGE PANEL.

I.E. Aust. N.O.

16 NOV 2000

File: .....

Friday 11th November 2000.

Mrs Sue Mayrhofer,
Secretary,
National Committee on Engineering Heritage,
The Institution of Engineers, Australia,
Engineering House,
11 National Circuit,
ACT. 2600.

**ROTTNEST LIGHTHOUSE AND SIGNAL STATION PLAQUING REPORT.**

Dear Sue,

Here is the long overdue Report on the Plaquing Ceremony for the Rottnest Island Lighthouse and Signal Station which event took place on Tuesday 3rd September 1996.

The following are enclosed:-

1. Copy of the Programme of the Ceremony.
2. An Official Invitation Card.
3. A copy of the official Invitation List.
4. Two photographs, one of which is of the Plaque and the other of the Lighthouse. The Plaque was not positioned until some two years after the preentation and this is the photograph that they sent me. I expect to be going over to the Island shortly and will make an effort to go up to the Lighthouse to get some further photographs of the Plaque to complete your set.

Please let me know if you require any further information.

Yours sincerely,

Bruce W S James.
Chairman,
Engineering Heritage Panel.

IEH01111.

712 Murray Street West Perth WA 6005. Phone (08) 9321 3340. Fax (08) 9481 4332
Email Address: contact_westaust@eol.ieaust.org.au

## ROTTNEST ISLSND LIGHTHOUSE AND SIGNAL STATION PLAQUING REPORT.

On Tuesday 3rd September 1996, some fifty people assembled in th Picture Hall on Rottnest Island when the Historic Engineering Marke Plague was presented to Mr Ross Hughes, the Chairman of the Rottnest Island Authority Board, by Mr Barry Clarke, President of the Western Australia Division of the Institution of Engineers, Australia.

Mr Brian Easton, the Chief Executive Officer of the Rottnest Island Authority welcomed the guests. An Address explaining the purpose of th Institutions Plaquing Programme was given by Mr Bruce James, the Chairme of the WA Division Engineering Heritage Panel. Mr Barry Clarke, the President of the WA Division of the Institution, then made th presentation and unveiled the Historic Engineering Marker Plaque which wa accepted by Mr Ross Hughes, the Chairman of the Rottnest Island Authority Board.

The attached photographs and other papers cover the event.

Bruce W S James.
Chairman,
Engineering Heritage Panel.

11th November 2000.

IEH01111.

## INVITATION LIST FOR PLAQUING AT ROTTNEST.

1. Mr Ross Hughes, Chairman, Rottnest Island Board.
2. Mr Craig lawrence, Deputy Chairman, Rottnest Island Board.
3. Mr Jim Snooks, Member, Rottnest Island Board.
4. Mr Guy Leyland, Member, Rottnest Island Board.
5. Mrs Claire Huston,
6. Mr Bob Mumie,
7. Mr Brian Eaton, Chief Executive Officer, Rottnest Island Authority.
8. Mr Andrew Hill, Manager Environmental Branch, " " "
9. Ms Sandra Ferguson, Manager Accommodation, " " "
10. Mr Neil brown, A/Manager Corporate Services, " " "
11. Mr Steve Crawford, Manager Marketing & Visitor Service, " "
12. Mr Wayne Carter, Manager Operations, " " "
13. Ms Jacqueline Pontre, Manager Implementation, " " "
14. Mr Rinz Brardssma, Chairman, Rottnest Island Foundation.
15. Dr Phil Playford, Chairman, Rottnest Island Environmental Research Advisory Committee and President National Trust of Australia (WA).
16. Mr Geoff Lofts, President, Rottnest Island Volunteer Guides Assoc.
17. Mr Lindsay Richardson, Chairman, Rottnest Island Railway Trust.
18. Mr John Barrymore, Chairman, Rottnest Island Mooring Licenses Assoc.
19. Mr Ted Court, Vice Commodore, Rottnest Island Yacht Club.
20. Publicity/Promotion, Channel 7.
21. Publicity/Promotion, Channel 9.
22. Publicity/Promotion, Channel 10.
23. The Editor, West Australian Newspapers.
24. The Editor, Fremantle Gazette.
25. Mr Ted Bull, ABC Radio.
26. Mr Don Brown, Manager, Rottnest Express.
27. Mr Rusell Wilson, Manager, Boat Torque.

28. Mr Tony Dilatte, Manager, Oceanic.

29. Mr Maurice Owen, Chairman, Heritage Council of W.A.

30. Mrs Ainslie Evans, Member, " " " "

31. Mr Michael Lewi, " " " " "

32. Mr Philip Griffiths, " " " " "

33. Mr Gerry Gauntlet, " " " " "

34. Ms Jannine Marsh, " " " " "

35. Mr Tony Ednie-Brown, " " " " "

36. Mrs Michal Bosworth, " " " " "

37. Ms Mescal Stephens, " " " " "

38. Prof. David Dolan, " " " " "

39. Mr Ian Baxter, Director, Heritage Council of W.A.

40. Mr Harry Gorringe, Port Manager.

41. Mr Greg Brindal, Rottnest Island Business Community.

42. Sergeant Bob Morgan, Rottnest Island Police.

43. Mr Michael Daley, Rottnest Island Nurse-in-Charge.

44. Principal Kerry Everett, Rottnest Islamd School.

45. Ms Jessie Metekingi, Manager, Rottnest Island Lodge.

46. Mr John Ephgrave, Manager, Rottnest Island Hotel.

47. Mr John Mercer, Chairman, Rottnest Island Military Restoration Comm.

48. Mr Bruce James, Chairman, W.A. Engineering Heritage Panel and Member Heritage Council of W.A.

49. Mr Mike Corboy, Overseas Representative of the Board for Western Australia of the Institution of Electrical Engineering, London.

50. Mr Mike Watkins, Chairman, Western Australian Committee of the Institution of Electrical Engineers, London

51. Mr Vijay Kumar, " " " "

52. Mr Russell Candy, Vice Chairman, W.A. Division of the Institution of Engineers, Australia.

53. Prof. Doug Clyde,

54. Mr Charles Waterton,

55. Mrs Jenny Archibald, Mayor of the City of Fremantle.

56. Mr Ray Glickham, Fremantle City Manager.

57. Mr Ray Lees, Mayor of the City of Cockburn.

58. Mr Rod Brown, Cockburn City Manager.

59. Mr Jim Horwood, Chairman, Board of Commissioners of the Fremantle Port Authority.

60. Mrs Terry Sanderson, Chief Executive Officer, Fremantle Port Authority

61. Captain Eric Atkinson, Harbour Master.

62. Mr Reece Waldeck, Executive Director, (State) Department of Transport - Maritime Division.

63. Dr Chris Whitaker, Derictor General, (State) Department of Transport - Maritime Division.

64. Mr Maurice Glasson, Depot manager, (Commonwealth) Safety Authority.

65. Mr Badams, General Manager, Fremantle sailing Club.

66. Mr Brian Wales, Commodore, Fremantle Sailing Club.

67. Mr Max Shean, W.A.Division, Institution of Engineers, Australia.

68. Hon Carmen Lawrence MHR, Federal Member for Fremantle.

69. Mr Jim McGinty MLA,

70. Mr Richard Lewis MLA, State Minister for Heritage.

71. Mr Eric Charlton MLA,

72. Mr Tom Perrigo, CEO, National Trust of Australia (WA).

73. Dr Geoffrey Lilburn, President, The Royal W.A. Historical Society.

74. Ms Veronica Toohey, Executive Officer, The Royal W.A. Historical Soc.

75. Commodore Bob Trotter, Commodore, HMAS Stirling.

76. Mr Vic Jefferies, P.R.Officer, HMAS Stirling.

77. Mr Terry,Hardie, President, Winnit Club Inc.

78. Dr Chris Back.

79. Mr Barry Clarke, President, W.A.Division, Institution of Engineers.

80. Mr Richard Usher, Director, W A Division, " " "

81. Mr Bill Larke, Deputy Chairman, W.A Engineering Heritage Panel,

82. Mr Max Anderson, Secretary, " " " "

83. Mr Richard Hartley, " " " " "

84. Mr Harold Hunt, " " " " "

85. Mr Ron Johnston, " " " " "

86. Mr Peter Lowe, " " " " "

87. Mr Lloyd Margetts, " " " " "

88. Mr Maurice Morley, " " " " "

89. Mr Ralph Moore, " " " " "

90. Mr Tony Moulds, " " " " "

91. Mr John Moynihan, " " " " "

92. Mr Jim Paton, " " " " "

93. Mr Ron Strickland, " " " " "

94. Mr Werner Corbe, " " " " "

95. Mr David Dyer, " " " " "

96. Mrs Dorothy Austen-Smith.

97. Mr Des Sullivan, Retired CEO Rottnest Island Authority.

98. Mr John Gratwick.

IEH01111.

MEMORANDUM

TO: Katie Noad, Laurie George, Brian Easton

FROM: Carolyn Jupp

SUBJECT: Institute of Engineers Plaque - 3 September 96

DATE: 27 August 96

---

The format for the morning will be as follows:

| | | |
|---|---|---|
| 7.30am | leave 'C' Shed | |
| 8am | arrive on Rottnest | |
| 8.10am<br><br>15 mins up<br><br>15 mins back | Bus from Visitor Centre to the Lighthouse site<br>(this will have speakers giving background on the way up - looking at the site from the bus and returning to the Picture Hall | need a Bus with speakers at the Visitor Centre (KN) |
| | Hall to have steamer chairs and a couple of tables (from Kingstown Barracks) | |
| 8.40am | Speeches and unveiling of plaque | require unveiling stand, lecturn and check of sound system (LG) |
| | Morning tea of tea, coffee and biscuits/sandwiches, cups and saucers, serviettes | SHRM to supply and deliver to the Picture Hall |
| 10.15am | Return to jetty | |
| 10.30am | Rottnest Express leaves for Fremantle | |


HISTORIC
ROTTNEST
AND
IN 1851 WESTERN AUSTRALIA'S
ERECTED ON THIS
INCORPORATED A REVOLVING
BY ASSISTANT SURVEYOR
BY LOCAL INVENTOR ALFRED
PARKER AND RHODES DIRECTED
ENGINEER-IN-CHIEF
LIGHTHOUSE EMBODYING A
FIRST ORDER DIOPTRIC
NAVIGATIONAL AND SIGNALLING
BY AUSTRALIAN ENGINEERS TO
PASSAGE TO FREMANTLE
DEDICATED BY
THE INSTITUTION OF ENGINEERS AUSTR

In 1908, the wick burners were replaced by the Chance Bros incandescent petroleum vapour burner, increasing the power from about 45,000 to 200,000 candlepower. In 1927, the power of the lamp was increased to 327,000 candlepower. A new mercury pedestal and clockwork revolving mechanism were fitted in 1929.

On 15 January 1936 the light source was changed from oil flame to electricity. The rotational speed and lens system were altered to flash at a periodicity of 7.5 seconds. Power was initially provided by petrol engines and in about 1965 by diesel engines. On 11 November 1968, the lighthouse and the entire lightstation were connected to the Settlement power supply.

After one hundred years of operation, this lighthouse is now fully a automatic unattended station using the Island's power supply, lit by a 1000 watt 120 volt tungsten halogen lamp of 3,000,000 candlepower intensity and a range of 26 nautical miles.

Thus, this light represents the continuous evolution of visual navigational aids on the Australian coastline in the nineteenth and twentieth centuries. It traces the change from a vegetable oil wick burning apparatus with catoptric optics to a fully automatic electric power system and dioptric holophotal optics.

With the appointment of a shipping pilot at Rottnest late 1848, a system of signalling for pilotage by means of flagstaffs and fires was established ahead of the first lighthouse. This role was taken over by the lightkeepers until 1904, when separate lookout/signalmen were appointed.

In October 1939, the existing three storey structure was completed by the Commonwealth Government and used by the Fremantle Harbour Trust under agreement. A fog signal installation consisting of a small steel cabin and 40ft mast was erected in 1906 near the signal station.

The signal station was closed down in November 1949. With the advent of improved radio communication and radar, the closure was brought about by the abolition of compulsory pilotage from the sea, as ships could come into Gage Roads to pick up a pilot or to anchor.

The Rottnest Island Lighthouse and Signal Station represents the development of maritime and signalling technology over more that 140 years by Australian Engineers to meet the needs of the Port of Fremantle and Australia.

AUSTRALIAN ENGINEERING PLAQUING PROGRAMME

Since 1984, this programme has been undertaken by the Institution of Engineers, Australia as a means of recording those historic engineering objects and sites that demonstrate the significant contribution made by engineers to the development to Australia and the welfare of its people.

# THE ROTTNEST ISLAND AUTHORITY, THE AUSTRALIAN MARITIME SAFETY AUTHORITY

&

# THE INSTITUTION OF ENGINEERS, AUSTRALIA

## CEREMONY FOR THE UNVEILING

## OF AN

## HISTORIC ENGINEERING MARKER

## AT THE

## LIGHTHOUSE & SIGNAL STATION WADJEMUP HILL, ROTTNEST ISLAND

## ON

## 3 SEPTEMBER 1996

26 AUG 1996

# AN INVITATION

**Mr Ross Hughes, Chairman**
**Rottnest Island Authority Board**
**and**
**Mr Barry Clarke, President**
**The Institution of Engineers, Australia**
**cordially invite**

Mr Bruce James

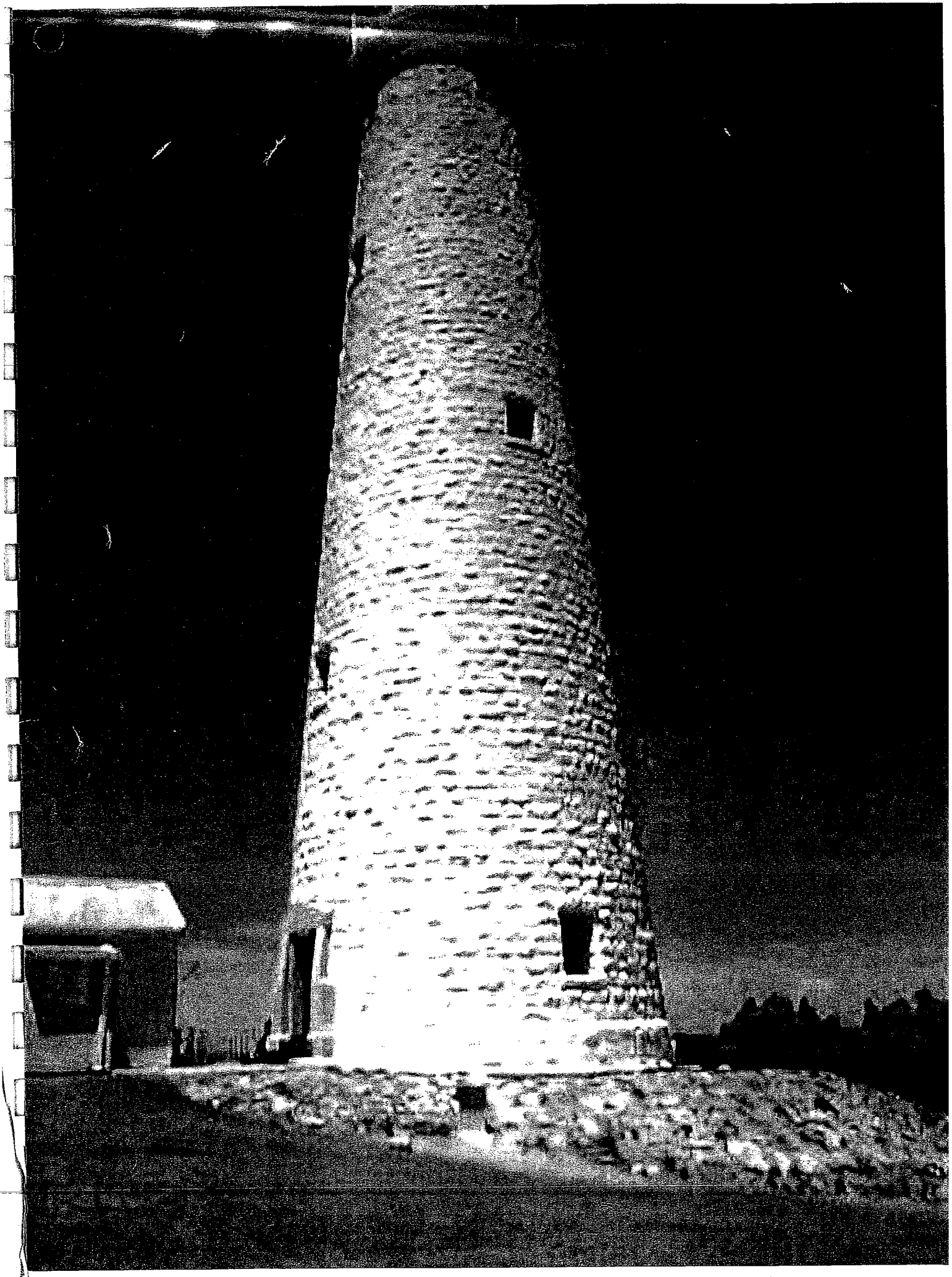
to attend a ceremony for the
Rottnest Island Lighthouse
Rottnest Island
8.15am, Tuesday, 3rd September 1996
to mark the recognition of the construction and operation of the
Rottnest Island Lighthouse and Signal Station
as an
Engineering Heritage Marker

**Mr Barry Clarke**
**will present a commemorative plaque to**
**Mr Ross Hughes**
**to mark the occasion**

RSVP
by 12 noon
Friday, 30th August
to Carolyn Tel 372 9700

Refreshments will
be served after the
ceremony

**Suggested transport by the Rottnest Express ($25.00 return)**
**Departs "C" Shed, Victoria Quay, Fremantle 7.30am**
**Returns to Fremantle by 11.00am**




HISTORIC ENGINEERING
MARKER
ROTTNEST ISLAND LIGHTHOUSE
AND SIGNAL STATION
IN 1851 WESTERN AUSTRALIA'S FIRST
ERECTED ON THIS
INCORPORATED A REVOLVING CATOPTRIC
BY ASSISTANT SURVEYOR AUGUSTUS
BY LOCAL INVENTOR ALFRED
PARKER AND RHODES DIRECTED BY
ENGINEER-IN-CHIEF C Y O'CONNOR
LIGHTHOUSE EMBODYING A
FIRST ORDER DIOPTRIC LIGHT
NAVIGATIONAL AND SIGNALLING FACILITIES
BY AUSTRALIAN ENGINEERS TO PROVIDE
PASSAGE TO FREMANTLE
DEDICATED BY
THE INSTITUTION OF ENGINEERS AUSTRALIA

**Light relief:** Bruce James, right, chairman of the heritage committee of the Institution of Engineers, and Ian Baxter, director of the Heritage Council, examine the plaque. PICTURE: RON D'RAINE

# Plaque salutes guiding lights

BY CARMELO AMALFI

ROTTNEST Island's "candle in the wind" stands as a monument to WA's engineering prowess — almost 150 years after the original lighthouse flame was lit at Wadjemup Hill.

The first flame, with an intensity of about 45,000 candles, was lit in June 1851.

Coconut oil was used to fuel the tower's flame before electricity was connected in 1936.

Nowadays, the automated light tower opened in its predecessor's place 100 years ago houses a 1000-watt 120-volt tungsten lamp of three million candlepower intensity with a range of 26 nautical miles — guiding ships to and from WA's coast.

The original tower, WA's first lighthouse and Australia's ninth, was built by Aboriginal convict labour. It was completed in 1849.

As part of Engineers' Week, a commemorative plaque was unveiled yesterday celebrating the construction of the lighthouse complex and the contribution of engineers to the welfare of Australians.

Retired civil engineer Bill Larke said the beam was the first revolving light on the WA coast.

"There had been several shipping incidents caused by fires lit on the coast so something was needed to dis[illegible]sh th[illegible]" he said.