758 Rangitoto

T

Rangitoto Beacon - Electrification

and Estimates etc for Other Lights - Various

Includes Contract No. 1634P Submarine Cable
Includes Contract No. 1670P Submarine Cable

To Sept 83

Previous No 802/1

802

THE GENERAL MANAGER 14 March 1978

THE CHIEF ENGINEER

RANGITOTO BEACON - CABLES

In July 1974 following a mishap when Geopotes V damaged cables in the Rangitoto Channel, the state at that time of the two Board's cables to Rangitoto Lighthouse was reported.

As regards the Board's two cables supplying power for the light and the fog-signal the situation is now as follows:-

The light is operated on a P.V.C. cable most of which is about 20 years old. This cable has six joints in its length and it is only a matter of time before further damage can be expected particularly at the Rangitoto and shore ends where the cable crosses rocks. This cable has a time controlled switch at its Takapuna end.

The other cable, at present supplying the fog-signal with switching by P. & T. line from Mt Victoria, is an old armoured cable 40 years old which has had a number of repairs. The original armouring has been extensively damaged and corroded to an extent that the armouring is virtually non existant.

Although Rangitoto Lighthouse is of secondary importance for major shipping compared with "A" Buoy and St. Leonards Road P.E.L. light, the Harbourmaster advises that for small craft the red all round light with an 8 mile range will still be required for an indefinite period and although Auckland Harbour has only a few fogs each year, the Harbourmaster considers that a fog-signal with a range of at least 1½ miles is still required at Rangitoto Beacon.

If the use of mains power through cables is to continue both cables should be replaced by proper armoured cables within the next four years. The need to replace the P.V.C. cable is not imminent but the condition of the old armoured cable is so bad that a replacement power supply should not be long delayed.

The cables are vulnerable to damage for although they are in a prohibited anchorage it is a favourite fishing spot for small craft and many anchors get caught on the cables. Moreover if in the future the Rangitoto Channel is to be deepened, the cables will be in the way.

For several years now provision of $60,000 has been made in the Programme of Works Item C21.3 for replacement of the old

... ...

cable. However, this figure is now out-of-date and the present day cost of replacing both the cables is now of the order of $150,000.

ALTERNATIVES FOR THE LIGHT POWER SOURCE

On account of the cost, the vulnerability of cables and the future need to lift and relay in event of deepening of the channel, alternatives have been investigated and further enquiries are still being made.

The light could be operated by dry battery power as for the channel buoys with time switch at the beacon itself. Battery renewal would cost about $2,000 per year at present but the cost of the batteries is steadily increasing.

As an alternative to throw-away batteries, solar charged storage batteries could be installed. The capital cost of either of these alternatives is approximately $8,000 and the economy of the solar unit in avoiding the expense of frequent dry battery replacement is obvious - subject to proven long term reliability regarding which there may still be some reservations.

A third alternative is to reinstate gas lamps which have regained popularity overseas in recent years mainly on account of the cost of renewable batteries and the convenience and relative economy of bottled gas.

FOG-SIGNAL

As an alternative to the use of cables to supply mains power, battery powered equipment is available from overseas - operated either by throw-away dry batteries or solar charged.

For switching the fog-signal on and off either a radio link could be used from Mt Victoria or a sensing device at Rangitoto Beacon itself.

A Class A Fog-signal currently costs $9,500 and batteries almost $4,500. Either radio link or sensing device would cost about $8,000 - making the total cost for the fog-signal in excess of $20,000.

SUMMARY

The cables across Rangitoto Channel supplying both light and Fog-signal at Rangitoto Beacon have only limited future life. Replacement armoured cables would cost $150,000.

Alternative self-contained equipment for the light and the fog-signal are at present estimated to have capital costs of $8,000 and $20,000 respectively - service renewal of batteries, if dry batteries are used, being an extra cost of some $2,000 per annum. The plan should be to dispense with the use of cables to Rangitoto Beacon.

The desirable short-term plan appears to be to purchase and

... ...

install self-contained equipment in the near future as an insurance against final failure or damage of the cables. Meanwhile it would be reasonable to retain the cables and operate on mains power until these cables are no longer usable.

This report is submitted for information. A further report recommending equipment to be purchased will be provided at a later date, with a view to making a positive recommendation for inclusion in the 78/79 Programme of Works.

CHIEF ENGINEER TO THE BOARD

RCP:JMH

Copy To: THE HARBOURMASTER: for information
THE ELECTRICAL ENGINEER: for information

CHIEF ENGINEER TO THE BOARD

Auckland Harbour Board

2600 B

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 3 February 19 76

Subject RANGITOTO WHARF APPROACH BEACON

CODE NUMBER
2844 01 | 40-49

The Harbourmaster by Memo dated 29 January 1976 has advised that the above beacon requires replacement and that with the yachting season in full swing this is of some urgency.

Please therefore arrange to replace the red can surmounted beacon at the approach to Rangitoto Wharf and when driving a new pile, recover the previous beacon if possible.

RCP:JARP

CHIEF ENGINEER TO THE BOARD.

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - :

Material - - :

Total $:

2600 B

REMARKS: _____

Signature _____

E10

Date _____ 19

Auckland Harbour Board

MEMORANDUM

29 January 1976

FROM THE HARBOURMASTER

TO THE CHIEF ENGINEER

RECEIVED 30 JAN 1976 ENGINEERS BLDG

RANGITOTO WHARF APPROACH BEACON

Please replace red can surmounted beacon at the approach to Rangitoto Wharf. With the yachting season in full swing this is of some urgency.

When driving new pile please recover previous beacon if possible.

G. Ross Blair.
HARBOURMASTER

Mr Rawlinson

Quote to FOW drafted
RB

(for file)
Mr Pemberton

Rangitoto Beacon
Quote by Steaple Jacks Co-op

This price compares favorably with the actual cost of painting by labour only contract in Dec '73'

	This Quote	Dec '73
time	8 days	9 days
Labour	$885	$948.24
materials	$160	$196.57
transport etc	?	$462.40
	$1,045	$1,607.21

The Steplejacks Co-op say that their price includes transport etc and this then gives a cheaper job.

They quote fresh water wash using 100 gal tank on board boat, this quantity of water would not give a very complete wash.

I will be visiting the beacon in late Oct. / early Nov. with the Dulux Rep and will be able to give a report on condition after this visit.

D Walker
7/10/74

File Red

852/5.

Auckland Harbour Board No. 7694 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE

To THE ELECTRICAL ENGINEER Date 11 June 1968

Subject TAKAPUNA SUB-STATION

CODE NUMBER
353/027/40-49

1. After removing old equipment supply and install new electrical control equipment for the operation of the Rangitoto beacon and fog syren, and incorporate in a new enclosed pattern metal clad switchboard at the above sub-station.

2. Foreman of Works to clean interior of sub-station and apply two coats of paint.

OPF:CMc

Copy to: Foreman of Works
Mr Scott

M.F. Smith

Chief Engineer to the Board.

(This Form to be filled up and returned to Engineer's Office immediately on completion of Work)

This work was completed on ..... at a cost of:—

Labour - - : :

Material - - : :

Total £ : :

REMARKS: .....

Signature .....

Date 19

O/No 2213/E10

10 June 1968

THE ELECTRICAL ENGINEER

THE CHIEF ENGINEER

TAKAPUNA SUB-STATION

The electrical switch and control gear at the above sub-station which operates the Rangitoto beacon and fog syren has been installed many years, but it is now approaching the end of its useful life as much of it is an "open" pattern and this has been affected by the damp marine atmosphere; direct replacement is difficult as much of the gear is obsolete.

I therefore propose to have made in the electrical workshop a replacement switchboard consisting of new control equipment incorporated in an enclosed metal cabinet which would be installed at the Takapuna substation. Drawing No.EL/B472 enclosed shows the general arrangement of the switchboard.

At the same time I recommend that the sub-station interior be cleaned and painted.

The work is provided for in the current Programme of Works, Special Maintenance Item 23.

A sum of $2500 has been allowed under this item for the overhaul of the Takapuna sub-station and Rangitoto beacon, however it is not proposed to carry out any special work on the beacon during the current financial year, but I intend to submit certain recommendations at a later date concerning the installation of emergency lighting at the Beacon for incorporation in next year's estimates.

The estimated cost of carrying out the work at the Takapuna sub-station alone is $1,350.00.

Your approval is requested, and I enclose a draft instruction.

ELECTRICAL ENGINEER.

OFF:CMc

Enc. Drawing No. EL/B472

852/5

Auckland Harbour Board No 7420 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE

852/5

To THE FOREMAN OF WORKS Date 6 March 19 68

Subject RANGITOTO BEACON M/A

CODE NUMBER
353/001/40-49

Confirming verbal arrangements following Electrical Engineer's Report of 20 February 1968 and your inspection of supporting structure -

Please demolish and remove old acetylene tank, make good structural members and renew platform as necessary.

RCP:CMc

~~City of Auckland~~

M F Smith

Chief ~~Engineer to the Board.~~

(This Form to be filled up and returned to Engineer's Office immediately on completion of Work)

This work was completed on ..... *at a cost of:—*

Labour	-	-	:	:
Material	-	-	:	:
Total £			:	:

REMARKS: .....

Signature .....

O/No 2213/E10

Date *19*

Auckland Harbour Board

MEMORANDUM

20th. February 1968

FROM ELECTRICAL ENGINEER | **TO** CHIEF ENGINEER

RANGITOTO BEACON.

Some years ago I drew attention verbally to the corrosion taking place in the support beams of the old gas tank in Rangitoto Beacon, and suggested that in addition to the safety angle, removal of the tank would facilitate beacon maintenance, and possible addition of an emergency light.

The then Foreman of Works reported that removal of the tank was difficult and no action was taken. I therefore request that, further consideration be given to the removal of the tank, for the reasons given above.

R.L.A. Gilbert

ELECTRICAL ENGINEER

RELA:GD

Feb
RP

RECEIVED
21 FEB 1968
ENGINEERS DEPT.

652/5.

City of Takapuna

TELEPHONE: 299-122
P.O BOX 33143 TAKAPUNA
PLEASE QUOTE REFERENCE NO. W/6/11

1231/66

PLEASE ADDRESS ALL COMMUNICATIONS TO THE TOWN CLERK
TOWN CLERK'S OFFICE,
TAKAPUNA, AUCKLAND, N.2.

21 December, 1966

Chief Engineer,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Dear Sir,

Sub-Station - St. Leonards Road

Your recent letter and works order covering reconstruction of the access to the sub-station beacon were placed before the Council at a meeting held last evening, in conjunction with the plan of design prepared by the City Engineer.

The Engineer was authorised to put the work in hand by extension of current contract and on the cost sharing basis as agreed upon.

Yours faithfully,

(B.L. Byrnes)
Town Clerk

HG:AKB

From Electrical Engineer
1/ Work completed to our result Satisfactory.
2 Final cost $565.65 (£282)
A/c for AHB ½ share $282.83 received
for Bayfield 19/3/68 AB.

852/5

Auckland Harbour Board

MEMORANDUM 19th. December 1966

FROM	TO
ELECTRICAL ENGINEER.	CHIEF ENGINEER.

RANGITOTO BEACON.

I have to report that for the second time, Rangitoto Beacon has been broken into, and emergency rations, primus, billy, and water can stolen. The primus and water can were subsequently recovered from the emergency generating set hut on the small island near the beacon which had also been broken into. This hut had apparently been used for sleeping in, as a mattress, blankets and other goods were also found.

The matter was immediately reported to the police, who later visited the beacon and the island with my electrical foreman, and I understand that investigations are in hand.

RELA:GD

ELECTRICAL ENGINEER.

Copy to : CHIEF ENGINEER

852/5.

852/5

30th. November, 1966

The Town Clerk,
City of Takapuna,
P.O. Box 163,
TAKAPUNA.

Dear Sir,

RANGITOTO BEACON - ACCESS TO SUBSTATION
ON TAKAPUNA CITY PROPERTY.

Thank you for your letter of the 23rd. November with the plan for the work to be done to improve the access, and the estimates of cost involved.

The proposal and the basis of cost is acceptable to me, and I enclose my Works Order for the Boards share of the work.

Yours faithfully,

CHIEF ENGINEER TO THE BOARD.

ENCLS :
Works Order.

NS:NG

City of Takapuna

TELEPHONE: 299-122
P.O BOX 33143 TAKAPUNA
PLEASE QUOTE REFERENCE No. W/6/11

1231/66

PLEASE ADDRESS ALL COMMUNICATIONS TO THE TOWN CLERK
TOWN CLERK'S OFFICE,
TAKAPUNA, AUCKLAND, N.2.

23rd November, 1966

The Chief Engineer,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Dear Sir,

Rangitoto Beacon

Referring to previous correspondence dealing with the reconstruction of the access to the Board's Sub-Station at St. Leonards Beach.

This question was placed before the Council at a meeting held last evening in conjunction with a report by the City Engineer indicating that the estimated costs of the work is £326.11.0.

I enclose herewith a copy of the Plan No. 1318 and have to advise that my Council will agree to carry out work on an equal share basis. Will you kindly inform me whether the proposal is acceptable to you, so that the necessary work can be put in hand.

Yours faithfully,

(B.L. Byrnes)
TOWN CLERK

Electrical Engr.

RECEIVED 25 NOV 1966 HG:PH ENGINEERS DEPT.

Works Order and Authority to proceed Completed
GS.

REFER B1807
29/11/66

852/5.

City of Takapuna

TELEPHONE: 299-122

P.O BOX 33143 TAKAPUNA

PLEASE QUOTE REFERENCE No. 1231/66

PLEASE ADDRESS ALL COMMUNICATIONS TO THE TOWN CLERK

TOWN CLERK'S OFFICE,
TAKAPUNA, AUCKLAND, N.2.

19th October, 1966.

Chief Engineer,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Re: Substation - St. Leonard's Beach

Dear Sir,

I refer to previous correspondence dealing with your request for maintenance work required on the access to the board's substation for Rangitoto beacon.

This item was again included in the Council Agenda for the meeting held last evening but consideration was deferred pending receipt of the City Engineer's report.

As soon as a firm decision has been made I will write to you again.

Yours faithfully,

Per: B.L. Byrnes,
TOWN CLERK.

Eden Cyps.

HdeG/GW

Noted

852/5.

City of Takapuna

TELEPHONE: 299-122
P.O BOX 33143 TAKAPUNA
PLEASE QUOTE REFERENCE NO. W/6/11

1231/66

PLEASE ADDRESS ALL COMMUNICATIONS TO THE TOWN CLERK
TOWN CLERK'S OFFICE,
TAKAPUNA, AUCKLAND, N.2.

21st September, 1966

The Chief Engineer,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Dear Sir,

Rangitoto Beacon - Your Ref 852/5

Your letter of the 25th August, in regard to access to the sub-station at St. Leonard's Beach was placed before the Council at a meeting held last evening.

The City Engineer was requested to report on the costs involved and I will write to you again as soon as the necessary information is to hand and when a decision has been made.

Yours faithfully,

(B.L. Byrnes)
TOWN CLERK

RECEIVED
26 SEP 1966
ENGINEERS DEPT.
HG:PH

Noted

852/5.

City of Takapuna

TELEPHONE: 299-122

P.O BOX 33143 TAKAPUNA

PLEASE QUOTE REFERENCE NO. W/6/11

PLEASE ADDRESS ALL COMMUNICATIONS TO THE TOWN CLERK

TOWN CLERK'S OFFICE, TAKAPUNA, AUCKLAND, N.2.

6 September, 1966

Chief Engineer,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Dear Sir,

Rangitoto Beacon - Access
Your ref. 852/5

Receipt is acknowledged of your letter of 25 August and your suggestion concerning the construction of permanent access to the beacon.

The City Engineer has been requested to comment on this proposal and I will write to you again as soon as the necessary information is to hand.

Yours faithfully,

(B.L. Byrnes)
Town Clerk

Elec. Engr

Presumably this refers to Rangitoto Rd. substation.

Mr. Sayer

RECEIVED 8 SEP 1966 ENGINEERS DEPT AKLD

EG:AKB

852/5.

852/5

25th. August, 1966

The City Engineer,
Takapuna City Council,
P.O. Box 163,
TAKAPUNA.

Dear Sir,

RANGITOTO BEACON - ACCESS TO SUBSTATION
ON TAKAPUNA CITY PROPERTY.

My Electrical Engineer has informed me that a section of the access path down to the Substation is badly damaged by water scour and is considered to be a hazard to men carrying tools and equipment.

The particular section in question has been sealed and maintained from time to time by the Board. It is now suggested that a permanent solution in the way of concrete steps should be considered.

I would be pleased to know if your Council would be prepared to undertake the work, and if it was to be on a share cost basis what would be the Board's commitment.

Yours faithfully,

CHIEF ENGINEER TO THE BOARD.

NS:NKG

Auckland Harbour Board

MEMORANDUM 2nd. August, 1966

FROM	TO
THE ELECTRICAL ENGINEER	THE CHIEF ENGINEER

TAKAPUNA
~~TELEPHONE~~ SUB-STATION - ACCESS.

Although on Takapuna City Council property, the access path to the Sub-Station supplying Rangitoto Beacon has been maintained from time to time by the Board.

This path has again been badly damaged by water and is a hazard for men carrying tools or equipment. I therefore recommend that to avoid continued re-building of the path, permanent access be provided by means of concrete steps, at a cost estimated to be £200. as against about £80. for rebinding the path.

It is possible that the Takapuna City Council would be prepared to share the cost, and I therefore request that consideration be given to the matter.

ELECTRICAL ENGINEER

OPF:MJC

Discussed with Neal, Letter sent

852/5.

Auckland Harbour Board

4421 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE CONSTRUCTION ENGINEER *Date* 15th. June, 19 65

Subject ST. LEONARDS RD. - SWITCH ROOM

1. Please carry out the following work to the existing building and its surroundings.

A. Paint brickwork with 2 coats of silicone preparation;

B. Replace approximately 8 terracotta vents size 9"x3". Grout into position;

C. Pack earth back under the floor slab and finish off periphery with concrete;

D. Lower ground level outside door then pour concrete slab. Form channel to run off water. (Slab approx. 4'-0"x4'-0");

E. Dig drain around 3 sides of the building. Place 4" field tiles and cover with scoria. Roughly top with soil.

2. Please check with Mr. Pask regarding installation of new radio mast now being designed. The work can possibly be carried out simultaneously.

CODE NUMBER
353 | 001 | 40-49

RS:MJC

CODE NUMBER
~~725~~ | 001 | ~~30-39~~

J. Goodsir

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

REMARKS: _____

Signature _____

E10 *Date* _____ 19

852/5

Auckland Harbour Board

MEMORANDUM 18th May, 1962

FROM	TO
THE ELECTRICAL ENGINEER	THE CHIEF ENGINEER

FLASHERS & LIGHT CELLS FOR BEACONS

Messrs. S. Gordon Anderson inform me that Stone-Chance Ltd., who have supplied all the recent electric beacons installed by the Board, have offered to send out, on a sale or return basis, their newly developed electronic flasher and light cell unit, the cost of which would be about £180.

This is more expensive than the mechanical ones used at present, but could be expected to be more reliable and to require negligible maintenance, whereas some maintenance difficulties have arisen with our existing mechanical units.

I have accepted their offer as no obligation to purchase exists, but I will undoubtedly recommend purchase as a first step to replacing existing flashers if the new one is up to expectations.

RELA:AWJ

Electrical Engineer

852/5

COPY

Ref: CB.AK 61/A

N.Z. Post Office,
Commercial Branch,
Chief Post Office,
Auckland.

26th October, 1961.

The Electrical Engineer,
Auckland Harbour Board,
Post Office Box 1259,
AUCKLAND.

Dear Sir,

Please find enclosed the account for the half yearly rental for leased direct circuit No. 1564, Queens Wharf to Bean Rock terminal.

Although the rental was previously estimated to be £83.12s.0d. per annum, after measuring the completed circuit we now find that the rental should be £85.16s.0d.

Yours faithfully,

(signed) E.M. MORIARTY

Chief Postmaster

COPY

Ref: CB.AK61/A

N.Z. Post Office,
Commercial Branch,
Chief Post Office,
AUCKLAND.

17th August, 1961.

The Electrical Engineer,
Auckland Harbour Board,
AUCKLAND.

Dear Sir,

It is understood that you require fog signal control circuits for :

(a) The Queens Wharf to Bean Rock cable terminal near Mission Bay. 781 chns

(b) Mount Victoria Signal Station, Takapuna, to the Takapuna substation St. Leonards Road. 262 chns

£85.16.0 For the Queens Wharf - Bean Rock circuit the annual rental will be ~~£83.12.0d~~, and for the Mount Victoria signal station to Takapuna substation the annual rental will be ~~£46. 8. 0d.~~ £28.12.0 GBell 25.10.61

I should be pleased if you would complete the enclosed forms of contract and return them to this office as soon as possible.

Yours faithfully,

(signed) E.M. MORIARTY

Chief Postmaster.

852

C.P.O. Box No. 1259 AUCKLAND
TELEPHONE 33-200
REFERENCE .....

Auckland Harbour Board
Quay Street
Auckland, N. Z.

COPIES SENT TO:

Electrical Engineer, and
Foreman of Works.

20 DEC 1960

15th December, 1960

TO WHOM IT MAY CONCERN

ELECTRIFICATION OF LEADING LIGHTS

The lights on the leading beacons for Rangitoto Channel, situated to the eastward of Bean Rocks Lighthouse and referred to at the top of page 11 in the Port Information Manual, will both be electrified within the next few days.

The arc of visibility of each light will be reduced and both will be of greater brilliance. An additional light, visible all round the horizon and of lower brilliance will be fitted above each light, to indicate the presence of these beacons beyond the arc of visibility of each main light.

The colour, characteristic and range of the main leading lights will be unchanged.

The new descriptions are as follows:-

FRONT LEADING BEACON LIGHT:

A light flashing orange every second (fl.0·4 sec. eclipse 0·6 sec.) visible 6 miles, from 127½° to 157½° (30 degrees) is exhibited at an elevation of 18 feet from this beacon.

An additional all round light, flashing orange every second visible 4 miles is exhibited above the aforementioned light at an elevation of 19 feet.

REAR LEADING BEACON LIGHT:

A light flashing white every 3 seconds (fl. 1.0 sec. eclipse 2 secs.) visible 8 miles from 138½° to 146½° (8 degrees) is exhibited at an elevation of 40 feet from this beacon.

An additional all round light, flashing white every 3 seconds, visible 5 miles is exhibited above the aforementioned light at an elevation of 41 feet.

W. J. Kelsey.
HARBOURMASTER

852/5

Auckland Harbour Board 272

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS: *Date* 12th December 1960.

Subject CABLES TO LEADING BEACONS:

Please erect Cable Signs in the following positions:-

(1) To indicate the Cable running from the West end of St. Helier's Bay to the Southern Leading Beacon:

(a) At the shore end: Paint on the pitched stone wall a white triangle with 6' sides and above it attach to the vertical stone wall a notice with the words - "CABLE TO SOUTHERN LEADING BEACON".

(b) On the Southern Leading Beacon: Erect a white triangular Cable sign with 4' sides facing the direction of the cable with the word "CABLE" on it.

(2) To indicate the Cable running from Bean Rock to the Northern Leading Beacon and Bean Rock to the shore:

(a) At Bean Rock, Northern Leading Beacon and on the post marking the inshore end of the Cable from the shore to Bean Rock - erect a white triangular Cable sign with 4' sides facing the direction of the Cable with the word "CABLE" on it.

CHIEF *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

272 A

REMARKS: _____

Signature _____

:KJD. E10 *Date* _____ 19

852/5

Auckland Harbour Board

MEMORANDUM

From THE ELECTRICAL ENGINEER

8th August, 1960. *19*

To THE ENGINEER

ELECTRIFICATION OF LEADING BEACONS

I have been considering the control of the electrified leading beacons, which I expect to have in operation within the next month or two. There are difficulties in the use of time switches which we use elsewhere, due to the longer intervals between servicing visits, and I am of the opinion that a better method might be to use light sensitive switches. The big advantage of the latter is that they do not require power for their operation, as do electrically driven or wound time switches, and will therefore operate satisfactorily when the beacons are on battery standby during periods of mains failure.

This difficulty is met at the Manukau Heads beacon by using a battery wound time switch of foreign manufacture, but I am not entirely happy about servicing and spare parts for this.

The makers of the beacons, Messrs. Chance Londex Ltd., also make light sensitive switches, the cost being £76. 3. 0 each. This is appreciably more than the cost of a time switch, but the extra cost can be expected to be justified by increased reliability.

I therefore recommend the purchase of two photo-electric switch units at a cost of £152. 6. 0, for the two leading beacons. I propose also to regard this as a trial installation, with a view to replacing Rangitoto Beacon ~~and~~ Bean Rock, ~~also~~ find Manukau Heads time switches with photo-electric switches at a later date, should they prove satisfactory.

RELA:AWJ

Electrical Engineer

3249

852/5

Auckland Harbour Board

MEMORANDUM 18th February 1960

FROM THE HARBOURMASTER | **TO** THE CHIEF ENGINEER

CABLES TO LEADING LIGHTS

The point of origin and line of cable from St. Heliers Bay to south leading beacon were inspected with Mr. Hutchinson, and both are satisfactory as far as I am concerned.

The following procedure should be carried out:-

(1) Before laying this cable give me prior notice in order that a public notice of warning may be inserted in the local press, and Marine Department advised.

(2) When laid, a cable beacon surmount to be attached to an adjacent power pole and a suitable, plainly visible mark to be affixed to the sea wall. These two marks, when in transit, will indicate the mean direction of the cable. It will be necessary for you to obtain the permission of the A.E.P. Board for the erection of the surmount on their pole.

(3) Suitably worded notices to be displayed at the shore end and on the leading beacon, warning boat owners of the presence of the power cable.

(4) As soon as possible after having laid this cable, advise me of the true direction of the indication marks.

Relative to the new cable from the Guide Light near Bastion Point to Bean Rock, thence to the northern leading beacon, the first mentioned passes through an area already defined as a prohibited anchorage. From Bean Rock to the leading beacon will be declared as a prohibited anchorage for whatever distance each side of the straight line is considered dangerous after laying the cable.

I will also require prior notice of activities in this area so that the public may be warned.

Suitably worded prominent notices on Bean Rock, northern leading beacon and the existing guide light at Bastion will be necessary on completion of the work.

Hutchinson

Please arrange accordingly in conjunction with Mr. Hall, as required

JOW/HC 18/2

W.G. Kelsey

HARBOURMASTER

696

Auckland Harbour Board

26846

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE CONSTRUCTION ENGINEER *Date* 22nd December 19 59

Subject CABLE FROM ST. HELIERS BAY TO THE SOUTHERN LEADING BEACON.

In March 1960 a cable is to be laid between St. Heliers Bay and the Southern Leading Beacon.

Please arrange to carry out the necessary shore work at the St. Heliers Bay end of the cable.

The work and arrangements involved is listed below:-

(a) Excavate a trench about 6" - 9" deep in the sandstone foreshore ready to receive the cable and concrete the cable in after it is laid.

(b) Build the Switch and Meter Box shown on Drawing No. EL/C141 and 154.

(c) Permission has been obtained from the City Council to carry out the work in Tamaki Drive.

The Electrical Engineer has asked the Power Board to lay the cable across Tamaki Drive and will arrange for this to be done when you advise him.

Encl: Drg. Nos. EL/C141 and 154

Chief *Engineer to the Board.*

PSH:HEB

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	:	:
Material	- -	:	:
Total £		:	:

26846

REMARKS: _____

Signature _____

E10 *Date* _____ 19

5th June, 1958.

The Director of Works,
Auckland City Council,
Town Hall,
AUCKLAND. C.1.

Dear Sir,

In accordance with permission granted verbally by The Deputy Director of Works, I am erecting a temporary hut on the footpath of the waterfront road near Mission Bay, where the supply cable for Bean Rock beacon comes ashore. This hut is to accommodate a small petrol driven generating set to supply the beacon with power in the event of cuts in the main supply.

The hut and the equipment will be removed as soon as the present emergency is over.

Yours faithfully,

RMLA/AWJ

Chief Engineer to the Board

852/5

Auckland Harbour Board 26351

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 20th May 1959

Subject PROHIBITED ANCHORING AND FISHING AREA
RANGITOTO CHANNEL

Herewith plan showing the approximate area which has been declared a prohibited anchoring and fishing area at the request of the Navy, who have laid cables therein.

The relevant Notice to Mariners defines it as follows:-

"From a point on the H.W. line, 046° 3,100 ft. from Mt. Victoria F.S. (36° 49.7' S, 174° 48.0' E approximately) in a direction 041° for 6,420 ft, thence 051° for 2,460 ft., thence 321° for 1,000 ft, thence 231° for 2,580 ft, thence 221° for 4,800 ft. to the shore."

Will you please advise all your craft of this restriction.

Encl: Plan

KOB:HEB

J. E. Burton

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	: :
Material	- -	: :
Total £		: :

26351

REMARKS: _____

Signature _____

E10

Date _____ 19

Auckland Harbour Board

MEMORANDUM 19th May 1959

FROM THE HARBOURMASTER | **TO** THE CHIEF ENGINEER

PROHIBITED ANCHORING AND FISHING AREA
RANGITOTO CHANNEL

I attach hereto a plan showing the approximate area which has been declared a prohibited anchoring and fishing area at the request of the Navy, who have laid cables therein.

The relevant Notice to Mariners defines it as follows:-

"From a point on the H.W. line, 046° 3,100 ft from Mt. Victoria F.S. (36° 49.7' S, 174° 48.0' E approx.) in a direction 041° for 6,420 ft, thence 051° for 2,460 ft, thence 321° for 1,000 ft, thence 231° for 2,580 ft, thence 221° for 4,800 ft to the shore."

Will you please advise all your craft of this restriction.

W.J. Kelsey
HARBOURMASTER

JOW/HC

Mr Trott
Please instruct JOW accordingly

852/5

17th February, 1959.

The Regional Engineer,
Post & Telegraph Dept.,
Chief Post Office,
AUCKLAND. C.1.

Dear Sir,

SUBMARINE CABLE TO BEAN ROCK

I wish to confirm the recent conversation between Mr. Fox and my Engineering Assistant regarding your willingness to supply a part drum of 4 X 7/.032" I.R. submarine cable to replace the cable recently damaged at the above named location.

I sincerely thank you for your assistance in this matter, and would inform you that a requisition for the cable is being sent to you under separate cover.

Yours faithfully,

OPF/BER

Chief Engineer to the Board.

EXTRACT FROM MINUTES
PURCHASING & STORES COMMITTEE
...../...../.....
25 FEB 1959

8. QUOTATIONS - RANGE LIGHTS.

The Committee considered the reports of the Stores Officer and the General Manager advising that three quotations were received for the supply of two Range Lights complete with auxiliary lights and spare equipment for electrification of Southern and Northern leading channel beacons. The quotations were referred to the Electrical Engineer who considers that the best quotation is the alternative quotation of S. Gordon Anderson Ltd. for equipment which includes battery standby facilities.

Recommended -

That the alternative quotation of S. Gordon Anderson Ltd. for the sum of £887. 7. 3d. be accepted. The equipment to be subject to minor modifications to the requirements of the Engineer.

FINANCIAL PROVISION MADE 10 FEB 1959

ADOPTED BY BOARD 10 FEB 1959

Electrical Engr. to note. Engr. forwarded.
G.

853/5

28th January, 1959.

THE ELECTRICAL ENGINEER THE STORES OFFICER

QUOTATIONS FOR RANGE LIGHTS

Three quotations were received, two being from one tenderer :

S. Gordon Anderson,	"A"	... £780. 5. 6
"	"B"	... £887. 7. 3
M.E. Mack & Co.		... £1178. 0. 0 (Australian currency).

All quotations include a price variation clause.

I have discussed tenders with the Harbourmaster, who considers the extra facility of battery standby as offered in S. Gordon Anderson's quotation "B" to be very desirable. This is the best tender, and I therefore recommend that it be accepted for the sum of £887. 7. 3, subject to minor amendment for modification of the equipment to the requirements of the Engineer.

RELA/AWJ

Electrical Engineer

Copy for the Chief Engineer

Auckland Harbour Board

MEMORANDUM 16th January 1958

FROM GENERAL MANAGER | **TO** THE CHIEF ENGINEER

FOG PRECAUTIONS : RANGITOTO CHANNEL
My memorandum dated 12th December 1957 refers

Attached for your information is a copy of a report I have received from the Harbourmaster which would appear to meet the situation.

Will you please indicate costs of undertaking the work now proposed.

GENERAL MANAGER

ENCL.
ACC.JB

852/5

23rd December, 1958

THE CHIEF ENGINEER THE HARBOURMASTER

FOG SYRENS

Herewith report from Electrical Engineer setting out three possible schemes re Rangitoto Beacon.

Probably the first would be sufficient.

The Radar reflectors could be provided on any of the channel buoys for about £100 each.

Fog signal for Bean Rock would necessitate a new cable, and probably would not be justified at a cost of over £2,000.

Would you let me have your recommendation in this matter. Please return Mr. Aubin's memo after perusal.

CHIEF ENGINEER TO THE BOARD

Encl: Report

JRS:HEB

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
9 DEC 1958

4. BEAN ROCK BEACON

The Committee considered the reports of the Chief Engineer dated 2nd December and General Manager dated 4th December, 1958 advising that the Harbourmaster is satisfied with the reliability of Bean Rock Beacon, and that the Chief Engineer is of the opinion that strip lights would be suitable for short range discrimination, but would not be as visible at longer distances, especially in poor weather conditions, as the focussed beam type of light.

RECOMMENDED -
That the reports be received.

ADOPTED BY BOARD
16 DEC 1958

Electrical Engr. to note.
J.

COPY

8th January 1958

The General Manager,
AUCKLAND HARBOUR BOARD.

FOG SIGNALS - WAITEMATA HARBOUR

There are no Fog Signals in the outer harbour and approaches. A Fog Signal on Tiri Tiri Island is operated by the Marine Department, and there are no others before reaching Devonport Wharf and Eastern Tide Deflector.

The distance between Tiri Tiri Island and Rangitoto Beacon is eleven miles on a straight course.

From A Buoy at the entrance of the harbour off Rangitoto Beacon to the Eastern Tide Deflector is a distance of six miles with varying courses.

The Rangitoto Channel is marked by three lighted buoys A, B and C on the eastern side over a distance of three miles up to the fairway buoys which are C and D buoys, where a 50° change of course is required and a distance of about a mile to clear Bean Rock Lighthouse. From this point to the Tide Deflector a distance of two miles, courses are changed over 60°.

A fog signal on Rangitoto beacon would be a help to vessels making the A buoy at the entrance of the harbour and also on Bean Rock light-house which are both connected to shore electric power. These two signals would be of assistance to all vessels both large and small.

Most overseas vessels are fitted with Radar for navigating in thick weather and to assist in that direction a Radar reflector has been fitted to A buoy, which is very satisfactory. To assist in navigating in fog the remaining five channel buoys should be fitted with Radar reflectors.

Fortunately we do not have much fog in this port, generally in the early morning, and in the past when the Pilot encounters thick fog and is unable to see any marks the ship is anchored to avoid any risk of accident. It must be remembered that our Dock cannot accommodate a large number of the ships which use the port. Owing to tidal conditions it is difficult berthing vessels in clear weather and this could not be done in fog without incurring grave risk.

There are no fog signals in the Eastern part of the Harbour which would be of assistance to vessels in the Waiheke Island trade. This matter has been gone into, the difficulty is the supply of power.

(SGD) W.G. KELSEY

HARBOURMASTER

852/8

5th December, 1958.

The Chief Engineer,
Auckland Electric-power Board,
Private Bag,
AUCKLAND.

Dear Sir,

LEADING BEACONS

It has become necessary to electrify the Board's beacons leading to Rangitoto Channel. The outer beacon is to be supplied by a new cable from Bean Rock, and the inner beacon by a new cable from the shore.

The attached drawing No. EL/C141 shows the proposed shore termination of this cable, and I wish to apply for an electricity supply at the point indicated. I should be glad also, if you would undertake, on a repayable basis, the laying of the shore end of the Board's submarine cable from the breastwork across Tamaki Drive where shown on the drawing in red.

The City Council have been advised of this proposal, and have no objections.

The cable is expected to be placed on order early in the new year, and should be ready for laying late in 1959.

Yours faithfully,

RELA/AWJ

Chief Engineer to the Board

852/5

Auckland Harbour Board

MEMORANDUM 4th December, 1958.

FROM THE ELECTRICAL ENGINEER

TO THE CHIEF ENGINEER

ELECTRIFICATION OF LEADING BEACONS

In preparing the attached quotation, I have considered the desirability of providing battery standby for the leading beacons as for the beacon recently installed at South Head.

If batteries are to be installed, accommodation for them and for the chargers and control gear would be required on the pile beacons, and a further complication would be the necessity for a reliable warning light, visible from Mt. Victoria, to indicate changeover to battery operation, as otherwise the batteries would run flat before the changeover was discovered. No such provision is made at Bean Rock. It should be pointed out that provision of battery standby would not adequately cover cable failure, which would take much longer to locate and repair than the battery capacity would allow. In such circumstances, therefore, it would be necessary to take out recharged batteries from time to time. I am not, therefore, recommending the provision of automatic battery standby, but propose provision for battery operation in emergency, by the use of shore charged batteries. This will give a standard of reliability at least equal to Bean Rock, bearing in mind the proposal to provide, at a later date, a backstop supply for all three lights by means of completion of the ring main.

RELA/AWJ

R.L.A. Dubin

Electrical Engineer

29th November, 1957.

16/10.

The General Manager,
A.H.B.

ELECTRIFICATION OF LEADING BEACONS - RANGITOTO CHANNEL

At the request of the Harbourmaster, the electrification of the channel leading beacons has been examined. As a preliminary, the beacon recently installed at Manukau Heads was first used for a trial at the inner leading beacon. This trial proved satisfactory.

It is proposed to mount the inner beacon on the existing piles, with supply cable from the shore at a suitable point, probably at Ladies Bay. City Council permission will be required. The outer beacon would be mounted on existing piles and supplied by cable laid from Bean Rock light. The estimated cost of this electrification is £5,200.

If at a later date increased importance is attached to reliability, a cable could be laid between the inner and outer beacons to complete the ring main so that all three beacons (including Bean Rock light) could be kept going in the event of failure of any one cable. This would cost an additional £2,800.

The routes of the cables are shown on plan EL/S.451 which accompanies this report.

I recommend that the two beacons be electrified as above at an estimated cost of £5,200 and that the completion of the ring main be deferred in the meantime. (Provision for £2,500 has been made in the 1957-58 Estimates and Programme).

J R Sutton

CHIEF ENGINEER TO THE BOARD

The Chairman,
Works & Traffic Committee,
AUCKLAND HARBOUR BOARD.

Recommended and approval sought accordingly.
Provision has been made in the Programme of Works and Estimates in amount £2,500 which should suffice for works during the current year, the balance to be included in the 1958/59 programme.

29th November 1957

A H Clarke

GENERAL MANAGER

TELEPHONE 35-400 PRIVATE BAG

CITY OF AUCKLAND

DEPARTMENT OF WORKS & SERVICES

TOWN HALL, AUCKLAND, C.1

27th November, 1958.

8575

IN REPLY PLEASE QUOTE EHT/DB 32/259.

The Chief Engineer,
Auckland Harbour Board,
Quay Street,
AUCKLAND.

Dear Sir,

ELECTRIFICATION OF LEADING BEACONS.

Referring to your letter RELA/AWJ of 21st November, I have to advise that there would be no objection to your proposal as shown on your plan EL/C 141 of 24th July, 1958.

It will be your responsibility to restore street surfaces and the sea wall to their original condition.

Yours faithfully,

A.J. DICKSON,
DIRECTOR OF WORKS & CITY ENGINEER.

Per:

Mr Dyson
Noted
RHHulme

File

852/6

21st November, 1958.

The Director of Works,
Auckland City Council,
Town Hall,
AUCKLAND. C.1.

Dear Sir,

ELECTRIFICATION OF LEADING BEACONS

It has become necessary to increase the intensity of the two leading beacons which indicate the southern end of Rangitoto Channel, and it is therefore proposed to replace the existing gas lights with electric ones.

The attached drawing, No. EL/C141, shows the proposed shore termination of the necessary supply cable, and I request your approval of the arrangements shown.

Yours faithfully,

RELA/AWJ

Chief Engineer to the Board

Auckland Harbour Board.

19.12.57.

Mr. Aubin,

Will you please discuss this matter with the Harbourmaster & let me have your report.

J.T.

S14

Auckland Harbour Board

MEMORANDUM 12th December, 1957.

FROM THE SECRETARY | **TO** THE ENGINEER

Fog Precautions - Rangitoto Channel

At a meeting of the Works and Traffic Committee on 10th December, it was agreed that the Engineer and Harbourmaster report on the question of Radar Reflectors on buoys and beacons and fog precautions in general.

SECRETARY

Mr Goodsell

JRN.BFG

852/5

S.

29th November, 1957.

The General Manager,
A.H.B.

ELECTRIFICATION OF LEADING BEACONS - RANGITOTO CHANNEL

At the request of the Harbourmaster, the electrification of the channel leading beacons has been examined. As a preliminary, the beacon recently installed at Manukau Heads was first used for a trial at the inner leading beacon. This trial proved satisfactory.

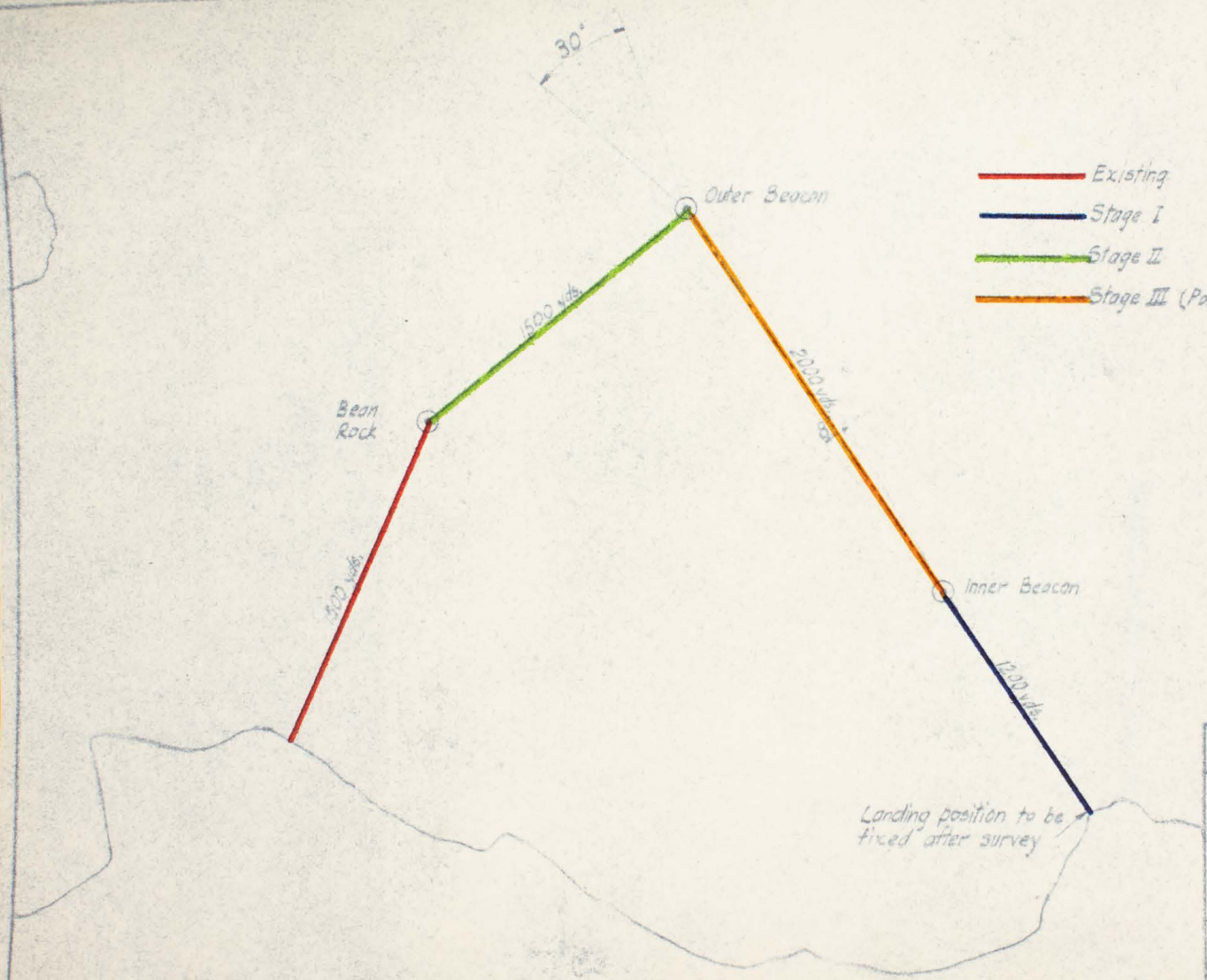
It is proposed to mount the inner beacon on the existing piles, with supply cable from the shore at a suitable point, probably at Ladies Bay. City Council permission will be required. The outer beacon would be mounted on existing piles and supplied by cable laid from Bean Rock light. The estimated cost of this electrification is £5,200.

If at a later date increased importance is attached to reliability, a cable could be laid between the inner and outer beacons to complete the ring main so that all three beacons (including Bean Rock light) could be kept going in the event of failure of any one cable. This would cost an additional £2,800.

The routes of the cables are shown on plan EL/S.451 which accompanies this report.

I recommend that the two beacons be electrified as above at an estimated cost of £5,200 and that the completion of the ring main be deferred in the meantime.
(Provision for £2500 ~~otherwise~~ has been made in the 1957-58 Estimates & Programme.)

CHIEF ENGINEER TO THE BOARD



AUCKLAND HARBOUR BOARD
ELECTRICAL DEPARTMENT

ELECTRIFICATION OF LEADING BEACONS

Drawn		21-10-57
Approved		
Traced		

Scale: 3" = 1ml. (approx.)

EL/S 451

The Secretary,
Marine Department,
P.O. Box 3014,
WELLINGTON. C.1.

18th February, 1943.

Dear Sir,

Rangitoto Channel Leading Beacons.

I forward under separate cover, for the approval of the Department, two copies of Plan E. 517/1 showing leading beacons proposed to be erected in the Auckland Harbour to mark the centre line of the dredged channel.

Yours faithfully,

Superintendent & Engineer.

WBS.IMB.

later.

D.H

Engineer to the Board.

Auckland Harbour Board No. 12354

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To Foreman of Works. *Date* 9th February, *19* 43.

Subject BUOYS LUMINOUS C/A. -
LEADING BEACONS - RANGITOTO CHANNEL.

Herewith 2 copies of Plan E.517/1 of Leading Beacons for Rangitoto Channel.

Please carry out this work as soon as possible.

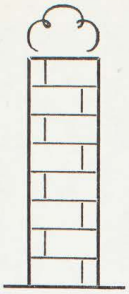
Positions will be given by Mr. Ennis.

Detail of lights to be used will be supplied later.

D H

Engineer to the Board.

Mr. D. Walker.



STEEPLEJACK'S CO-OP

RESPONSIBLE WORKMANSHIP
ANY HIGH WORK

10 COBURG STREET, HENDERSON, AUCKLAND 8

TELEPHONE Hsn. 64395 — Auck. ~~2864395~~ 83

Dear Sir, AUCKLAND HARBOUR BOARD

We are pleased to offer the following service:

TO
- [x] WIRE BRUSH CLEAN AND WASH WITH FRESH WATER TO REMOVE SALT
- [x] PAINT (one coat)
- [x] PAINT (second coat)
- [ ] RE-BRICK
- [x] PAINT 3RD COAT ACRYLIC

YOUR
- [ ] CHIMNEY
- [x] RANGITOTO BEACON

- [ ] INSIDE
- [x] OUTSIDE

Labour $885.00

Material (unless you prefer to supply) $160.00

TOTAL $1045.00

TIME FOR COMPLETION _____ 8 DAYS WEATHER PERMITTING

We can offer
- [ ] IMMEDIATE SERVICE
- [x] ONE WEEK DELAY
- [ ] ONE MONTH DELAY
- [ ] START ON .....

PLEASE NOTE: The majority of Industrial Chimneys are available only on Christmas shut-down

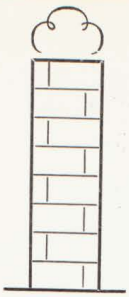
Our Christmas schedule as at SEPT 30 is
- [x] FULLY BOOKED
- [ ] MEN AVAILABLE ANYTIME
- [ ] MEN AVAILABLE FROM .....

ESTIMATES APPLY FOR 30 DAYS

PRIORITY WILL BE GIVEN ACCOUNTS PAYING **CASH ON COMPLETION**

Mr Wal

R



STEEPLEJACKS CO-OP

ANY HIGH WORK
BY RESPONSIBLE WORKMEN

PHONE HSN. 64-395
AUCK 64-395
83

Steeplejacks Coop. want to paint it & to give us a quote.

1. When was it done last?
2. What spec was used?
3. Who did it?
4. What did it cost?
5. What spec would we use now?
6. Do we want a quote.

Write reply to RBC
card address for chiefs signature

ALAN SCHOFIELD
10 COBURG ST
HENDERSON

Mr Walker.

Rangitoto Beacon.

Steeplejacks Coop. want to paint it & to give us a quote.

1. When was it done last?
2. What spec was used?
3. Who did it?
4. What did it cost?
5. What spec would we use now?
6. Do we want a quote.

Write reply to RBC
card address for chiefs signature

To Mr LeClerc

Rangitoto Beacon

This Beacon was painted in December 1973.
At the time of painting advice was sought from Dulux ltd as to type of paint to use in this locality with respect of salt contamination and poor surface from previous painting, old concrete, etc,.

Dulux recomended three coats of acrylic paint and this was applied by the labour only painting contractor F Stevenson and Co.

The total cost of labour was	$948.24
materials	196.57
transport (Boats)	462.40
total Cost.	$1607.21

At the present time acrylic paint still appears to be the most suitable product for this application. An alternative would be prepainted cladding to be fixed to the exterior of the existing structure.

The Beacon should not require painting at this stage so I am arranging for the Dulux technical rep. to inspect the paint and report on its condition

(2)

As the steeple jack Co-op want to give a price they should be given the opportunity to quote for three coats of acrylic paint and/or alternative specifications if they can recommend other products which could give the red and white colours

D Walker
24/9/74

R02/1

Auckland Harbour Board

MEMORANDUM 12th December 1968

FROM THE HARBOURMASTER | **TO** THE CHIEF ENGINEER

PAINTING RANGITOTO BEACON AND MOUNT VICTORIA SIGNAL STATION

For some time now I have been considering colours to repaint the above marks, Rangitoto as a light house beacon and the signal station as a prominent mark for observers from the sea.

RANGITOTO BEACON:

In the past this Beacon has been painted white on the seaward side and red on the landward side but with no conformity as to the demarkation lines, and to my mind not distinctive enough for a prominent Beacon at the entrance to the port. I have written to the Marine Department concerning this matter to ascertain their reaction to a change, as you know we are obliged to have approval for the changing of navigational marks, and I am enclosing their reply for your information.

I agree that Flame Orange and White would be ideal but as Flame Orange has a very limited life I propose we use a bright red and I further suggest that the beacon be painted in horizontal stripes, as indicated on the enclosed sketch. White strips 9 feet deep interposed with 5 feet red strips except that the top and bottom red strips would be 3ft.6ins. wide as indicated on the sketch.

MT. VICTORIA

Except for the woodwork this station has remained in its original concrete colour. Not only is it tending to darken with age but is by no means distinctive enough for a prominent signal station such as this and I feel it should now be painted White.

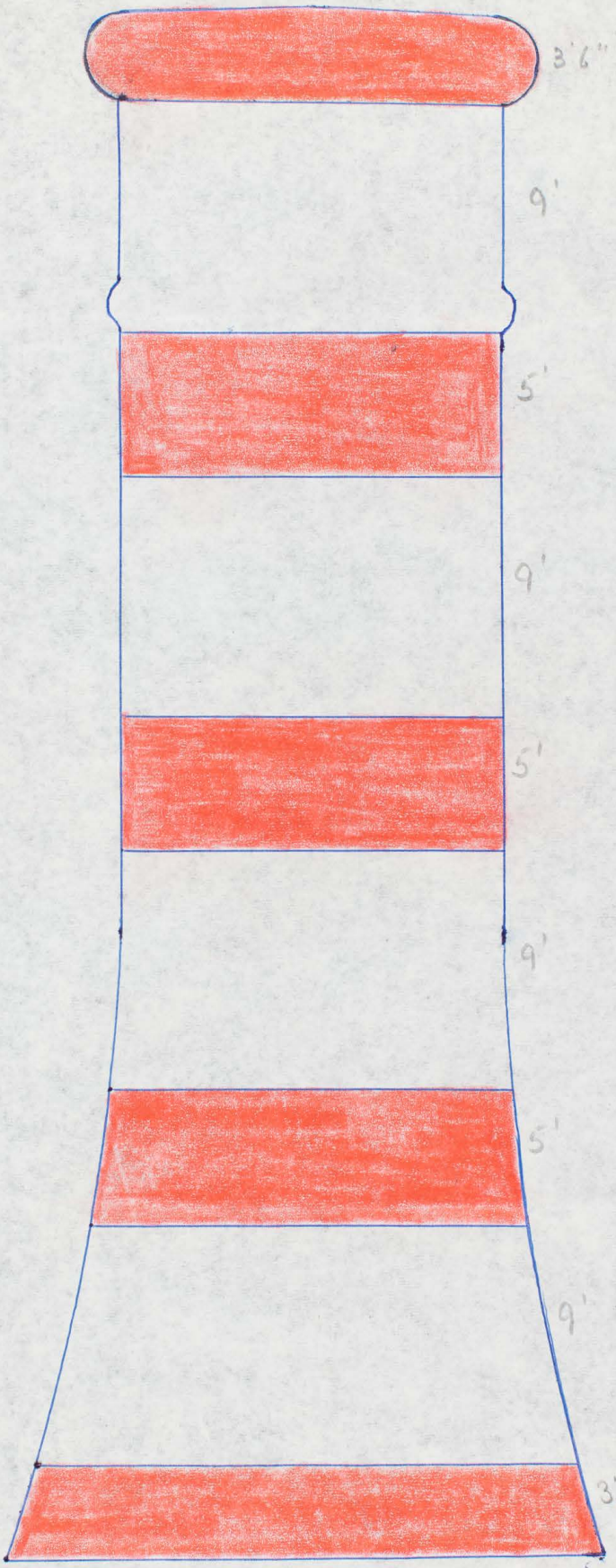
I think this latter item would also come under normal maintenance.

R H Carter

HARBOURMASTER

RHC/HG

In hand, plus general m/a at Mt Victoria
RHC 11/3/69.
Please file.


3'6"
9'
5'
9'
5'
9'
5'
9'
3'6"

M 2523

PLEASE QUOTE M 46/3/2

MARINE DEPARTMENT

HEAD OFFICE

TELEGRAMS AND CABLES: "SECYMARINE" T. & G. BUILDINGS, GREY ST., WELLINGTON C. 1., N.Z. TELEPHONE 71 759

27 August 1968

Secretary,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

AUCKLAND HARBOUR BOARD
HARBOUR DEPT.
RECD. 30 AUG 1968
ACKD.
ANSD.

ATTENTION: CAPT. R. H. CARTER.

Dear Sir,

RANGITOTO BEACON

Thank you for your letter dated 15 August, 1968, regarding colours for the Rangitoto Beacon.

It is considered that the beacon colouring would not be restricted to channel marking requirements. Any colour not confusing to shipping and distinctive would be acceptable.

Only broad guide lines are known here for determining the colour design for daymarks. The best colouring will possibly only be found from experiment and on-the-spot appraisal.

Generally, a daymark will show up best when in complete contrast to its background or setting. Having the beacon coloured in a complementary colour and tone to the background should produce the most contrast. Red is distinctive against green, and flame orange against a blue-green background. Additional use of black or white in bands, stripes or chequers, if found necessary, should be sufficient to complement the overall tone of the daymark against the background, white against a dark background and black against a light background.

Where little distinct colour exists in the background, the overall use of black and/or white may be best. Vertical stripes show best against horizontal lines, horizontal bands against vertical lines, and so on for other geometrical shapes.

For the Rangitoto Beacon, white and flame orange squares would seem to be preferable.

An area of 225 sq. ft (15 feet square), square-on to an observer would be distinguishable at about 11 miles. The

HM DHT Tow. JOW.

...12

visual surface area of the beacon is not known, but the distance at which the chequered effect became discernable should be not much less than 11 miles, provided that the height of eye allows for a sufficient portion of the beacon to be visible above the horizon.

Very little research has been done in New Zealand on the size, shapes and colouring of daymarks. Any practical information or assessments you make from the colour of the Rangitoto Beacon (the findings), would be appreciated.

Yours faithfully,

R. N. KERR
Secretary for Marine

per: A. Parry

(A. Parry)

802/1.

16th. December, 1964.

THE CHIEF ENGINEER THE GENERAL MANAGER.

VANDALISM AT RANGITOTO BEACON.

The Electrical Engineer has reported as follows :-

"I have to report that on a recent routine maintenance visit to Rangitoto Beacon it was found that intruders had forced the hasp on the door, entered the beacon, stolen emergency rations and a primus, and had broken windows and bottles of oil.

While the damage was relatively small, I am most concerned at the incident, as on future occasions, the beacon mechanism might be interfered with.

I have had the matter reported to the police, who have agreed to keep an eye on the beacon, as far as is practicable, from the police launch. In addition, I am consulting the Foreman of Works with a view to providing an improved door lock."

I have also requested the Harbourmaster to arrange for Mount Victoria to report to the police on any occasion they may observe any suspicious circumstances.

CHIEF ENGINEER TO THE BOARD.

JAG:MJC

Auckland Harbour Board

MEMORANDUM 8th. December 1964.

FROM THE ELECTRICAL ENGINEER | **TO** THE CHIEF ENGINEER

VANDALISM AT RANGITOTO BEACON

I have to report that on a recent routine maintenance visit to Rangitoto beacon it was found that intruders had forced the hasp on the door, entered the beacon, stolen emergency rations and a primus, and had broken windows and bottles of oil.

While the damage was relatively small, I am most concerned at the incident, as on future occasions, the beacon mechanism might be interfered with.

I have had the matter reported to the police, who have agreed to keep an eye on the beacon, as far as is practicable, from the police launch. In addition, I am consulting the Foreman of Works with a view to providing an improved door lock

Electrical Engineer.

Auckland Harbour Board

MEMORANDUM 14th September 1964

FROM THE HARBOURMASTER | **TO** THE CHIEF ENGINEER

RANGITOTO BEACON FOG SIGNAL

On Tuesday 15th September 1964 a fog signal on Rangitoto Beacon will be brought into operation.

This signal consists of an electrically operated siren with an undulating note producing maximum volume for a period of 10 seconds every 60 seconds.

The signal is to be operated during fog by the Signalman on duty at Mount Victoria.

COPY: sent to Electrical Engineer for information.

JCW/HC

HARBOURMASTER

15. SEP. 1964

29th March, 1963.

The Allum Electrical Co., Ltd.,
P.O. Box 2219,
AUCKLAND.

Dear Sirs,

In the course of tidying up and protecting the shore ends of the new Rangitoto submarine cable recently supplied by you, it has been thought desirable to recover the faulty cable supplied previously in order to avoid confusion between this cable and those in use.

As the cost of laying and recovering this cable has been appreciable, I propose to retain good sections of the recovered cable for future use on less important jobs, and trust that you will have no objection to this course.

Yours faithfully,

RELA:AWJ

Chief Engineer to the Board

802/1

Auckland Harbour Board

2241 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 6th March 19 63

Subject RANGITOTO BEACON

Please co-operate with the Electrical Engineer and provide transport punt and other necessary floating plant to recover the disused submarine cable from St. Leonard's Beach to Rangitoto Beacon.

The Harbourmaster has arranged for a public notice to be inserted in the press and plant so engaged will carry the appropriate cable signals.

Would you please ensure that the work is adequately supervised and that instructions regarding the lifting and handling of the cable are issued through one chain of command.

Copy to Electrical Engineer

WJT:HEW

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

2241 A

REMARKS: _____

Signature _____

E10 *Date* _____ 19

5th March 1963

THE DEPUTY HARBOURMASTER THE SECRETARY

CABLE OPERATIONS RANGITOTO CHANNEL

Commencing Wednesday 6th March 1963 floating plant will be engaged picking up a cable from St. Leonards Beach on the Takapuna Shore north-eastwards to Rangitoto Beacon.

Plant so engaged will carry the appropriate cable signals and all craft are warned to reduce speed and pass well clear of such vessels.

This operation is expected to take about seven days but could be prolonged by weather conditions.

No obstructions are expected to be in the area during the hours of darkness.

Please insert a public notice in the local press.

C R Smith

For DEPUTY HARBOURMASTER

The Chief Engineer

Copy for your information.

Deputy Harbourmaster

JOW/HC

Auckland Harbour Board 1639 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 20th June 1962

Subject RANGITOTO BEACON - STAND FOR FOG SIGNAL AND STANDBY LIGHT

CODE NUMBER
806/827/30/39

1. Please construct and erect on Rangitoto Beacon a stand for mounting a fog signal and future standby light, in accordance with Drawing No. EL/B308.

2. Discuss with Electrical Engineer the means for taking fog signal wiring through the roof and arrange accordingly.

3. The Electrical Engineer to install and connect fog signal.

Copy to Electrical Engineer

Encl: 2 copies EL/B308

RELA:HEW

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

1639 A

REMARKS: _____

Signature _____

E10 *Date* _____ 19

DRAFT INSTRUCTION TO FOREMAN OF WORKS

C/A - Fog signals.

RANGITOTO BEACON - STAND FOR FOG SIGNAL AND STANDBY LIGHT

1. Please construct and erect on Rangitoto Beacon a stand for mounting a fog signal and future standby light, in accordance with Drawing No. EL/B308.

(2)

3. The Electrical Engineer to instal and connect fog signal.

Enclos. 2 Copies EL/B 308.

Chief Engineer to the Board

Copy to Electrical Engineer

(2) Discuss with Electrical Engr the means of taking fog signal wiring through the roof & arrange accordingly.

Auckland Harbour Board.

Mr. Goodsir,

The fog signal has been received & is ready for erection.

A standby light supplied over the fog signal cable is under consideration and provision has been made for it on the stand.

G.

S 14

Auckland Harbour Board 794 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 27th July 19 61

Subject BEAN ROCK CABLE

CODE NUMBER
743 / 001 / 50-59

When the Rangitoto cable has been laid the new cable is to be laid to Bean Rock.

Shore work to receive the new cable at Bean Rock and Tamaki Drive should be commenced as soon as possible.

Details of the alterations necessary to the cable laying gear will follow.

PSH:HEW

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	:	:
Material	- -	:	:
Total £		:	:

794 A

REMARKS: _____

Signature _____

E10 *Date* _____ 19

M E M O R A N D U M

13th July, 1961.

From THE DESIGNING ENGINEER

To THE FOREMAN OF WORKS

RANGITOTO CABLE

It is intended, weather permitting to lay the Rangitoto Cable on Tuesday the 18th of July - High Tide 11.19.

The cable will be laid from Rangitoto to St. Leonard's Beach starting from Rangitoto Beacon at 10.30.

Plant Required and disposition. All plant in position before 10.30

(a) A Transport at Rangitoto Beacon to line up cable running punt.

(b) Pile punt carrying cable.

(c) Launches "Orere" and "Te Hauraki" to tow cable punt.

(d) Launch "Arahi" at St. Leonard's Road Beach on line.

So that shipping can be warned by wireless, Mt. Victoria Signal Station is to be informed as soon as it is known the operation is on.

DESIGNING ENGINEER

Auckland Harbour Board 568 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE ACTING FOREMAN OF WORKS *Date* 12th April 1961

Subject CABLE LAYING RANGITOTO & BEAN ROCK

CODE NUMBER
743 001 30-39

A new cable is to be laid from the shore to the Rangitoto Beacon and to Bean Rock. These cables are at present stored at the "Mahua" berth.

It is intended to lay the Rangitoto cable as soon as the equipment is ready and tide and weather are suitable and to then lay the cable to Bean Rock.

Drawing Nos. E.886/1, 2, 3, 4 and 6 show the equipment to be made and fitted to a steel pile punt which will lay the cable and in addition a suitable platform from which to operate the brakes is required.

The work of fitting the discs to each side of the large drum should be carried out at the "Mahua" berth with the timber sheathing left in place so the drum will not distort when the tie rods are let got to fit the discs.

Mr. Hutchinson will be looking after this project and will supply further information as required.

Encl: 2 copies Drg. E.886/1, 2, 3, 4 & 6.

Copy to Electrical Engr.

PSH:HEW

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	: :
Material	- -	: :
Total £		: :

568 A

REMARKS: _____

Signature _____

E10

Date _____ 19

Auckland Harbour Board

285 A

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS: *Date* 16th December 1960

Subject RANGITOTO BEACON M/A.

Please re-fix the access Ladder to the Lighthouse to give more clearance between the ladder and the wall.

The work is described on Drawing E.945/1.

Encl. 2 copies E. 945/1.

CB:KJD.

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	:	:
Material	- -	:	:
Total £		:	:

285 A

REMARKS: _____

Signature _____

E10

Date _____ 19

Auckland Harbour Board

MEMORANDUM 23rd November, 1960

FROM	TO
THE ELECTRICAL ENGINEER	THE CHIEF ENGINEER

ACCESS LADDER ON RANGITOTO BEACON

The present access ladder to Rangitoto Beacon is fixed so close to the beacon that one cannot get more than the toe of a shoe on to the rungs, with consequent risk of slipping. Complaints have been received from men who carry out maintenance work on the beacon.

I therefore recommend that a new ladder be designed and fitted, and that the matter be treated as of some urgency.

RELA:AWJ

Electrical Engineer

Mr Hutchinson

28th September, 1960.

THE ELECTRICAL ENGINEER THE STORES OFFICER

FOG SYREN FOR RANGITOTO BEACON

Authority was recently given to negotiate with the lowest tenderer for a fog syren for Rangitoto Beacon, as no quotation was satisfactory.

I attach a letter from Messrs. A. & T. Burt, the firm concerned, giving a quotation for a syren to my requirements, and I recommend that it be accepted.

I have not yet received a quotation from Giles & Elliott for a fog horn assembly for Bean Rock, for which authority was also given to negotiate. This quotation will be forwarded when received.

RELA:AWJ

Electrical Engineer

COPY FOR THE CHIEF ENGINEER

131/17

24th August, 1960

The Allum Electrical Co. Ltd.,
P.O. Box 2219,
AUCKLAND. C.1.

Attention: Mr. D.P. Gordon

Dear Sirs,

CONTRACT 1670P - SUBMARINE CABLE
(Your ref: No. 3339/60)

I have to inform you that at a Meeting of the Board held on the 23rd August 1960, the alternative offer of your tender for Contract 1670P, Supply and Delivery of Submarine Cable, was accepted for the sum of £1,630.18.0. subject to the provision of the larger size of armour wire as required, without extra cost.

Contract Agreement and Specification are enclosed herewith and I shall be pleased if you will have the Contract Agreement signed and the seal of the Company affixed thereto, and arrange for the Specification to be initialled on each page. In addition, I have enclosed a blank Tender form and Schedule for necessary completion in respect of your accepted alternative offer.

On completion of these formalities the documents will be required to be returned to me at your earliest convenience, for execution by my Board.

The Board's receipt, No. 2092D, is forwarded in acknowledgment of your deposit cheque for £25.0.0.

Yours faithfully,

SECRETARY.

ENCL. (5)

JES:VD

Chief Engineer

EXTRACT FROM MINUTES
PURCHASING & STORES COMMITTEE
16 AUG 1960

6. CONTRACT 1670P. - SUBMARINE CABLE.

The Committee gave consideration to the reports of the Chief Engineer and the General Manager dated 5th August 1960, which listed the fifteen tenders, including two with alternative offers, which had been received for the above contract.

It was considered that the offer of Allum Electrical Company, was the most suitable, except that it included a smaller armour wire than was desirable, but it had been confirmed that the larger size as required, would be provided without extra cost. The General Manager advised that the item was provided for in the 1959/60 Programme of Works and Estimates.

Recommended -

That the alternative offer of Allum Electrical Company Limited be accepted, for £1,630.18.0., subject to the provision of the larger size of armour wire.

Electrical Engr.
to note.
G.

ADOPTED BY BOARD
23 AUG 1960

131/17

5th August, 1960.

The General Manager,
A.H.B.

CONTRACT NO. 1670P - SUBMARINE CABLE.

Fifteen tenders, two with alternative offers, were received as under:-

Cable Price Corporation Ltd.		£1,325. 1. 0.
" " "	(alternative)	1,699.18. 0.
A. & T. Burt Limited		
British General Electric Co.		
Richardson McCabe & Co.		1,428.16. 0.
Enfield Cables (N.Z.) Ltd.		
Tolley & Sons Ltd.		
The National Electrical & Eng. Co. Ltd.		
(X) Turnbull and Jones Ltd.		
(X) Cory-Wright and Salmon Ltd.		1,464.16. 0. (x)
(X) Arnold & Wright Ltd.		
B.R. Homersham Ltd.		1,513. 8. 0.
Amalgamated Wireless Ltd.		1,522. 0. 0.
Allum Electrical Co.		1,522.16. 0.
" " "	(alternative)	1,630.18. 0.
Spencer Clarke and Co. Ltd.		1,902.16. 5.
Electropar Ltd.		2,890. 9. 0.

All tenders include a price variation clause, except that of Cable Price Corporation which is firm.

(x) This price is believed to be quoted in error, and should be £1,428.16. 0. as preceding tenders.

Of these tenders, the alternative designs offered by the Allum Electrical Company and by the Cable Price Corporation, have worthwhile advantages in that extra protection against ingress of water is provided. The Allum Electrical Company's offer is the better, except that it includes a smaller armour wire than is desirable. However, confirmation has been received that this would be provided as required without extra cost.

In view of this, and in recognition of the Allum Electrical Company's recent undertaking to replace, free of cost, the entire faulty cable supplied under a previous contract, I recommend that their alternative offer be accepted, for £1,630.18. 0., subject to the provision of the larger size of armour wire.

Tenders herewith.

J. R. Sutton

CHIEF ENGINEER TO THE BOARD

Encl: Tenders.

The Chairman,
Purchasing and Stores Committee,
AUCKLAND HARBOUR BOARD.

I endorse the recommendation of the Chief Engineer. This item is provided for in the 1959/60 Programme of Works and Estimates.

A.A. Clarke

GENERAL MANAGER.

5th August, 1960.

File

27th July, 1960

THE ELECTRICAL ENGINEER THE CHIEF ENGINEER

NEW CABLE FOR RANGITOTO BEACON

I attach a copy of a letter from The Allum Electrical Co., Ltd., offering to replace the faulty cable to Rangitoto Beacon, free of charge. This offer is in accordance with the high reputation of the Company and their Principals, Messrs. W.T. Glover & Co., Ltd., and I recommend its acceptance.

The cost of testing and fault location on the faulty cable amounts to £722, and I recommend that this expenditure should be borne by the Board - I doubt if it could be recovered under the terms of the guarantee, - and that the suppliers be asked to agree to the Board retaining the faulty cable. As the cable cost £2837, I consider that more than enough good cable could be recovered for stock, to offset the testing cost, and such cable would be of use for the replacement from time to time of other shorter submarine cables which the Board has in service.

I also recommend that a modified design of cable should be asked for, as Messrs. Allum Electrical Co. have offered this against another contract. This is slightly more expensive, but it would be worth while paying the extra amount - about £250 - should this be asked for.

RELA:AWJ Electrical Engineer

Mr. Aubin -

Please negotiate with the agents on the lines you suggest above and report the outcome of these negotiations.

(signed) J.A. GOODSIR

3.7.60

Charge to maintenance.
J. Sutton
2.9.60

See Journal Entry
£ 786 11.6 as repayable
£ 727 17.6 as n/a

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
19 JUL 1960

12. RANGITOTO BEACON - FAULTS IN NEW SUBMARINE CABLE

Consideration was given by the Committee to the reports of the Chief Engineer and General Manager, which outlined the present position regarding the faults in the new submarine cable to Rangitoto Beacon. The Chief Engineer advised that he intended to defer consideration of tenders which have been received for a further submarine cable recently authorised by the Board for a fog signal at Bean Rocks, pending satisfactory negotiation in the case of the faulty Rangitoto Cable.

It was RESOLVED to recommend that the reports be received.

ADOPTED BY BOARD IN COMMITTEE
26 JUL 1960 AND REMAINED IN COMMITTEE

45

13th July, 1960.

The General Manager,
A.H.B.

RANGITOTO BEACON - FAULTS IN NEW SUBMARINE CABLE.

The following is submitted for information:

The present position is that after a considerable amount of testing under difficult conditions, faults have been located and temporarily repaired at two points, 500 yards approximately from the shore end, and 1,000 yards approximately from the beacon end respectively. Tests show that the cable is still faulty, but it is not possible to prove whether one or more faults still exist.

Examination of the faulty parts of the cable found so far indicate that the trouble is due to the extrusion of the polythene insulation not being continuous, and the use of polythene tape to patch discontinuous portions. This might have been satisfactory if a good bond had been achieved between the extruded polythene and the tape, but from the occurrence of the faults, it appears that such has not been the case. There appears little doubt, therefore, that manufacturing methods were at fault.

The representative of the manufacturers, in conjunction with the suppliers, Messrs. Allum Electrical Company Limited, has cabled a report to his firm and is at present awaiting a reply. Pending receipt of this reply, I propose to defer consideration of tenders which have been received for a further submarine cable recently authorised by the Board for a fog signal at Bean Rock.

J R Sutton

CHIEF ENGINEER TO THE BOARD

The Chairman,
Works and Traffic Committee,
AUCKLAND HARBOUR BOARD.

Submitted for information.

I concur in the Engineer's suggestion that consideration of tenders for Bean Rock Cable be deferred, pending satisfactory negotiation in the case of the faulty Rangitoto cable.

A H Clarke

GENERAL MANAGER

14th July 1960

Auckland Harbour Board.

TENDER

FOR CONTRACT No. 1670.P. for

SUBMARINE CABLE

TO THE CHAIRMAN OF THE
AUCKLAND HARBOUR BOARD.

MAY, 19 60

Sir:—

I, We, the undersigned, do hereby Tender and offer to execute and perform the several works and provisions named, described and alluded to in the Specifications for the

SUPPLY AND DELIVERY OF SUBMARINE CABLE

and under and in conformity to the General Conditions stipulated, for the sum of One Thousand Six Hundred & Thirty Pounds Eighteen Shillings.

and I, We, annex hereto the Schedule of Prices upon which this Tender is based and calculated.

I, We, enclose herewith cheque payable to Treasurer, Auckland Harbour Board (or cash) for

£ 25: 0: 0.

Should this tender be accepted I, We, undertake to execute a Contract and Bond embodying the aforesaid Specifications and Conditions within three days of the date of acceptance, ~~and undertake to deposit with the Treasurer of the Auckland Harbour Board a further sum of £ making a total of £ deposited.~~

Name The Allum Electrical CO. Ltd.
D.P. Gordon.

Address P. O. Box 2219
Auckland.

The within Tender is accepted by the Auckland Harbour Board, Auckland.

The Common Seal of the Auckland Harbour Board was hereto affixed at a meeting of the Board held on the

day of

by and

two of

the members of the Board, in the presence of

Chairman

Members

Secretary
A.H.B.

P 7

AUCKLAND HARBOUR BOARD

CONTRACT No. 1670.P.

SPECIFICATION FOR THE SUPPLY AND DELIVERY OF SUBMARINE CABLE.

1. TENDERS: Addressed to "The Chairman, Auckland Harbour Board", and endorsed "Tender for Submarine Cable" will be received by The Secretary, Auckland Harbour Board, up till 12 NOON on TUESDAY, 5th. JULY, 1960, for the supply and delivery to the Board at Auckland, New Zealand, of Submarine Cable in accordance with this Specification. Tenders received through the post will be recorded by the Secretary or his representative in the Tender Book and placed in the Tender Box to be opened in the presence of the Board's representatives. Tenders delivered by hand shall be signed for by the Secretary or his representative and be placed in the Tender Box in the presence of the person delivering the tender. Tenders may be submitted by telegraph only provided proof is available that the completed tender has been posted not later than the sending of the telegraphic tender.

2. INTERPRETATION OF TERMS:

In this Specification wherever they may occur the terms:-

"Board" shall mean the Auckland Harbour Board.

"Secretary" Shall mean the person for the time being acting as Secretary to the Board.

"Engineer" shall mean the person for the time being acting as Chief Engineer to the Board.

"Stores Officer" shall mean the person for the time being in charge of the Purchasing and Stores Department of the Board.

"Contractor" shall mean any person or persons whose Tender for the supply and delivery of any of the Submarine Cable to which this Specification refers, shall be accepted, and who shall sign the necessary Contract, and it shall include the executors, administrators and permitted assigns of such person or persons.

3. DEPOSIT WITH TENDER: Each Tender shall be accompanied by cash or cheque for Twenty-five Pounds (£25), which sum will be returned in the case of unsuccessful tenderers as soon as the necessary Contract has been signed.

4. EXECUTION OF CONTRACT: The successful tenderer shall, within three clear days of notification of acceptance of his Tender, execute a legal Contract embracing all the clauses of this Specificiation. The deposit lodged with the Tender will be returned only after satisfactory performance and completion of the Contract as certified by the Engineer. Should the successful tenderer refuse or neglect or fail to sign the necessary Contract within the said three days, then the amount of the deposit accompanying such Tender shall be forfeited absolutely to the Board as and for liquidated damages, and the Board may call upon any one of the other tenderers to sign and carry out the Contract.

5. TERMS: (a) Prices quoted shall include Sales Tax and all other charges, and shall be for delivery at the Board's Store, Hobson Street, Auckland, of the Submarine Cable in accordance with this Specification, in good order and condition to the satisfaction of the Engineer. The amount of the Sales Tax included in the price shall be stated in the appropriate place in the Schedule.

5. TERMS: (Cont'd)

(b) Tenderers shall state the time within which they will guarantee to deliver the Submarine Cable.

(c) Tenderers may quote for the whole or any items of the Schedule and the Board shall have the right to accept the whole or any part of any Tender at the Schedule rates tendered.

(d) Tenders shall be submitted on the official Tender and Price Schedule Forms, which may be obtained on application to the Stores Officer, Auckland Harbour Board, No. 4. Quay Street, Auckland, C.1., New Zealand.

(e) The Board does not bind itself to accept the lowest or any Tender.

(f) All Licences and Exchange shall be procured by the Contractor.

6. NON-PERFORMANCE OF CONTRACT: Should the Contractor refuse or neglect or fail to carry out any of the conditions of this Contract in accordance with the true intent and meaning of this Specification, and to the satisfaction of the Engineer, then the Board shall have the right to terminate the Contract forthwith, without further notice to the Contractor, and the Contractor shall have no claim whatsoever against the Board, on account of such termination of the Contract, and the deposit lodged with the Tender shall be forfeited absolutely to the Board, as and for liquidated damages.

7. GRADE: The cable shall be medium voltage, heavy duty (660 volt grade), and shall comply with B.S.S. 7/1953, where applicable. Cores shall be insulated with polythene, but tenderers may offer alternatives.

8. DESCRIPTION: The cable shall be twin core, armoured submarine cable, having two conductors plain copper insulted with polythene, each composed of 7 wires of .064 inches diameter (7.064), taped and compounded, laid up with jute wormings taped, jute braided and compounded, covered with brass or bronze tape .004 inches thick, with 50% overlap, jute served, armoured with a single layer of thoroughly compounded galvanised steel wires of .160 inches diameter, jute served and compounded overall.

9. LENGTH: Each item shall consist of cable in one continuous length wound on a suitable drum, and protected from damage in transit.

10. INFORMATION WITH TENDER: Tenderers shall supply full details of the cable offered, and shall state the dimensions and weight of each drum of cable. The tenderer shall state his recommended method of insulating any joint which might be required in service.

11. GUARANTEE: Tenderers shall guarantee the cable offered against deterioration or failure due to faulty material or workmanship, for a period of 12 months from the date of delivery in Auckland.

12. PAYMENT: Payment will be made in New Zealand, in New Zealand currency against the Contractor's invoices for all material delivered to and accepted by the Board, in accordance with this Specification as certified by the Engineer.

J. R. SUTTON, M.I.C.E.

CHIEF ENGINEER TO THE BOARD.

TENDERS CLOSE AT 12 NOON ON TUESDAY, 5th. JULY, 1960, AT THE OFFICE OF THE AUCKLAND HARBOUR BOARD, QUAY STREET, AUCKLAND, NEW ZEALAND.

AUCKLAND HARBOUR BOARD

CONTRACT No. P.1670.

SCHEDULE OF SUBMARINE CABLE.

Item	Description	Price per 1,000 yds.	Total Price
1.	1,850 yds. twin core 7/.064 Submarine Cable to Specification No. P.1670 on drum	£694-0-0	£1283-18-0
2.	500 yds. ditto on drum	£694-0-0	£347-0-0

The Total Amount of Sales Tax included in the above sum is £

I/We offer to supply and deliver to the Board any or all of the above Submarine Cable at the prices as set out in detail above, all being in accordance with Specification No. P.1670.

I/We undertake to deliver the above Submarine Cable in ..9/10.. weeks, from date of the Board's order.

SIGNATURE : The Allum Electrical Co, Ltd.

ADDRESS: Box 2219

Auckland

DATE : 26th August 1960

TENDERS CLOSE AT 12 NOON ON TUESDAY, 5th JULY, 1960

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
27/6/1960

1. PROGRESS OF WORKS

Consideration was given by the Committee to the reports of the Chief Engineer and General Manager for the four weeks ended 7th June 1960. Reference was made to the faults that have been disclosed in the cable recently laid to Rangitoto Beacon. The Engineer expressed concern and explained the position and the steps being taken to remedy the situation.

Recommended -
That the reports be received.

ADOPTED BY BOARD
28 JUN 1960

Auckland Harbour Board

27162

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 17th May 19 60

CODE NUMBER

Subject RANGITOTO CABLE 070 / 391 / 10-19

Electrical testing has located a fault in the new Rangitoto cable 800 yards from the beacon. Please arrange to fit the "Gatling Gun" punt for under-running the cable. The sheave used for laying is to be taken off the pile punt and fitted on balks on one end of the "Gatling Gun" punt and another suitable sheave mounted on the other end of the punt.

This work is to be done as soon as possible to be ready for use early next week.

PSH:HEB

£.886/1-5

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

27162

REMARKS: _____

Signature _____

E10

Date _____ 19

17th March, 1960.

The Manager,
Messrs. Turnbull & Jones, Ltd.,
P.O. Box 5740,
AUCKLAND.

Dear Sir,

My attention has been drawn to your firm's advertisement in this morning's "Herald", in which it is stated that your Company laid the submarine cable between Milford and Rangitoto Beacon. In fact, your firm supplied the cable, but had no other part in the installation, which was designed by the Board's engineering staff and carried out, including the laying of the cable, entirely by the Board's employees. Incidentally, the cable is terminated at St. Leonard's beach, not Milford.

I should therefore be glad if you would correct the publicised statement.

Yours faithfully,

RELA:AWJ

Chief Engineer to the Board

802/1
PSH

3rd February, 1960.

THE CHIEF ENGINEER THE HARBOURMASTER

CABLES TO LEADING LIGHTS

It is intended to lay the cables to the northern and southern leading beacons some time in February or March.

Will you please arrange to gazette the cables as necessary and also inform me whether or not beacons are required to mark the inshore end of the cable from the Southern Leading Beacon.

CHIEF ENGINEER TO THE BOARD

Encl: Drg. S.1233/1

PSH:HEB

Auckland Harbour Board

26921

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 27th January 1960

Subject RANGITOTO BEACON - NEW ELECTRIC CABLE

A drilling contractor has been employed to drill two holes for electric cables to enter to Rangitoto Beacon.

He will arrive at the yard at 9 o'clock on Tuesday, the 2nd of February.

To operate the drill the Board is to make available a compressor and capable of supplying 80 cubic ft/min at 80 lbs/sq.in complete with air hoses and a water pump with a capacity of 400 - 500 gallons per hour at a head of 20 ft. complete with suction and delivery hose to reach from punt to the entrance of the Beacon.

A labourer is to be made available to assist him with his equipment in addition to the crew necessary for the punt and compressor and pump.

Please arrange to have this equipment loaded aboard a suitable punt first thing on Tuesday morning and to tow the punt to the beacon and attend it as necessary. The job could take two or three days.

For any further details telephone Mr. Hutchinson.

J. S. Bruton

PSH:HEB Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour	- -	:	:
Material	- -	:	:
Total £		:	:

26921

REMARKS: _____

Signature _____

E10 *Date* _____ 19

CODY FERGUSON LIMITED

DRILLERS

REGISTERED OFFICE
C/O BARR, BURGESS AND STEWART
PUBLIC ACCOUNTANTS
P.O. BOX 1933
AUCKLAND, C.1

ADDRESS:
AUCKLAND: P.O. BOX 1933
TELEPHONE 34-270
TAUPO: P.O. BOX 51
TELEPHONE 370

PLEASE ADDRESS REPLIES TO
AUCKLAND
TAUPO

25th January, 1960.

The Chief Engineer,
Auckland Harbour Board,
Quay Street, AUCKLAND.

Dear Sir,

Have to acknowledge receipt of your letter dated 14th January following Mr. Ferguson's recent visit to inspect the diamond drilling required on the Rangitoto Beacon. We noted that you now require additional drilling to this which will entail the rehash of the estimated cost as per our letter of the 20th December. If you refer back to it you will see that we reckoned it would only take nine hours to drill it and a further eight hours to pull down, transfer equipment to Auckland after drilling which would entail just one night or at most two nights stay in Auckland for the driller. As it appears that he will be there to do the additional work for a further unspecified period we think it fair that his board should be paid for over and above the two days we provided for in our estimate.

Yours faithfully,
CODY FERGUSON LIMITED.

R. A. McMillan.

Mr Hutchinson

802/1

14th January, 1960

Messrs. Cody Ferguson Ltd.,
Drillers,
P.O. Box 51,
TAUPO

Dear Sir,

Further to Mr. Fergusons recent visit I wish to confirm that it will suit our arrangements to start the work on Tuesday the 2nd of February. We would prefer the 2.985 inch diamond bit to bore the two holes now required in the Rangitoto Beacon.

In addition to the job at the Beacon I would like a 1" diameter test bore into sandstone to a depth of approximately 30 feet below high tide level. For this bore the Board will supply the casing, plant and transport required.

Yours faithfully,

CHIEF ENGINEER TO THE BOARD

PSH:HEB

CODY FERGUSON LIMITED

DRILLERS

REGISTERED OFFICE
C/o BARR, BURGESS AND STEWART
PUBLIC ACCOUNTANTS
P.O. BOX 1933
AUCKLAND, C.1

ADDRESS:
AUCKLAND: P.O. BOX 1933
TELEPHONE 34-270
TAUPO: P.O. BOX 51
TELEPHONE 370

PLEASE ADDRESS REPLIES TO
~~AUCKLAND~~
TAUPO

6th January, 1960.

The Chief Engineer,
Auckland Harbour Board,
C.P.O Box 1259. AUCKLAND.

Dear Sir,

Reference 852/5 replying to your letter dated 5th January, we will arrange for somebody to inspect the Rangitoto beacon first opportunity.

The holidays are over at the end of the week and until all hands are back next week we cannot name a definate date for the inspection. You can rest assured that our representative will be in Auckland for this purpose as soon as possible and we will advise you first chance of a definate date.

Yours faithfully,
CODY FERGUSON LIMITED.

R. A. McMillan.

Mr. Hutchinson

Mr Ferguson will call on you 10 am Wednesday 13th to inspect the job. Please arrange. 8.1.60.

852/5

5th January, 1960.

Mr. R.A. McMillan,
Cody Ferguson Ltd.,
P.O. Box 51,
TAUPO

Dear Sir,

Thank you for your reply to our enquiry regarding a drilled hole through the base of the Rangitoto Beacon.

The price quoted in your letter dated 31st December, 1959, is satisfactory. I do not anticipate that there will be any reinforcing steel in the base, but as for the space indicated on the sketch, it is actually the well of a spiral staircase. In this case it would be preferable if you could arrange to inspect the beacon before hand. We would gladly make a launch available should you be in Auckland and would welcome an opportunity of discussing the problems with you. The exact size of hole is not important, either of the bits you refer to would be satisfactory.

Trusting to hear further from you in the near future.

Yours faithfully,

CHIEF ENGINEER TO THE BOARD.

TBMcG:HEB

CODY FERGUSON LIMITED

DRILLERS

REGISTERED OFFICE
C/o BARR, BURGESS AND STEWART
PUBLIC ACCOUNTANTS
P.O. BOX 1933
AUCKLAND, C.1

ADDRESS:
AUCKLAND: P.O. BOX 1933
TELEPHONE 34-270
TAUPO: P.O. BOX 51
TELEPHONE 370

PLEASE ADDRESS REPLIES TO
AUCKLAND
TAUPO

31 DEC Recd

29th December, 1959.

The Chief Engineer,
Auckland Harbour Board,
C.P.O. Box 1259. AUCKLAND.

Dear Sir,

We have your letter dated 23rd December concerning a drill hole through the base of a beacon as shown on the drawings attached to the letter. We are returning one of these drawings which was apparently sent by mistake.

We could drill the hole for you all right but would like some additional information before establishing a price.

First, is there any steel reinforcing in the concrete we will be drilling through and if so about how much of it, and what size and what is it's pattern in the structure? Secondly, is that space that we have pencil shaded on the sketch from a corner of which the hole is evidently to start, big enough to take a bar mounted drill. It appears to be nine feet deep by seven feet wide, how long is it? We would need transport to the beacon and a compressor and one helper to assist the driller. To save space in sending equipment from Taupo if you could also provide pump for circulating drilling water and the necessary hoses for it and pneumatic hoses for compressed air.

Once the equipment is set up, the actual boring of the hole would not take very long but we would have to provide, when we price this work, for a driller and a vehicle to and from Taupo plus the time spent in transporting to the beacon, setting up, drilling and return transport to Auckland. In addition, of course, there is the weather hazard. So, for you to arrive at a rough estimate of the cost and taking our time for driller, diamond drill, bits and drilling equipment, other than pump, hoses and air compressor at fifty shillings an hour from Taupo, broken up as follows:-

Taupo to Auckland - 9 hrs.
Auckland to beacon & setting up - 10 hrs.
Drilling - 9 hrs.
Pulling down, transport, beacon to Auckland - 8 hrs.
Auckland to Taupo - 8 hrs.

This would total, without encountering bad weather 44 hrs. @ 50/- per hour, equivalent of £110/-/-.

We could complete this job before March 1960.

Awaiting your comments,

We are,

Yours faithfully,

CODY FERGUSON LIMITED - D. A. McMillan.

P.S. Standard sizes in Diamond Bits nearest to 2½ inch. O.D. are:- E.X 2.360 inch. & N.X. 2.985 inch. Please advise if either of these sizes can be used alternatively to the 2½ inch. you specify.

23rd December, 1959.

Messrs. Cody and Ferguson Ltd.,
P.O. Box 51,
TAUPO

Dear Sirs,

The Board intends to lay a new electric cable to Rangitoto Beacon in March 1960.

To get the cable inside the beacon it is proposed to drill a hole through the base of the beacon as shown on Drawing S.1343.

Would you please let me know whether you would be prepared to do this work before March 1960 and quote your rates for the work.

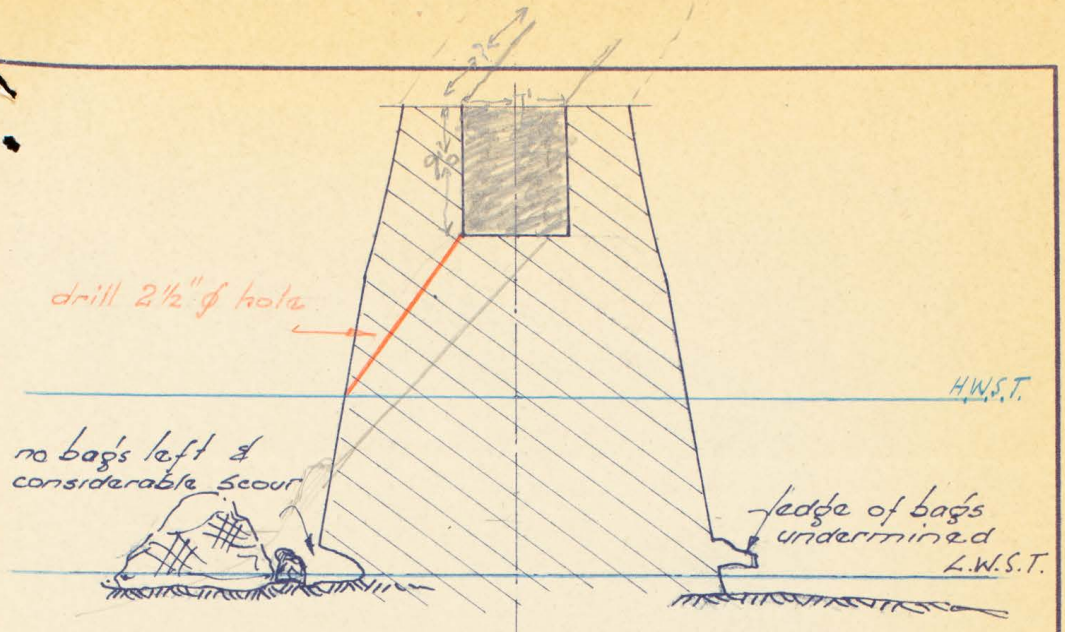
The Board would provide transport to the Beacon and if necessary a compressor and any additional labour you may require.

Yours faithfully,

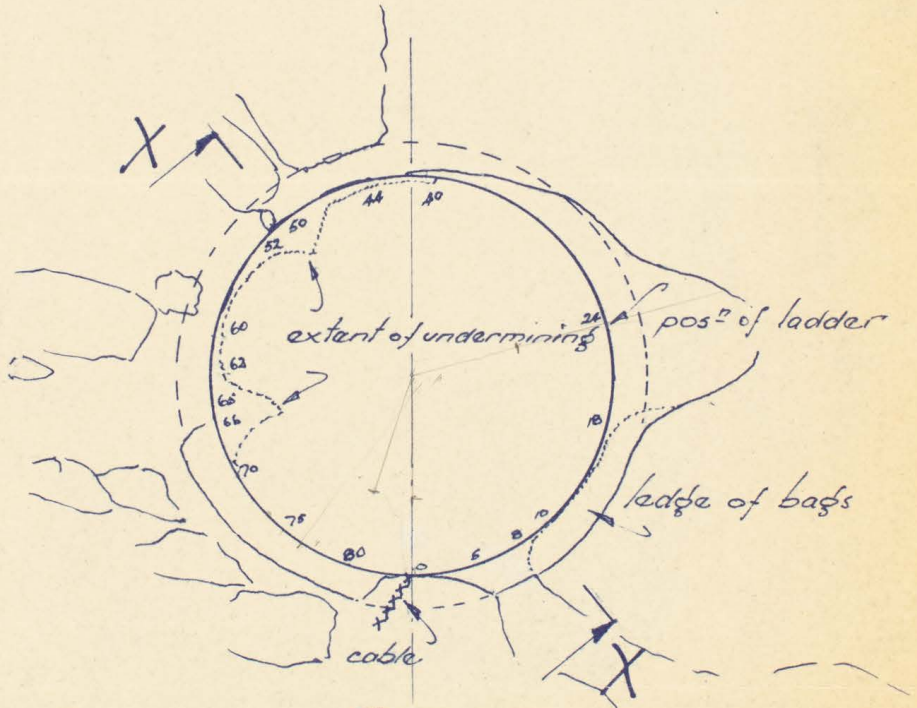
CHIEF ENGINEER TO THE BOARD

Encl: Drg. S.1343

PSH:HEB



Section XX



PLAN

File with letter D Cody & Ferguson

Scale 10ft to 1in

AUCKLAND HARBOUR BOARD	
RANGITOTO BEACON UNDERMINING AT BASE	
DRAWN BMcG Glashan DATE 3.11.59	S1343

852/5

Auckland Harbour Board

26845

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 22nd December 19 59

Subject CABLE LAYING TO RANGITOTO BEACON AND NORTHERN AND SOUTHERN LEADING BEACONS

Cables are to be laid to replace the existing Rangitoto cable and to electrify the Northern and Southern Leading Beacons.

The Rangitoto Beacon cable is stored on the "Mahua" berth and the cables for the leading beacons are in the open storage space at No.4 Cargo Store.

It is intended to lay the cable between the Northern Leading Beacon and Bean Rock in February, the Rangitoto cable in early March and the cable from the Southern Leading Beacon to St. Heliers towards the end of March.

Drawings No. E.886/1-5 shows the equipment to be made and fitted to a steel pile punt to lay the cable and in addition a suitable platform from which to operate the drum brakes.

The route of the cable to the Northern and Southern Leading Beacons is shown on Drawing S.1253/1 and drawing No. E.517/2 and 3, and EL/C155 shows details of battery houses and light fittings to be provided on the Leading Beacons.

Engineer to the Board.

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

26845

REMARKS: _____

Signature _____

E10

Date _____ 19

Instruction to Foreman of Works No. 26845

The following work is to be carried out at the various sites prior to laying the cable.

Rangitoto Beacon Cable

(1) Repair base of beacon. (Instruction already issued to carry out this work).

(2) Provide for entry of cable into the beacon. (Enquiries are being made to obtain the services of a drilling contractor to do this).

(3) At the St. Leonards Road end a trench is to be excavated to take the cable up alongside the path to the Generator House. Further directions will be given as to the exact siting of this trench.

It is proposed to lay the cable from the Rangitoto end where the cable will be secured by passing the cable around the beacon. The cable will be laid just before high water and be landed on St. Leonards beach at high water. As the tide recedes a large gang of men will be required to trench the cable into the beach.

Where the cable passes over rocks at the Rangitoto end and the St. Leonards Road end a considerable amount of underwater work will be required to secure the cable with bags of concrete.

Northern Leading Beacon to Bean Rock

(1) Repair substructure and decking of beacon as required.

(2) Make and install battery house shown on Drawing No. E.517/2 and 3.

(3) Make provision for entry of cable at Bean Rock.

8 This cable will be laid from the Leading Beacon to Bean Rock.

Southern Leading Beacon to St. Heliers

(1) Make and install battery house shown on Drawing No. E.517/2 and 3.

(2) Alter light stand as shown on Drawing No. EL/C155

This cable will be laid from the Leading Beacon to St. Heliers Beach. The Construction Engineer will excavate the trench for the cable and provide shore instructions required on the St. Heliers Bay end of the cable.

Mr. Hutchinson will be looking after this project and will supply further information as required.

CHIEF ENGINEER TO THE BOARD

Encl: 2 copies of Drg. Nos. E.886/1-5 and S.1253/1
1 copy of Drg. Nos. E.517/2 and 3 and EL/C155

PSH:HEB

Auckland Harbour Board

26798

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 4the December 1959

Subject RANGITOTO BEACON M/A

An inspection of the scour at the base of the beacon has revealed two places of deep undermining on the western side. Elsewhere the only visible effect of the scour is the undermining of the bagged surround leaving the base intact. Remedial measures should be taken as soon as possible in the form of -

(a) pack the deeply scoured holes in the base - approximately 2 cubic yards or 50 bags of concrete will be required.

(b) make good and replace the bag surround round the base - approximately 10 cubic yards of 250 bags of concrete will be required.

It is intended to lay the new cable to Rangitoto Beacon early in March so please arrange to carry out this work as soon as suitable tides make it possible.

Encl: 2 copies Drg. S.1343

TBMcG:HEB

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

26798

REMARKS: _____

Signature _____

E10

Date _____ 19

852/5

Auckland Harbour Board

26727

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 4th November 1959

Subject RANGITOTO BEACON

The cable to Rangitoto Beacon is free to work where it is connected by a M.S. clip to the base of the beacon.

Please arrange to secure the cable with bags of concrete to prevent wear.

PSH:HEB

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

26727

REMARKS: _____

Signature _____

E10 *Date* _____ 19

2nd March, 1959.

THE CHIEF ENGINEER THE HARBOURMASTER

MARKER BUOYS FOR TAKAPUNA BEACH

My estimate for the cost of one 3'0" diameter by 3'0" long marker buoy with 24'0" of ½" diameter chain and a 2'6" x 2'6" x 2' concrete anchor block is £70. 0. 0. This estimate is only for the fabrication of the components and allows nothing for laying the buoys.

CHIEF ENGINEER TO THE BOARD

3rd Feb 1959

7. CONTRACT 1634P - SUBMARINE CABLE.

Consideration was given to reports of the Chief Engineer and the General Manager submitting particulars of 11 quotations received for the supply of submarine cable. Of these however only two were acceptable as being in accordance with the specifications, both these quoting identical rates per 1,000 yards, but only one allowing for price variation.

Recommended -

That the tender of Allum Electrical Co. Ltd. for the supply of polythene insulated cable at the schedule rates quoted be accepted, in amount approximately £5,427.

... ...

operation this year, it is estimated that the requirements for the ensuing year will amount to £5,000.

Recommended -

That the amount of £5,000 be authorised to cover manila and sisal rope requirements for the ensuing twelve monthly period commencing 10th February 1959, orders to be placed to best advantage.

(Please turn over)

Report - Purchasing & Stores Committee. 3rd February, 1959.

8. QUOTATIONS - RANGE LIGHTS.

The Committee considered the reports of the Stores Officer and the General Manager advising that three quotations were received for the supply of two Range Lights complete with auxiliary lights and spare equipment for electrification of Southern and Northern leading channel beacons. The quotations were referred to the Electrical Engineer who considers that the best quotation is the alternative quotation of S. Gordon Anderson Ltd. for equipment which includes battery standby facilities.

Recommended -

That the alternative quotation of S. Gordon Anderson Ltd. for the sum of £887. 7. 3d. be accepted. The equipment to be subject to minor modifications to the requirements of the Engineer.

Auckland Harbour Board

25611

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 27th June 19 58

Subject RANGITOTO BEACON - TAKAPUNA SUB-STATION

Please construct new steel door complete with ventilation louvres as shown on drawing No.EL/B208.

Remove old door from substation, and install new door.

Encl: Drg. EL/B208

Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

25611

REMARKS: _____

Signature _____

E10

Date _____ 19

Auckland Harbour Board

MEMORANDUM

FROM The Electrical Engineer

To THE ENGINEER

25th June, 1958.

RANGITOTO BEACON - TAKAPUNA SUBSTATION

It has been noticed on recent inspections at the above location, that insufficient ventilation is being obtained in the substation. It is therefore recommended that louvres be fitted in the door to assist ventilation.

However, the existing steel door, installed in 1929, is rusty and requires overhauling and repainting, and it appears to be a more economical proposition to have a new door complete with louvres constructed in the workshop which could be fitted on site.

The existing door would have to be removed to the workshop for the fitting of louvres and the overhaul, necessitating the installation of a temporary door in the substation.

The cost of supplying and fitting a new steel door would be approximately £50. 0. 0d.

A drawing and draft Instruction to the Foreman of Works are enclosed.

OPF/AWJ

Electrical Engineer

802/1

Auckland Harbour Board

25375

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS *Date* 12th March 1958

Subject RANGITOTO BEACON

Code 353.039.40-49

Please carry out the following work at Rangitoto Beacon:-

1. Re-roof in copper as discussed.
2. Repair roof timber and sarking.
3. Renovate and paint existing steel frame tower.

AL:MEB

J. Burton for Chief *Engineer to the Board.*

(This Form to be filled up & returned to Engineer's Office immediately on completion of Work)

This work was completed on _____ *at a cost of:—*

Labour - - : :

Material - - : :

Total £ : :

25375

REMARKS: _____

Signature _____

E10

Date _____ 19

E

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
10 DEC 1957

9. ELECTRIFICATION OF LEADING BEACONS - RANGITOTO CHANNEL

Report of Chief Engineer dated 29th November, 1957 stating that at the request of the Harbourmaster the electrification of the channel leading beacons had been examined; that it was proposed to mount the inner beacon on the existing piles with supply cable from the shore at a suitable point, probably at Ladies Bay; that the outer beacon would be mounted on existing piles and supplied by cable laid from Bean Rock light and that the estimated cost of the electrification was £5,200. He stated further that if at a later date increased importance was attached to reliability, a cable could be laid between the inner and outer beacons to complete the ring main so that all three beacons (including Bean Rock light) could be kept going in the event of failure of any one cable, at an additional cost of £2,800. The Engineer recommended that the two beacons be electrified at an estimated cost of £5,200 and that the completion of the ring main be deferred in the meantime.
The General Manager on 29th November 1957 endorsed the recommendation and stated that provision had been made in the Programme of Works and Estimates in amount £2,500 which should suffice for works during the current year, the balance to be included in the 1958/59 programme.

Recommended:

That the reports be adopted.

It was agreed that the Chief Engineer and Harbourmaster report on the question of provision of radar reflectors on all channel Buoys and Beacons and give consideration to fog precautions in the Rangitoto Channel.

ADOPTED BY BOARD
17 DEC 1957

Electrical ~~Engineer~~ Engr.

Please now work up details + prepare specifications for cabling + equipment.

Report re radar reflectors + fog signals as called for.

J.T.

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
10 DEC 1957

10. SUPPLY TO RANGITOTO BEACON

Report of Chief Engineer dated 29th November 1957 stating that the present cable had been installed for about 27 years and had broken down twice during that period; that on three occasions during the 27 years short duration failure of the beacon had occured due to a fault in the beacon rotating motor; that in order to increase the reliability of the beacon and to reduce to a minimum the time necessary to restore the light in the event of a fault, consideration had been given to a number of proposals the most satisfactory of which was No. 5 as set out in his report, and recommended the installation of a new cable and standby light source at an estimated cost of £5,500, provision for which had been made in the 1957-58 Estimates and Programme.
The General Manager stated on 2nd December, 1957 that as the alternative proposals set out by the Engineer would not give the maximum reliability on the light, he considered the installation of a new cable was most desirable and endorsed the recommendation accordingly.

Recommended
That the Reports be adopted.

ADOPTED BY BOARD
17 DEC 1957

Electrical Engr.
Please prepare specifications for cable & equipment
J.

16/8

29th November, 1957.

The General Manager,
A.H.B.

SUPPLY TO RANGITOTO BEACON

EXISTING CABLE AND EQUIPMENT

The present cable has been installed for about 27 years, and has broken down twice during that period. In 1950-51, new shore ends were connected to replace ends in which the rubber had deteriorated. Early this year a further fault necessitated renewal of a length of about 200 ft. some 500 yards off shore at the St. Leonard's end. This fault was caused by chafing of the armour wires by rocks, with some assistance from corrosion, and finally the breaking of the conductors.

On three occasions during the 27 years, short duration failure of the beacon has occurred due to a fault in the beacon rotating motor, while on a few occasions, brief interruptions have occurred due to failure of the standby generating set to start during cuts in the electricity main supply.

INSPECTION OF CABLE

After the recent cable fault, the diver made inspections, of the beacon end of the cable, as far as the joint made in 1951, and the St. Leonard's end for a distance of about 600 yards from the shore. Attempts to inspect more of the cable have been so hampered by weather conditions that I now regard it as impractical to conduct a complete inspection by this method. The only method by which a complete inspection could be made is by under-running the cable, but I am reluctant to do this while the beacon depends on the cable, as if there is another place where the armouring is damaged, a fault might occur due to the tension of the cable.

PROPOSALS

In order to increase the reliability of the beacon and to reduce to a minimum the time necessary to restore the light in the event of a fault, consideration has been given to a number of proposals.

1. Provision of a permanent cable to the small island now used temporarily to house an emergency generating set with overhead wires to the beacon, together with a permanent structure to house the generating set. Access to this island is possible except in the worst weather conditions, but this solution does not solve the difficulty of dealing with a fault on equipment in the beacon itself when weather conditions prevent landing on the beacon, unless an auxiliary light is installed connected to the standby cable.

....

2. Provision of an automatic generating set in the beacon, arranged to start if shore supply fails. This is subject to the same difficulty as (1).

3. Either (1) or (2), together with the provision of a landing jetty at the beacon to facilitate landing in bad weather. This would meet the case, but would probably be very costly.

4. Provision on the beacon of a battery-operated standby light with automatic battery charging and a capacity for several nights' use, together with subsequent examination and renewal of doubtful sections of the cable.

This would not be satisfactory except in conjunction with (1) or (2), as it would not be practical to provide sufficient battery capacity to keep the standby light going during the period which might be necessary to locate and repair a major cable fault.

5. Provision of a new cable to the beacon, the existing one to be overhauled and retained as a standby, connected to a separate light source at the beacon. The standby cable and light would be arranged to come on automatically in the event of failure of the main light either through cable fault or breakdown of the main light on the beacon.

RECOMMENDATION

Of these proposals, the best are (3) and (5), and I consider (5) to be the most satisfactory. In view of the age of the existing cable, the provision of a new one is not unreasonable for an important light, even though the existing cable may be still in good condition for most of its length.

I therefore recommend the installation of a new cable and standby light source at an estimated cost of £5,500. 0. 0. provision for which has been made in in the 1957-58 Estimates and Programme.

J R Sutton

CHIEF ENGINEER TO THE BOARD

The Chairman,
Works & Traffic Committee,
AUCKLAND HARBOUR BOARD.

As the alternative proposals set out by the Engineer would not give the maximum reliability on this light, I consider that the installation of a new cable is most desirable, and endorse the recommendation accordingly.

A B Clark

2nd December 1957

GENERAL MANAGER

Auckland Harbour Board

MEMORANDUM

From The Electrical Engineer

24th October, 1957

To THE ENGINEER

ELECTRIFICATION OF LEADING BEACONS - RANGITOTO CHANNEL

At the request of the Harbourmaster, the electrification of the channel leading beacons has been examined. As a preliminary, the beacon recently installed at Manukau Heads was first used for a trial at the inner leading beacon. This trial proved the beacon to be satisfactory, except that a narrower angle lens would be preferred for the inner beacon.

Two schemes have been considered, firstly with the inner beacon located ashore, and secondly with it located on the existing piles. The outer beacon would be located on its present piles in either case. The first proposal is much cheaper and maintenance advantages are great, but I understand that the Harbourmaster prefers the second.

Height + distance apart not acceptable to Hbr. 28.11.57

Estimated costs are :-

INNER BEACON.

(A) Mounted ashore on a pole to be erected beside Cliff Road. City Council permission would be required. Cost - £600. 0. 0d.

(B) Mounted on existing piles, and a supply cable laid and brought ashore at Ladies Bay or other suitable point. City Council permission would again be required. If this alternative is approved, a detailed survey to establish the best position for the shore end would be desirable. Cost, based on shore end at Ladies Bay - £2,700. 0. 0d.

OUTER BEACON.

Mounted on existing piles and supplied by cable to be laid from Bean Rock. Cost - £2,500. 0. 0d. (If the inner beacon is mounted ashore, the outer beacon would have to bear the full cost of laying, and would cost £2,700. 0. 0d.)

COMPLETION OF RING MAIN.

If, later, increased importance is attached to reliability, a cable could be laid between the inner and outer beacons to complete the ring, so that all three beacons (including Bean Rock) could be kept going in the event of failure of any one cable. This would cost £2,800. 0. 0d.

SUMMARY.

This estimate allows for stand-by emergency batteries for the two leading beacons - but not for Bean Rock - light power too high.

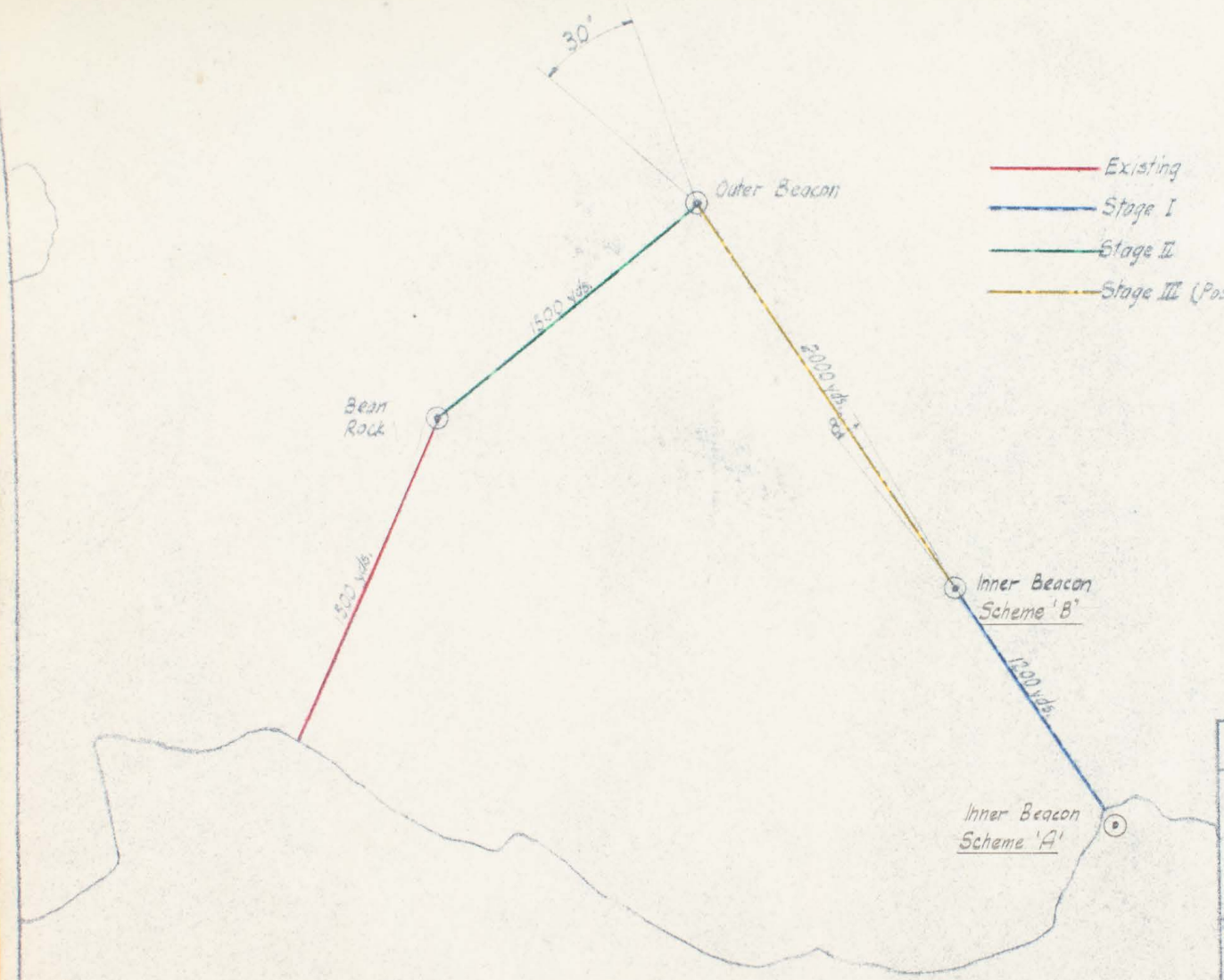
	(A) (Inner Beacon Ashore)	(B) (Inner Beacon on Piles)
Inner ...	£600. 0. 0d	£2,700. 0. 0d
Outer ...	£2,700. 0. 0d	£2,500. 0. 0d
Total ...	£3,300. 0. 0d	£5,200. 0. 0d
Later completion of Ring ...		£2,800. 0. 0d.

The schemes are shown on Drawing EL/S451 attached.

3249

RELA/AWJ

Electrical Engineer



AUCKLAND HARBOUR BOARD
ELECTRICAL DEPARTMENT

ELECTRIFICATION OF LEADING BEACONS

Drawn	W.F.	21-10-57
Approved		
Traced		

Scale: 3" = 1mi. (approx.)

EL/S 45

Auckland Harbour Board

MEMORANDUM 15th February, 1957

FROM THE HARBOURMASTER | **TO** THE CHIEF ENGINEER

NAVIGATIONAL LIGHTS - LEADING BEACON, RANGITOTO CHANNEL

On Tuesday evening, 12th February, with the Chief Electrical Engineer, I watched the test of the new navigational light for Manukau Heads.

This light was tested in the position of the South Leading beacon for the Rangitoto Channel, and proved to be very satisfactory.

It is essential that the power of the leading beacons be stepped up, because of the increase in the number of city lights in the background in this area.

In previous discussions with you the question of electrifying these lights has been spoken of and I would suggest that lights of the tested type would be suitable.

I would ask you to investigate the installation of this type of light in place of the gas lights that are in position at the present time.

W.G. Kelsey.
HARBOURMASTER

dr Auckm

Auckland Harbour Board.

30.11.55

Mr. Mahin

Please prepare a suitable scheme + estimate of item + cost

M.E.

ard

November 28th 1955

ngineer.

G1

CHANNEL.

lights and the
ring new lighting
ghts are difficult
bility. Would it be
hese lights or

W.G. Kelsey
rbourmaster.

Auckland Harbour Board

MEMORANDUM

November 28th 1955

FROM Harbourmaster

TO Engineer.

G1

FAIRWAY LEADING BEACONS - RANGITOTO CHANNEL.

With the increasing number of shore lights and the prospect of the waterfront road having new lighting in the near future, these beacon lights are difficult to pick up, especially in poor visibility. Would it be possible to increase the power of these lights or brighten them up by some means?

W.G. Kelsey

Harbourmaster.

Auckland Harbour Board

MEMORANDUM

From The Electrical Engineer

20th June, 1957.

To THE ENGINEER

The General Manager (Stencil)

SUPPLY TO RANGITOTO BEACON

EXISTING CABLE & EQUIPMENT.

The present cable has been installed for about 27 years, and has broken down twice during that period. In 1950-51, new shore ends were connected to replace ends in which the rubber had deteriorated. Early this year a further fault necessitated renewal of a length of about 200 ft. some 500 yards offshore at the St. Leonard's end. This fault was caused by chafing of the armour wires by rocks, with some assistance from corrosion, and finally the breaking of the conductors.

On three occasions during the 27 years, short duration failure of the beacon has occurred due to a fault in the beacon rotating motor, while on a few occasions, brief interruptions have occurred due to failure of the standby generating set to start during cuts in the electricity main supply.

INSPECTION OF CABLE.

After the recent cable fault, ~~inspections were made by the diver~~, the divers made inspections, of the beacon end of the cable, as far as the joint made in 1951, and the St. Leonard's end for a distance of about 600 yards from the shore. Attempts to inspect more of the cable have been so hampered by weather conditions that I now regard it as impractical to conduct a complete inspection by this method. The only method by which a complete inspection could be made is by under-running the cable, but I am reluctant to do this while the beacon depends on the cable, as if there is another place where the armouring is damaged, a fault might occur due to the tension of the cable.

PROPOSALS.

In order to increase the reliability of the beacon and to reduce to a minimum the time necessary to restore the light in the event of a fault, consideration has been given to a number of proposals.

1. Provision of a permanent cable to the small island now used temporarily to house an emergency generating set with overhead wires to the beacon, together with a permanent structure to house the generating set. Access to this island is possible except in the worst weather conditions, but this solution does not solve the difficulty of dealing with a fault on equipment in the beacon itself when weather conditions prevent landing on the beacon, unless an auxiliary light is installed connected to the standby cable.

2. Provision of an automatic generating set in the beacon, arranged to start if shore supply fails. This is subject to the same difficulty as (1).

3. Either (1) or (2), together with the provision of a landing jetty at the beacon to facilitate landing in bad weather. This would meet the case, but would probably be very costly.

4. Provision on the beacon of a battery-operated standby light with automatic battery charging and a capacity for several nights' use, together with subsequent examination and renewal of doubtful sections of the cable.

This would not be satisfactory except in conjunction with (1) or (2), as it would not be practical to provide sufficient battery capacity to keep the standby light going during the period which might be necessary to locate and repair a major cable fault.

20th June, 1957

5. Provision of a new cable to the beacon, the existing one to be overhauled and retained as a stand-by, connected to a separate light source at the beacon. The stand-by cable and light would be arranged to come on automatically in the event of failure of the main light either through cable fault or breakdown of the main light on the beacon.

RECOMMENDATION.

Of these proposals, the best are (3) and (5), and I consider (5) to be the most satisfactory. In view of the age of the existing cable, the provision of a new one is not unreasonable for an important light, even though the existing cable may be still in good condition for most of its length.

I therefore recommend the installation of a new cable and stand-by light source at an estimated cost of £5,500. 0. 0d.

RELA/AWJ

Electrical Engineer

Chief Engineer

EXTRACT FROM MINUTES
WORKS & TRAFFIC COMMITTEE
30 APR 1957

7. RANGITOTO BEACON:

Report of Chief Engineer to the Board, 18.4.57, stating that on the night of 19.3.57, Mt. Victoria Signal Station reported that the light was out; that inspection of the shore end of the cable that night failed to reveal a superficial fault; that on the morning of 20.3.57, tests carried out had revealed the cable to be open circuited on both cores, and a start had been made to run aerial cable from the beacon to a small island where an emergency set could be located; that the wiring was completed and the light was in operation again on the night of 21.3.57, having been out for two nights; that adverse weather conditions had delayed inspection of the faulty cable but with the assistance of the Post and Telegraph Department Cable Section, an inspection had been made of the shore and beacon ends of the cable, and the joints made after the 1950 breakdown appeared to be in good order; that on 27.3.57, both lamps of the beacon had burned out as a result of a fault in the emergency generating set, and again adverse weather made it impossible to land at the beacon to renew the lamps and on 29.3.57, the lamps were replaced and the beacon was back into service on the emergency generating set, the light having been out for two more nights; that on 2.4.57, the Waitemata Electric-power Board, using new testing equipment, assisted by locating a fault about 450 yards from the shore end; that a damaged portion of about 150 ft. length of cable had been cut out and a new length of cable obtained from Post and Telegraph Department had been spliced in; that on 9.4.57 the beacon was again in operation through the mended cable; that the insulation tests on the cable were still not entirely satisfactory; that when weather conditions allow it was proposed to examine a considerable length of the cable; that when the condition of the major portion of the cable was established it would be possible to make specific recommendations for possible improvement in the overall reliability of this light.

The General Manager submitted the report and stated that further investigations would be made as opportunity offered and a report would be submitted in due course on ways and means of improving the reliability of the light including emergency arrangements.

Recommended:

That the reports be received.

Electrical Engr.
Please follow this up.
J.T.

ADOPTED BY BOARD
7 MAY 1957

16/8. 18th April, 1957.

The General Manager,
AUCKLAND HARBOUR BOARD

RANGITOTO BEACON
(Preliminary Report)

On the night of 19.3.57 Mt. Victoria Signal Station reported that the light was out. Inspection of the shore end of the cable that night failed to reveal a superficial fault. On the morning of 20.3.57 tests carried out revealed the cable to be open circuited on both cores, and a start was made to run aerial cable from the beacon to a small island where an emergency set could be located. This wiring was completed and the light was in operation again on night of 21.3.57, having been out for two nights.

Adverse weather delayed inspection of the faulty cable. With the assistance of the Post and Telegraph Department Cable Section, an inspection was made of the shore and beacon ends of the cable, and the joints made after the 1950 breakdown appeared to be in good order.

On 27.3.57 both lamps of the beacon burned out as a result of a fault in the emergency generating set, and again adverse weather made it impossible to land at the beacon to renew the lamps. On 29.3.57 the lamps were replaced and the beacon was back into service on the emergency generating set, the light having been out for two more nights.

On 2.4.57 the Waitemata Electric Power Board, using new testing equipment, assisted by locating a fault about 450 yards from the shore end. A damaged portion of about 150 ft. length of cable was cut out and a new length of cable obtained from Post and Telegraph Department was spliced in. On 9.4.57 the beacon was again in operation through the mended cable. The insulation tests on the cable are still not entirely satisfactory. When weather conditions allow it is proposed to examine a considerable length of the cable. When the condition of the major portion of the cable is established it will be possible to make specific recommendations for possible improvement in the overall reliability of this light.

J K Sutton

CHIEF ENGINEER TO THE BOARD

The Chairman,
Works & Traffic Committee,
A.H.B.

Submitted. Further investigations will be made as opportunity offers and a report will be submitted in due course on ways and means of improving the reliability of this light including emergency arrangements.

26.4.57.

G. L. Clarke
GENERAL MANAGER.

Draft

Interim Report on The Ruapito to Beacon cable breakdown

The sequence of events was as follows:

19-3-57 Beacon reported out by HM Victoria signal Station.

20-3-57 After inspection of the shore end on the night of 19th. had failed to reveal a fault ~~on shore~~ tests, were carried on 20th. and the cable found to be open circuited on both cores.

A start was made to run an aerial cable from the beacon to a small island where an emergency generating set could be located.

21-3-57 The aerials were completed, and the generating set installed, the beacon being put into operation at 7.45 p.m. Throughout this period, work was hampered by adverse wind conditions which severely restricted access to the beacon.

With the assistance of the P.W.D. cable section, an inspection was made of the shore end of the cable and also the beacon end. Cable joints made after the breakdown in 1950 appeared to be in good order.

27-3-57 After weather conditions had hampered further investigation, both beacon lamps burned out as a result of high voltage apparently due to sticking of engine governor of the generating set. Bad weather made it impossible to land on the beacon.

29-3-57 Lamps were replaced and the beacon put back into service. Weather conditions made this operation difficult.

2-4-57 The Waitemata Electric Power Board, using new test equipment assisted by locating a fault about 450 yds from the shore end and the fault was subsequently found at approximately this point. About 150 ft. of cable was badly ~~of~~ worn, apparently

by rubbing on rocks and the armouring has extensively damaged. The cores had short circuited and burned through at one point.

3-4-57 Jointing in of a replacement length of cable was commenced, some cable having been procured from the P.O.T. Dept.

9-4-57 The cable was put into service after tests, which showed that the insulation was not as good as it should have been, but adequate for use.

I propose to carry out further investigation of the general condition of the cable before making specific recommendations.

Normal Engineer.

3.4 3.9 10 9 3 7.

Auckland Harbour Board No 20725

INSTRUCTIONS TO FOREMEN & INSPECTORS

ENGINEER'S OFFICE,

To THE FOREMAN OF WORKS. *Date* 8th May, 1953.

Subject RANGITOTO BEACON - TAKAPUNA SUBSTATION.

The existing 110 V. Kohler generating set is to be replaced with a 230 V., 2 K.W. water cooled Onan generating set.

Please discuss this with the Electrical Engineer and arrange to provide for it the same type of foundation as has been provided for more recent sets elsewhere on the North Shore.

The electrical equipment will be rewired and old switchboard replaced at the same time. Please carry out any necessary work incidental to this.

The 2 K.W. Kohler set ex Takapuna Substation is to be fitted with 9" dia. Vee pulley and retained as a standby for the launch "Waitemata".

Copy sent to Electrical Engineer and Mr. Pemberton for information.

H. L. Vickerman

Engineer to the Board.

Auckland Harbour Board
MEMORANDUM

FROM The Electrical Engineer

To THE ENGINEER

5th December, 1952

RANGITOTO BEACON - EMERGENCY GENERATING SET AT TAKAPUNA SUBSTATION

It is now necessary to rewire electrical equipment in Takapuna sub-station, and replace the old switchboard. I recommend that the opportunity be taken to replace the 110 volt Kohler generating set and 110 volt D.C. to 230 volt A.V. motor generator set with the 12½KW 230 volt water-cooled Onan generating set ex dredge "Hapai", after the set has been overhauled.

All emergency generating sets on the North Shore will thus become of the same modern type, and difficulties experienced from time to time with the old Kohler auto-start gear avoided.

G Proctor
Electrical Engineer

TGP/AWJ

Approved by NCL 20.2.53.
J.T.

Same type of plan as for more recent sets at Leith Shore.

20th. December, 1950.

The Regional Engineer,
Post & Telegraph Department,
C.P.O.,
AUCKLAND, C.1.

Dear Mr. Connan,

Thank you very much for the assistance your staff has given us in locating the fault in the cable to Rangitoto Beacon.

Their expert knowledge has been of great help.

With kind regards and Christmas Greetings,

Yours sincerely,

Auckland Harbour Board.

MEMORANDUM

FROM The Electrical Engineer

To THE ENGINEER

18th December, 19[illegible]

RANGITOTO BEACON - FAILURE OF SUBMARINE CABLE

I have to report that the submarine cable to Rangitoto Beacon failed on the night of 13th December. An emergency supply was provided to the Beacon on the night of 14th December and again on the 15th and 16th. The fault was located, temporarily by-passed, and the Beacon restored to normal supply yesterday, 17th December. The emergency generating set is being moved to a more secure position, and I propose to defer the permanent repair until early in February.

The Board is specially indebted to the Regional Engineer, Post & Telegraph Dept., for making available the services of Mr. L.H. Davison in locating the fault. Mr. Davison has been assisting and advising during the last four days, and I anticipate will again be available in February. As the services undertaken by him were in addition to his usual duties, I recommend that a suitable ex gratia payment be authorised to him.

fee £. 10/10/- approved. NKC.

TGP/AWJ

T.G. Poole.

Electrical Engineer

Auckland Harbour Board.

MEMORANDUM

FROM Electrician's Office
Auckland Harbour Board

To THE ENGINEER

22nd June 1944.

RANGITOTO BEACON LIGHT

SUB-STATION TAKAPUNA.

The heavy padlock on the sub-station door was found in a damaged condition this morning. The stand-by engine was covered with a sack which prevented the generating plant from operating. The cap of the fuel tank had been removed but no benzine had been taken. The glass of the black-out switch-box had been broken.

A new lock will be sent over. As the emergency black-out control is no longer required it will be removed. The police are being notified.

S. Samuels

CHIEF ELECTRICIAN.

AUCKLAND HARBOUR BOARD

No. 5544

Memorandum

From INSPECTOR AT Princes Wharf

To THE ENGINEER

31st October 1938

I beg to report that :— Engineers Plant Record

Rangitoto Beacon (Driving revolving mechanism)

Maker	British Thomson Houston Rugby
H.P.	1/4
R.P.M.	1425
Volts	220/230
Winding	Capacitor start

Note :— This motor replaces one 1/6 H.P. 200 Volt motor burnt out.

Noted in plant books. 7-11-38.

Signature S. Everard

Auckland Harbour Board

MEMORANDUM

FROM Electrician's Office

To THE ENGINEER

21st January 1938

RANGITOTO BEACON AND BEAN ROCK LIGHTHOUSE

SUBMARINE CABLES

RANGITOTO BEACON.

The annual insulation test of the sub-marine cable was made on 23rd December 1937. The tests included the aerial section from the terminal pole on the beach to the sub-station.

	1936	-	1937
Between	1.25 Megs		1 Meg
Phase to Earth	. 6 "		.5 "
Neutral to Earth	. 5 "		.55 "

The cable has now been in use seven (7) years.

BEAN ROCK LIGHTHOUSE.

On the same date tests were as follows:-

	1936	-	1937
Between	100 Megs		100 Megs
Phase to Earth	100 "		100 "
Neutral to Earth	15 "		.4 "

22.1.38

C. Emanuel

Chief Electrician.

Auckland Harbour Board.

MEMORANDUM

802/1

From Electricians Office

8th December 19 36

To THE ENGINEER

RANGITOTO BEACON AND BEAN ROCK

SUBMARINE CABLE. INSULATION TESTS.

The annual insulation test of the submarine cable to Rangitoto Beacon was made on 3rd December 1936. The same day tests were made of the Bean Rock cable.

The weather was fine with a light wind. At Rangitoto Beacon the short section of aerial line at the Takapuna end of the cable, was included in the test. This cable was laid on 17th November 1930.

	1935 Test	1936 Test
Between	2 Megs.	1.25 Megs
Phase to Earth	1.2 "	.6 "
Neutral to Earth	1.2 "	.5 "

The result of these tests vary considerably. I am, however, of the opinion that the variation is largely due to surface leakage.

Bean Rock cable was laid on 28th April 1936.

	1936 Test
Between	100 Megs
Phase to Earth	100 "
Neutral to Earth	15 "

C. Edwards

Chief Electrician.

AUCKLAND HARBOUR BOARD

No. 5467

Memorandum

From

INSPECTOR AT Chief Electrician

To

THE ENGINEER

10th May 1936

I beg to report that Rangitoto Beacon.

Self-starter battery.

The present accumulator has been in use 5½ years. It is evident that it should be replaced. Boosting charges are now becoming necessary every fortnight, a sure sign that the plates are done.

Signature S. Edwards

Auckland Harbour Board.

MEMORANDUM

From Electrician's Office

6th December 1935

To THE ENGINEER

RANGITOTO BEACON.

The annual insulation tests of the sub-marine cable between Takapuna and the Beacon were made this morning.

Bright sunny day, light N.E. breeze. No rain having fallen for several days.

The cable was laid five years ago on 17th November 1930.

Previous tests have included the aerial section of line from the sub-station to the pole on the beach. Having been laid for five years it was advisable to examine the joints etc on the pole, where the sub-marine cable is jointed on to the aerial lines.

The opportunity of testing the sub-marine cable, apart from the aerial lines, was taken. We dis-connected the sub-marine cable from the aerial lines at the pole-top and made the following tests. Last year's test results are shown in brackets.

SUB-MARINE CABLE (ONLY)

Between	Test	3 megs.
Phase to earth	"	1.4 "
Neutral to earth	"	1.5 "

(Over)

Auckland Harbour Board.

MEMORANDUM

From Electrician's Office

6th December 1935

To THE ENGINEER

RANGITOTO BEACON (Continued)

SUB-MARINE CABLE, TOGETHER WITH AERIAL SECTION.

Between	Test	2 mega	(5•5)
Phase to earth	"	1•2 "	(2•5)
Neutral to earth	"	1•2 "	(1•7)

The tide was just high enough to prevent me from making an examination of the cable where it leaves the water.

S. Edmonds

Chief Electrician.

AUCKLAND HARBOUR BOARD

No. 5449

Memorandum

From INSPECTOR AT Electrician

To THE ENGINEER

27- Nov. 1934.

I beg to report that Rangitoto Beacon.
Insulation test sub-marine cable.

	1933	1934.	
Between Phase to Earth.	15.	5·5	megs
	9.	2·5	"
Neut. to Earth.	4.	1·70.	"

S. Edwards.

Signature

AUCKLAND HARBOUR BOARD

No. 5429

Memorandum

From 802 / INSPECTOR AT Electrician.

To THE ENGINEER A. H. B.

5th Aug. 1934

I beg to report that Rangitoto Beacon.

Yesterday we removed the diffuser from the bottom lantern.

Both lamps now give a shorter light period but the actual flash is brighter.

S. Edwards.

Signature

AUCKLAND HARBOUR BOARD

No. 5405

Memorandum

From 802/1 INSPECTOR AT Electrician

Dec. 6th 1933

To THE ENGINEER

I beg to report that Rangitoto Beacon.

Tests of submarine cable. The annual test was made on 17th nov. I give the figures for 3 years.

	Between test.	Phase to E.	next to E.
18-11-31	2·5 megs	3 megs.	1·25 megs.
15-11-32	14. "	9 "	7 "
14-11-33.	15 "	9 "	4 - "

Signature S. Edwards

AUCKLAND HARBOUR BOARD

No. 5362

Memorandum

From 802 INSPECTOR AT Electrician

To THE ENGINEER

Dec. 13th 1932

I beg to report that Rangitoto Beacon was reported out at 8.10 pm on Dec. 11th /32. The main switch on the W. G. T. Bds supply was left open (by an oversight on part of E. Wilson) on Dec. 8th /32. The aux. lighting plant ran the light for three nights. This plant failed to start up on Dec. 11th due to the fuel supply running out. The light was again in use at 8.45 pm.

Signature L. Eavarell

AUCKLAND HARBOUR BOARD

Memorandum

No. 5360

From 803 INSPECTOR AT Electrician

To THE ENGINEER

Nov. 28th 1932

I beg to report that Rangitoto Beacon.

Insulation tests of the sub-marine cable were made on nov. 15th /32.

Readings

	1932	1931
Between	14 megs	2·5 megs
Phase wire	9 "	3 "
neutral "	7 "	1·25 "

Signature L. Samuels.

10th. October, 32

The Superintendent.

RANGITOTO BEACON CONTROL STATION - ST. LEONARD'S ROAD, TAKAPUNA.

The area in the vicinity of the control station is overgrown with gorse and long grass which is likely to become a menace from fire during the hot summer months.

Some time ago I notified the Town Clerk who stated that he would call upon the adjacent property owner to clear the road, but although this was some months ago nothing has been done.

Will you please write to the Council calling their attention to the danger so as to have this removed.

Dr Edwards states 13.3.33 that this has been cleared.

ENGINEER TO THE BOARD.

802/1

RANGITOTO BEACON.

CHARGES FOR ELECTRICITY.

- Converted to Electricity - December, 1930. -

As from 1st. July 1932, Current supplied by Waitemata Power Board at 15/- per ampere of Maximum Demand per quarter plus 2½d per unit less 20% Discount.

DETAIL:

Supply is 230-Volts, 50 Cycles, A.C.
At Beacon, Voltage is reduced to 32-Volts.
2 - Lamps (only one in operation at a time-)
250-Watt, 32-Volt, Concentrated Filament.

Consumption from April 9/1935 to Aug 8th/1935 (= 121 days) Consumption was 854 units
= 7·05 units per day
= say 2,500 units per year

802

Rangitoto Beacon Light.

Candle Power of Revolving Elect. Light.

Projector Supplied ~~by~~ Pyle-National Type 1260 A.G.

Makers give the following figures for this projector with rectangular diffuser :—

Type 12·60 ~~A.G.~~ (see catalogue Fk. 15)
Lamp 300 watts
Vertical Divergence 11°
Horizontal Divergence 50°

‡ Average Intensity of illumination in foot candles :—

at 12½ ft	—	33 ft candles	on an area 2'×12'
at 25 ft	—	8·48 " "	" " 4'×24'
at 50 ft	—	2·12 " "	" " 8'×48'
at 100 ft	—	0·53 " "	" " 16'×96'
~~at 200 ft.~~			

So that Candle Power ~~and~~ with 300 watt lamp = 0·53×100×100
= 5,300 C.P.

Lamps used are 250 watt.
So Average Candle Power of beam = $5300 \times \frac{250}{300}$ = 4,420 C.P.

which is diminished by red glass to 40% of 4,420 = 1768 C.P.

Note In August 1934 the rectangular diffuser was removed which will give less horizontal divergence and therefore a greater average Candle Power of beams, but a flash of shorter duration

‡ Note :- This information taken from blue prints loaned by Laurence Hanson and returned to them.

Fremantle, 27/7.28

AUCKLAND HARBOUR BOARD

Memorandum

No 5327

From 802/1 INSPECTOR AT Electricians

To THE ENGINEER A. H. B.

Nov. 19th 1931

I beg to report that Rangitoto Beacon Cable.
Insulation tests. Cable laid one year.
Date 18th nov. 1931.

Between test. 3. megohms.
Phase wire to earth 3. "
neutral " " " 1·25 ".

Signature J. Edwards

802

EXTRACT FROM "DISTRIBUTION OF ELECTRICITY" OF APRIL.1931,

PAGE 631.

THE ELECTRIFICATION OF RANGITOTO BEACON.

(By Selwyn Edwards, A.M.N.Z., Soc.C.E., Chief Electrician,
Auckland Harbour Board, NEW ZEALAND.)

Rangitoto Beacon stands on the boundary line of the Port of Auckland and from its position vessels approaching the Port get their bearings for entering the main channel. It should be understood that the necessity for a first-class light in this position cannot be overlooked. The Beacon, a massive structure of concrete 70 feet high and 25 feet in diameter at the base, was erected in the year 1887. At that time the Beacon was intended for use in daylight only, its sides being painted in coloured sectors, and not until the year 1905 was a white-flashing gas-light erected on it.

In recent years there have been many complaints with regard to the difficulty of picking up the light, owing to the use of powerful flood-lights on the beaches of the mainland, increased power of street lights and flashing sky-signs, all of which form a background to the Beacon. Various improvements were tried out and the colour of the light was changed to red, but with no satisfactory result and after tests of demonstration lights the Harbour Board decided on the use of electricity as the illuminant.

Rangitoto is an uninhabited island. The Beacon is erected on a reef approximately half-a-mile off the shore and 4,000 yards from the nearest electricity supply on the mainland, which distance had to be covered by submarine cable, laid right across the main shipping channel.

For this unique installation, 4,000 yards of Henley twin 7/.064 in. rubber insulated, taped, braided, brass-taped, single-wire armoured, served and compounded submarine cable was used. It was manufactured and shipped in one length, the gross weight of the drum being over 15 tons and the diameter approximately 10 feet.

Every precaution was taken to ensure the safe laying of the cable, which at the Beacon end passes over rock formation for 60 feet, reaching a sandy bottom at a depth of 11 feet at low water. This section of the cable was passed through steel armoured hose and after laying was examined by a diver, any irregularities in the rock being filled with concrete in bags to ensure an even support for the cable.

At the shore end the cable passes over several reefs in a distance of 1,800 feet, reaching a sandy bottom at a depth of 25 feet low water. The diver examined the cable over this section and placed concrete bags where necessary.

For laying purposes the drum of cable was mounted on a flat-bottomed "scow", a suitable fairlead being placed at the stern. To control the speed of paying out, the discs of the drum were sheathed with 3/16" mild steel plate six in. wide. Manually controlled brakes were fitted to each disc of the drum and bearing on the steel plates.

Laying operations commenced at the Beacon end and the time taken from start to finish was 1 hour, 35 minutes. At the shore end, the beach was trenched down to low water mark, the cable terminating at a pole erected above high-water mark. Overhead lines run from the pole to a small substation approximately 175 feet from the beach.

The supply is 230 volts, 50 cycles A.C. This is impressed directly on the supply wires to the Beacon.

At the Beacon the voltage is reduced to 32 volts by means of an oil-immersed transformer, which was specially constructed and designed by Messrs. Metropolitan-Vickers Ltd., to operate in a damp situation, such as prevails inside the Beacon. Two flood-light projectors, 14 in. in diameter, are mounted on a vertical shaft, each equipped with a standard 250 watt. 32 volt concentrated filament lamp similar to those used for locomotive engine head-lights. This shaft terminates in a gear reduction box and is revolved at the rate of 5 R.P.M. by a 1/6 H.P. Metropolitan Vickers motor. Slip rings are mounted in a convenient position on the vertical shaft. Each lamp is wired on a separate circuit. The current to the top lamp passes through a thermal relay, which, when sufficiently heated, opens the circuit to the bottom lamp. Should the filament of the top lamp burn out, the thermal relay cools off - this action closes the circuit to the bottom lamp, which then lights up in place of the top lamp.

The current in the primary circuit of the transformer is 2.45 amperes and the voltage drop from the mainland to the Beacon is 14 volts. The A.C. supply on the mainland is from a hydro-electric station approximately 100 miles from the city and it was recognised that to guard against possible interruption a standby generating plant was necessary. For this purpose, a "Kohler" 2kW petrol-electric set was supplied by Messrs. Turnbull & Jones Ltd. of Auckland and erected in the substation on the mainland. "Kohler" petrol-electric sets are entirely automatic, the action of switching on a light starts up the engine. By the use of a potential coil and contactors the "Kohler" plant and the town supply are interconnected; failure of the town supply starts up the engine and the generator takes over the load. When the town supply is restored the "Kohler" plant automatically shuts down. Both supplies are controlled by a time switch.

The complete installation was arranged by the Harbour Board Engineer's Staff and the work of erection was carried out by the engineering employees of the Board.

902/1

26th. September 31.

The Purchasing Officer.

CONTRACT NO. 902.

As soon as the guarantee period of twelve months from the date of delivery has expired, the retention money may be paid.

ENGINEER TO THE BOARD.

Retention £114.8.0

Contract No. 902

Submarine Cable

Lumbull & Jones.

Oct. 1930

802/1

6th. May, 31.

The Purchasing Officer.

CONTRACT NO. 911.

ELECTRIC LIGHTING SET - FOR RANGITOTO BEACON.

The above Contract has been completed to my satisfaction and all outstanding monies may be paid.

ENGINEER TO THE BOARD.

802/1

16th. December 30.

The Harbourmaster.

RANGITOTO BEACON.

As a safeguard against interruption due to lamp failure, two projectors are installed in the revolving mechanism at the Beacon.

When first the current is switched on both lamps light up and continue burning about three-quarters of a minute by which time a thermo cut-out operates and cuts out lower light. If anything goes wrong with the upper light the lower lamp will cut in again in about three or four minutes.

Under ordinary circumstances the upper light should always be the one which is burning. Should the lower lamp only be burning it will indicate that the upper lamp is burnt out and wants replacing.

Will you please instruct the signalman at Mt. Victoria to observe each evening before going off duty which lamp is burning and notify me whenever the lower lamp is at work and I will arrange for the upper lamp to be replaced.

ENGINEER TO THE BOARD.

803/1

1st. December, 30.

The Purchasing Officer.

CONTRACT NO.911.

The whole of the plant under this Contract has been delivered in good order except for separate exciter for motor generator, which is not required and for which a deduction of £5/-/- has been made.

Payment may therefore be made up to 75% of the Contract amount, less the above deduction.

ENGINEER TO THE BOARD.

902

24th. November 30.

The Purchasing Officer.

CONTRACT NO.902.

The Cable supplied by Messrs. Turnbull & Jones Ltd, has been laid and tested.

The results are satisfactory, and a further 15% of the purchase money, making 90% to date, may now be paid. Deposit may also be refunded.

ENGINEER TO THE BOARD.

803/1

Submarine Cable from Takapuna to Rangitoto Beacon.

Calculated distance from peg at foot of St Leonards Rd. to centre of Rangitoto Beacon	11,502 feet.
Less ½ diam of beacon, plus ⅓ circum of beacon plus vertical height to door from base. = −13 +27 +30 = 44 ft	44 feet.
Plus from peg on beach to top of pole	24 feet
Plus amount of cable cut off ends	460 feet.
Total length of cable accounted for =	12,030 feet.

Length of cable ordered from makers = 12,000 feet.

802/1

Rangitoto Beacon Electrification.

Cable Laying

4000 yards cable coiled on drum mounted on scow Rambler.

17th November 1930

1/	Left Viaduct. Towed to Beacon by "Te Hauraki"	7.35 am
2/	Arrived Rangitoto "Te Awhina" and "Orere" arrived at beacon 9.15	9 "
3/	Tug Alongside "Te Awhina" on port side Te Hauraki on Starboard & "Orere" towing from bow.	9-35 "
4/	Commenced laying	9-40 "
5/	Under way	9-50 "
6/	Tug stopped at Takapuna	10-53 "
7	Cable actually on Beach	11-10 "
8/	" dragged up to Pole	11-15 "
9/	Surplus cable cut off and coiled on scow	11-25 "

H. 18/11/30

CONNECTING UP RANGITOTO BEACON WITH ELECTRICITY: CABLE-LAYING OPERATIONS IN THE CHANNEL YESTERDAY.

In order that electricity might replace acetylene gas in the working of Rangitoto Beacon, a cable to carry the electric current was yesterday laid from the beacon to the mainland. Top left: Engineers directing the work from a launch. Lower left: Bringing the cable ashore on Takapuna Beach. Right: Connecting up the cable with the beacon itself.

Rangitoto Beacon:
Conversion to Electric
Revolving Light took
place on 15th December 1930.

The electric cable from Takapuna Beach to the Rangitoto Beacon was laid across the channel in less than two hours yesterday. It is expected that the current will be switched on in about two weeks, as the fittings at the beacon will not be completed for some days. H. 18/11/30

802/1

EXTRACT FROM BOARD'S RESOLUTIONS OF TUESDAY 11TH. NOVEMBER 1930.

1. RANGITOTO BEACON LIGHT CONTROL STATION.

Letter from Town Clerk, Takapuna, 31.10.1930 re site for Rangitoto Beacon Light Control Station, stating that, as the proceedure necessary for the preparation of an Agreement was cumbersome, the Council had agreed to grant the Board permission to use the site at a peppercorn rental, subject to removal of the building on three months' notice.

That the letter be received and the arrangement proposed by the Takapuna Borough Council be accepted provisionally, but the Council be asked to approve of the lease being in accordance with their letter of 18th September last, if and when the Board obtains statutory powers to authorise the granting of such lease.

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

(PROPRIETORS: ASSOCIATED ELECTRICAL INDUSTRIES LIMITED)

REGISTERED OFFICE, LONDON.
WORKS, MANCHESTER AND SHEFFIELD.

PLEASE ADDRESS ALL COMMUNICATIONS TO THE COMPANY
WRITING SEPARATE LETTERS ON SEPARATE SUBJECTS.

TELEGRAMS & CABLEGRAMS
"METROVICK, WELLINGTON"

TELEPHONE 40-052.
G. P. O. BOX. 1546.

802/1

The Engineer,
The Auckland Harbour Board,
AUCKLAND.

Vickers House,
Woodward Street,
Wellington, N.Z.

6th November, 1930.

YOUR REFERENCE.

OUR REFERENCE L.O.410.

RANGITOTO BEACON - ORDER 7034.

Dear Sir,

We enclose herewith duplicate copies of our shipping specification showing details of a case to be delivered ex S.S. Tongariro.

We are, dear Sir,
Yours faithfully,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

ACCOUNTANT.

GYB:DN.
31405.

Form 1153D

Metropolitan-Vickers Electrical Export Co. Ltd.,

Trafford Park, Manchester, England.

(MK). MARKS.

M. V.

410.
A.H.B.
B.36098.

E. Co.

AUCKLAND.

Customer M.V.E.CO.Ltd.Wellington.

Shipper c/o Vogt & Maguire Liverpool.

s.s."TONGARIRO" Gladstone Dock.

Dear Sirs. We advise the despatch of the undermentioned Goods consigned as above.

Per C.L.C. Carriage Paid.

ADVICE NOTE.

S.I. No. 74951.

EX. No. 64154.

Date 12.9.30.

G.O. 36098.

Your O/No. 1/7/30.

Box No.	WEIGHT Nett	WEIGHT Gross	Item No.	Qty.	CONTENTS	Works Information
					WELLINGTON OFFICE FOR THE AUCKLAND HARBOUR BOARD.	
Crate. 25860.	2.0.0.	2.3.7.				
	3/-x1/7x2/8.			2	1-KVA.Transformer complete in B.I. Sc.2.	
				4	H.T. Porcelains. Tank.	FR.711.
				4	L.T. -ditto-.	282792.
				2	Oil Gauges.	
				2	Oil Valves.	
				4	Hanger Irons.	
					Ser. T.90743.4. Spec. 122970.	

ADDRESS ALL COMMUNICATIONS TO THE COMPANY
Box 306, C.P.O.
802
TELEPHONE NUMBERS:
42-810 THREE LINES
41-276 SERVICE STATION
HEAD OFFICE:
WELLINGTON

CABLE & TELEGRAPHIC ADDRESS
"TURJON," AUCKLAND

BRANCHES AT
HAMILTON
CHRISTCHURCH
DUNEDIN
WELLINGTON
LONDON

TURNBULL & JONES, LTD.

ELECTRICAL ENGINEERS & CONTRACTORS

23 & 25 WELLESLEY STREET EAST

AUCKLAND. 29th October, 1930.

REF.

YOURS	OURS
	BGS/153

The Engineer,
Auckland Harbour Board,
AUCKLAND.

Dear Sir,

Re MOTOR GENERATOR for RANGITOTO BEACON STANDBY PLANT.

We take pleasure in attaching hereto Blue Print giving principal dimensions of the 1.5 K.V.A. motor generator set we are supplying to you.

We have been advised that this machine will arrive within the next few days but so far we have not received the shipping documents.

We shall, however, advise you further as soon as we have definite information on this point.

Yours faithfully,
for TURNBULL & JONES LTD.

MANAGER.

LEE:Dict by
R. LINDBERG

COPY.

802/1

LETTER RECEIVED FROM: MESSRS. TURNBULL & JONES LTD.

AUCKLAND.

23rd October 1930.

The Secretary,
Auckland Harbour Board,
AUCKLAND.

Dear Sir,

SUBMARINE CABLE RANGITOTO BEACON.

We now have pleasure in attaching our Invoice covering the above, in accordance with our quotation and your acceptance, and trust you will find all in order.

We understand delivery has now beengiven of the cable and in accordance with tontract, we will be pleased to receive a cheque for 75%, of the value at your early convenience.

Yours faithfully,

for TURNBULL & JONES LTD.,
(Signed) B.Stephens,
MANAGER.

AUCKLAND HARBOUR BOARD

Memorandum

No. 5294

From 802 INSPECTOR AT Electrician

To THE ENGINEER A. H. B.

Dec 28 1930

I beg to report that Rangitoto Beacon. Electrification

Read from Turnbull & Jones. in good order.

4,000 yds sub-marine Cable.

Signature [signature]

AUCKLAND HARBOUR BOARD

Memorandum

No. 5293

From 802 INSPECTOR AT Electrician

To THE ENGINEER A. H. B.

Oct. 28th 1930.

I beg to report that Rangitoto Beacon. Electrification

Recd from Metrop.-Vickers in good order.

2 / 1/6 H.P. Sq.-fph motors.
2 - sets spare ball races.

Signature [signature]

802

From

AUCKLAND HARBOUR BOARD

Nº 5292

Memorandum

Oct. 23rd 1930.

INSPECTOR AT Electricians

To THE ENGINEER A-H-B

I beg to report that Rangitoto Beacon.

Recd from Lawrence & Hanson.
in good order

2 | Pyle-national Projectors
Nº 1260.

Lawrence

Signature

COPY. for Engineer

802

LETTER RECEIVED FROM: MESSRS. TURNBULL & JONES LTD.

AUCKLAND.

23rd October 1930.

The Secretary,
Auckland Harbour Board,
AUCKLAND.

Dear Sir,

SUBMARINE CABLE RANGITOTO BEACON.

We now have pleasure in attaching our invoice covering the above, in accordance with our quotation and your acceptance, and trust you will find all in order.

We understand delivery has now beengiven of the cable and in accordance with tontract, we will be pleased to receive a cheque for 75%, of the value at your early convenience.

Yours faithfully,

for TURNBULL & JONES LTD.,
(Signed) B.Stephens,
MANAGER.

Form 1153D

Metropolitan-Vickers Electrical Export Co. Ltd.,

Trafford Park, Manchester, England.

ADVICE NOTE.

(ICP) MARKS.

M. V.
410.
A.H.B.
B.36098.
E. CO.
AUCKLAND.

Customer M.V.E.Co.,Ltd., WELLINGTON.

Shipper Vogt & Maguire, Liverpool.

s.s. "MAHANA" Gladstone Dock, L'pool.

Dear Sirs. We advise the despatch of the undermentioned Goods consigned as above.

Per O.L.C. Carriage Paid.

S.I. No. 74543.

EX. No. 83845.

Date 29.8.30.

G.O. B.36098.

Your O/No. 410.

1.7.30

Box No.	WEIGHT Nett	WEIGHT Gross	Item No.	Qty.	CONTENTS	Works Information
					WELLINGTON OFFICE for AUCKLAND HARBOUR BOARD.	
23864.	0.3.0.	1.0.14. 2/0x1/4x1/4.		2	"2AU" Drip-proof B.B. Motors, Totally Enclosed 1/6-h.p. 200-volts.1-ph. 50-pers. 1440-r.p.m. Serials 1 and 2. Fitted with Conduit Boxes.	
				4	Spare Ball Bearings, for "2AU" Totally Enclosed B.B. Motor, 1/6-h.p. 1440-r.p.m.	SO.1. FR.411 280260. SO.3. FR.411 281350.

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

(PROPRIETORS: ASSOCIATED ELECTRICAL INDUSTRIES LIMITED)

REGISTERED OFFICE, LONDON.
WORKS, MANCHESTER AND SHEFFIELD.

PLEASE ADDRESS ALL COMMUNICATIONS TO THE COMPANY
WRITING SEPARATE LETTERS ON SEPARATE SUBJECTS.

TELEGRAMS & CABLEGRAMS
'METROVICK, WELLINGTON'

TELEPHONE 40-052.
G. P. O. BOX, 1546.

Vickers House,
Woodward Street,
Wellington, N.Z.

The Engineer,
Auckland Harbour Board,
AUCKLAND.

21st October, 1930.

YOUR REFERENCE.

OUR REFERENCE L.O.410.

ELECTRIFICATION OF RANGITOTO BEACON.

Dear Sir, ORDER 7034.

We attach hereto duplicate copies of our shipping specification showing details of a case to be delivered shortly ex S.S. Mahana.

We are, dear Sir,
Yours faithfully,

METROPOLITAN-VICKERS ELECTRICAL CO. LTD.

ACCOUNTANT.

GYB:DN.
31305.

Rec'd
No 5293
28-10-30

Mr Edwards.
Check & return
23.10.30

AUCKLAND HARBOUR BOARD

Memorandum

No. 5288

From 802 INSPECTOR AT Electrician

To THE ENGINEER A. H. B.

Oct 14 1930

I beg to report that Rangitoto N Beacon Electric Light.

Received from Turnbull & Jones one "Kosmos" lighting set. In good order

Edwards

Signature

802
1

Messrs. Metropolitan-Vickers Electrical Co. Ltd.
31 Endean's Buildings,
Queen Street,
AUCKLAND.

21st. October 30.

RANGITOTO BEACON ELECTRIFICATION.

Dear Sirs;

I have to acknowledge yours of 13th inst. enclosing copies of D.771040 and C.601030.

I note that the apparatus is all on S.S. "Tongariro" which is due in Auckland about 4th November.

Yours truly,

ENGINEER TO THE BOARD.

METROPOLITAN-VICKERS ELECTRICAL CO. LTD..

(PROPRIETORS: ASSOCIATED ELECTRICAL INDUSTRIES LIMITED)

REGISTERED OFFICE, LONDON.
WORKS: TRAFFORD PARK, MANCHESTER AND SHEFFIELD.

802

AUCKLAND HARBOUR BOARD
SECRETARY'S OFFICE
RECD 14 OCT. 1930
ACKGD
ANSD

PLEASE ADDRESS ALL COMMUNICATIONS TO THE COMPANY
WRITING SEPARATE LETTERS ON SEPARATE SUBJECTS.

TELEGRAMS & CABLEGRAMS
'METROVICK, AUCKLAND'
TELEPHONE 46-675.
G.P.O. BOX 980.

Engr.

The Auckland Harbour Board,
Quay St.,
AUCKLAND.

31, Endeans Buildings,
Queen Street,
Auckland, N.Z.
13th October 1930.

YOUR REFERENCE.

OUR REFERENCE L.O.410.

Dear Sirs,

RANGITOTO BEACON ELECTRIFICATION
YOUR ORDER 7034 of 30/6/30 :

Enclosed herewith please find copies of the following drawings referring to the equipment on order for the above mentioned electrification. We understand that all of the apparatus is on the S.S. "Tongariro" now en route to New Zealand.

Sent Auckland Govt. 4 Cs.

D.771040 Diagram of connections for the 1 KVA transformer
C.601030 Outline of the 1 KVA transformers.

From the diagram of connections it will be noted that the Works have supplied additional tappings in such a manner that a great deal of variation in the lamp pressure will be available.

We are,
Yours faithfully,

METROPOLITAN VICKERS ELECTRICAL CO. LTD.

E. N. Dewsley.

FOR Manager in New Zealand.

A/4844-395.
ENT.GT.

8324/1

COPY.

LETTER RECEIVED FROM: MESSRS. TURNBULL & JONES LTD.

AUCKLAND.

8th October 1930.

Auckland Harbour Board,
Quay St.,
CITY.

Dear Sirs,

RE CABLE & STANDBY SET FOR RANGITOTO BEACON.

We have pleasure in advising that the Submarine Cable is in the "TAINUI" due on the 18th inst.

The Kohler Set has arrived in Auckland and we trust to be able to deliver it within the next few days.

Hoping that this information will be of interest to you.

Yours faithfully,
for TURNBULL & JONES LTD.

(Signed) G.Stephens,
Manager.

Just

802
1

COPY.

MARINE DEPARTMENT,
WELLINGTON,

1st. October, 1930.

The Superintendent & Secretary,
Auckland Harbour Board,
P.O. Box 1259,
AUCKLAND.

Dear Sir;

With reference to your letter of the 9th. July last, on the subject of Rangitoto Beacon Light, in which you state that you will advise me later of the date that the change in the light will take place, I shall be glad to know if you can give any indication when the cable will be laid.

Yours faithfully,

(Sgd.) G.C. Godfrey,
Secretary.

ENGINEER'S NOTE:-

Contract for supply of cable due for delivery 25th November 1930. All other work well in hand and if cable delivered up to time, light should be converted before end of year.

D.H.
2.10.1930.

Converted to Electric Light 15th Dec/1930

802

Messrs. Turnbull & Jones, Ltd,
Box 306, C.P.O.,
AUCKLAND.

22nd. August 30.

CONTRACT NO.911 - ELECTRIC LIGHTING SET.

Dear Sirs;

I have to acknowledge receipt of yours of 21st. inst. enclosing dimensioned leaflets of motor and generator for standby plant for Rangitoto Beacon.

Yours truly,

ENGINEER TO THE BOARD.

ADDRESS ALL COMMUNICATIONS TO THE COMPANY
Box 306, C.P.O.
TELEPHONE NUMBERS:
42-810 THREE LINES
41-276 SERVICE STATION
HEAD OFFICE:
WELLINGTON

CABLE & TELEGRAPHIC ADDRESS
"TURJON," AUCKLAND

BRANCHES AT
HAMILTON
CHRISTCHURCH
DUNEDIN
WELLINGTON
LONDON

TURNBULL & JONES, LTD.

ELECTRICAL ENGINEERS & CONTRACTORS

23 & 25 WELLESLEY STREET EAST

AUCKLAND, 21st August, 1930.

REF.

YOURS	OURS
	RL/153

The Chief Engineer,
Auckland Harbour Board,
Quay Street,
CITY.

Dear Sir,

Re STANDBY PLANT for RANGITOTO BEACON

With reference to the above Plant we have pleasure in sending you herewith, at Mr. Edwards' request, dimensioned leaflets of the motor and generator.

We feel sure that the dimensions given will be sufficient for your present purpose, viz. determining the size of building required for housing the Standby Plant.

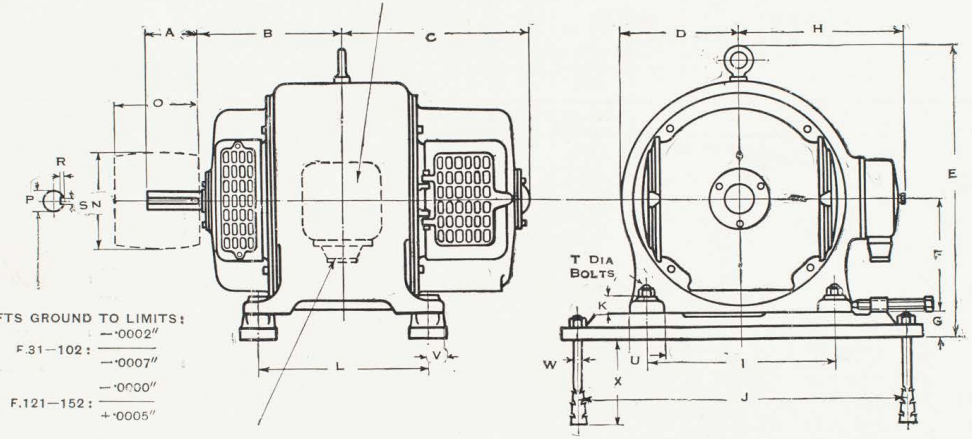
Yours faithfully,
for TURNBULL & JONES LTD.

MANAGER.

LEE:Dict by
R. LINDBERG

Class "F" Motors and Generators

TERMINAL BOX SUITABLE FOR EXTERNAL CONNECTIONS FROM TOP, BOTTOM, OR SIDE (ON F.31 AND F.32, FROM TOP OR BOTTOM ONLY)



SHAFTS GROUND TO LIMITS:

F.31—102: $\frac{-\cdot0002''}{-\cdot0007''}$

F.121—152: $\frac{-\cdot0000''}{+\cdot0005''}$

F.31—42: SCREWED GLAND FOR 1" CONDUIT
F.61—72: SCREWED GLAND FOR 1½" CONDUIT
F.81—152: BUSHED GLAND FOR 2" CONDUIT

DIMENSIONS IN INCHES

For Dimensions in Millimetres, see over.

Size	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	R	S	T	U	V	W	X
F31	2⅜	5⅞	8	5½	14	5½	1⅜	8⅜	8½	18½	1⅛	6½	4	3	1	⅛	⅜	½	2	1	⅝	6
F32	2⅜	6 1/16	8 1/16	5¾	14¼	5½	1⅜	8⅜	8½	18¼	1⅛	8	4	3	1	⅛	⅜	½	2	1	⅝	6
F41	2⅜	7¼	10 1/16	6¾	16 1/16	6½	1⅜	9 1/16	10½	20⅜	1¼	8	4	3	1	⅛	⅜	½	2¼	1¼	⅝	6
F42	2⅜	7¼	10 1/16	7	16 1/16	6½	1⅜	9 1/16	10½	20¾	1¼	9	4	3	1	⅛	⅜	½	2¼	1¼	⅝	6
F61	2½	8½	10½	7⅜	18 1/16	7¼	1½	10¼	12	23	1¼	9	5	3½	1½	⅛	⅜	½	2¼	1¼	⅝	6
F62	2½	8½	11¼	7⅜	18 1/16	7¼	1½	10¼	12	23	1¼	9¾	5	3½	1½	⅛	⅜	½	2¼	1¼	⅝	6
F71	3½	9 1/16	11 1/16	8⅜	20 1/16	8¼	1½	11½	14	29	1½	9½	7	6	1½	⅛	⅜	½	2½	1¼	⅝	6
F72	3½	10 1/16	13 1/16	8⅜	20 1/16	8¼	1½	11½	14	29	1½	12	7	6	1½	⅛	⅜	½	2½	1¼	⅝	6
F81	4½	8 1/16	12 1/16	9⅜	23 1/16	9¼	1½	13½	16½	29	1¼	9¾	7	6	1½	⅛	⅜	½	2½	1	⅝	6
F82	4½	9⅝	13⅝	9⅜	23 1/16	9¼	1½	13⅝	16½	29	1¼	11¼	7	6	1½	⅛	⅜	½	2½	1	⅝	6
F101	5½	10½	16⅛	10⅞	27¼	11	1½	15 1/16	19	32	1¼	11	12	7	2½	3/16	⅜	½	2¾	1	⅝	6
F102	5½	12½	17¾	11	27¼	11	1½	15⅝	19	32	1½	14¼	12	7	2½	3/16	⅜	½	2¾	1	⅝	6
F121	5½	12⅜	17⅞	12¾	31⅜	13	2½	17 7/16	20½	39½	2¼	13	15	8	2½	¼	⅜	½	4	1⅜	⅝	11
F122	5½	13 1/16	18 1/16	12 1/16	31 7/16	13	2½	17 7/16	20½	39½	2¼	16	15	8	2½	¼	⅜	½	4	1½	⅝	11
F151	6½	13	18 7/16	15 7/16	36½	15	2½	20 7/16	25	43½	2½	14¾	16	10	2½	¼	⅜	½	4	1½	⅝	11
F152	6½	14 7/16	10½	15 7/16	36½	15	2½	20 7/16	25	43¼	2½	17	16	10	2½	¼	⅜	½	4	1½	⅝	11

NOTE.—All Dimensions are subject to confirmation.

Certified Outline Drawing will be sent, on request, when Machine is ordered.

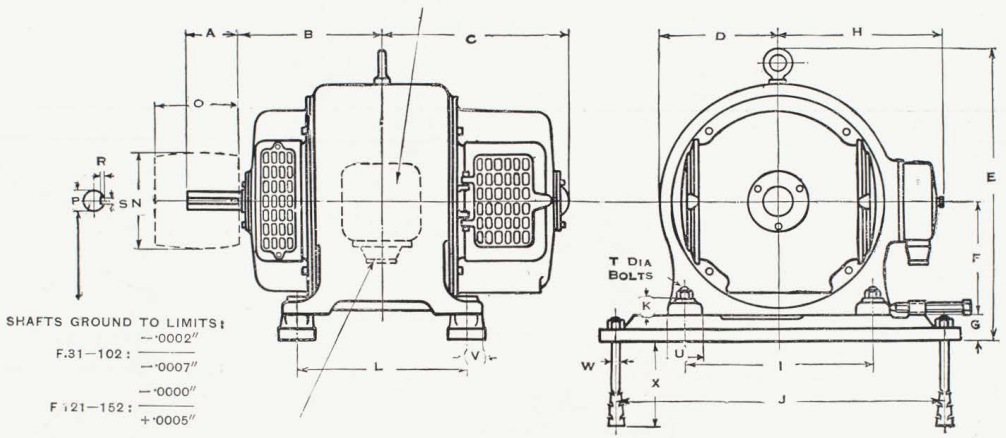
CROMPTON PARKINSON LTD., GUISELEY AND CHELMSFORD.

No. B 302.

M.P. 5,000-5-29

Class "F" Motors and Generators

TERMINAL BOX SUITABLE FOR EXTERNAL CONNECTIONS FROM TOP, BOTTOM, OR SIDE (ON F.31 AND F.32, FROM TOP OR BOTTOM ONLY)



SHAFTS GROUND TO LIMITS:

F.31—102: $\frac{-\cdot0002''}{-\cdot0007''}$

F.121—152: $\frac{-\cdot0000''}{+\cdot0005''}$

F.31—42: SCREWED GLAND FOR 1" CONDUIT
F.61—72: SCREWED GLAND FOR 1½" CONDUIT
F.81—152: BUSHED GLAND FOR 2" CONDUIT

DIMENSIONS IN MILLIMETRES

For Dimensions in Inches, see over.

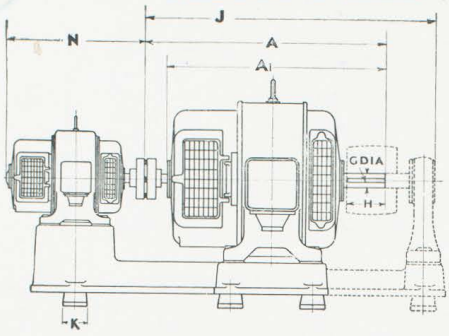
Size	A	B	C	D	E	F	G	H	I	J	K	L	N	O	P	R	S	T	U	V	W	X
F31	60.3	149.2	203	139.7	355.6	139.7	34.9	212.7	215.9	463.5	28.6	165	101.6	76	25.4	3.17	9.52	12.7	50.8	25.4	15.9	152.4
F32	60.3	169.8	224	146	362	139.7	34.9	219	215.9	463.5	28.5	203.2	101.6	76	25.4	3.17	9.52	12.7	50.8	25.4	15.9	152.4
F41	60.3	184.1	255.6	171.4	420.7	165	44.4	242.9	266.7	527	31.7	203.2	101.6	76	25.4	3.17	9.52	15.9	57	28.6	15.9	152.4
F42	60.3	196.8	268.3	177.8	427	165	44.4	249.2	266.7	527	31.7	228.6	101.6	76	25.4	3.17	9.52	15.9	57	28.6	15.9	152.4
F61	70	206.4	276	187.3	468.3	184	44.4	260.3	304.8	584.2	31.7	228.6	127	88.9	28.6	3.17	9.52	15.9	57	28.6	15.9	152.4
F62	70	215.9	285.7	187.3	468.3	184	44.4	260.3	304.8	584.2	31.7	247.6	127	88.9	28.6	3.17	9.52	15.9	57	28.6	15.9	152.4
F71	95.2	230.2	303	212.7	515.9	206.4	44.4	285.7	355.6	736.6	34.9	241.3	178	152.4	34.9	3.17	9.52	15.9	63.5	31.7	15.9	152.4
F72	95.2	261.9	335	219	522.3	206.4	44.4	292	355.6	736.6	34.9	304.8	178	152.4	34.9	3.17	9.52	15.9	63.5	31.7	15.9	152.4
F81	114.3	223.9	325.4	244.5	601.6	247.6	44.4	352.4	419	736.6	44.4	247.6	178	152.4	41.3	3.17	12.7	15.9	63.5	25.4	15.9	152.4
F82	114.3	250.8	352.4	244.5	601.6	247.6	44.4	352.4	419	736.6	44.4	298.4	178	152.4	41.3	3.17	12.7	15.9	63.5	25.4	15.9	152.4
F101	139.7	266.5	409.6	276.2	692	279.4	44.4	385.7	482.6	812.8	44.4	279.4	304.8	177.8	57	4.76	15.9	15.9	70	25.4	15.9	152.4
F102	139.7	308	450.8	279.4	692	279.4	44.4	390.5	482.6	812.8	44.4	362	304.8	177.8	57	4.76	15.9	15.9	70	25.4	15.9	152.4
F121	146	315	441	324	796	330	57	446	520.7	1003.3	57	330	381	203	60.3	4.76	19	19	101.6	38	19	279.4
F122	146	351	478	326	798	330	57	446	520.7	1003.3	57	406.4	381	203	60.3	4.76	19	19	101.6	38	19	279.4
F151	171.4	330	465	382	926	381	63.5	512	635	1105	57	374.6	406.4	254	70	4.76	19	19	101.6	38	19	279.4
F152	171.4	360	495	386	926	381	63.5	512	635	1105	57	431.8	406.4	254	70	4.76	19	19	101.6	38	19	279.4

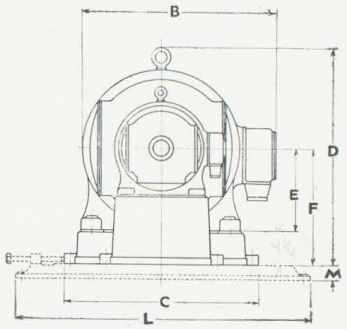
NOTE.—All Dimensions are subject to confirmation.

Certified Outline Drawing will be sent, on request, when Machine is ordered.

CROMPTON PARKINSON LTD., GUISELEY AND CHELMSFORD.

DIMENSIONS IN INCHES. *(For Millimetres see next page.)*

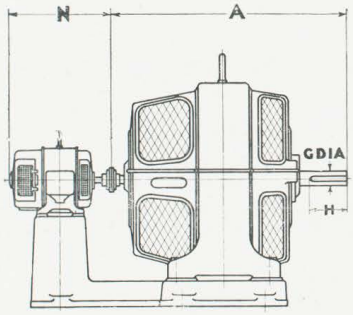


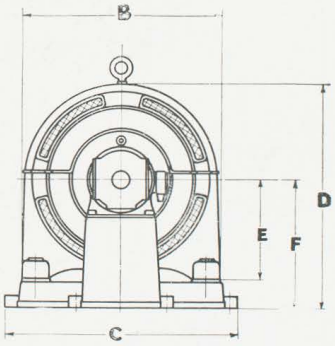


Class "A.F."

Frame Size	A	A1	B	C	D	E	F	G	H	J	K	L	M
AF. 31 ..		$16\frac{1}{4}$	$13\frac{7}{8}$			$5\frac{1}{2}$		1	$2\frac{3}{8}$	Separate Excitation			
AF. 32 ..		$17\frac{7}{8}$	$14\frac{3}{8}$			$5\frac{1}{2}$		1	$2\frac{3}{8}$				
AF. 41 ..		$19\frac{11}{16}$	$16\frac{5}{16}$			$6\frac{1}{2}$		1	$2\frac{3}{8}$				
AF. 42 ..		$20\frac{11}{16}$	$16\frac{13}{16}$			$6\frac{1}{2}$		1	$2\frac{3}{8}$				
AF. 61 ..	$24\frac{1}{8}$		$17\frac{9}{8}$	$19\frac{1}{2}$	$20\frac{15}{16}$	$7\frac{1}{4}$	$11\frac{1}{2}$	$1\frac{1}{8}$	$2\frac{3}{4}$	29	3	$34\frac{1}{2}$	$1\frac{3}{4}$
AF. 62 ..	$24\frac{7}{8}$		$17\frac{7}{8}$	$19\frac{1}{2}$	$20\frac{15}{16}$	$7\frac{1}{4}$	$11\frac{1}{2}$	$1\frac{1}{8}$	$2\frac{3}{4}$	$29\frac{3}{4}$	3	$34\frac{1}{2}$	$1\frac{3}{4}$
AF. 71 ..	$27\frac{1}{8}$		$19\frac{5}{8}$	$21\frac{1}{2}$	$22\frac{13}{16}$	$8\frac{1}{2}$	$12\frac{3}{8}$	$1\frac{3}{8}$	$3\frac{1}{4}$	$33\frac{1}{2}$	3	37	$1\frac{3}{4}$
AF. 72 ..	$29\frac{5}{8}$		$20\frac{1}{8}$	$21\frac{1}{2}$	$23\frac{1}{16}$	$8\frac{1}{2}$	$12\frac{3}{8}$	$1\frac{3}{8}$	$3\frac{1}{4}$	36	3	37	$1\frac{3}{4}$
AF. 81 ..	$28\frac{1}{2}$		$23\frac{1}{2}$	24	$26\frac{3}{16}$	$9\frac{3}{4}$	14	$1\frac{5}{8}$	$4\frac{1}{2}$	$34\frac{1}{8}$	$3\frac{1}{2}$	43	$2\frac{1}{4}$
AF. 82 ..	$30\frac{5}{8}$		$23\frac{1}{2}$	24	$26\frac{3}{16}$	$9\frac{3}{4}$	14	$1\frac{5}{8}$	$4\frac{1}{2}$	$36\frac{1}{4}$	$3\frac{1}{2}$	43	$2\frac{1}{4}$
AF. 101 ..	$34\frac{1}{2}$		$26\frac{1}{16}$	27	30	11	$15\frac{1}{2}$	$2\frac{1}{4}$	$5\frac{1}{2}$	42	$3\frac{1}{2}$	47	$2\frac{1}{4}$
AF. 102 ..	$37\frac{3}{4}$		$26\frac{3}{8}$	27	30	11	$15\frac{1}{2}$	$2\frac{1}{4}$	$5\frac{1}{2}$	$45\frac{1}{4}$	$3\frac{1}{2}$	47	$2\frac{1}{4}$
AF. 121 ..	$37\frac{7}{8}$		$30\frac{1}{16}$	31	$34\frac{1}{8}$	13	18	$2\frac{3}{8}$	$5\frac{3}{4}$	$46\frac{1}{2}$	$8\frac{1}{2}$	50	$3\frac{1}{4}$
AF. 122 ..	$40\frac{3}{4}$		$30\frac{3}{8}$	31	$34\frac{3}{16}$	13	18	$2\frac{3}{8}$	$5\frac{3}{4}$	$49\frac{1}{2}$	$8\frac{1}{2}$	50	$3\frac{1}{4}$
AF. 151 ..	40		$35\frac{1}{4}$	35	39	15	20	$2\frac{3}{4}$	$6\frac{3}{4}$	$50\frac{3}{4}$	$8\frac{1}{2}$	50	$3\frac{1}{4}$
AF. 152 ..	42		$35\frac{3}{8}$	35	39	15	20	$2\frac{3}{4}$	$6\frac{3}{4}$	$52\frac{3}{4}$	$8\frac{1}{2}$	50	$3\frac{1}{4}$

EXCITER Overall Dim'n.	
Frame size	N
F. 31	$16\frac{1}{4}$
F. 32	$17\frac{7}{8}$
F. 41	$19\frac{11}{16}$





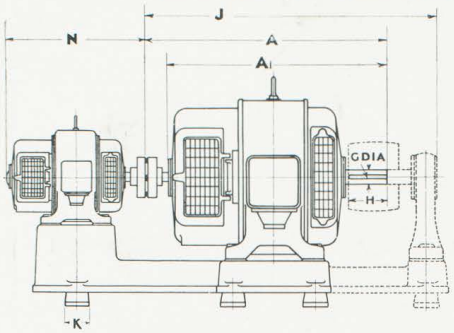
Class "A.B."

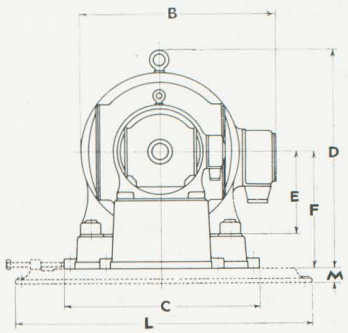
Frame size	A	B	C	D	E	F	G	H
AB. 153 ..	$45\frac{3}{4}$	$37\frac{1}{4}$	45	$42\frac{5}{8}$	$18\frac{3}{4}$	$24\frac{1}{4}$	$2\frac{7}{8}$	$7\frac{1}{2}$
AB. 161 ..	48	$39\frac{1}{8}$	47	$44\frac{9}{16}$	$19\frac{3}{4}$	$25\frac{1}{4}$	$3\frac{3}{8}$	$8\frac{3}{4}$
AB. 181 ..	55	45	53	$50\frac{1}{2}$	$22\frac{3}{4}$	$28\frac{1}{2}$	$3\frac{7}{8}$	10
AB. 201 ..	$59\frac{3}{4}$	$48\frac{1}{2}$	$56\frac{1}{2}$	54	$24\frac{1}{2}$	30	$3\frac{7}{8}$	10
AB. 211 ..	60	$50\frac{1}{4}$	$59\frac{1}{4}$	$56\frac{3}{8}$	$25\frac{1}{2}$	$31\frac{1}{2}$	$4\frac{3}{8}$	10

EXCITER Overall Dim'n.	
Frame size	N
F 41.	$19\frac{11}{16}$
F 42.	$20\frac{11}{16}$
F 61.	$21\frac{3}{4}$
F 62.	$22\frac{1}{2}$

NOTE :—All dimensions are subject to confirmation.

DIMENSIONS IN MILLIMETRES. *(For inches see previous page.)*

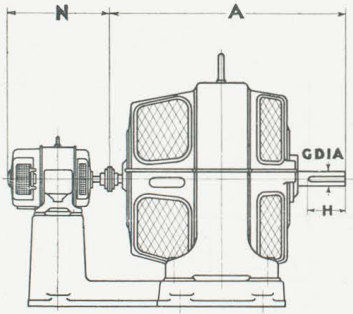


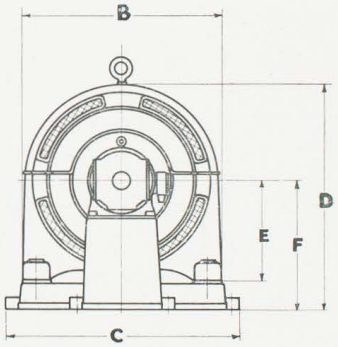


Class "A.F."

Frame Size	A	A1	B	C	D	E	F	G	H	J	K	L	M
AF. 31 ..		413	352			140		25·4	60·5	Separate Excitation			
AF. 32 ..		454	365			140		25·4	60·5				
AF. 41 ..		500	415			165		25·4	60·5				
AF. 42 ..		525	427			165		25·4	60·5				
AF. 61 ..	613		448	495	532	184	292	28·6	70	737	76·5	876	44·5
AF. 62 ..	632		448	495	532	184	292	28·6	70	756	76·5	876	44·5
AF. 71 ..	689		498	546	580	206	314	35	95·5	851	76·5	940	44·5
AF. 72 ..	752		511	546	586	206	314	35	95·5	915	76·5	940	44·5
AF. 81 ..	724		597	610	665	248	355	41·5	114·5	870	89	1092	57
AF. 82 ..	778		597	610	665	248	355	41·5	114·5	921	89	1092	57
AF. 101 ..	876		662	686	762	280	394	57	140	1067	89	1194	63·5
AF. 102 ..	959		670	686	762	280	394	57	140	1150	89	1194	63·5
AF. 121 ..	962		770	787	866	330	457	60·5	146·5	1175	216	1270	83
AF. 122 ..	1035		772	787	868	330	457	60·5	146·5	1248	216	1270	83
AF. 151 ..	1016		896	889	990	381	508	70	171·5	1289	216	1270	83
AF. 152 ..	1067		899	889	990	381	508	70	171·5	1340	216	1270	83

Exciter Overall Dim'n.	
Frame size	N
F. 31	413
F. 32	454
F. 41	500



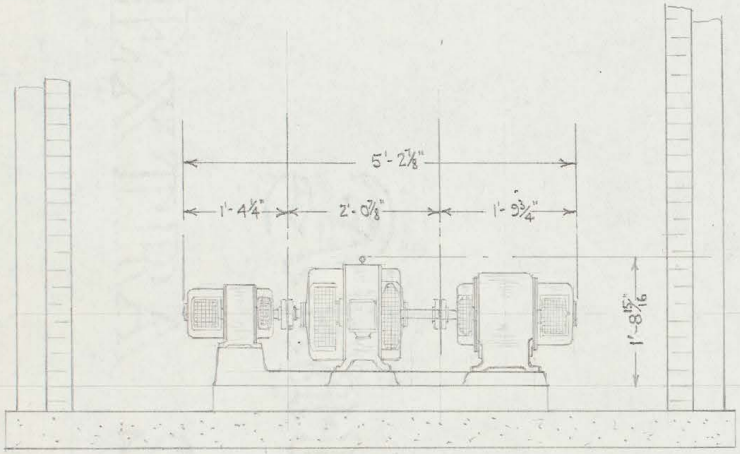


Class "A.B."

Frame size	A	B	C	D	E	F	G	H
AB. 153 ..	1162	946	1142	1083	476·2	616	73	190·5
AB. 161 ..	1219	994	1194	1132	501·6	642	85·7	222·3
AB. 181 ..	1398	1142	1346	1283	577·8	718	98·4	254
AB. 201 ..	1518	1231	1435	1372	622·5	762	98·4	254
AB. 211 ..	1524	1275	1505	1432	648	800	111	254

Exciter Overall Dim'n.	
Frame size	N
F. 41	500
F. 42	525
F. 61	552
F. 62	572

NOTE :—All dimensions are subject to confirmation.



SECTION through HOUSE shewing overall dimensions of MOTOR GENERATOR SET.

MOTOR -- Crompton-Parkinson type F 61
GENERATOR -- Crompton-Parkinson type AF 62

See Blue Print supplied 29/10/20 for exact dimensions

802/1

Messrs. Turnbull & Jones Ltd,
P.O. Box 306, C.P.O.,
AUCKLAND.

19th. August 30.

Dear Sirs;

As requested I return herewith Instruction Books for Kohler Electric Plant.

Yours truly,

ENGINEER TO THE BOARD.

802
1

Messrs. B. Johnson & Sons Ltd,
Parnell Rise,
Parnell,
AUCKLAND.

18th. August 30.

Dear Sirs;

I have to thank you for your quotation of 2nd August, for making worm and worm-wheel to particulars supplied.

I have been able to secure a standard gearing at a much lower price, which I have been able to work in, and will not require the gearing which you have offered.

Yours truly,

ENGINEER TO THE BOARD.

802
1

Messrs. The Gane Engineering Co., 18th. August 30.
"The Strand",
PARNELL.

Dear Sirs;

I have to thank you for your quotation of 29th July, for making worm and worm-wheel to particulars supplied.

I have been able to secure a standard gearing at a much lower price, which I have been able to work in, and will not require the gearing which you have offered.

Yours truly,

ENGINEER TO THE BOARD.

802/1

Messrs. Turnbull & Jones Ltd,
Box 306, C.P.O.
AUCKLAND.

16th. August 30.

CONTRACT NO. 911.

Dear Sirs;

I have received yours of 15th inst. detailing your negotiations in connection with the direct excitation of the motor generator, and note that Messrs. Crompton Parkinson Ltd. will give you the benefit of the omission of the separate exciter if it is possible to arrange this, and that you in that case will correspondingly reduce your Contract price to the Board.

This arrangement is entirely satisfactory and I shall await further information from you.

Yours truly,

ENGINEER TO THE BOARD.

ADDRESS ALL COMMUNICATIONS TO THE COMPANY
Box 306, C.P.O.

TELEPHONE NUMBERS:
42-810 THREE LINES
41-276 SERVICE STATION

CABLE & TELEGRAPHIC ADDRESS
"TURJON," AUCKLAND

HEAD OFFICE:
WELLINGTON

BRANCHES AT
HAMILTON
CHRISTCHURCH
DUNEDIN
WELLINGTON
LONDON

TURNBULL & JONES, LTD.

ELECTRICAL ENGINEERS & CONTRACTORS

23 & 25 WELLESLEY STREET EAST

AUCKLAND, 15th August, 1930.

REF.
YOURS | OURS
RL/153.

D. HOLDERNESS, Esq.,
Engineer,
Auckland Harbour Board,
QUAY STREET.

Dear Sir,

CONTRACT No.911 - ELECTRIC LIGHTING SET for RANGITOTO BEACON LIGHT

With further reference to your letter of the 7th inst. we confirm our telephonic advice of even date to the effect that:

1. The order for the petrol Set has been telegraphed to Messrs. Kohler, who have replied stating that they are shipping immediately.

2. The order for the motor generator set has been cabled to Messrs. Crompton Parkinson Ltd. instructing them to, if possible, omit the exciter and arrange for separate 110-volt excitation of the alternator. They have undertaken to have the Set delivered within 14 weeks and to give us the benefit of the omission of the exciter.

We do not yet know the amount of this reduction in price but shall be pleased to correspondingly reduce our contract price to you.

We thank you for your approval of the action we have taken and would state that we are today, in accordance with your advice, signing the Contract Documents without qualifications, the necessary adjustments to be made on delivery of the Plant.

Yours faithfully,
for TURNBULL & JONES LTD.

MANAGER.

LEE:Dict by
R. LINDBERG

ADDRESS ALL COMMUNICATIONS TO THE COMPANY
Box 306, C.P.O.

TELEPHONE NUMBERS:
42-810 THREE LINES
41-276 SERVICE STATION

CABLE & TELEGRAPHIC ADDRESS
"TURJON," AUCKLAND

ELECTRICAL T&J GOODS

ALL CONTRACTS SUBJECT TO STRIKES, ACCIDENTS, & CONTINGENCIES BEYOND OUR CONTROL

ALL QUOTATIONS SUBJECT TO GOODS BEING UNSOLD, MARKET FLUCTUATIONS, AND ALTERATIONS TO CUSTOMS TARIFF

HEAD OFFICE:
WELLINGTON

BRANCHES AT
HAMILTON
CHRISTCHURCH
DUNEDIN
WELLINGTON
LONDON

TURNBULL & JONES, LTD.

ELECTRICAL ENGINEERS & CONTRACTORS

23 & 25 WELLESLEY STREET EAST

AUCKLAND, 7th August, 1930.

REF.

YOURS	OURS
	RL/153

REPRESENTING:

WESTINGHOUSE
ELECTRICAL MACHINERY
ELECTRICAL APPLIANCES

HENLEY'S
WIRES & CABLES

MOFFATS
ELECTRIC RANGES

ROYAL
VACUUM CLEANERS

HOLOPHANE
SCIENTIFIC ILLUMINATION

PHILIPS
ELECTRIC LAMPS

REAVELLS
AIR COMPRESSORS

NATIONAL
DIESEL & GAS ENGINES

WAYGOOD-OTIS
ELEVATORS

NEWTON & WRIGHT
ELECTRO MEDICAL

VIGILANT
FIRE ALARMS

TUDORS
STORAGE BATTERIES

SIMMS
MAGNETOS

GILFILLAN
STARTING & IGNITION

RADIO
GILFILLAN
BREMER-TULLEY SETS
PHILIPS VALVES, SPEAKERS ETC.

FITTINGS
OUR SHOWROOM CONTAINS LATEST AND BEST

D. HOLDERNESS, Esq.,
Engineer,
Auckland Harbour Board,
Quay Street,
AUCKLAND.

Dear Sir,

Re Contract No.911 - Electric Lighting Set for Rangitoto Beacon Light.

We beg to acknowledge receipt of your letter of the 7th inst. and have to advise that in accordance with your instructions we are to-day telegraphing our Principals asking them whether they can arrange the excitation of the alternator for 110v.

We shall, as soon as we receive a reply to our telegram, again communicate with you on the subject.

Yours faithfully,
for TURNBULL & JONES LTD.

MANAGER.

LEE: Dict by
R. LINDBERG

802/1

7th. August 30.

Messrs. Turnbull & Jones Ltd,
P.O. Box 306,
AUCKLAND.

Dear Sirs;

CONTRACT NO.911.

ELECTRIC LIGHTING SET FOR RANGITOTO BEACON LIGHT.

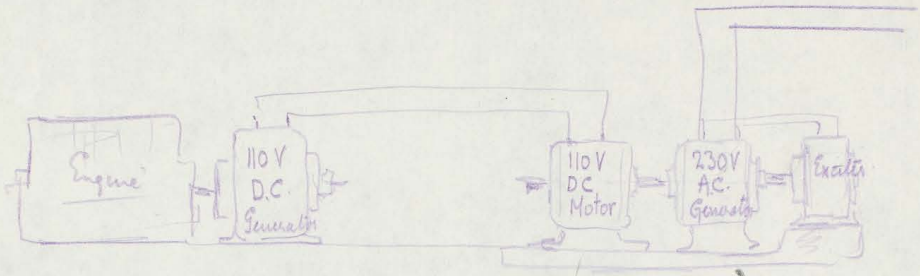
In connection with your tender for the above contract which has been accepted by the Board, it would be equally satisfactory if the 230-volt, Crompton Parkinson A.C. generator were excited direct from the 110-volt generator of the "Kohler" plant rather than by the separate exciter provided for this purpose.

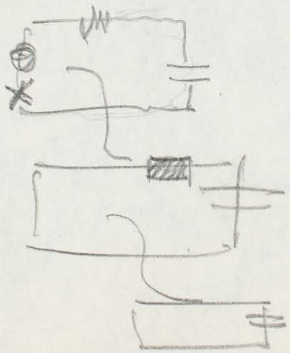
I do not know whether the winding is such as to enable this to be done, but it is desirable to reduce the number of revolving parts to a minimum, and if the exciter can be omitted this should be done.

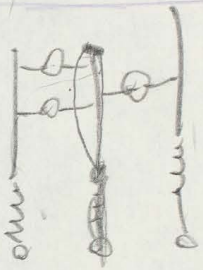
Please let me know what you are able to arrange in this respect.

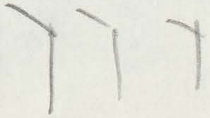
Yours truly,

ENGINEER TO THE BOARD.


Engine
110 V
D.C.
Generator
110 V
DC
Motor
230 V
AC.
Generator
Exciter







83-) 371 (4 8
340
310
20 2

ADDRESS ALL COMMUNICATIONS TO THE COMPANY
Box 306, C.P.O.

TELEPHONE NUMBERS:
42-810 THREE LINES
41-276 SERVICE STATION

HEAD OFFICE:
WELLINGTON

CABLE & TELEGRAPHIC ADDRESS
"TURJON," AUCKLAND

BRANCHES AT
HAMILTON
CHRISTCHURCH
DUNEDIN
WELLINGTON
LONDON

TURNBULL & JONES, LTD.

ELECTRICAL ENGINEERS & CONTRACTORS

23 & 25 WELLESLEY STREET EAST

AUCKLAND, 29th July 1930.

REF.

YOURS	OURS
	RL/133

REPRESENTING:

WESTINGHOUSE
ELECTRICAL MACHINERY
ELECTRICAL APPLIANCES

HENLEY'S
WIRES & CABLES

MOFFATS
ELECTRIC RANGES

ROYAL
VACUUM CLEANERS

HOLOPHANE
SCIENTIFIC ILLUMINATION

PHILIPS
ELECTRIC LAMPS

REAVELLS
AIR COMPRESSORS

NATIONAL
DIESEL & GAS ENGINES

WAYGOOD-OTIS
ELEVATORS

NEWTON & WRIGHT
ELECTRO MEDICAL

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FIRE ALARMS

TUDORS
STORAGE BATTERIES

SIMMS
MAGNETOS

GILFILLAN
STARTING & IGNITION

RADIO
GILFILLAN
BREMER-TULLEY SETS
PHILIPS VALVES, SPEAKERS
ETC.

FITTINGS
OUR SHOWROOM CONTAINS
LATEST AND BEST

Mr.D.Holderness,
Chief Engineer,
Auckland Harbour Board,
QUAY STREET.

Dear Sir,

re YOUR ORDER FOR SUBMARINE CABLE.

We confirm our telegraphic enquiry of even date as to the name and address of your Representative in London who will inspect the submarine cable on your behalf, and thank you for your advice that you do not intend to make any arrangements for such inspection.

Under these circumstances we are to-day replying to our Principals' telegraphic enquiry to the effect that inspection will not be necessary.

Yours faithfully,
for TURNBULL & JONES Ltd.,

MANAGER.

MGH:Dict by
R.Lindberg.

802/1

29th. July 30.

The Purchasing Officer.

CONTRACT NO.911.

TENDERS FOR ELECTRIC LIGHTING SET - RANGITOTO BEACON LIGHT.

Alternative tenders were received from two firms as under:-

Turnbull & Jones, Ltd.:-	2-K.W.	£235. 5. 0
	5-K.W.	£423.15. 0.
National Electrical & Eng. Co.:-	2-K.W.	£327. 7. 0
	5-K.W.	£590. 7. 0.

Turnbull & Jones Ltd. quote "Kohler" Automatic Generator set with Crompton Parkinson Ltd. motor generator.

National Electrical & Engineering Co. quote the same petrol generating set with British Thomson Houston motor generator.

Both tenders are subject to conditions regarding the rate of exchange.

I recommend the acceptance of Turnbull & Jones Ltd's tender for 2-K.W. set for £235/5/-.

Tenders herewith.

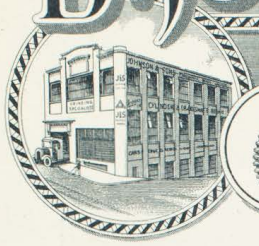
(Approved by Board on ~~29.7.30~~ 5.8.30.)

ENGINEER TO THE BOARD.

PHONES: WORKS MANAGER 43-566
OFFICE & PISTON RING DEPT. 45-574

CABLE & TELEGRAPHIC ADDRESS:
"CYLGRIND," AUCKLAND

B. Johnson & Sons Ltd.



MANUFACTURING MOTOR ENGINEERS
AND GRINDING SPECIALISTS ETC.

GEARS & ALL SPARE PARTS
FOR CAR OR TRUCK.

PARNELL RISE, Auckland, N.Z.

J. & S. HAMMERED PISTON RINGS
& SLOTTED OIL CONTROL RINGS
MADE FROM BRITISH
CENTRIFUGAL CASTINGS.
STOCKED IN ALL SIZES.

REMEMBER WE CAN
SUPPLY A PISTON RING
FOR EVERY ENGINE.

SPECIALISTS IN CYLINDER
AND
CRANKSHAFT GRINDING.

GEARS, AXLES AND ALL
SPARE PARTS FOR
CAR OR TRUCK
AT SHORTEST NOTICE.

BEARINGS REBABITED WITH
BEST WHITE METAL.

CAR AND TRUCK ENGINES
RECONDITIONED AND ASSEMBLED
READY TO PLACE BACK
IN CHASSIS.

BEST BRITISH MATERIAL
USED IN ALL OUR WORK.

August 2nd. 1930.

Engineer's Dept.
Auckland Harbour Bd.
AUCKLAND.

Dear Sirs,

We have pleasure in quoting you as under.

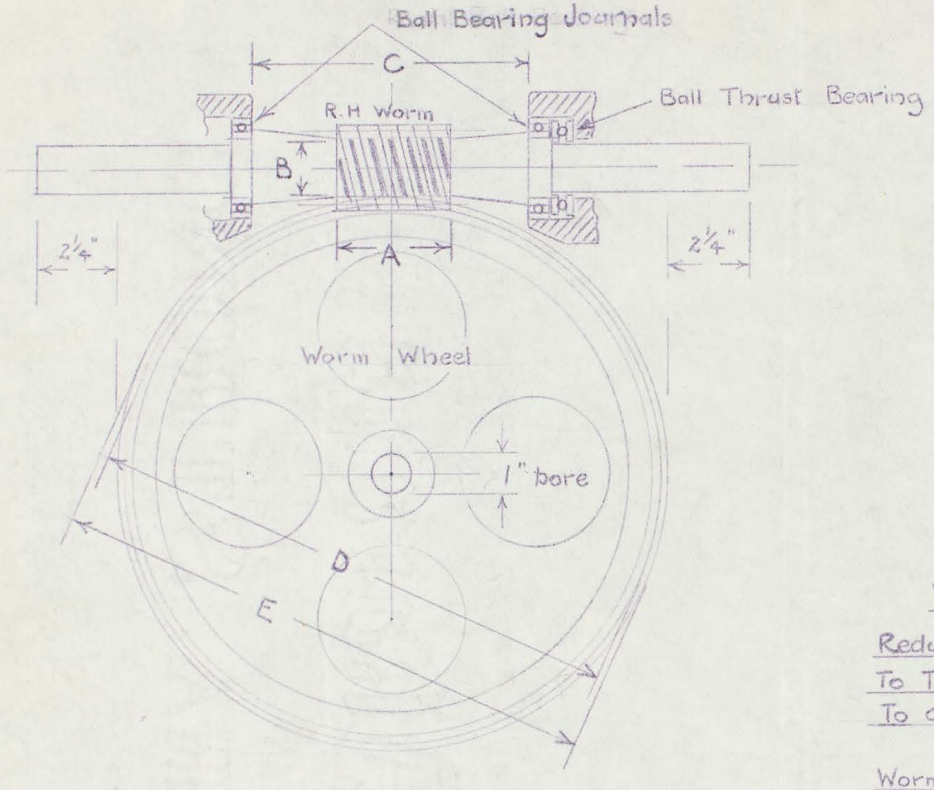
To making Worm and Wormwheel, and supplying Ball Races as per sketch, £12.10.0.

The Diamter of the Worm is optional and can be altered to suit.

Yours faithfully,
B. JOHNSON & SONS LTD.

PER. L. Freeman

(Sent Reply 18-8-30)



Not to Scale

Auckland Harbour Board
Engineer's Dept.

DETAILS TO BE GIVEN

WORM

Pitch Diam. 1·3
Lead ·308
Nº of Threads 1
Length of Worm "A" 2 ¼
Diam. of Shaft at bottom of Thread "B" 1·068
Unsupported length of worm shaft between faces of ball journals "C" 4"

WORM WHEEL

Pitch diam. "D" 6 ⅜
Overall diam. "E" 6 ¾
Width over Face 1
Width over Boss 1 ¼

WORM GEAR

Reduction 63 to 1
To Transmit 1/6 H.P. @ 1440 R.P.M.
To operate continuously under full Load

Worm to be Case Hardened Nickel Steel
Worm Shaft finished machined all over and fitted with Suitable ball journals and ball thrust, all supplied by Contractor

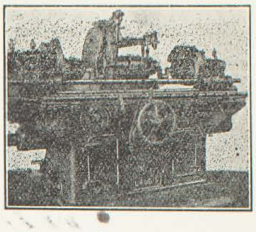
Worm Wheel — Phosphor Bronze
Bored 1" diam.

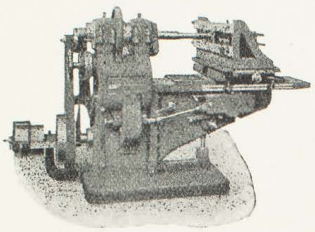
'PHONE 41-558

The Gane Engineering Company

GENERAL ENGINEERS

GEAR SPECIALISTS, CYLINDER AND CRANKSHAFT GRINDERS
MAKERS OF SPARE PARTS FOR ANY MAKE OF MACHINE





"THE STRAND," PARNELL,

AUCKLAND, 29th July, 1930.

The Auckland Harbour Board,
Engineer's Department,
Quay Street,
AUCKLAND.

Dear Sir,

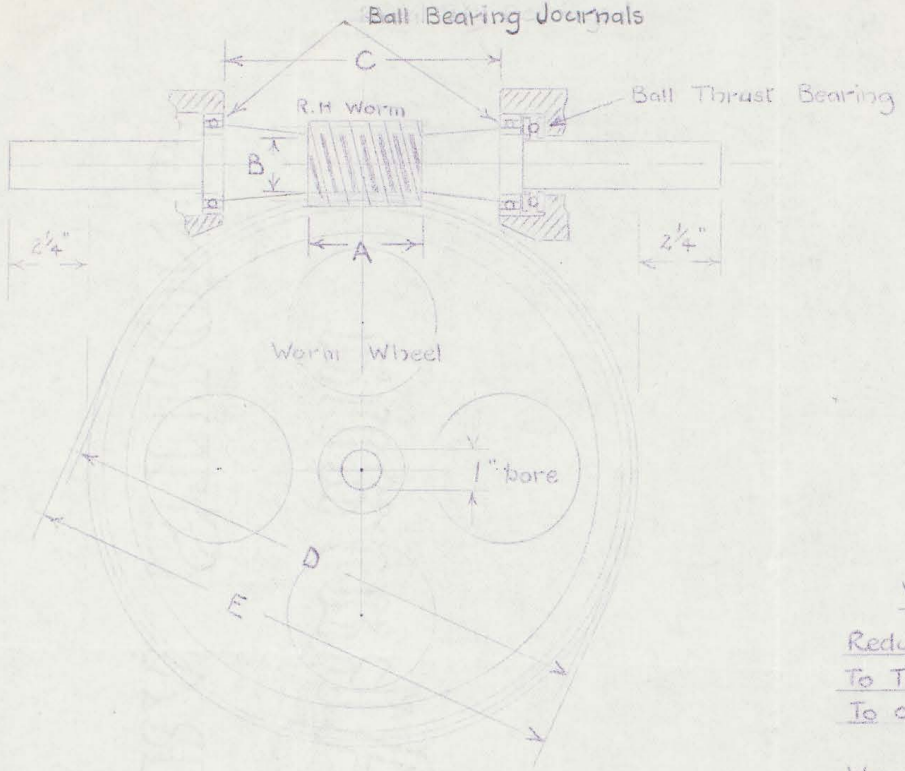
We herewith return your sketch of worm and wheel with the most essential dimensions added.

We shall be pleased to supply phosphor bronze wheel with generated teeth, worm of case-hardened heat-treated nickel steel with profile of threads ground and lapped after hardening for the sum of £19 Nett.

We would recommend the dimensions specified for continuous running in an oil bath, and think it would be advisable to ensure free circulation of air round the case to prevent overheating in the summer. The case will also need an air vent to prevent the alternating temperatures from gradually expelling the lubricant through the bearings.-

Yours faithfully,
p.p. GANE ENGINEERING CO.

Manager.



Not to Scale

Auckland Harbour Board
Engineer's Dept.

DETAILS TO BE GIVEN

WORM

Pitch Diam.	·875"
Lead	·750"
Nº of Threads	2
Length of Worm "A"	2½"
Diam. of Shaft at bottom of Thread "B"	·599"
Unsupported length of worm shaft between faces of ball journals "C"	4"

WORM WHEEL

Pitch diam. "D"	14·92"
Overall diam. "E"	15·158
Width over Face	7/16"
Width over Boss	½"

WORM GEAR

Reduction 62½ to 1
To Transmit 1/6 H.P. @ 1440 R.P.M.
To operate continuously under full Load

Worm to be Case Hardened Nickel Steel
Worm Shaft finished machined all over and fitted with Suitable ball journals and ball thrust, all supplied by Contractor

Worm Wheel – Phosphor Bronze
Bored 1" diam.

lead angle = tan⁻¹ 0·25 / 3·14×0·875 = tan⁻¹ ·2723 = 15°-16'

802/1

Auckland Harbour Board

PURCHASING DEPARTMENT, QUAY STREET,

AUCKLAND, 24th July *,19* 30

QUOTATION SHEET.

To MESSRS. N.J.NIVEN & CO.LTD.,

CUSTOMS ST., CITY.

Please fill in on this sheet prices and terms for the following articles, delivered to

A.H.B. Store, Hobson Street, City.

4287

ARTICLES	NETT	DISCOUNT
RANGITOTO BEACON - ELECTRIFICATION.		
One only - Ransome & Marles Extra Light ball journal. type & code No. X.L.J 6.	4 8	
Delivery - 8 weeks from receipt of order.		

O/N 7487

I/We hereby agree to supply the items quoted for at the prices stated and deliver in accordance with the conditions hereon.

Signature .....

Date .....

902

Auckland Harbour Board

PURCHASING DEPARTMENT, QUAY STREET,

AUCKLAND, 17th. July, 19 30

QUOTATION SHEET.

To MESSRS. TURNBULL & JONES LTD.

WELLESLEY ST.CITY.

Please fill in on this sheet prices and terms for the following articles, delivered to

A.H.B. Store, Hobson Street, Auckland.

4287

ARTICLES	NETT	DISCOUNT
RANGITOTO BEACON - ELECTRIFICATION.	Desmond Box (Catalogue in " file)	
Henley's Terminal Boxes - Inverted outdoor type with patent armour grip - suitable for 7/.064 twin p.v.i.r. brass-taped and armoured submarine cable being supplied by you under contract No.902. Each box to be complete with all necessary jointing material, cable shoes etc., and a sufficient quantity of suitable insulating compound. Two only thus:-		
Delivery - 14 weeks from receipt of order.		
Please quote promptly.		
Price for 2 -	2 5 0	

(Ordered 21/7/30 Requisition No. 322A.)

I/We hereby agree to supply the items quoted for at the prices stated and deliver in accordance with the conditions hereon.

Signature .....

Date .....

802

16th. July 30

The Purchasing Officer.

ELECTRIFICATION OF RANGITOTO BEACON.

Please obtain quotation from Turnbull & Jones Ltd. for terminal boxes in accordance with attached quotation sheet.

ENGINEER TO THE BOARD.

802
1

S. Cory-Wright Esq.,
G.P.O. Box 1230,
WELLINGTON.

3rd. July 30.

Dear Mr. Cory-Wright;

(See letter dated 21st June on this file)

Mr. Gray gave me your personal note regarding our proposals for Rangitoto Beacon Light. I will be very glad to see Chance Bros. recommendations when they come to hand, but I have definitely decided to proceed with my original proposal to lay a submarine cable.

One of the arguments which finally decided me is supplied in Chance Bros. letter to you of 18th. February, when they say:- "It is not safe to leave any machinery running without regular visiting at comparatively short intervals."

Although power will be transmitted to the beacon through the submarine cable at 230-volts, this will be transformed down to 32-volts at the lamps.

With regard to the possibility of damage to the cable, there are quite a number of cables already laid across the bed of the Auckland Harbour and no difficulty has been experienced with them.

My decision has not been come to lightly, and I feel sure that I have adopted a sound course in dealing with the matter as I have done.

With regard to your other suggestion for a standard type of flashing acetylene beacon, the light power now required by the Harbourmaster would involve an entirely new optic and flashing mechanism and excessive operating charge for dissolved acetylene.

I have to thank you for your suggestions and trust that you will forward your principals recommendations when they come to hand as they will certainly be interesting and may be useful in connection with other lights which may be electrified in the future.

Yours truly,

ENGINEER TO THE BOARD.

EXTRACT FROM BOARD'S RESOLUTIONS OF TUESDAY 8TH. JULY 1930.

1. ELECTRIFICATION OF RANGITOTO BEACON LIGHT.

Letter from Marine Department 30.6.1930 stating that the Minister had sanctioned the conversion of Rangitoto Beacon Light from Gas to Electricity, also the laying of the necessary cable for conveying the power to the light; together with letter from Town Clerk, Takapuna, 27.6.30 stating that the Council would be pleased to co-operate with the Board in the matter, had approved the plan of the building submitted, and would also lease the necessary ground at a peppercorn rental.

That the letters be received.

802/1

Auckland Harbour Board

MEMORANDUM

Auckland, N.Z.

1st. July, 1930.

From ~~The Chairman~~ Superintendent.

To The Engineer, A.H.B.

9148

Please note that the necessary authorisations to proceed with the work of electrifying the Rangitoto Beacon Light have now been obtained.

The tender of Messrs. Turnbull & Jones, Ltd. for the supply of 4,000 yds. of "Henley's" Submarine Cable for the sum of £1,144.4.0, has therefore been accepted.

W.B. Burnett

WBS/MB. Superintendent.

COPY.

802/1

LETTER RECEIVED FROM: MESSRS. METROPOLITAN VICKERS ELEC.CO.LTD.

30th. June 1930.

The Auckland Harbour Board,
Quay St.,
AUCKLAND.

Dear Sirs,

ELECTRIFICATION RANGITOTO BEACON:

We acknowledge receipt of your Order No.7034 of June 30th in which you instruct us to supply the complete apparatus as offered in our letter of June 26th.

We would confirm the following points in connection with this order:-

The motors which we will supply will be two Metropolitan Vickers Type "AU" of the drip proof squirrel cage induction type each 1/6 H.P. @ 1500/1440 R.P.M., they will be fitted with a bare shaft extension only and suitable conduit entry. They will be built to operate on a 200 volts single phase 50 periods circuit and the price for the two motors will be £18.6.0. We will also supply 4 spare ball races for use with these motors at a price of £1.10.0.

The transformers will be two Metropolitan Vickers Type "OD" single phase outdoor pattern capacity 1 KVA. and suitable for use with a high tension side on of 200 volts, 1 phase, 50 periods and a mean low tension voltage of 32 volts. The transformers will be provided with oil level gauge, oil drain petcock, 4 tappings each for plus 2½% above 200 volts and 4 tappings each for minus 2½% below 200 volts. We will also include sufficient oil for first filling of both tanks in our price of £26.0.0 for the two transformers.

TERMS OF PAYMENT will be NET cash in 30 days.

PRICES include for the supply and delivery of the equipment all charges paid to your Store in Auckland city.

DESPATCH will be effected as soon as possible and in this connection we would mention that we have telegraphed our Works this evening instructing that Work be put in hand, confirmation also goes forward by this mail.

COPY.

The Auckland Harbour Board. 30th June 1930.

We would thank you for this valued order which will have our best attention.

We are,
Yours faithfully,
METROPOLITAN VICKERS ELECTRICAL CO.LTD.
(Signed) E.N.Tewsley,

FOR Manager in New Zealand.

ENT.GT.

802/1

C O P Y.

TELEGRAM TO SECRETARY A.H.B. RECD.30/6/30.

Proposed change Rangitoto Beacon Light approved letter posted.

Secretary Marine.

Engineer's Note:

Noted.

Contract for cable can now be accepted.

D.H.
30.6.30.

802
1

30th. June 30

The Purchasing Officer.

- URGENT.-

ELECTRIFICATION OF RANGITOTO BEACON.

Please obtain quotation from Lawrence & Hanson Electrical Co. Ltd for items covered by attached quotation sheet.

ENGINEER TO THE BOARD.

8092/1

Auckland Harbour Board

PURCHASING DEPARTMENT. QUAY STREET,

AUCKLAND, 30th June 192

QUOTATION SHEET.

To MESSRS. LAWRENCE & HANSON ELECTRICAL CO.LTD.,

ALBERT & SWANSON STREETS, CITY.

Please fill in on this sheet prices and terms for the following articles, delivered to

ARTICLES	NETT	XXXXXX DISCOUNT
RANGITOTO BEACON ELECTRIFICATION.		
Two only "Pyle-National" Projectors Type 1260 complete with rectangular lenses.	24 17 6 each	
These projectors to be similar to the one lent by you for experimental purposes.		
Delivery to be 12 weeks from receipt of order.		
Regn 313A		

I/We hereby agree to supply the items quoted for at the prices stated and deliver in accordance with the conditions hereon.

Signature _____

Date _____

802/1

Auckland Harbour Board.

TENDER

For Contract No. 911 *for*

PETROL DRIVEN ELECTRIC LIGHTING SET

JUNE 193 6

TO THE CHAIRMAN OF THE
AUCKLAND HARBOUR BOARD

Sir,

I, We, the undersigned, do hereby Tender and offer to execute and perform the several works and provisions named, described, and alluded to in the Specification for the supply and delivery of petrol driven electric lighting set for Rangitoto Beacon Light

and under and in conformity to the General Conditions stipulated, for sum of

and I, We, annex hereto the Schedule of Prices upon which this Tender is based and calculated.

I, We, enclose herewith cheque, payable to Treasurer, Auckland Harbour Board, (or cash for £ 5/-/-)

Should this Tender be accepted I, We, undertake to execute a Contract and Bond embodying the aforesaid Specifications and Conditions within three days of the date of acceptance, and undertake to deposit with the Treasurer of the Auckland Harbour Board, a further sum of £ 5/-/- making a total of £ 10/-/- deposited.

Name

Address

The within Tender is accepted by the Auckland Harbour Board, Auckland,

The Common Seal of the Auckland Harbour Board was hereto affixed at a meeting of the Board held on the day of

by and two of the members of the Board, in presence of

Chairman

Members

Secretary
A.H.B.

Auckland Harbour Board

Engineer's Office,
19th June 1930.

CONTRACT NO.911.

SPECIFICATION FOR

PETROL DRIVEN ELECTRIC LIGHTING SET FOR RANGITOTO BEACON LIGHT.

1. TENDERS addressed to the Chairman, Auckland Harbour Board and endorsed on outside "Tender for Lighting Set" will be received up till 12 noon on Tuesday 22nd July 1930 for the supply and delivery to the Board of one Petrol driven electric lighting set for Rangitoto Beacon light.

2. DEPOSIT WITH TENDER. Each tender shall be accompanied by cash or cheque for five pounds (£5) which sum will be returned in the case of unsuccessful tenderers as soon as the necessary contract has been signed.

3. FURTHER DEPOSIT AND EXECUTION OF CONTRACT. The successful tenderer shall, within three clear days of notification of acceptance of his tender, execute a legal contract embracing all the clauses of this specification and shall make a further deposit of five pounds (£5) making a total of ten pounds (£10) deposited against the due performance and completion of the contract which sum will be returned only on satisfactory completion of the contract as certified by the Board's Engineer.
Should any tenderer whose tender may be accepted by the Board refuse or neglect or fail to execute the necessary contract or to make the necessary further deposit within the said three days then the amount of the deposit accompanying such tender shall be forfeited absolutely to the Board as and for liquidated damages and the Board may call upon any other tenderer to sign and carry out the Contract.

4. SCOPE OF CONTRACT. This Contract shall be for the supply and delivery to the Board at the Board's Store, Hobson Street, Auckland of one complete petrol-driven electric lighting-set in accordance with this specification, the whole plant to be in good order and condition to the satisfaction of the Board's Engineer.

5. TIME FOR DELIVERY. The time for delivery within which the whole of the plant shall be delivered to the Board shall be fourteen weeks from date of acceptance of tender by the Board.

6. PENALTY FOR NON-DELIVERY OR DELAY. Should any part of the plant to be supplied under this Contract remain undelivered to the Board at the expiry of the said fourteen weeks then the Contractor shall pay to the Board as and for liquidated damages the sum of ten pounds (£10) per week for each and every week that delivery is delayed beyond the due date. Any such sums payable to the Board by the Contractor may be deducted from any moneys payable or that

may become payable to the Contractor by the Board or may be sued for as a debt.

7. DESCRIPTION OF PLANT. The plant shall consist of a petrol operated internal combustion engine direct coupled to a suitable generator& exciter and provided with starter battery, starter and all necessary switches and appliances for automatically:-

(a) Starting up the plant when a circuit is closed by a time switch.
(b) Stopping the plant when that circuit is broken by the time switch.
(c) Maintaining the starting battery in a charged condition.

8. CAPACITY OF PLANT. The output of the plant shall be not less than 1½ Kilowatts at 230 volts, 50 cycles, single phase, alternating current.

9. Note:- Should tenderers be unable to quote for a plant with suitable direct coupled 230 volt A.C. Generator, the Board is prepared to consider tenders for a plant in which a suitable D.C. generator is direct coupled to the engine and a supplementary motor-generator set is provided for supplying current at 230 volts 50 cycles single phase A.C. In this latter case the plant shall be of sufficient capacity to give the necessary output of 1½ kilowatts over and above the losses in the motor-generator set.

9. ENGINE. The Engine shall be of robust construction and shall be controlled by a sensitive governor capable of regulating the speed within small limits. It shall be equipped with high-tension ignition and shall be water cooled either by suitable radiator or by water supply from a storage tank.

10. ELECTRICAL GEAR. The Generator, and all parts of the electrical gear shall be of ample capacity and strong construction and suitable in every way for the purposes for which they are required. The plant shall be suitable for working in a damp atmosphere in close proximity to the sea.

11. GENERAL. This plant is required for a stand-by plant to come into use automatically in the event of failure of the power supply. It will be unattended but will be inspected and adjusted about once per month.
It may be started and stopped a number of times during one night or it may work continuously for 14 hours each night for several nights in succession, or alternatively it may not work at all for long periods on end.
The arrangement provided for keeping the starting battery properly charged shall be such as to prove satisfactory under any of these conditions.
The current available for keeping the battery charged is 230 volts 50 cycles single phase A.C.

12. GUARANTEE. The Contractor shall guarantee the plant to be satisfactory for working under the conditions outlined in this specification and shall make good at his own expense any defects other than those due to fair wear and tear that may occur during a period of twelve months from date of delivery of the plant to the Board. Should the Contractor refuse or neglect or fail to make good any defects that may occur immediately upon notification from the Board's Engineer to so do, then the Board may, without further notice to the Contractor, make any arrangement it may think proper to make good such defect and may charge the cost of so doing against the Contractor. Any such sum due to the Board by the Contractor may be deducted from any moneys that may be payable or may become payable to the Contractor by the Board or may be sued for as a debt.

13. PAYMENT. Payment will be made up to 75 per cent of the contract price upon delivery to and acceptance by the Board of the whole of the plant in good order and condition. The remaining 25 per cent to complete payment will be paid when the plant has been installed and proved satisfactory as certified by the Board's Engineer, or alternatively within two months from date of delivery whichever period is the shorter.

14. TENDER FORMS AND SCHEDULES. Tenders shall be sent in on official tender and schedule forms which may be had on application to the Purchasing Officer, Auckland Harbour Board.

15. THE LOWEST OR ANY TENDER will not necessarily be accepted.

(Signed) D. Holderness,

M. INST.C.E.

ENGINEER TO THE BOARD.

TENDERS CLOSE 12 NOON ON TUESDAY 22nd JULY 1930.

AUCKLAND HARBOUR BOARD.

CONTRACT NO. 911.

PETROL-DRIVEN ELECTRIC LIGHTING-SET FOR RANGITOTO BEACON LIGHT.

SCHEDULE OF PLANT OFFERED.

1. ENGINE Makers Name .....
No. of Cylinders.....bore.....stroke...RPM.....
Cooling System.....
Ignition.....
Governor.....
Lubrication.....

2. GENERATOR. Makers Name.....

Capacity.....Voltage,.....

3. STARTER BATTERY. Makers Name.....
No. of Cells.....
Capacity.....

4. CONTROL GEAR. Full details of Control gear to be given separately by Tenderers.

I/We offer to supply the whole of the plant in accordance with Specification No. 911 and in accordance with the general details given in the above Schedule,

for the sum of.....

.....

and to deliver same to the Board in good order and condition within 14 weeks from date of acceptance of tender.

SIGNATURE.....

ADDRESS .....

DATE.....

802
1

27th. June 30

The Purchasing Officer.

ELECTRIFICATION OF RANGITOTO BEACON.

- Contract No.911 -

Herewith draft specification for auxiliary petrol driven Electric Lighting Set for the above installation.

Please advise tenders returnable noon on Tuesday 22nd. July 1930.

ENGINEER TO THE BOARD.

807/1

27th. June 30.

The Purchasing Officer.

ELECTRIFICATION OF RANGITOTO BEACON.

Further to my letter of 25th inst., and Metropolitan-Vickers Electrical Co's quotation of £40/16/- for all items, please order the whole of the plant quoted on the terms laid down in Metropolitan-Vickers' covering letter.

ENGINEER TO THE BOARD.

Auckland Harbour Board

PURCHASING DEPARTMENT. QUAY STREET.

Eng 3975

AUCKLAND, 26th. June, 1930

QUOTATION SHEET.

To MESSRS. METROPOLITAN-VICKERS ELECTRICAL CO.LTD.,

32 ENDEAN'S BLDGS., QUEEN ST., CITY.

Please fill in on this sheet prices and terms for the following articles, delivered to

A.H.B. Store, Hobson St., Auckland.

ARTICLES	Nett Each			~~XXXXXX~~ Total.
For Electrification of Rangitoto Beacon.				
One-sixth H.P. - Type 2AU Squirrel Cage Induction Motors for 200 volts, 50 cycles, single phase A.C., drip-proof enclosure, ball bearings - 2 only	6	13	0	13. 6. 0
Spare Ball races for the above machines - 4 only		7	6	1. 10. 0
Transformers - Outdoor Type, oil immersed. Capacity 1 KVA. - 200 volts to 32 volts; Primary winding to be tapped - 4 taps each 2½ per cent above 200 V., and 4 taps each 2½ per cent below 200V. - 2 only	13	0	0	26. 0. 0
				40. 16. 0

Delivery to be stated. ..approx Twelve..weeks from date of order.

I We hereby agree to supply the items quoted for at the prices stated and deliver in accordance with the conditions hereon.

Signature METROPOLITAN-VICKERS ELECTRICAL C
(Sgd) E.A. Tewsley.
for Manager in New Zealand.

Date 26th. June 1930.

802/1

25th. June 30

The Purchasing Officer.

ELECTRIFICATION OF RANGITOTO BEACON.

Please obtain price from Metropolitan-Vickers Electrical Co. Ltd., for the following plant required in connection with the above, and ask them to state when delivery could be given:-

1/6 H.P. - Type 2AU Squirrel Cage Induction Motors for 200 volts, 50 cycles, single phase A.C., drip-proof enclosure, ball bearings. TWO only.

Spare Ball races for the above machines - FOUR only.

Transformers - Outdoor Type, oil immersed. Capacity 1 KVA. - 200 volts to 32 volts; Primary winding to be tapped - 4 taps each 2½ per cent above 200 V., and 4 taps each 2½ per cent below 200 V. TWO only.

ENGINEER TO THE BOARD.

B

Metropolitan-Vickers Electrical Co.

1/6 H.P. Type 2AU Squirrel Cage induction motors for 200 volts, 50 cycles, single phase A.C. — drip-proof enclosure — ball bearings —

Two only

Spare ball races for the above machines — Four only

2 transformers - outdoor type - oil immersed ~~—~~

Capacity 1 K.V.A. — 200 volts to 32 volts.

Primary winding to be tapped 4 taps each of 2½ per cent above 200 V and 4 taps each of 2½ per cent below 200V

— Two only

Delivery — 16 weeks

802/1

24th. June 30.

The Superintendent.

RANGITOTO BEACON LIGHT.

Herewith plan E.422/2 shewing proposed site for control house at foot of St. Leonard's Road, Takapuna.

Will you please obtain the Council's authority for its construction on this site.

ENGINEER TO THE BOARD.

AUCKLAND OFFICE:
GANE BUILDINGS
ANZAC AVENUE
POSTAL: G.P.O. BOX 1650
AUCKLAND
PHONE 43-394
TELEGRAMS & CABLES:
"CORYSAL" AUCKLAND

MEMBER OF ASSOCIATION OF BRITISH MANUFACTURERS AND AGENTS · NEW ZEALAND · "For the Empire"

CORY-WRIGHT & SALMON

ENGINEERS

WELLINGTON & AUCKLAND
NEW ZEALAND

Principals of Firm { S. CORY-WRIGHT, B.Sc. (ENG.) A.M.I.C.E., M.N.Z. SOC. C.E.
C. W. SALMON. A.M.I.C.E., M.N.Z. SOC. C.E.

Codes Used: Bentley's Phrase
Universal Trade Code
Broomhall's and Private

G.P.O. BOX 1230,
WELLINGTON, N.Z.

WELLINGTON OFFICE:
DOMINION FARMERS' INST.
COR. FEATHERSTON & BALLANCE STS.
POSTAL: G.P.O. BOX 1230
WELLINGTON
PHONE 43-172 (2 LINES)
TELEGRAMS & CABLES:
"CORYSAL" WELLINGTON

When replying please quote
Our Reference
No.
...../.....

21st June 193 0.

D. Holderness, Esq.,
Engineer,
Auckland Harbour Board,
AUCKLAND.

Dear Mr. Holderness,

RANGITOTO BEACON LIGHT.

I am writing you a personal note in connection with the proposal to convert the Rangitoto beacon light to electric operation by means of submarine cable from the Mainland.

Our Mr. Gray has discussed this matter with you some time ago, and as you know, we have asked our Principals, Messrs. Chance Bros. to send out their recommendations for dealing with this light. These recommendations have not yet arrived, although they should be here in a very little while, and, therefore, I would suggest that it might be better not to hurry a decision with regard to electric operation until you have more complete information available.

In connection with this matter, I enclose copy of letter dated 18th February from Messrs. Chance Bros. & Co., which gives some helpful information on this problem, and I would point out that they consider the 230 volt supply unsuitable for the lighthouse type of lamp.

I cannot help feeling that a power cable from the mainland would be not only very expensive, but a continual source of danger through damage. It seems to me that an automatic electric generating plant installed at the beacon would be better and cheaper than a cable, but if you have doubts of reliability, then the simplest solution might be the standard type of flashing acetylene beacon.

To D. Holderness, Esq., Auckland. DATE 21st June, 1930.

We will hand you further particulars as soon as we receive them from Messrs. Chance Bros., and meanwhile, I would be very glad if you would kindly discuss the matter with our Mr. Gray.

Yours sincerely,

E Cory-Wright

SCW/MGM.

COPY

CHANCE BROS. & CO. LTD.

Lighthouse Works,
Smethwick,
Birmingham.
18th February, 1930.

Messrs. Cory-Wright & Salmon,
P. O. Box No. 1230,
Wellington,
NEW ZEALAND.

Dear Sirs,

AUCKLAND HARBOUR BOARD.

We understand from a letter received from our chairman, Mr. W. L. Chance, that Auckland Harbour Board is considering changing two flashers to electric and is asking for prices, but they are afraid of this in case of failure of the power supply and propose to run the plant by a 230 volt cable across the water.

We have no further particulars as to what these lights are but from the above it looks as if this should be an ideal proposition for our unattended electrical generating sets, as indicated to you in our letter of the 2nd September last and subsequent quotation of 30th September.

Presumably the location of these lights could be visited by an attendant once a week as it is necessary to see that everything is right and replenish supplies of fuel, oil, etc. It is not safe to leave any machinery running without regular visiting at comparatively short intervals such as this.

We would point out that to run a properly designed lead covered and armoured cable through the water would, so far as we can judge from our charts, be a matter of at least 1½ miles of cable which alone would entail the Auckland Harbour Board in an expenditure probably in the nature of £600 or over. (Note, more like 3 miles and £1200).

We do not know whether the optics of the lights concerned are of the revolving or fixed type. If of the revolving type the apparatus under item (2) of our quotation of September 30th last would probably be quite suitable - but if the optics are of the fixed type we should have to substitute an occulting mechanism for the electrical gear for revolving the optic, which would make very little difference in the price.

To enable you to put forward a proposition and discuss the matter we are forwarding you herewith particulars for the electrical portion only of our smallest automatic plant. This would be the plant we put forward in our quotation of September 30th, and would be without optic but with pedestal, driving gear, lamps and automatic lamp changer, light valve, and two automatic generating sets complete. We are not including for a lantern on the assumption that the existing one would be adequate. In this case as the whole of the generating plant would be supplied with the job we should put in lamps suitable for 30 volts, with the generating sets to correspond. These low voltage lamps are preferable as the wire filament is heavier and more robust and the plant is rendered rather more efficient. In any case the 230 volts of the Auckland Harbour supply is not suitable for the lighthouse type of lamp with its concentrated filament and would have to be reduced at site to 110 at most.

We trust you will be able to make use of the above information and hope you will be able to send us a firm enquiry which we can assure you would have our very best attention.

Yours faithfully,
For CHANCE BROTHERS & CO. LTD.,
(sgd) O. Wraith,
General Manager.

800/2

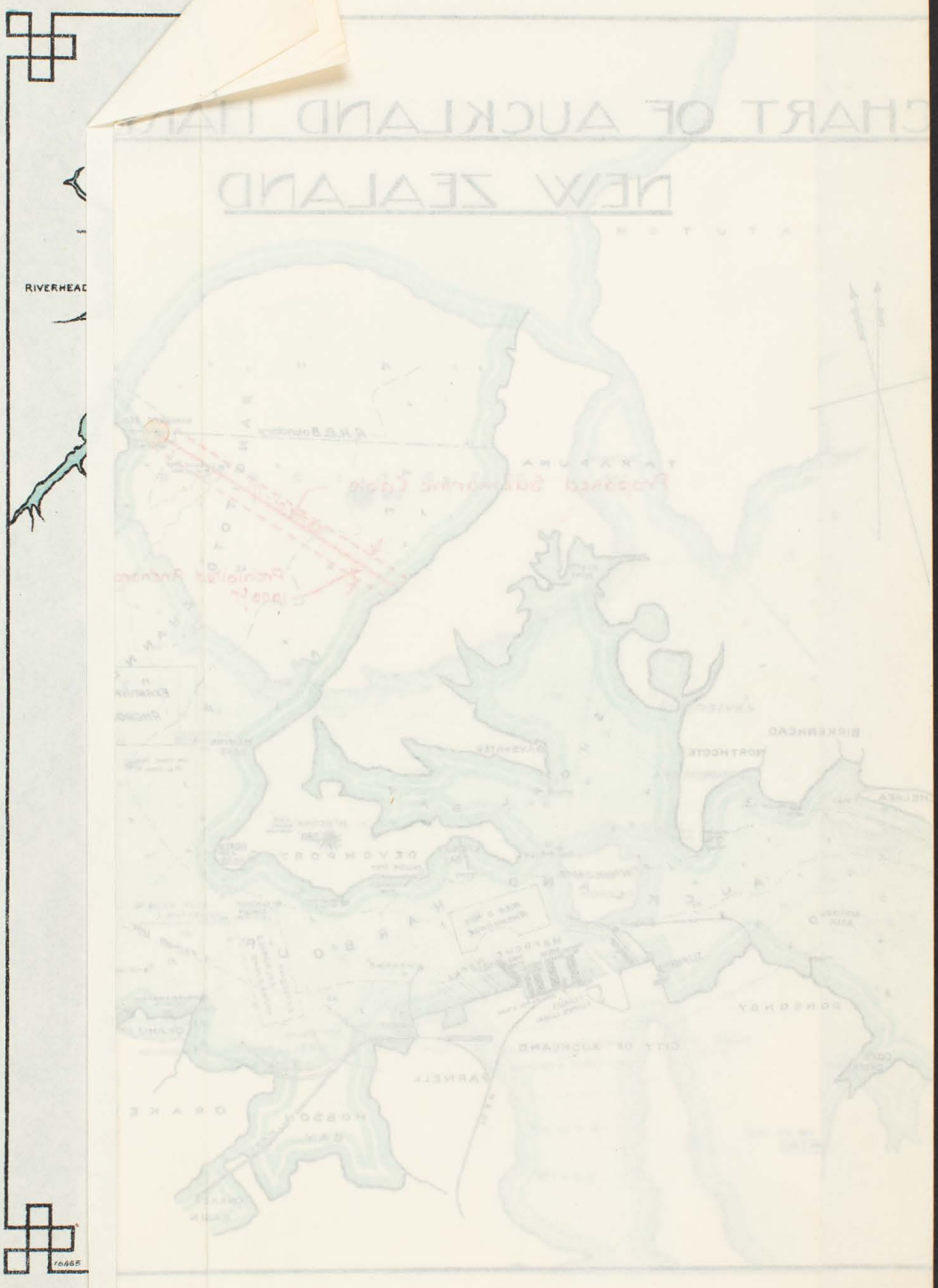
18th. June 30.

The Superintendent.

ELECTRIFICATION RANGITOTO BEACON LIGHT.

Herewith plan shewing position of proposed submarine cable and area which should be proclaimed a prohibited anchorage, for submission to the Marine Department.

ENGINEER TO THE BOARD.


RIVERHEAD

f.

LANGGUTH & LANGGUTH

POSTAL ADDRESS: P.O. BOX 636.

CODE ADDRESS: "FERRO."

BANKERS: BANK OF AUSTRALASIA.

CODES:
ABC 6TH BENTLEY'S
LIEBER'S RUDOLF MOSSE.

AUCKLAND, N.Z., 17th June 1930.

The Engineer,
Auckland Harbour Board,
City.

Rangitoto Beacon - Electric cable

Dear Sir,

We have today received from our principals Messrs Felten & Guilleaume Carlswerk A.- G. of Köln-Mülheim, Germany a letter from which the following is an extract.

"Concerning the tender and specifications for the supply of a submarine cable for the Rangitoto Beacon Light.

Although it is said in clause 7 of the specification "the whole of the cable shall be manufactured within the British Empire by British workmen" we have notwithstanding decided to work out an offer which may give an idea to the Board that the order could eventually be placed elsewhere than in the Bitish Empire. We offer the cable at the following prices:

4000 yards: 7/.064" p.&v.i.r. insulated, brass taped and armoured submarine cable, in accordance with specification No. 902,

In 4 lengths of 1000 yds. each per 1000 yds £197 - - = £788 + £31-10-0

In 2 lengths of 2000 yds each per 1000 yds £186 - - = £744 + £10-10-0

Junction Box, complete as per our drawing attached, per each £10.10.-

Above prices are to be understood cif & e duty paid Auckland, without wharfage, city charges etc., including packing on stout wooden drums, payment as per clause of the specification.

We wish to say that it is of course a great handicap for us to have to include a duty rate of 20% whereas British tenderers are free of duty, however, their profit generally made on cables may be of such extent that our offer will give still a chance of competing favourably."

We are aware that the closing date for the tender in question has closed, and we merely submit this extract of our principals letter to you, to perhaps show that it might be to the advantage of the Board to purchase from foreign sources in some cases.

Yours faithfully,

Langguth & Langguth

Date 16th June 1930 ~~192~~

Estimate for Rangitoto Beacon Light — Conversion to revolving Electric Light — Submarine Cable from Takapuna and stand-by plant at shore end.

Description	Details	Quantity	Item	Rate	£	s.	£
Submarine Cable	7/.064 twin V.I.R. brass taped & armoured.	4000	yards		1150		£ 1150
Laying Cable	Preparatory work - fitting barge.		say		50		
	Towage. — Te Arohena £25 + 2 launches £20				45		
	Labour - 6 men on barge + 8 on shore	14	mandays	1/-	14		£ 109
Beacon End of Cable:	Preparing bed & fixings for cable.						
	diver & crew below LW.	5	days	7/-	35		
	2 men above LW.	5	days	2/-	10		
	Concrete & materials		say		10		
	Launch hire say	12	trips	30/-	18		£ 73
Takapuna End of Cable.	Terminal Pole & Intermediate pole	£7/- + 4/-			11		£11 (3 poles)
	Erecting poles		say		5		
	Sundry gear				5		
	Brick building say 8'x8'		Say		100		£ 121
Plant & Gear at Beacon.	Projectors	2	each	40/-	80		£40
	Revolving frame & bearings		say		50		
	Gearing for revolving		say		15		
	Motors & Transformers	2	sets	20/-	40		£40/Kw.
	sundry electrical gear				20		£ 205
	Labour erecting.						
	mechanics	12	days	1/-	12		
	electricians	24	"	1/-	24		£ 36
Plant & Gear at Takapuna	Stand-by petrol set 1 KW.		Say		200		£235/Kw.
	Switch-board, time switch & sundries				40		
	Labour installing & wiring				30		£ 270
							£ 1964
	Contingencies	10%		say			186
							£ 2150

Say £2150

HRV
16-6-30.

802/1

13th. June 30

The Purchasing Officer.

CONTRACT NO.902.

TENDERS FOR SUBMARINE CABLE FOR RANGITOTO BEACON LIGHT.

Tenders were received from thirteen firms as under:-

FIRM.	MAKERS.	PRICE.
Turnbull & Jones Ltd	Henleys Telegraph Works	£1,144. 4. 0
A. & T. Burt Ltd	Greengate & Irwell	£1,148. 0. 0
Cory-Wright & Salmon	Siemens Bros. & Co.	£1,159. 6. 0
Rudge Electrical Co.	Enfield Cable Works	£1,161.10. 0
Allum Electrical Co.	Metrop. E.C. & Const. Co.	£1,165. 0. 0
British General Elect. Co.	Pirelli	£1,172. 1. 8
India Rubber Gutta Percha & Telegraph Works Ltd.	I.R. G.P. & T/graph Works	£1,184. 6. 0
Lawrence & Hanson	W.T. Glover	£1,242. 6. 0
Electric Construction Co.	L/pool Elect. Cable Co.	£1,255. 2. 0
N.Z. Loan & Mercantile Agency Co. Ltd	McIntosh Cable Co.	£1,256.19. 8
Tolley & Son Ltd	Johnson & Phillips	£1,455. 0. 6
Briscoe & Co. Ltd	W.T. Glover	£1,482.13. 6
Richardson McCabe & Co. Ltd	Callenders Cable Co.	£1,610.12. 6.

An informal tender was received from C.N. Williamson & Co. for Metropolitan Electric Co's cable of £1,144.10. 0.

The total cost of converting the Rangitoto Beacon to use electricity in place of the present system of dissolved acetylene will be approximately £2,000, and this should be sufficient to meet the ever increasing demand for greater light power for many years to come.

The Harbourmaster regards this work as essential and urgent.

It will be necessary to obtain the Marine Department's sanction for the conversion and for the establishment of a prohibited anchorage where the cable will cross the Rangitoto Channel, from the vicinity of St. Leonard's Road to the Beacon.

It will also be necessary to obtain the approval of the Takapuna Borough Council to the erection of a small control station on the road reserve at the foot of St. Leonard's Road. As this is very steep and is never likely to be served by more than a zigzag path, there should be no difficulty in obtaining this authority.

After receipt of the necessary authorities, I recommend the acceptance of Messrs. Turnbull & Jones Ltd's tender which is the lowest.

Tenders herewith. (Returned & put away in Strong Room)

(See Boards Resolution in Committee of 23.6.30 & memo from Engrs. 1.7.30 re acceptance of Turnbull & Jones tender.)

ENGINEER TO THE BOARD.

CONTRACT NO. 902.

SUBMARINE CABLE FOR RANGITOTO BEACON.

802/1

Messrs. Chloride Electrical Storage Co. Ltd,
137 Victoria Street,
LONDON. S.W.1.

11th. June 30.

Dear Sirs;

I have to thank you for your CD/VJP dated 1st. May informing me that the English distributors of the "Agricco Mill" no longer sell plant of this nature, and that you had forwarded a copy of my letter of 24th March to Messrs. Telford, Grier & Mackay Ltd.

Yours truly,

ENGINEER TO THE BOARD.

802/1

11th. June 30.

Messrs. McBain Bros. Ltd,
Castle Engineering Works,
Tweedmouth,
Berwick-on-Tweed,
ENGLAND.

Dear Sirs;

I have to thank you for yours of 5th. May enclosing particulars of your electric mills and quotation for 5-kilowatt plant.

In connection with the particular installation about which I wrote you on 24th March, I have definitely decided to lay a submarine cable, but I will be glad if you will keep me posted with any development in your mills, as other problems are likely to arise of a similar nature.

I am,

Yours truly,

ENGINEER TO THE BOARD.

802/1

Auckland Harbour Board

MEMORANDUM

FROM Electrician

TO THE ENGINEER

June 4 1930

W.&T.LTD. 48475

Electrification of Rangitoto Beacon

Cory-Wright & Salmons
Proposed Oil Engine Plant.

Comparing this proposal with our own suggestions:-

The size of lamp is approximately the same in both cases, viz. 250 watt - 30 volt. In our trial set at the Beacon, we used 300 watt - 32 volt. So far as I know 30 volt lamps are not standard

Their proposal (Design No A864) is for a fixed light.
Design No A861 is for a revolving light driven by a small motor through reduction gear.

We used the same system at our trial
For lamp changing, their gear moves the burnt out lamp out of focus. and replaces it with a spare lamp.

Our suggestion was to use two lamps - the failure of one would bring the spare lamp into use. This is a better suggestion than that made by Cory-Wright & Salmon.
A sun valve is proposed for starting the light.
In our case we suggested a clock switch.
I am inclined to favour a combination of both. The sun valve to be auxiliary to the time switch.
In quot no detail is given of the petrol engine sets.

The only point I can comment on is in relation to the proposed starter battery

We should know what arrangements are made to charge it, and how it is dis-connected from circuit when charged. It seems to me that over charging is likely to take place unless there are special arrangements to guard against it.

Auckland Harbour Board

MEMORANDUM

FROM .....

.....

TO THE ENGINEER

..... 19.....

W. & T. LTD. 48475

In relation to a small petrol driven engine; I would say, it must be a very dependable engine that can run 182 days for 13 hours per day to give the required reliable service in an isolated position

ALL COMMUNICATIONS TO BE ADDRESSED TO THE COMPANY

THE Chloride ELECTRICAL STORAGE COMPANY LIMITED

TELEGRAPHIC ADDRESS CHLORIDIC SOWEST LONDON.
CODES:-BENTLEY'S. LIEBERS. A.I. A.B.C.(4TH & 5TH EDNS.)
TELEPHONES:- VICTORIA 6308 (5 LINES)

REGISTERED OFFICES & WORKS:
CLIFTON JUNCTION,
NR MANCHESTER.

EXPORT DEPARTMENT,
137, VICTORIA STREET,
LONDON. S.W. 1.

OUR REFERENCE CD/VJP.

12th May, 1930.

Auckland Harbour Board,
Engineer's Office,
Auckland, N. Z.

Dear Sirs,

Further to our letter of the 1st instant, with reference to the quotation required for windmill plant.

We have now received a report from Messrs Telford, Grier & Mackay, Ltd. regretting that it is not possible to supply a windmill capable of giving the output required with the wind velocities available. They inform us that they have gone thoroughly into the matter, and have had to decide that the harnessing of the wind in this instance is not a practical proposition.

We have previously consulted the Oxford Bulletin on windmill driven generators, and have been in touch with the various manufacturers and distributors mentioned, and it is regretted that in all cases we have been unable to secure a satisfactory offer.

It appears, therefore, that there is no alternative but for you to utilise the power available by use of the quotation you are securing for cable.

Yours faithfully,
FOR THE CHLORIDE ELECTRICAL STORAGE CO.LTD.

H. V. SCHOFIELD.
EXPORT MANAGER.
Pe ...

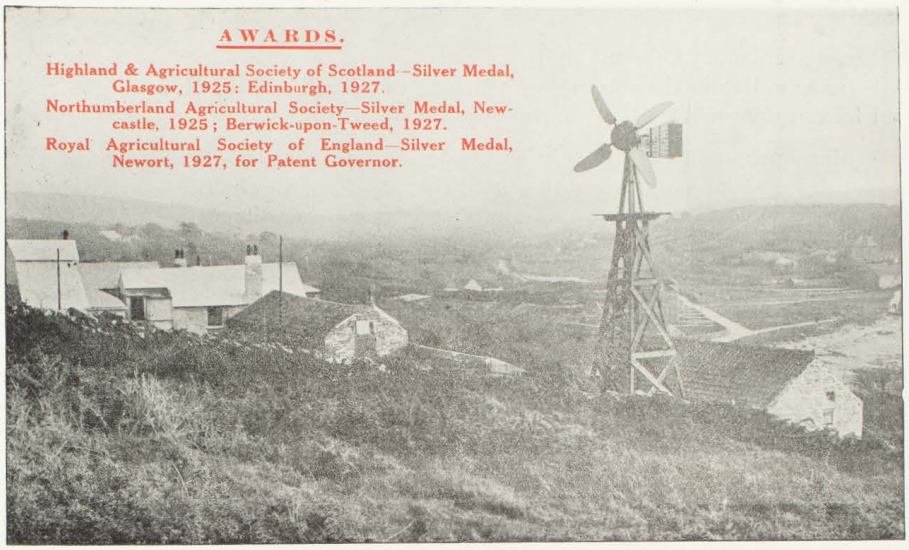
"FREE LIGHT" Electric Plants.

AWARDS.

Highland & Agricultural Society of Scotland—Silver Medal, Glasgow, 1925: Edinburgh, 1927.

Northumberland Agricultural Society—Silver Medal, Newcastle, 1925; Berwick-upon-Tweed, 1927.

Royal Agricultural Society of England—Silver Medal, Newort, 1927, for Patent Governor.



ERECTED ISLE OF SCILLY.

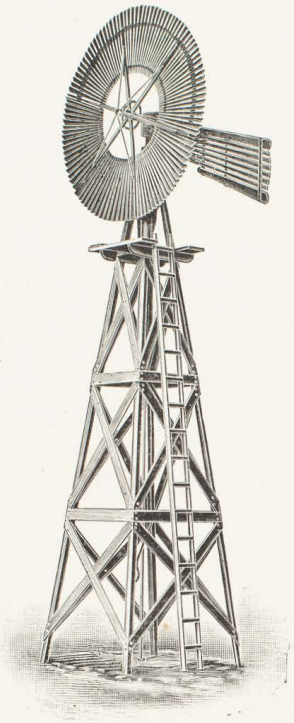
MANUFACTURED BY—

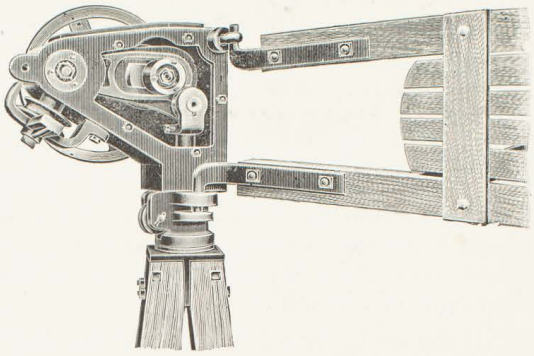
McBAIN BROTHERS, Limited,

Tweed.

McBAIN ✲ PUMPING ✲ ENGINE.

Completely Protected from the weather and Absolutely Noiseless.





Cover removed showing Ball Bearing assembly.

Direct Stroke. Slow Lift. Quick Return.
No Springs. No Weights.
Perfect Governing.

McBAIN BROS. LTD. are prepared to submit Estimates for complete Water Supplies, including Water Finding.

Full Particulars on application.

Telegraphic Address: "McBAIN, ENGINEERS, BERWICK."
A.B.C. CODE 6TH EDITION.

Telephone No 73.

802
1

McBAIN BROS., LIMITED,

DIRECTORS { WALTER J. McBAIN.
ANDREW McBAIN.
ARTHUR G. GREAVES.

MANUFACTURERS OF
McBAIN OIL ENGINES,
STATIONARY & MARINE.

NEWCASTLE ON TYNE OFFICE:
2, ST. NICHOLAS BUILDINGS.

BRANCH WORKS: CORNHILL-ON-TWEED.
TEL. 46 COLDSTREAM.

REGISTERED OFFICE:
Castle Engineering Works,
Tweedmouth,
Berwick-on-Tweed.
ENGLAND.

May,
Fifth,
1930.

To/
Mr D. Holderness,
Engineer to the Auckland Harbour Board,
Engineer's Office,
AUCKLAND. NZ.

Dear Sir,

We thank you for your enquiry of the 24th Ult and have pleasure in enclosing list of our electric mills. We have carefully considered the chart sent and one thing which strikes us is the regular supply of wind. This seems to be very constant. We have also considered this in conjunction with the chief engineer at Trinity House where we have supplied an electric plant and have on order other two outfits for lighthouse work. These are not however for the main lights but for supplying light to the living quarters and also the necessary power for their wireless transmitting and receiving sets. We count on our plants starting to charge in a 6 mile wind, but for your safety say a 7 mile wind, so that if you can supply a wind for 8 hours out of the 24 at say 8 to 9 miles then we would put forward a 5 kilowatt plant. Under these conditions you ought to get good results while if necessary you could double the battery so as to have a good reserve. We take it that your strongest winds will be morning and evening? The plant for which we are quoting Trinity House at the moment is to fit on a lighthouse which stands alone 18 miles out to sea. The electric is taken at present by a submarine cable which has been very expensive to keep up, hence the reason they are fixing up this plant.

P.T.O

Telegraphic Address: "McBAIN, ENGINEERS, BERWICK."
A.B.C. CODE 6TH EDITION.

Telephone No 73.

McBAIN BROS., LIMITED.
DIRECTORS { WALTER J. McBAIN. ANDREW McBAIN. ARTHUR G. GREAVES.

MANUFACTURERS OF
McBAIN OIL ENGINES,
STATIONARY & MARINE.

NEWCASTLE ON TYNE OFFICE:
2, ST. NICHOLAS BUILDINGS.

BRANCH WORKS: CORNHILL-ON-TWEED.
TEL. 46 COLDSTREAM.

REGISTERED OFFICE:
Castle Engineering Works,
Tweedmouth,
Berwick-on-Tweed.
ENGLAND.

May,
Fifth,
1930.

Continuation Sheet 1.

The chief feature of our plants is that they will look after themselves in all weathers. The test made by Trinity House before placing the order extended over nine months in the English Channel during which time it was kept in constant use and allowed to operate in all gales of which there were many up to as high as 104 miles per hour. The wheel is so built as per enclosed photograph which shows clearly the method of governing. The centrifugal force forces the blades out until they obtain the best angle for the given power at the given speed. Should the load suddenly be released and the speed increased the angle of the blade is still increased until the tip of the blade gives a retarding action. The same thing occurs in the case of a gale blowing so that it is impossible for the Mill to over-run the speed for which it is adjusted.

Whether or not this Outfit will suit your purpose depends on whether or not you can depend on a certain number of hours wind per day above 7 miles per hour wind. If you have this and should still wish to have further security against possible breakdown of your cable or "Freelight" plant possibly you may know ways by which light can be maintained in the event of electric current failure by the introduction of a standby dissolved acetylene burner which can be automatically lit up when the electric current fails while similarly the light is automatically restored when current is again obtainable from the battery.

We thank you for having asked our tender and have endeavoured to give you as honest an opinion as possible. Our plant is absolutely reliable provided the position is such that the necessary wind is available. We shall be pleased to give you any further information you may require. Assuring you of our best attention at all times.

Faithfully yours,
For McBAIN BROS., LIMITED
W. McBain Director

Telegraphic Address: "McBAIN, ENGINEERS, BERWICK."
A.B.C. CODE 6TH EDITION.

Telephone No 73.

McBAIN BROS., LIMITED,
DIRECTORS { WALTER J. McBAIN. ANDREW McBAIN. ARTHUR G. GREAVES.

MANUFACTURERS OF
McBAIN OIL ENGINES,
STATIONARY & MARINE.

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BRANCH WORKS: CORNHILL-ON-TWEED.
TEL. 46 COLDSTREAM.

REGISTERED OFFICE:
Castle Engineering Works,
Tweedmouth,
Berwick-on-Tweed.
ENGLAND.

May,
Fifth,
1930.

E S T I M A T E.

One McBain "Freelight" 5 kilowatt plant complete with special tower to suit your requirements up to 20 feet complete with all necessary connections and Mercury collector boxes for carrying the current when wind changes direction.
Standard Mill.....£265 - 0 - 0

1 switchboard complete with all necessary switches and special cutout..... 25 - 0 - 0

1 battery Tudor or Chloride 270 amp 10 hour rating..... 267 - 9 - 0

Stands..... 15 - 4 - 6

Five hundred and seventy-two pounds Thirteen Shillings and Six pence. £572 -13 - 6

F.O.B. Plus 7½% for packing.
Plus an extra 7½% on batteries.? ?.

For McBAIN BROS., LIMITED

Wm McBain

832

ALL COMMUNICATIONS TO BE ADDRESSED TO THE COMPANY

THE Chloride ELECTRICAL STORAGE COMPANY LIMITED

TELEGRAPHIC ADDRESS CHLORIDIC SOWEST LONDON.
CODES:-BENTLEY'S. LIEBERS. A.I. A.B.C.(4TH & 5TH EDNS.)
TELEPHONES:- VICTORIA 6308 (5 LINES)

REGISTERED OFFICES & WORKS:
CLIFTON JUNCTION,
NR MANCHESTER.

EXPORT DEPARTMENT,
137, VICTORIA STREET,
LONDON. S.W.1.

OUR REFERENCE CD/VJP.

1st May, 1930.

Auckland Harbour Board,
Engineer's Office,
Auckland, N.Z.

Dear Sirs,

We thank you for your letter of the 24th ult., referring to our publication 86/14, dealing with an electric storage installation operated by a windmill driven generator.

You probably know that we are manufacturers of battery materials only, and unfortunately the English distributors of the Agricco Mill, which is illustrated in our publication 86/14, no longer sell plant of this nature.

As it is clear from your letter that you require a quotation very quickly, we have given a copy of your letter of the 24th ult., together with the Auckland Wind Record to Messrs Telford, Grier & Mackay Ltd. of 82, Fenchurch Street, London, E.C.3. They appear to be fully conversant with the requirements, and we understand will quote you immediately.

Yours faithfully,
FOR THE CHLORIDE ELECTRICAL STORAGE CO. LTD.

H. V. SCHOFIELD.

EXPORT MANAGER.
P.P.

802/1

Messrs. Cory-Wright & Salmon,
Cane Buildings,
Anzac Avenue,
AUCKLAND.

9th. April 30.

Dear Sirs;

ELECTRIFICATION OF HARBOUR LIGHTS.

I have to thank you for yours of 8th inst. enclosing specifications for the electrification of lights, and plans put forward by Messrs. Chance Bros.

These will be carefully studied and you will be communicated with later.

Yours truly,

ENGINEER TO THE BOARD.

WELLINGTON OFFICE:
DOMINION FARMERS' INSTITUTE
FEATHERSTON STREET
POSTAL: G.P.O. BOX 1230
PHONE NO. 43-172
TELEGRAMS & CABLES:
"CORYSAL" WELLINGTON

PRINCIPALS OF FIRM:
S. CORY-WRIGHT, B.Sc. (ENG.) A.M.I.C.E. M.N.Z. SOC. C.E.
C. W. SALMON A.M.I.C.E. M.N.Z. SOC. C.E.

CORY-WRIGHT & SALMON

ENGINEERS

WELLINGTON & AUCKLAND
NEW ZEALAND

Codes Used: Bentley's Phrase
Universal Trade Code
Broomhall's and Private

G.P.O. Box 1650,
AUCKLAND, N.Z.

AUCKLAND OFFICE:
GANE BUILDINGS
ANZAC AVENUE
POSTAL: G.P.O. BOX 1650
PHONE NO. 43-394
TELEGRAMS & CABLES:
"CORYSAL" AUCKLAND

When replying please quote
Our Reference No.
...../.....

April 8th. 1930

The Engineer,
Auckland Harbour Board,
A U C K L A N D.

ELECTRIFICATION
OF
EXISTING LIGHTS

Dear Sir,

With reference to the conversation which the writer had with you recently re electrification of the Rangitoto Beacon, we now have much pleasure in enclosing herewith a complete specification and drawings covering the type of plant put forward by Messrs Chance Bros. & Co. Ltd.

There are two alternative proposals, one for a Revolving Type, and the other for Fixed Type.

The Plant offered would be in accordance with the attached specifications, but would not include the optic. Drawing No. A-861 shows the electrification of an existing light of the revolving type, the supply including the following :-

Ball Bearing Pedestal complete with lamp changer.
Electric Lamps.
Chance Light Valve.
Duplicate Automatic Generating Plant, etc.

We estimate that the cost of this plant c.i.f. & e., duty paid Auckland would be about .. £620/-/-.

Drawing No. A-834 shows electrification of existing lights of the fixed type, the supply including the following :-

TO Auckland Harbour Board.

DATE 8-4-30

Electric Lamps.
Automatic Lamp Changer.
Chance Light Valve.
Duplicate Automatic Generating Plant.
Column, and Table, Occulting Mechanism, etc.

We estimate that the cost of this plant, c.i.f. and e., Duty Paid Auckland, would be about .. £530/-/-.

The above prices cover for the whole of the plant in accordance with the drawings and specifications attached.

You will note in the specification that the Generating Plants develop 6-amperes at 80 volts, but as the generating plant would be supplied with the job we should put in lamps suitable for 30 volts with the generating sets to correspond.

We trust that the information contained herein will be of interest to you.

Yours faithfully,
For, CORY-WRIGHT & SALMON,

RG:BF

ENGINEER.

CORY-WRIGHT & SALMON

ENGINEERS

WELLINGTON and AUCKLAND
NEW ZEALAND

802

COPY.

CHANCE BROTHERS AND CO., LIMITED. February, 1930.

AUCKLAND, N.Z.

S P E C I F I C A T I O N.

ELECTRIFICATION OF EXISTING LIGHTS OF THE FIXED TYPE.

DESIGN NO.A.834.

The supply will consist of the following :-

ILLUMINANT - 250 watt. electric incandescent lamp in focus. A similar lamp as standby. Necessary holders. 6 spare lamps.

AUTOMATIC BURNER CHANGE - The electric lamp in focus and the stnadby lamp will be mounted on a table which is actuated by a lamp changing mechanism. On the failure of the electric lamp in focus the mechanism functions and revolves the table, thereby moving the disabled lamp out of focus and bringing the standby electric lamp into focus and at the same time lighting it.

LIGHT VALVE. Of the "Chance" type for automatically turning light on at dusk and off at dawn. It will be complete with bracket for mounting on lantern roof.

AUTOMATIC GENERATING PLANT. This will consist of two engine driven electric generating plants, controlled by an automatic switchboard working in conjunction with a small starter battery and arranged to start up the sets alternately and bringing the second set as standby in the event of failure of the first.

Each set will be ½ K.W. size, the engine being suitable for running on petrol, the engine and generator will be mounted on a cast iron bedplate. The generator in each case will be special dual Commutator direct current type, developing 6 amperes at 80 volts. A starter battery will be supplied to supply the starting current for motoring the sets.

The automatic controller or switchboard will comprise an enamelled slate panel secured to a suitable framework.

The following instruments will be mounted on the board :-

SPECIFICATION (Contd.)

1 4½" M.C. Ammeter 0-12 amps.
1 4½" " " 10-0-30 amps.
1 4½" " Voltmeter 0-100 volts.
1 Voltmeter switch and fuse.
2 Reverse current relays, etc.
2 single pole circuit breakers.
4 pilot switches.
4 fuses of the porcelain replacement type.
2 shunt regulators.
1 double sided automatic drum type controller.
Small wiring, labels, etc.

COLUMN & TABLE. Of cast iron upon which the above apparatus will be mounted.

OCCULTING MECHANISM. This will occult the electric lamp and will be carefully adjusted to give the required character. It will be complete with necessary motor.

FOR CHANCE BROTHERS AND CO., LIMITED.

COPY

CHANCE BROS. & CO. LTD. February, 1930

802
1

AUCKLAND, N. Z.

S P E C I F I C A T I O N

ELECTRIFICATION OF EXISTING LIGHTS OF THE REVOLVING TYPE

DESIGN NO. A.861

The supply will consist of the following :-

PEDESTAL - Of the ball bearing type complete with optic carrying table and spur driving wheel.

DRIVING GEAR - The optic will be driven by a small electric motor through speed reduction gear.

ILLUMINANT - 250 watt electric incandescent lamp in focus. A similar lamp as standby. Necessary holders. 6 spare lamps.

AUTOMATIC BURNER CHANGER - The electric lamp in focus and the standby lamp will be mounted on a table which is actuated by a lamp changing mechanism. On the failure of the electric lamp in focus the mechanism functions and revolves the table thereby moving the disabled lamp out of focus and bringing the standby electric lamp into focus and at the same time lighting it.

LIGHT VALVE - Of the "Chance" Type for automatically turning light on at dusk and off at dawn. It will be complete with bracket for mounting on lantern roof.

AUTOMATIC GENERATING PLANT - This will consist of two engine driven electric generating plants, controlled by an automatic switchboard working in conjunction with a small starter battery and arranged to start up the sets alternately and bringing the second set as standby in the event of failure of the first.

Each set will be ½ K.W. size, the engine being suitable for running on petrol, the engine and generator will be mounted on a cast iron Bedplate. The generator in each case will be special dual Commutator direct current type, developing 6 amperes at 80 volts. A starter,battery will be supplied to supply the starting current for motoring the sets.

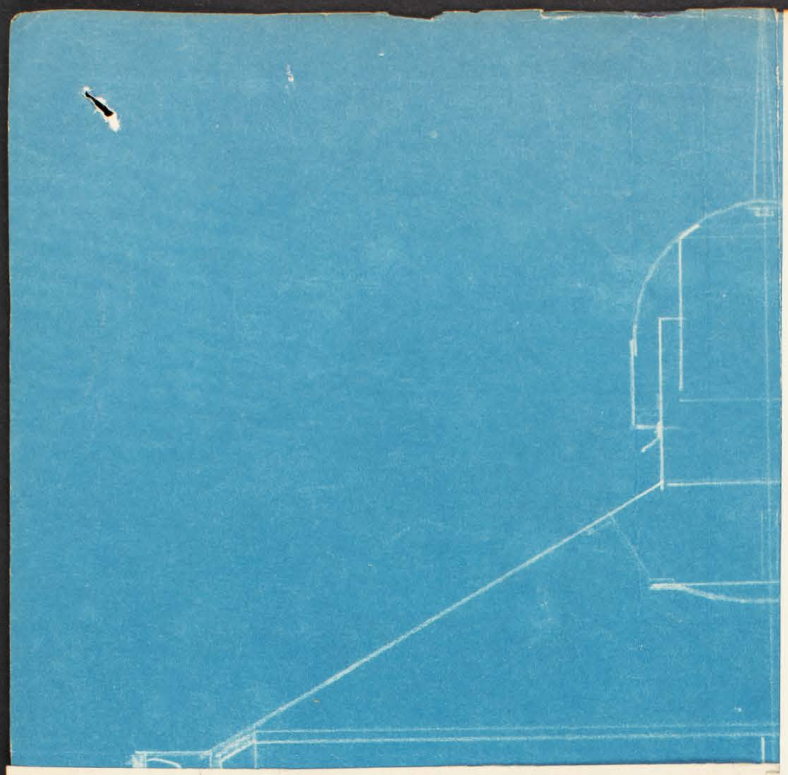
SPECIFICATION (cont'd)

The automatic controller or switchboatd will comprise an enamelled slate panel secured to a suitable framework.

The following instruments will be mounted on the Board :-

1 4½" M.C.Ammeter 0-12 amps.
1 4½" " " 10-0-30 amps.
1 4½" " Voltmeter 0-100 volts.
1 Voltmeter switch and fuse.
2 Reverse current relays etc.
2 single pole circuit breakers.
4 pilot switches.
4 fuses of the porcelain replacement type.
2 shunt regulators.
1 double sided automatic drum type controller.
small wiring, labels, etc.

FOR CHANCE BROTHERS & CO. LIMITED.



802/1

March 24th. 30.

Messrs. Chloride Electrical Storage Co. Ltd.,
137 Victoria Street,
LONDON. S.W.1.

Dear Sirs;

I recently saw a copy of your publication 86/14, dealing with an electric storage installation operated by a 10 kilowatt generator driven by wind mill.

At the present time I am considering the installation of electric power to a beacon in this harbour, which lies about 4,000 yards away from the nearest available source of supply, and it had been my intention to lay a submarine cable to bring the current to the beacon.

The actual power required for the light and its attendant mechanism would not exceed one kilowatt, and this would be only from dark until daylight.

Whatever system is installed should require as little attention as possible and be absolutely reliable.

I enclose wind record for 1929 for Auckland which may be taken as characteristic of the conditions at the beacon.

The maximum velocity of the wind is not recorded; the total anemometer reading being observed for each 24 hours only.

The direction of the wind is recorded at 9 a.m. and taken as constant for the 24 hours.

The beacon is a concrete structure 72 feet high and 14 feet diameter at top, right out in the open.

You are presumably in touch with the makers of modern mills, and I will be glad if you will look into the matter, and (if possible on the data supplied above) put forward a complete proposition, and quote prices for all parts, including mill, tower, generator and storage battery.

This is written in haste to catch today's fast mail; as tenders have already been called for the submarine cable referred to above, which are returnable at Auckland on the 10th. June.

I will be glad therefore if you will let me have a reply to this letter to reach me not later than that date, so that I can decide what action to take in the matter.

Please let me have the fullest possible plans and description of plant you may offer.

Yours truly,

ENGINEER TO THE BOARD

DH/RD

802/1

March 24th. 30.

Messrs. McBain Bros. Ltd.,
Castle Engineering Works,
Tweedmouth,
Berwick-on-Tweed,
ENGLAND.

Dear Sirs;

In the February issue of the Edgar Allen News, a letter over the signature of W.J. McBain refers to the installation of wind mills for the supply of electricity for light-houses.

At the present time I am considering the installation of electric power to a beacon in this harbour, which lies about 4,000 yards away from the nearest available source of supply, and it had been my intention to lay a submarine cable to bring the current to the beacon.

The actual power required for the light and its attendant mechanism would not exceed one kilowatt, and this would be only from dark until daylight.

Whatever system is installed should require as little attention as possible and be absolutely reliable.

I enclose wind record for 1929 for Auckland which may be taken as characteristic of the conditions at the beacon.

The maximum velocity of the wind is not recorded; the total anemometer reading being observed for each 24 hours only.

The direction of the wind is recorded at 9 a.m. and taken as constant for the 24 hours.

The beacon is a concrete structure 72 feet high and 14 feet diameter at top, right out in the open.

You are presumably in touch with the makers of modern electric generators and storage batteries, and I will be glad if you will look into the matter, and (if possible on the data supplied above) put forward a complete proposition, and quote prices for all parts, including mill, tower, generator and storage battery.

This is written in haste to catch today's fast mail; as tenders have already been called for the submarine cable referred to above, which are returnable at Auckland on the 10th. June.

I will be glad therefore if you will let me have a reply to this letter to reach me not later than that date, so that I can decide what action to take in the matter.

Please let me have the fullest possible plans and description of plant you may offer.

Yours truly,

ENGINEER TO THE BOARD.

DH/RD

902
1

27th. February 30

The Purchasing Officer.

ELECTRIFICATION OF RANGITOTO BEACON.

- Contract No.902 -

Herewith draft specification for submarine cable for the above.

Please advertise tenders returnable noon on 10th. June 1930.

Copies of specification should be forwarded to Lawrence & Hanson, Cory-Wright & Salmon, National Electrical & Eng. Co., and to the Macintosh Cable Co. Ltd, Ashbourne Road Mills, Derby, England. Other local agents will apply.

ENGINEER TO THE BOARD.

Auckland Harbour Board.

TENDER

For Contract No. 902 *for*

SUBMARINE CABLE FOR RANGITOTO BEACON LIGHT

193

TO THE CHAIRMAN OF THE
AUCKLAND HARBOUR BOARD

Sir,

I, We, the undersigned, do hereby Tender and offer to execute and perform the several works and provisions named, described, and alluded to in the Specification for the supply and delivery of Submarine Cable for Rangitoto Beacon Light

and under and in conformity to the General Conditions stipulated, for sum of

and I, We, annex hereto the Schedule of Prices upon which this Tender is based and calculated.

I, We, enclose herewith cheque, payable to Treasurer, Auckland Harbour Board, (or cash for £ 25/-/-)

Should this Tender be accepted I, We, undertake to execute a Contract and Bond embodying the aforesaid Specifications and Conditions within three days of the date of acceptance, and undertake to deposit with the Treasurer of the Auckland Harbour Board, a further sum of £25/-/- making a total of £ 50/-/- deposited.

Name

Address

The within Tender is accepted by the Auckland Harbour Board, Auckland,

The Common Seal of the Auckland Harbour Board was hereto affixed at a meeting of the Board held on the day of

by and two of the members of the Board, in presence of

Chairman

Members

Secretary
A.H.B.

Auckland Harbour Board

Engineer's Office,
1st. March 1930.

CONTRACT NO. 902.

SPECIFICATION FOR

THE SUPPLY & DELIVERY OF SUBMARINE CABLE FOR RANGITOTO BEACON LIGHT

1. TENDERS addressed to The Chairman, Auckland Harbour Board, and endorsed "Tender for Submarine Cable" will be received up till 12 noon on Tuesday, 10th June 1930 for the supply and delivery to the Board of 4,000 yards of Submarine Cable in accordance with all the terms and conditions of this specification.

2. DEPOSIT WITH TENDER. Each tender shall be accompanied by cash or cheque for twenty-five pounds (£25) which sum will be returned in the case of unsuccessful tenderers as soon as the necessary contract has been signed.

3. FURTHER DEPOSIT & EXECUTION OF CONTRACT. The successful tenderer shall, within three clear days of notification of acceptance of his tender by the Board, execute a legal Contract embracing all the clauses of this Specification and shall make a further deposit of twenty five pounds (£25) making a total of fifty pounds (£50) deposited against the due performance and completion of the contract, which sum will be returned only on satisfactory completion of the contract as certified by the Board's Engineer. Should any tenderer whose tender may be accepted by the Board refuse or neglect or fail to execute the necessary contract or to make the necessary further deposit within the said three days then the amount of the deposit accompanying such tender shall be forfeited absolutely to the Board as and for liquidated damages and the Board may accept the tender of any of the other tenderers.

4. SCOPE OF CONTRACT. This Contract shall be for the supply and delivery to the Board, c.i.f. & e., duty, wharfage, and all charges paid, on wharf at Auckland, N.Z. of 4,000 yards of Submarine Cable in accordance with this Specification.

5. DELIVERY. The cable shall be delivered to the Board in good order and condition within twenty weeks from date of acceptance of tender by the Board.

6. PENALTY FOR DELAY. Should the cable remain undelivered to the Board at the expiry of the said twenty weeks then the Contractor shall pay to the Board as and for liquidated damages the sum of ten pounds (£10) per week for each and every week that delivery is delayed beyond the due date. Any such sums due to the Board by the Contractor may be deducted from any moneys that may be payable or may become payable to the Contractor by the Board or may be sued for as a debt.

7. BRITISH MANUFACTURE. The whole of the Cable shall be manufactured within the British Empire by British workmen and tenders shall state the name of the makers and place of manufacture of the cable they offer to supply.

8. QUALITY. Except where specially detailed otherwise in this Specification, the whole of the cable shall be in accordance with British Standard Specification No.7-1926 and shall be to Table 13 of that Specification for "Rubber Insulated Cables for Voltages not varying from earth potential by more than 660 volts".

9. TESTS. The Cable will be subjected to test on behalf of the Board in accordance with British Standard Specification No.7-1926.
The Board will notify the Contractor of the name and address of its Inspector and the Contractor shall himself notify the Board's Inspector when the test is ready to be carried out.
No material shall be sent out without the consent of the Inspector expressly given.

10. DESCRIPTION OF CABLE. This shall be a twin cable each core consisting of 7 wires each 0.064 inches diameter of tinned copper, insulated with pure and vulcanized india rubber to a thickness of 0.100 inches, taped and compounded; the two cores laid up on jute to a circular section, taped, jute braided and compounded, taped with brass tape 0.004 inches thick laid with 50% overlap, jute served and compounded, armoured with one layer of galvanised wire 0.160 inches diameter, jute served and compounded.
Alternatively the Board will consider tenders for cable as above but insulated with special preparations other than pure rubber, full particulars of which shall be supplied with tenders.

11. LENGTH ETC. It is desirable that the whole cable shall be in one continuous length and it shall be supplied wound on a suitable drum and so packed as to prevent damage in transport. In the event of tenderers being unable to quote for the cable in one length, the quotation shall include the provision of suitable junction boxes, which shall be fully illustrated and described by tenderers.

12. CONDITION. The Cable shall be delivered to the Board in first class order and condition to the satisfaction of the Board's Engineer.

13. PAYMENT. Up to 75% of the value of the material will be made when the cable is delivered to the Board in good order and condition in accordance with this Specification. A further 15% will be paid when the cable has been laid in position and given satisfactory test. The balance of 10% will be paid after expiry of the guarantee period.

14. GUARANTEE. Tenderers shall guarantee the cables offered against electrical break-down due to deterioration of the dielectric either in the sea water or in air for a period of 12 months from date of delivery in Auckland.

15. TENDERS FORMS. Tenders shall be sent in on Official Tender & Schedule Forms which may be obtained on application to the Purchasing Officer, Auckland Harbour Board.

16. THE LOWEST OR ANY TENDER will not necessarily be accepted.

(Signed) D.Holderness,

M. INST. C.E.

ENGINEER TO THE BOARD.

TENDERS CLOSE 12 NOON ON TUESDAY 10TH JUNE 1930.

AUCKLAND HARBOUR BOARD.

CONTRACT NO. 902.

SCHEDULE OF PRICES FOR:-

THE SUPPLY & DELIVERY OF SUBMARINE CABLE FOR RANGITOTO BEACON LIGHT.

DESCRIPTION	PER 1000 YARDS	TOTAL. £	S.	D.
4,000 Yards 7/.064 p.&.v.i.r. insulated, brass-taped and armoured submarine cable in accordance with Specification No.902. Name of Makers..... ..... Place of Manufacture.....				

I/We offer to supply and delivery to the Board the whole of the material stated in the above Schedule for the prices set out therein and in accordance with Specification No.902.

SIGNATURE.....

ADDRESS.....

DATE.....

802/1

Auckland Harbour Board.

MEMORANDUM

FROM Neil S. Angus, Drawing Office.

To THE ENGINEER

27th February 1930.

RANGITOTO BEACON ELECTRIFICATION.

Length of Cable.

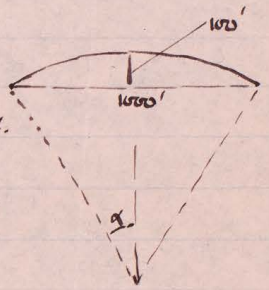
Distance in direct line from Station on beach at St. Leonards Rd to beacon 11502 feet.

Assume that in laying cable departure from straight line occurs to extent of 100 feet at 1000 ft. intervals, giving a series of circular arcs of 1000' chords × 100' mid. rise.

To calculate Cable length required.

Radius of arcs = $\frac{\frac{1}{2}\text{chord}^2 + \text{rise}^2}{2 \times \text{rise}}$

= $\frac{500^2 + 100^2}{2 \times 100}$ = $\frac{260000}{200}$, 1300 feet.



Angle α subtended by ½ arc

$\sin \alpha = \frac{500}{1300}$; $\alpha = 22°37'12''$

Length of arc = 2π radius × $\frac{2\alpha}{360}$

= $2 \times 3.14159 \times 1300 \times \frac{45.24°}{360°}$, 1026·5 feet. ✓

Taking 11.502 times this arc = 11,807 feet ✓ being length of cable required.

2¼ miles = 11,880 feet - only 73 feet over theoretical figure.

Order 2¼ miles of Cable (Submarine.)

Amount ordered = 4,000 yards.

Auckland Harbour Board.

MEMORANDUM

802

FROM Reis P. Angus
Drawing Office.

To THE ENGINEER

30th. August. 1929.

RANGITOTO BEACON ELECTRIFICATION.
Length of Submarine Cable:

Co-ordinates of Beacon (from Survey Dept.) 35011' N: ~~16597~~ 16957' E. of Mt. Eden.
" " Point Chosen on Foreshore at foot of Rt. Leonards Rd. Takapuna.
by Traverse Survey on 27th- from S.S. M. 625 28,750' N: 7308' E. of Mt. Eden.

Calculated bearing & distance 57°01'17"
Foreshore to Beacon 11,502 feet = 3834 yds = 2.18 miles.

Chart Scales 7.86" × 1750/12 = 11469 feet. (33 ft. less)
Max. depth of Channel 6 to 7 fathoms by chart: 40 feet by Creagh: Soundings 1907
This makes practically no difference in length of cable required.

A deviation of 5° from Straight line increases length to 11565 feet (increase 1/2%)
& gives max. offset from Straight of 500 feet
A deviation of 10° from Straight line increases length to 11679 feet (increase 1/2%)
with max. offset from Straight of 1000 feet.

To clear 10° variation in line 11679 feet = 3893 yds
with 1/4% allowance for dips 10 yds.
Makes Total Cable length required. 3903 yds.

NB. Point on foreshore is on line of west fence down cliff about 6 feet out from foot of cliff & is marked by deck spike driven into Sandstone.

Cals: Office C.O. Bk. Book 3. folio 122

Series of deviations up to 100 ft. off centre line occurring once in each 1000 ft increases distance between stations to 11807 ft.

Auckland Harbour Board.

MEMORANDUM

302

FROM Electrician, A.H.B.

17th August 192 9

To THE ENGINEER

RANGITOTO BEACONS.

Electric Light Installation.

I have the following recommendations to make :-

Sub-marine Cable.

Mr G.B Warfield Chief Electrician Pacific Cable Board Strongly recommends use of "Macanite" insulation made by The Macintosh Cable Co Ltd Ashbourne Rd Mills Derby England.

2/ wire 7/.034 P.& V.I.R. insulated cable, 2500 megohm grade. Insulated in accordance with the British Standard Specification for rubber covered cables NO. 7. Further insulation of this cable to make it suitable for sub-marine work to be decided upon. Also any test after laying.

Supply.

At shore end. Seacliff Rd. Belmont. 230 volts 50 cycles single-phase A.C.

Meter, fuses, switches, time-switch, lighting arresters, to be situated at this point.

At Rangitoto Beacon.

The voltage would be stepped down from 200 volts to ~~30~~ 32 volts by a single-phase oil immersed transformer.

Capacity one K.V.A.

The primary winding of the transformer to be tapped, (3)4 tars of 2½% each above 200volts and ~~of~~ 43 Taps of 2½% each tap below 200volts.

These tappings to give the necessary adjustment for varying the secondary Voltage.

Motor. 1/3 H.P. - 200volt - 50 cycle, single phase squirrel cage induction motor. Totally enclosed. Speed 1440 R.P.M. fitted with the automatic starter.

Auckland Harbour Board.

MEMORANDUM

FROM .....

.....

.....192

To

THE ENGINEER

Lanterns.

The Pyle National Coy., Lawrence & Hansen local agents.

Lamps.

300 watt.- ~~30~~ 32 volt Concentrated Filament gas-filled, Projection lamps. (? horizontal or vertical type)

Stand-by Gas-beacon.

The present gas-beacon to be left as a stand-by but to be interlocked with the electrical - control circuits.

Period of Flash.

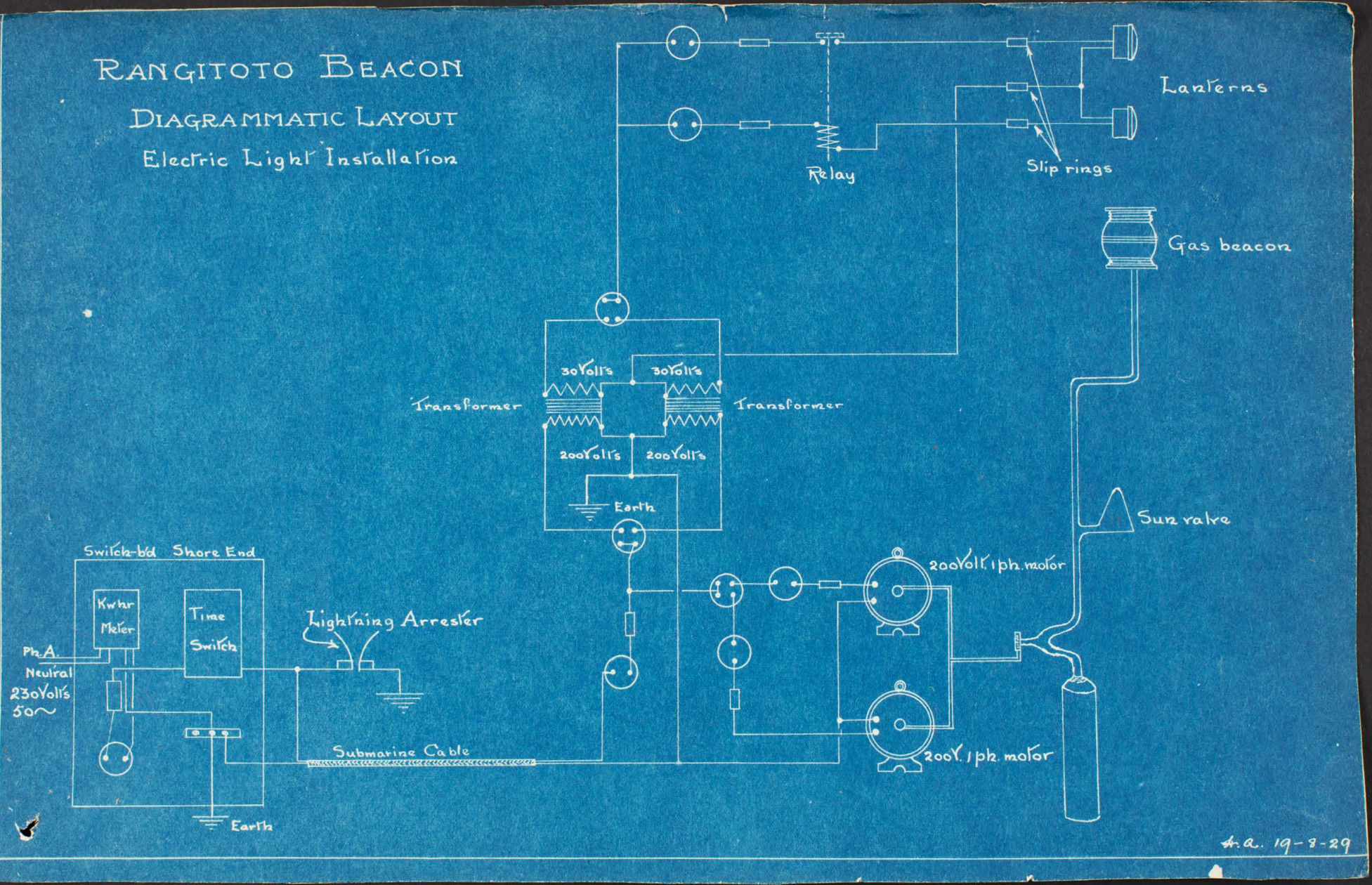
To be decided upon.

Lawrence

RANGITOTO BEACON

DIAGRAMMATIC LAYOUT

Electric Light Installation



A.a. 19-8-29

RANGITOTO BEACON LIGHT TEST.

carried out on night of 7th Aug. 1929.

NO. 1 Lantern. (motor driven)

Use 300 Watt Lamp with diffuser

Switch on at 6-30 p.m.

Keep running till 7-45 p.m.

Stop for 5 minutes

Change.

300 Watt Lamp into NO 2 Lantern and revolve for Ten Minutes

Stop for 5 minutes

NO 1 Lantern (motor driven)

* Use 400 Watt Lamp with diffuser and run until Pilot boat returns to Rangitoto Beacon.

* 400 Watt Lamp burnt out immediately it was switched on & 300 watt lamp was put back in its place.

Tiri reported the light to be a big improvement & quite clearly visible to naked eye.

Asst Gen. Engr Asst Engr & Electrician went down in pilot launch Waitemata to a point 10 miles beyond the beacon & nearly abreast of Tiri. Light was clearly visible all the time.

No.1 Lantern. The projector used for this test was a Pyle-National type 1260 similar to those used subsequently for the electrification of the beacons.

No. 2 Lantern. This lantern was one previously used in Destruction Gully - Waimakariri Harbours and consisted of portion of a dioptric lens with mirror reflector behind light.

802
1.

Messrs. Lawrence & Hanson Electrical Co. 29th. June 29
Albert Street,
AUCKLAND.

Dear Sirs;

SUBMARINE CABLE.

I have received yours of the 25th inst. and note your recommendation regarding submarine cable for lighting Rangitoto Beacon.

The matter will be carefully investigated and I will get into communication with you by letter if it is decided to proceed with the installation.

Yours truly,

ENGINEER TO THE BOARD.

TELEPHONE 45-031
P.O. Box 1302
ESTABLISHED 1886.

HEAD OFFICE:
WELLINGTON

BRANCHES: AUCKLAND, CHRISTCHURCH
NEW PLYMOUTH, DUNEDIN
HASTINGS, PALMERSTON, ALSO
SYDNEY AND MELBOURNE.

CABLE AND TELEGRAPHIC ADDRESS:
"LAWHANSON"
CODES:
A.B.C. 5TH AND WESTERN UNION

THE

LAWRENCE & HANSON ELECTRICAL CO.

Limited

ELECTRICAL ENGINEERS AND IMPORTERS

ALBERT STREET, AUCKLAND
NEW ZEALAND

GLOVERS CABLES
—
PHILIPS LAMPS
—
EXCELLITE
SWITCHBOARDS
—
CANADIAN
BEAUTY DOMESTIC
APPLIANCES

25th June, 1929.
Ref. ROP/MP

The Chief Engineer,
Auckland Harbour Board,
Quay Street,
AUCKLAND.

Dear Sir,

re SPECIFICATION FOR SUBMARINE CABLE.

With reference to the interview between yourself and Messrs. Allcock and Pomroy of Messrs. W. T. Glover and Co., Ltd, we would confirm that the specification for the type of Cable recommended by Glovers for the service which you have under consideration, is a s follows:

7/.044 two core cable suitable for service at 460 Volts.A.C

Each core insulated with 100 mils rubber insulation and taped.
The two cores laid up together, padded circular, with jute and taped.
Jute braided and compounded.
Taped with a four mil brass tape with a 50% overlap, taped.
Jute served and compounded.
Double galvanised steel wire armoured with wires of .072 inches diameter.
Jute served and compounded.

15 Gauge

The maximum drum length for this type of Cable would be 4,000 feet.
The net weight of such a length --77½ cwts.

(contd.)

Auckland Harbour Board 28th June, 1939.

Approximate price delivered, C.I.F., Auckland, per 1000 yards = £250.

Approximate price Joint Boxes delivered C.I.F.. Auckland, each = £50.

Glovers would be able to commence despatch from their works within approximately five weeks and complete in eight weeks from receipt of the order.

We would point out that Glovers have previously supplied a cable to the same specification, to the L.M.S. Railway for similar work to that required by yourself.

Should you require any further information in connection with the above, our services are at your disposal.

Yours faithfully,

The Lawrence & Hansson Electrical Co. Ltd.

R. J. Lowry

Auckland Branch Manager.

Auckland Harbour Board

MEMORANDUM

FROM: Electrician, Princes Wharf.

To: THE ENGINEER

21st May 1929

Karaka—8367

HARBOUR BEACONS.

Cost of Cable. Cory-Wright & Salmon's quotation 14th May 1929.

	Specification A.	Specification B. Lead covered.
Rangitoto Beacon	£600	£841-13- 4
Bean Rock	£240	£336-13- 4
Sandspit Light	£105	£147- 5-10
Total	£945	£1325-12- 8

National Electric Price.
£574. = 2/10½ yd. for
Double steel Armour 16 gauge.
with Lead covering. and
paper insulation. ?

The National Electrical & Engineering Co. Ltd.

REPRESENTING

The British Thomson-Houston Coy. Ltd. Eng.

General Electric Coy., U.S.A., British Insulated Cables' Ltd., Eng.

TELEGRAMS & CABLES:
"LANOITAN"
CODES: PRIVATE & BENTLEY'S
TELEPHONE 43-980 (3 LINES)
POST OFFICE BOX 445

MAZDA HOUSE, CR. CUSTOMS & LITTLE QUEEN STS.

Auckland, N.Z.

AND AT
WELLINGTON, CHRISTCHURCH
DUNEDIN, HAMILTON
WANGANUI, TIMARU
LONDON

IN REPLY REFER TO FST/2720 MAY 17th 1929

The Engineer,
Auckland Harbour Board,
AUCKLAND

Dear Sir:

With regard to your enquiry of January last, as to our recommendations and approximate price for a suitable cable for lighting a Beacon in the Harbour, we beg to advise that we are now in receipt of the necessary details from our Principals, The British Insulated Cables Ltd. of Prescot, England.

The Cable recommended is the B.I. Class MDDM, which is a double steel wire armoured cable, and it is proposed to use .064 diameter galvanized steel wires. We think you have in your possession a copy of the B.I. Hand Book, in which you will find full details of the class of cable we are putting forward. The diameter of the cable over the lead would be .56 and the diameter overall 1.256. It could be supplied in one length wound on one drum, the gross weight of which would be 12 tons.

With regard to suitable Terminal Boxes, we presume that these will require to be outdoor type, and we are putting

forward Catalogue A-8383, details of which are given on Bulletin X/182, copy of which we attach hereto.

Our prices would be as follows:-

4000 yards 7/.044 low tension 2-core Submarine Cable, paper insulated, for 230 volts, lead covered class MDDM, to British Engineering standards,

Price the lot ... £574/-/-

2 only Outdoor type Low Tension Terminal Boxes, Cat. A/8383,

Price each ... 37/6

The above mentioned prices are nett, and cover delivery on wharf Auckland, all charges paid.

We think this covers all the information you require, but should there be anything further, we shall be pleased to supply same on request.

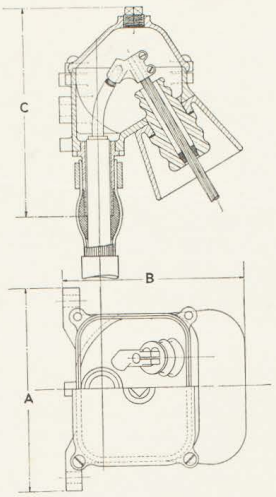
Yours faithfully,

For THE NATIONAL ELECTRICAL & ENGINEERING COMPANY LTD.

Sales Dept.

FST/AM
ENCLO:

Outdoor Type for L.T. Cables up to 660 Volts.



Type of Cable.	Size of Cable.	List No.	Dimensions.			Compound Per Box.
			A	B	C	
	Sq. Inches.		Ins.	Ins.	Ins.	Lbs.
Lead Covered Single	Up to ·15	**A 8750**	$7\frac{3}{4}$	$7\frac{1}{4}$	$7\frac{1}{4}$	$2\frac{1}{2}$
L. C. & Armd. ,, ...	,,	**A 8794**	$7\frac{3}{4}$	$7\frac{1}{4}$	8	$2\frac{1}{2}$
Bit. W. Armd. ,, ...	,,	**A 8751**	$7\frac{3}{4}$	$7\frac{1}{4}$	$7\frac{1}{2}$	$2\frac{1}{2}$
Lead Covered Twin	Up to ·0225	**A 8382**	$4\frac{1}{4}$	$4\frac{1}{4}$	$5\frac{1}{8}$	1
L. C. & Armd. ,, ...	,,	**A 8383**	$4\frac{1}{4}$	$4\frac{1}{4}$	$5\frac{3}{4}$	1
Bit. W. Armd. ,, ...	,,	**A 8384**	$4\frac{1}{4}$	$4\frac{1}{4}$	$5\frac{1}{2}$	1
Lead Covered Twin	·0025–·06	**A 8908**	$7\frac{3}{4}$	$7\frac{1}{4}$	$7\frac{1}{4}$	$2\frac{1}{2}$
L. C. & Armd. ,, ...	,,	**A 8909**	$7\frac{3}{4}$	$7\frac{1}{4}$	8	$2\frac{1}{2}$
Bit. W. Armd. ,, ...	,,	**A 8910**	$7\frac{3}{4}$	$7\frac{1}{4}$	$7\frac{1}{2}$	$2\frac{1}{2}$
Lead Covered 3-Core	Up to ·06	**A 8911**	$9\frac{1}{2}$	$7\frac{1}{4}$	8	3
L. C. & Armd. ,, ...	,,	**A 8912**	$9\frac{1}{2}$	$7\frac{1}{4}$	$8\frac{3}{4}$	3
Bit. W. Armd. ,, ...	,,	**A 8913**	$9\frac{1}{2}$	$7\frac{1}{4}$	$8\frac{1}{4}$	3
Lead Covered 4-Core	Up to ·1	**A 8905**	11	$8\frac{1}{2}$	$9\frac{3}{4}$	7
L. C. & Armd. ,, ...	,,	**A 8906**	11	$8\frac{1}{2}$	$10\frac{3}{4}$	7
Bit. W. Armd. ,, ...	,,	**A 8907**	11	$8\frac{1}{2}$	10	7
Lead Covered Twin	·06–·15	**A 8914**	$8\frac{1}{2}$	$8\frac{1}{2}$	9	5
L. C. & Armd. ,, ...	,,	**A 8915**	$8\frac{1}{2}$	$8\frac{1}{2}$	$9\frac{3}{4}$	5
Bit. W. Armd. ,, ...	,,	**A 8916**	$8\frac{1}{2}$	$8\frac{1}{2}$	$9\frac{1}{4}$	5
Lead Covered 3-Core	,,	**A 8917**	11	$8\frac{1}{2}$	$9\frac{3}{4}$	7
L. C. & Armd. ,, ...	,,	**A 8918**	11	$8\frac{1}{2}$	$10\frac{3}{4}$	7
Bit. W. Armd. ,, ...	,,	**A 8919**	11	$8\frac{1}{2}$	10	7

If Pole Straps required, please state diameter of Pole when ordering.
The insulators of the boxes as listed are not supplied with copper rods fitted.

WELLINGTON OFFICE:
DOMINION FARMERS' INSTITUTE
FEATHERSTON STREET
POSTAL: G.P.O. BOX 1230
PHONE NO. 43-172
TELEGRAMS & CABLES:
"CORYSAL" WELLINGTON

PRINCIPALS OF FIRM:
S. CORY-WRIGHT, B.Sc. (ENG.) A.M.I.C.E. M.N.Z. SOC. C.E.
C. W. SALMON A.M.I.C.E. M.N.Z. SOC. C.E.

CORY-WRIGHT & SALMON

ENGINEERS

WELLINGTON & AUCKLAND
NEW ZEALAND

Codes Used: Bentley's Phrase
Universal Trade Code
Broomhall's and Private

G.P.O. Box 1650,
AUCKLAND, N.Z.

AUCKLAND OFFICE:
GANE BUILDINGS
ANZAC AVENUE
POSTAL: G.P.O. BOX 1650
PHONE NO. 43-394
TELEGRAMS & CABLES:
"CORYSAL" AUCKLAND

When replying please quote Our Reference No. ...../.....

May 14th. 1929

The Engineer,
Auckland Harbour Board,
AUCKLAND.

SUBMARINE CABLE FOR HARBOUR BEACONS.

Dear Sir,

With reference to your enquiry for submarine cables for your beacons, we have now received a reply from Messrs Siemens Bros., in which they have quoted for suitable cables.

SPECIFICATION A.

Conductor composed of 7/.044" tinned copper wires, insulated with pure and vulcanised india rubber to a total radial thickness of 60 mils, taped and compounded, two such cores laid up on tanned jute wormings and taped, served with a layer of tanned jute yarn, armoured with a layer of No. 8 S.W.G. galvanised soft steel wires, served overall with two layers of 3-ply tarred jute yarn and compounded.

Price, per 1,000 Yards .. .. £180. 0. 0. Less 17½% = £148-10 0
= say 3/- per yard

Alternatively, SPECIFICATION B.

Conductor composed of 7/.044" tinned copper wires insulated with pure and vulcanised india rubber to a total radial thickness of 60 mils, taped and compounded, two such cores laid up with tanned jute worming and taped, lead covered (.06" thick) served with two layers of compounded paper and one layer of tarred jute yarn, armoured with a layer of No. 8 S.W.G. galvanised soft steel wires, served overall with two layers of 3-ply tarred jute yarn and finally compounded overall.

Price, per 1,000 Yards .. .. £255. 0. 0. Less 17½%

4/2½ per yard

TO The Auckland Harbour Board. DATE 14-5-29

The above prices are for delivery on wharf, Auckland, all charges paid.

DELIVERY:

Our Principals inform us that they can effect delivery to f.o.b. in about five to six weeks from date of receipt of order.

It is quite possible for either of these cables to be made in lengths of 4,000 yards, and the approximate shipping specification for the total length required is as follows :-

Specification A.

4,000 yards on 1 drum, 106" x 106" x 60", gross wt. 202 cwt.
2,300 " " 1 " 90" x 90" x 50" " " 117 "

Alt. Specification B.

4,000 yards on 1 drum, 120" x 120" x 60", gross wt. 312 cwt.
2,300 " " 1 " 100" x 100" x 52", " " 177 "

We trust that this information will be useful to you, and we should be glad to hear whether you are likely to proceed with the scheme.

Yours faithfully,
For, CORY-WRIGHT & SALMON,

R Cwan.

RG:BF ENGINEER.

The above prices are standard N.Z. list prices.

Auckland Harbour Board.

MEMORANDUM

FROM Electrician, Auckland Harbour Board.

18th December 1928

To THE ENGINEER

(See Mr. Dickinson's Estimate dated 16.6.30 on this file)

BEACON LIGHTS.

Electrification of Rangitoto Beacon, Bean Rock, and Sandspit Lights.

Measuring off the chart to the nearest point on shore the distances are as follows :-

Seacliffe Rd. (near Belmont School) to Rangitoto Beacon 4000 yds

Kohimaramara Wharf to Bean Rock 1600 yds.

Defence Wharf (base) to Sandspit Light 700 yds.

6300 yds 1/.036

In the estimate of cable required (~~cable~~) I have added 100 yds to each of the above lengths.

At Belmont, Seacliffe Rd runs to the cliff edge and the Waitemata Boards Supply wires run down Seacliffe Rd to within 200 ft of the cliff. (26.8.28. St Leonards Road found to be a better place to start from.)

We already have supply on Kohi Wharf and at North Head the supply is in the Defence Departments yard.

In calculating the voltage drop on the lines, I have allowed a load of 2 amperes at the lights.

Allowing for a 400 c.p. lamp in each lantern plus a small driving motor the load would be 1·5 amps.

With a load of 2 amperes the voltage drop on the lines is as follows :-

Using 7/·036 cable.

To Rangitoto Beacon	38 volts
" Bean Rock	15 "
" Sandspit Light	6·4 "

In the Rangitoto Beacon and Bean Rock lights this drop in Volt - too high for 230 volt lamps.

Auckland Harbour Board.

MEMORANDUM

FROM

192

To

THE ENGINEER

To increase the size of the cable from 7/·036 to 7/·044 would increase the price of cable approx. 20 % but the drop in voltage would then be as follows :-

Rangitoto Beacon	20·5 volts
Bean Rock	8 "
Sandspit Light	3·5 "

Even with the larger cable the drop for Rangitoto Beacon is too great on 230 volts, but by using 200 volts lamps (which is a standard voltage) the position would be quite satisfactory.

In the case of Bean Rock and Sandspit lights the drop in voltage may be disregarded when using the larger cable.

From these figures I would say that the size of the cable should not be less than 7/·044 .

Local Supply Houses have quoted for cable as follows :-

7/·044 @ approx 2/- per yd

This cable is standard 600 megohm grade, twin lighting cable - lead covered and armoured with 15 gauge gal. steel wire.

From the samples of cables I have seen as laid by the Telegraph and Defence Departments across this Harbour, it is evident that they consider heavy armour is necessary to protect the cable - in one case the Defence Dep cable was armoured with 10 gauge wire and the Telegraph Dep't used 2 gauge wire.

I think this last cable is very old and more modern cables are likely to use a lighter gauge wire, but the armouring must be depended upon to protect the cables from damage by anchors etc.

We should have no difficulty in relation to timing gears for flashing the lights. For many years the Harbour light at Kings wharf was operated by clock gear and we are at present running fog gears timed by small motors they give reliable service.

Auckland Harbour Board.

MEMORANDUM

FROM .....

.....

.....192

To

THE ENGINEER

Group flashing of lights with short periods of one second flash may present difficulty due to the lamp filament not cooling fast enough but I understand that these very short flashes are used with the idea of conserving gas supply, which would not apply in the case of electric light.

I consider the proposal to electrify these lights quite practicable and the laying of the cables should present no difficulties, but if any doubt exists, it would be a reasonable precaution to do the Sandspit light before ordering the larger cables. I think that we should be able to buy some suitable cable for this short run locally and thus gain valuable experience and running costs before going on with the bigger jobs.

In relation to the Submarine cable Messrs Cory-Wright & Salmon have offered to obtain prices direct from their Principals and I would suggest that the enquiry should be for 6500 yds-7/.044 - 600 megohm grade V.I.R. twin-core lighting cable, lead covered and steel armoured, suitable for submarine work in Harbours. Full details of insulation and armouring to be supplied.

The question of what lengths it is possible to supply and ship the cable in is important; as the fewer joints necessary, so much the better.

Edwards.