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Authority: Chief of Coast Artillery

11/10/40
DATE

INITIAL

Register No. 7

ANNEXES TO HARBOR DEFENSE PROJECT
HARBOR DEFENSES OF MARRAGANSETT BAY

The short title of this document is CCA-AN-NARB 38

Under the provisions of A.R. 360-5 (paragraph 27a), each recipient of this document should make return therefor on June 30 and December 31 of each year to the Chief of Coast Artillery, Washington, D. C.

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ANNEX A

SEACOAST GUNS.

1. Gun Defense. The gun defense of Narragansett Bay is divided into the inner defense and the outer defense. These are, however, inter-related. The existing inner defense consists of the armament at Forts Adams, Wetherill, Getty and Kearney, defending the mine fields and submarine barriers and covering the bay out to a line Point Judith - Sakonnet Point. The projected outer defense is designed to hold hostile vessels at such a distance offshore as will permit our Navy to pass freely back and forth between Narragansett Bay and Long Island Sound. The maximum probable bombardment range of the guns of naval vessels is assumed to be 35,000 yards. This implies holding the enemy approximately 40,000 yards off Point Judith so far as deliberate bombardment movements are concerned. The line inshore of which safe passage is provided, is shown in Exhibit 3-B, Annex B.

2. Tactical Organization. The organization of the harbor defense into five groups is shown in Exhibit 1-A.

a. The underwater defense consisting of mine fields in the Eastern and Western Passages, together with the secondary armament of the inner defense, is organized as a mine group.

b. The major caliber guns and mortars of the inner defense may conveniently operate as one group, as their fields of fire all lie principally in the triangle Point Judith-Sakonnet Point - Beavertail.

c. Because of their isolation, the batteries at Point Judith, including the antiaircraft batteries, are organized into one group. The same situation exists at Sakonnet Point, where one group is formed.

d. As the Harbor Defense Command Post is on Conanicut Island with Forts Wetherill and Getty, the only fort commands which need to be provided for are Forts Adams and Kearney. In these two cases, the senior battery commander is hereby designated as fort commander.

e. The two antiaircraft batteries and the machine gun detachment protecting the inner defenses are organized as one group. The command post is located at the Harbor Defense Command Post and also includes an antiaircraft intelligence center designed to serve both outer and inner defenses.

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(1) Each of the six antiaircraft batteries is organized into a gun, a machine gun and a searchlight detachment.

3. Present Armament.

a. Batteries of Inner Defense.

(1) There are four major caliber batteries in the inner defense:

(a) Batteries Wheaton (two 12-inch disappearing guns) and Varnum (two 12-inch barbette guns) at Fort Wetherill;

(b) Batteries Edgerton and Greene (each four 12-inch mortars) at Fort Adams.

(2) In addition, there are two 6-inch and two 3-inch batteries covering the mine fields and the antisubmarine net in the Western Passage, and one 6-inch and one 3-inch battery covering those of the Eastern Passage.

(3) Battery Wheaton, two 12-inch DC at Fort Wetherill.

(a) The field of fire of this battery is shown in Exhibit 5-B. While the field of fire of No. 2 gun could be increased toward the left so as to cover the entrance of the Sakonnet River, the cost of cutting away the concrete emplacement is estimated as \$3,050; and the need is slight, as the Sakonnet is covered by the mortars and No. 2 Varnum, as well as by the Sakonnet Point batteries. The disadvantage would be incurred in increasing this field of fire to the left, that fire in the increased sector would probably interfere with the batteries on the left flank of Wheaton.

(b) The field of fire of No. 1 gun is masked on the extreme right up to mid-range by the parapet of Battery Walbach on its right but this area is inside the western mine field and is unimportant.

(c) The rate of fire which may be expected for a short period with these guns is approximately 35 seconds per shot per gun using Case II and 50 seconds using Case III.

(4) Battery Varnum, two 12-inch barbette guns at Fort Wetherill.

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(a) The field of fire is shown in Exhibit 6-B, Annex B. By removing the inclined steel ladders leading to the loading platform from the side of the carriage and replacing them with vertical ladders, No. 1 gun could be traversed an additional $9\frac{1}{2}$ degrees on each side of the present limiting azimuths. This is unimportant on the right, as both guns can now fire across the Western Passage at a point north of the mine field. On the left, this modification has now been made.

(b) The rate of fire which may be expected for a short time with these barbette guns is approximately 40 seconds per shot per gun using Case II, and 55 seconds using Case III.

(5) Battery Edgerton, four 12-inch mortars, and Battery Greene, four 12-inch mortars, at Fort Adams.

(a) The fields of fire of these two mortar batteries are shown in Exhibit 7-B, Annex B; as the two batteries are close together, their fields of fire are plotted as one. While they are capable of all-around fire, the important part of the field lies between azimuth 90° , or due west, counterclockwise to azimuth 221° or to the northeast.

(b) A rate of fire somewhat under 60 seconds per salvo may be expected.

(c) As these batteries may be expected to fire chiefly in the outer zones, most of the ammunition should be for the longer ranges. The distribution should be four 700-pound projectiles to one 1046-pound projectile.

(6) Rapid Fire Batteries. There are six batteries of the secondary armament -- three 6-inch and three 3-inch. Four of these batteries (two 6-inch and two 3-inch) bear on the Western Passage, covering the mine field and antisubmarine net; and two (one 6-inch and one 3-inch) cover the mine field and anti-submarine nets in the Eastern Passage.

(7) (a) Batteries Cram (two 6-inch DC) and Armistead (two 3-inch BC) at Fort Philip Kearney have the fields of fire shown in Exhibits 8-B and 9-B, Annex B, and tabulated in paragraph 3 (8) below; these batteries bear on the Western Passage.

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(b) Batteries House, (two 6-inch BC) and Whiting (two 3-inch BC) at Fort Getty, have the fields of fire shown in Exhibits 12-B and 13-B of Annex B, and tabulated in paragraph (8) below; these batteries also bear on the Western Passage.

(c) Batteries Dickenson, (two 6-inch BC) and Crittenden (two 3-inch BC) at Fort Wetherill, bear on the Eastern Passage and have the fields of fire shown in Exhibits 10-B and 11-B of Annex B, and tabulated in paragraph (8) following.

(d) It is not necessary to widen the field of fire of any of the above rapid fire batteries.

(8) Limits of Fields of Fire.

<u>Fort</u>	<u>Battery</u>	<u>Gun No.</u>	<u>A z i m u t h</u>	
			<u>Right Limit</u>	<u>Left Limit</u>
Kearney	Cram - 2 6"	1	25	235
		2	359	205
	Armistead - 2 3" BC	1	356	220
		2	350	185
Getty	House - 2 6" BC	1	180	310
		2	180	310
	Whiting - 2 3" BC	1	143	333
		2	133	338
Wetherill	Dickenson - 2 6" BC	1	140	220
		2	140	220
	Crittenden - 2 3" BC	1	55	280
		2	63	270

b. Additional Armament.

(1) Near Point Judith. One 16-inch, one 8-inch railway, one 155-mm battery, and two 3-gun mobile antiaircraft batteries (Warragansett Pier) are provided for in the project.

(2) 16-inch Battery.

(a) This two-gun battery is to be located on the tract of approximately 146 acres shown in Exhibit 2-A. It is unnecessary to build a wharf. The value of the land was appraised in 1938 as \$97,375. A small storehouse, and

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barracks and quarters for a detachment of one officer and ten men should be included, this detachment to care also for the 155-mm battery; the construction is to be carried out by the Corps of Engineers under the provisions of paragraph 14 b, AR 100-20. The general type of construction is to be that designated as Type C Emplacement for 2 - 16-inch guns (Inclosure No. 1 and No. 2 to 4th Indorsement, June 13, 1934, C. of E. 381 (Coast Defense) 116; file No. 188-70-32a). This design provides a bombproof traverse housing the power plant and magazines, and a separate bombproof structure for combined plotting and switchboard room. (With reference to the type of emplacement it is to be noted that the War Department policy in this matter is stated in paragraph 2 of the 11th Indorsement dated the Office of The Adjutant General, March 30, 1939, on letter subject "Type Emplacement, 16-inch Gun on Barbette Carriage with Steel Cover Protection," dated the Office of the Chief of Engineers, May 31, 1938, (C. of E. 662 B) (AG 660.2 (5-31-38) (Misc.) E) (OCCA 662/E-22), which states in part "The selection of the type of emplacement for any particular locality will be made the subject of a special study which will take note of local conditions".

(b) The field of fire of the battery, constructed as above, is shown in Exhibit 4-B of Annex B. The azimuth of the line of gun centers should be 258° so that the axis of the field of fire will be 348° . With this directrix, there will be a minimum disadvantage resulting from the inability with this type of emplacement to fire one gun directly over the other at low elevations.

(c) The layout of the battery is shown in Exhibit 3-A.

(3) 155-mm Battery.

(a) This four-gun battery is to be located on a tract of approximately 9 acres shown in Exhibit 2-A. The value of the land was appraised in 1938 as \$16,700. The concrete platforms should be so constructed as to permit a wide field of fire. The distance between gun centers should be approximately 30 yards. The azimuth of the line of gun centers should be 335° ; the directrix of the field of fire will then be azimuth 245° on the east, and azimuth 65° on the west. This will allow all four guns to fire from the shore line near Naragansett Pier on the northeast to azimuth 305° on the southeast, and from azimuth 5° on the south to the shore line of Block Island Sound on the west. One gun will bear from azimuth 305° to azimuth 5° . Exhibit 4-A shows the field of fire of the battery disposed as above.

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(b) It is not necessary to construct permanent ammunition storage facilities at the battery; temporary facilities should be provided when the emergency arises. The short-delay fuze and not the super-quick fuze should be provided for fire against naval targets as the former always will and the latter usually will not function on water impact where ricochet occurs.

(4) Narragansett Pier 8-inch Battery, two railway guns.

(a) The battery is to be located in the 5-acre field in which the Narragansett Pier Railroad terminates at South Pier. As the last 580 yards of this road has not been used since about 1927, new ties and some new rails will have to be put in. The useful part of the tract at South Pier is 660 feet long and can be paralleled by a siding of equal length. See Exhibit 5-A.

(b) If the open plot of ground at South Pier should become no longer available through construction of buildings or otherwise, the battery can be fired from a siding which can be constructed on open grass land approximately 450 yards west of the railroad station. See Exhibit 5-A.

(c) These guns are so mounted as to permit of all-around fire. The useful portion of the field of fire is from azimuth 67° on the west (which is near where the maximum range arc crosses the shore-line) around through the south to azimuth 241° on the east (which is near Beavertail). This arc of fire of 186° has its median at azimuth 334° which should therefore be the directrix; the line of gun centers should have azimuth 244° . It will not be practicable to fire 2 guns over this entire arc of 186° since the plot of ground at South Pier will not permit of sufficient distance between guns to allow of firing one over the other. One gun can fire over all portions of the field and both guns can fire from about due east across Narragansett Bay to about azimuth 34° which is well to the west of Block Island.

(d) Should the South Pier site become no longer available, and the guns be located on the plot one-half mile to the west described in paragraph 3 b (4) (b) above, the same azimuth of the line of gun centers should be secured. In this location the guns should be emplaced approximately 125 yards apart so as to permit of firing one over the other at the longer ranges.

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4. Alternative Plan for 8-inch Fixed Battery.

a. As an alternative plan, an 8-inch fixed battery of two guns is to be constructed 2,000 yards south of the 16-inch gun site and 500 yards northwest of Point Judith Light; the plot of 14 acres is shown in Exhibit 2-A. The center of the battery should be 450 yards or more from the center of the 155-mm battery in order that there may be no interference. The value of the land was estimated in 1934 at \$350 per acre.

b. The Type E, 1933, layout is to be employed. The axis of the field of fire is to be 15° east of south or azimuth 345° ; hence the line of gun centers should be 255° . The Type E construction does not allow of firing one gun over the other at angles of elevation of less than $7\frac{1}{2}^{\circ}$ corresponding to about 10,000 yards range. At about 12° from the line of gun centers, point blank range can be obtained. Therefore this battery may be fired at all ranges from azimuth 267° clockwise to azimuth 63° .

5. Near Sakonnet Point. One 16-inch, one 8-inch, one 155-mm battery, and two 3-gun mobile antiaircraft batteries are provided for in the project.

a. 16-inch Battery.

(1) This two-gun battery is to be located on the tract of approximately 99 acres shown in Exhibit 6-A. The value of the land was appraised in 1938 as \$28,362. A storehouse and detachment barracks and quarters should be provided, to be constructed by the Corps of Engineers under the provisions of paragraph 14 b, AR 100-20; this detachment of an officer and ten men can also care for the 8-inch and 155-mm batteries. The general type of construction of the battery is to be that referred to in the 11th Indorsement dated the Office of The Adjutant General, March 30, 1939, on letter subject "Type Emplacement, 16-inch Gun on Barbette Carriage with Steel Cover Protection," dated the Office of the Chief of Engineers, May 31, 1938, (C of E 662 B) (AG 660.2 (5-31-38) (Misc.) E) (OCCA 662/E-22), which provides for two 16-inch guns on barbette carriages with steel envelope covers for guns and carriages. This design provides a bombproof traverse housing the magazines and power plant and a separate bombproof structure for combined plotting and switchboard room.

(2) The field of fire, constructed as above, is shown in Exhibit 14-B of Annex B. The azimuth of the line of gun centers should be 265° so that the axis of the field of fire will be 355° . With this axis, both guns can fire from a line which strikes Point Judith Neck just south of Narragansett Pier, counterclockwise to any important part of Buzzards Bay within range.

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(3) The layout of the battery is shown in Exhibit 7-A.

b. 8-inch Battery.

(1) This two-gun battery is to be located on a tract of approximately 22 acres shown in Exhibit 6-A. The value of the land was appraised in 1938 as \$9,220. The Type E, 1933 layout is to be employed. As the axis of the field of fire is to be due south, the line of gun centers should be azimuth 90° . Space at the northeast corner overlooking the swamp should be left for an antiaircraft battery.

(2) The Type E layout does not permit of firing one gun over the other at angles of elevation of less than $7\frac{1}{2}^{\circ}$ corresponding to a range of about 10,000 yards. At about 12° from the line of gun centers point blank range can be obtained. Therefore this battery may be fired at all ranges from azimuth 78° counterclockwise to azimuth 282° or from a line toward Narragansett Pier to all points within maximum range in Buzzard's Bay. See Exhibit 14-B, Annex B.

c. 155-mm Battery.

(1) This battery of four guns is to be constructed on Sakonnet Point about 350 yards from the tip of the point, on a strip of about $4\frac{1}{2}$ acres, the estimated cost of which is \$7,755, as appraised in 1938. A right of way must be ensured over an existing sandy road or drift-way. The concrete platforms should permit of a wide field of fire. The guns should be arranged on a straight line with a distance between gun centers of approximately 30 yards.

(2) The azimuth of the line of gun centers should be 30° . This permits all four guns to fire on the east from the shore-line to a due south line. On the west, all four guns can fire from azimuth 60° (which is between Block Island and Point Judith) to a due north line. The field of fire is shown in Exhibit 8-A.

(3) It is not necessary to construct permanent ammunition storage facilities at the battery; temporary facilities should be provided when the emergency arises. The short-delay fuze and not the super-quick fuze should be provided for fire against naval targets as the former always will and the latter usually will not function on water impact where ricochet occurs.

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6. a. The locations of proposed fixed and railway batteries described in this Annex were approved by the War Department in 12th Indorsement, W.D., AGO, August 31, 1933, (AG 660.2 (1-30-33) (Misc.) E).

b. The sites were surveyed in 1933-34 by the District Engineer, Providence, Rhode Island. The report on the sites at Sakonnet Point is dated April 28, 1934; the report on the sites at Point Judith is dated May 22, 1934. These surveys were made pursuant to 18th Indorsement, C. of E., October 16, 1933 (AG 660.2 (1-30-33) (Misc.)). Appraisals as to the value of the sites for the 16-inch battery at Point Judith and for the 16-inch and 8-inch fixed batteries at Sakonnet Point were made by the District Engineer, Providence, Rhode Island, on April 12, 1938 (Reference: 10th Ind. dated the O. C. of E., May 12, 1938, on letter subject "Recommendation for Acquisition of Land for Seacoast Armament, Harbor Defenses of Narr. Bay and Long Island Sound" dated the O. C. of E., October 6, 1937 (C of E 662 B (Narr. Bay) (AG 660.2 (10-6-37) (Misc.) (OCCA 601/17-B)).

c. A monument is now being placed to mark the position of No. 1 gun of the 16-inch battery at Sakonnet Point and one at Point Judith, and their latitude and longitude determined.

7. Camouflage. A continuous program to provide for the natural camouflage of the fixed elements of the harbor defense will be instituted by the local commander and upon war becoming imminent he will provide for the necessary artificial camouflage. Reference Section I, Chapter 9, Coast Artillery Field Manual, Volume I, Seacoast Artillery, Part One; Basic Field Manual, Volume VII; and Part Two, Engineer Field Manual, Volume II.

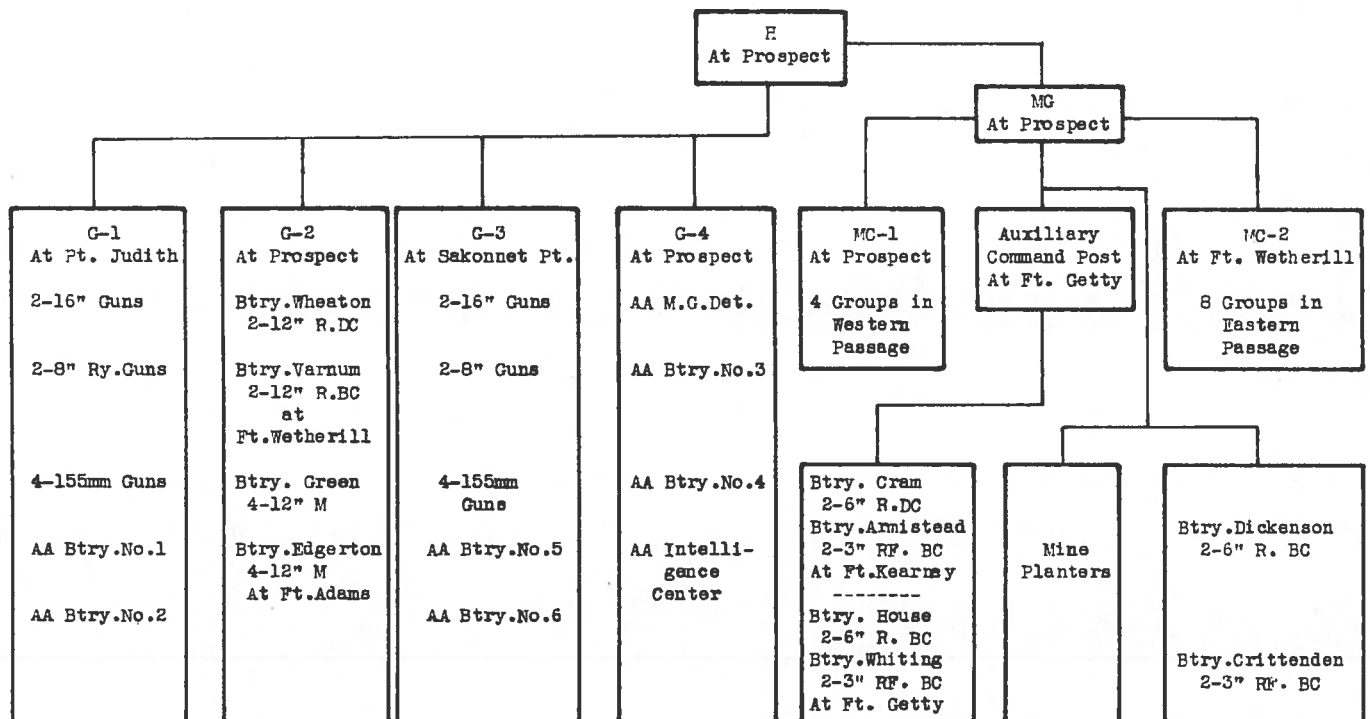
8. Storage of Explosives. The regulations for storage of explosives, including mine explosives (Technical Regulations 1370-A, to include Changes 4) are being complied with. See Exhibit 9-A.

9. Ammunition. The war reserve and battle allowances of ammunition for the batteries of the harbor defense are shown in Exhibit 16-A.

10. Cost estimate. An estimate of cost and priority guide is appended as Exhibit 17-A. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

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TACTICAL ORGANIZATION
HARBOR DEFENSES OF NARRAGANSETT BAY



Each AA Battery includes a gun, a machine gun, and a searchlight detachment.

Fort Commanders, where designation is needed; Fort Adams - Senior B.C. Fort Kearney - Senior B.C.

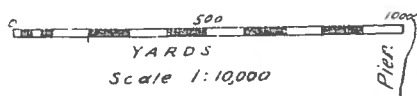
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Based on survey 1:10,000 by U.S.C.
and G.S., 1871, corrected by aerial
photographs, 1930.

POINT JUDITH, R. I.

Black
Pt.

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to Wakefield

to Narrag. Pier

Narragansett Bay

2-16"
146 ACRES.

71° 30'
41° 23'

41° 22'
71° 30'

4-155' 1/2"
9 acres

2-2" Area
14 acres

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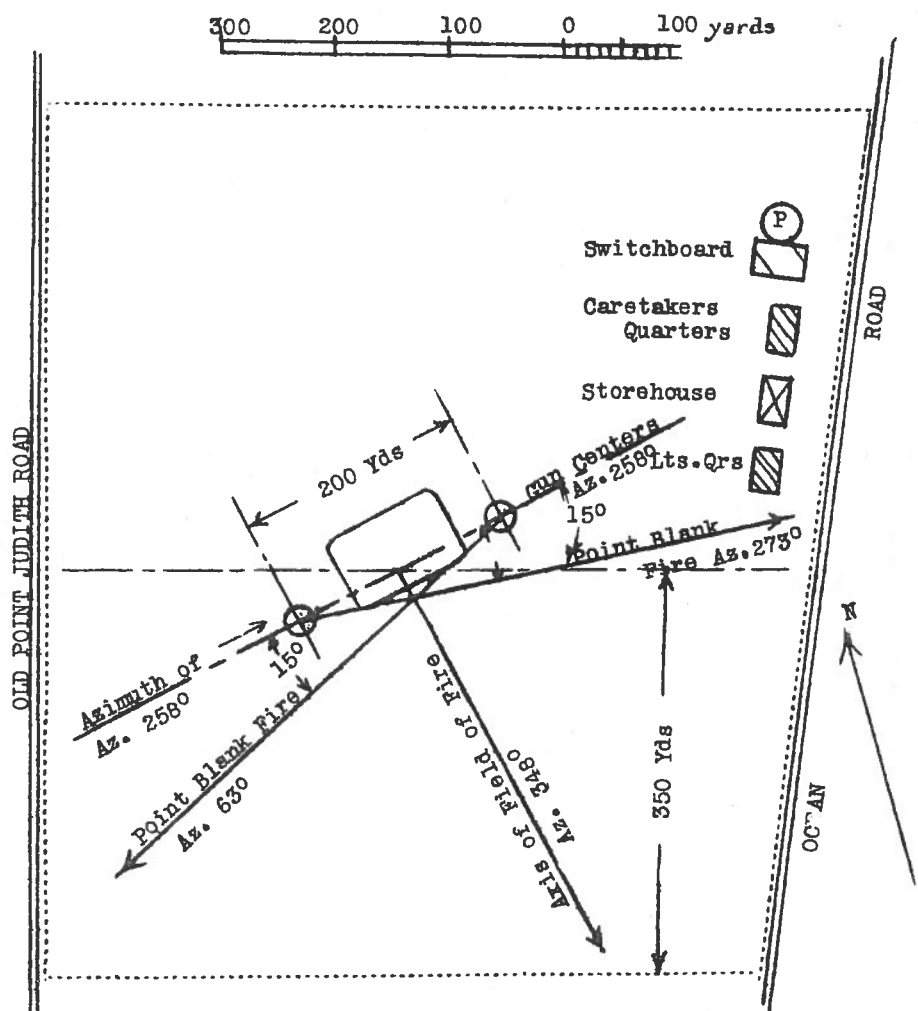
Feb. 1ST 1938

EXHIBIT 2-A

PROPOSED GROUND PLAN FOR 16" BATTERY

POINT JUDITH, R. I.

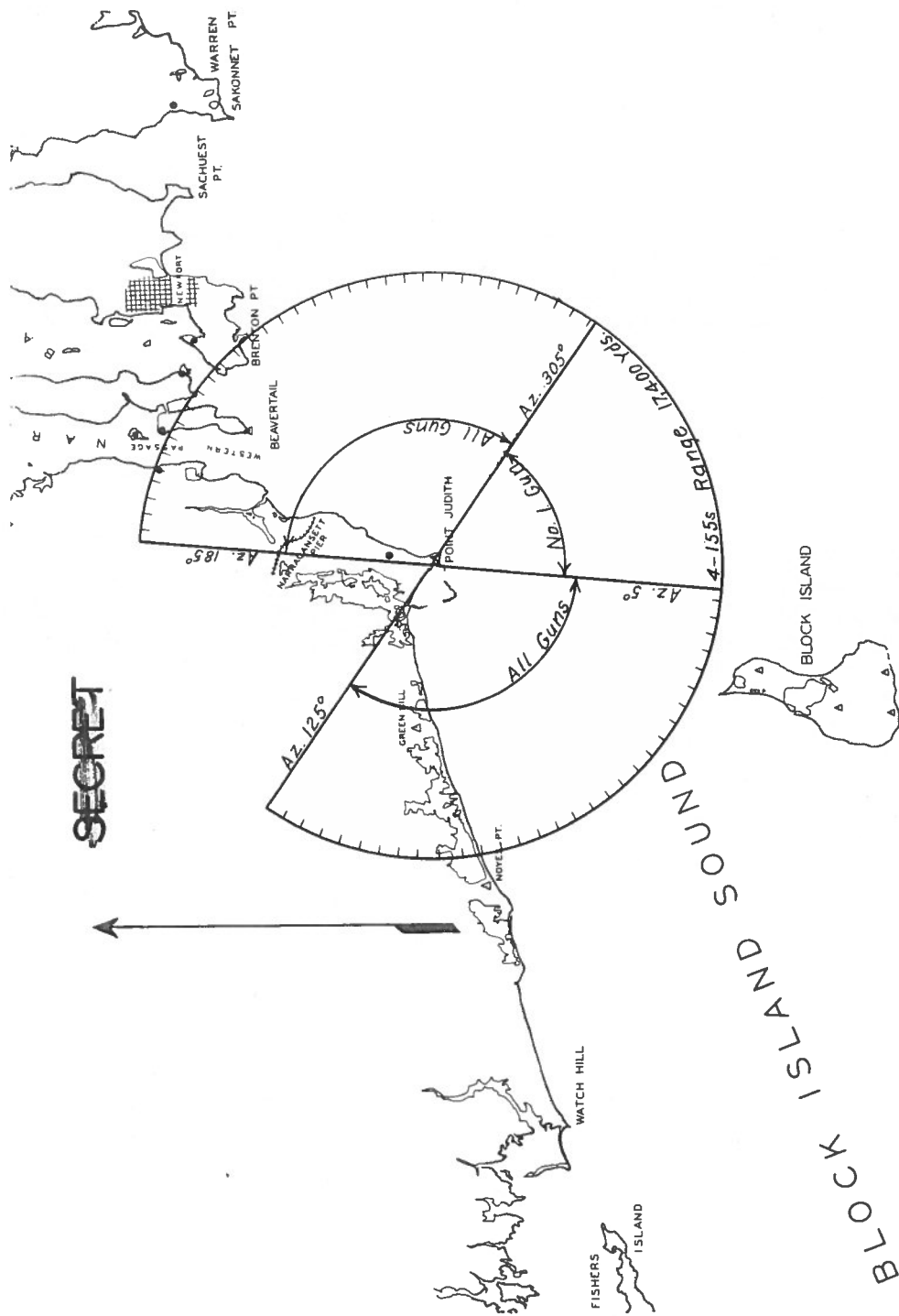
Area: 105 Acres ~
 Type "C", 1934 layout.
 One combined plotting and switchboard room in bombproof.
 One small storehouse
 Barracks for maintenance detachment of 10 men who will
 also maintain neighboring 155 mm battery.
 One set lieutenant's quarters.



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EXHIBIT NO. 3-A

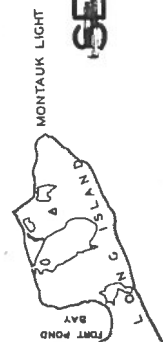
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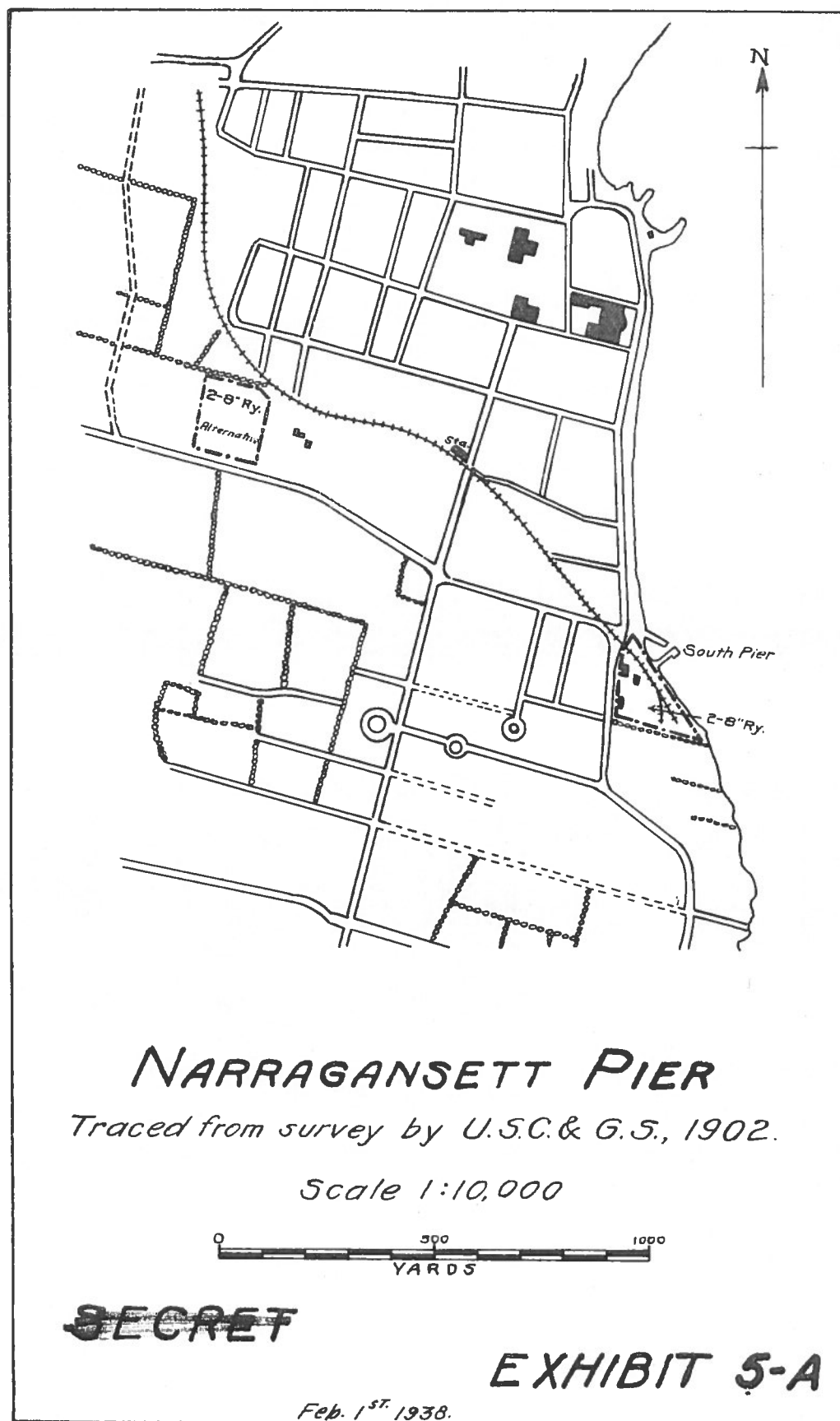


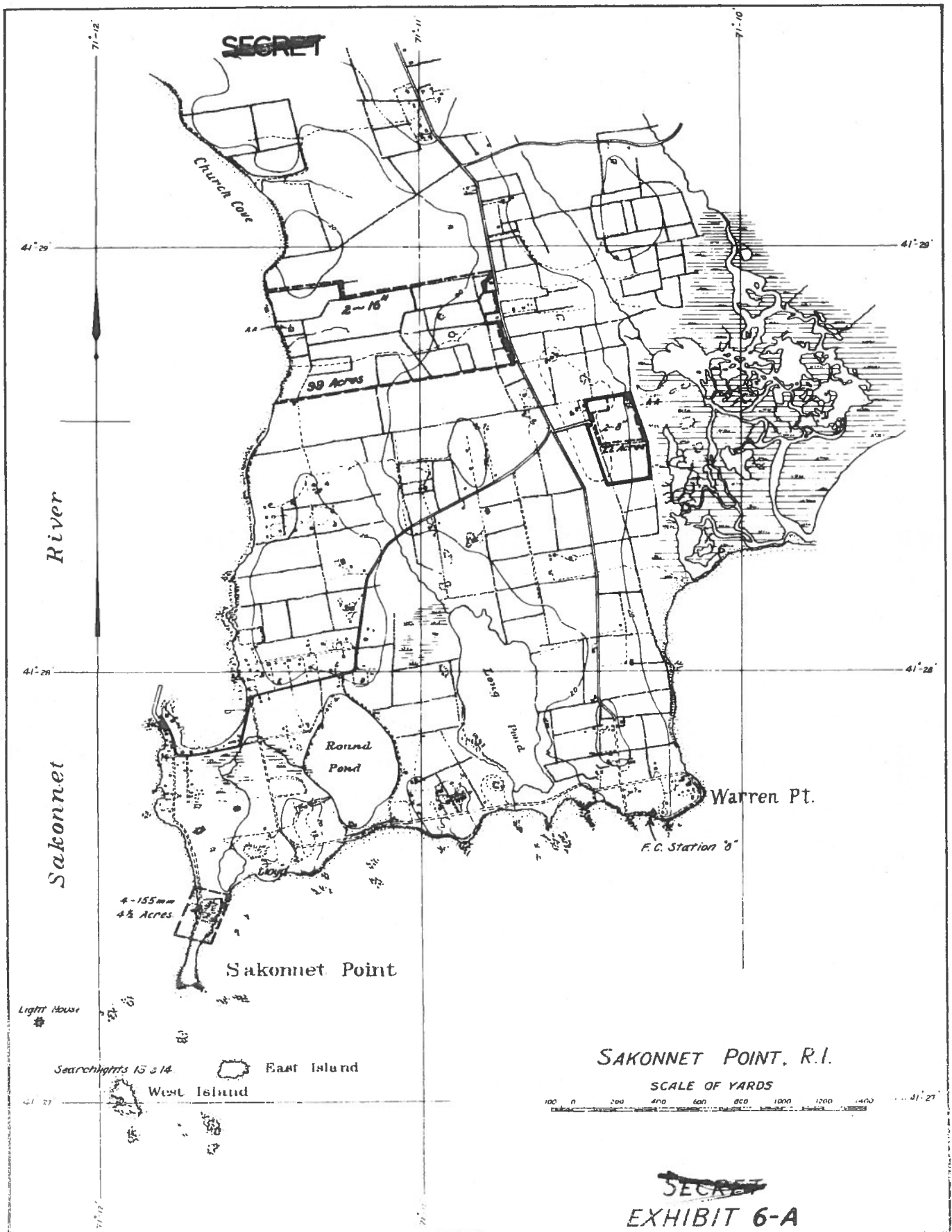
155MM BATTERY
POINT JUDITH

EXHIBIT 4-A

SECRET







PROPOSED GROUND PLAN FOR 16" BATTERY
SAKONNET POINT, R. I.

Area: 99 acres +.

Type "C", 1934 layout.

One combined plotting and switchboard room in bombproof.

One small storehouse. One set lieutenant's quarters.

Barracks for maintenance detachment of ten men who will also maintain 8-inch and 155 mm batteries.

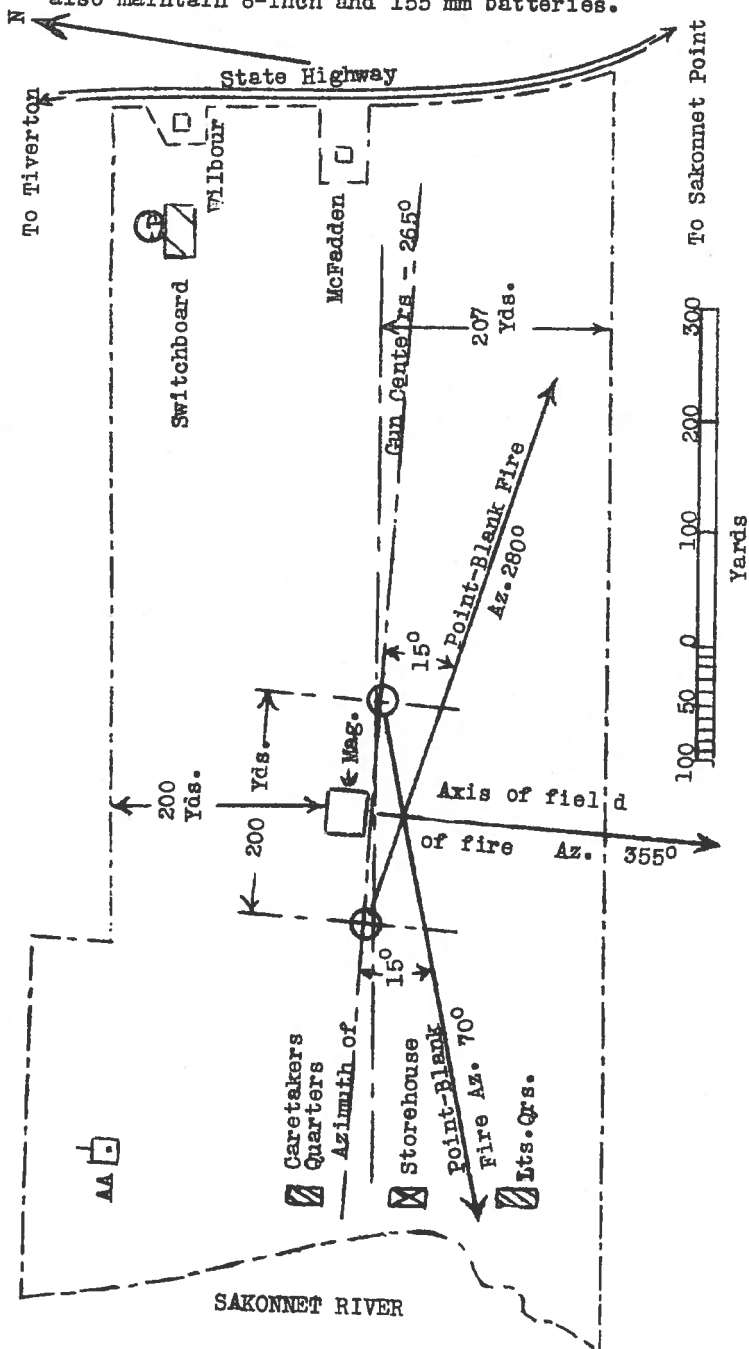
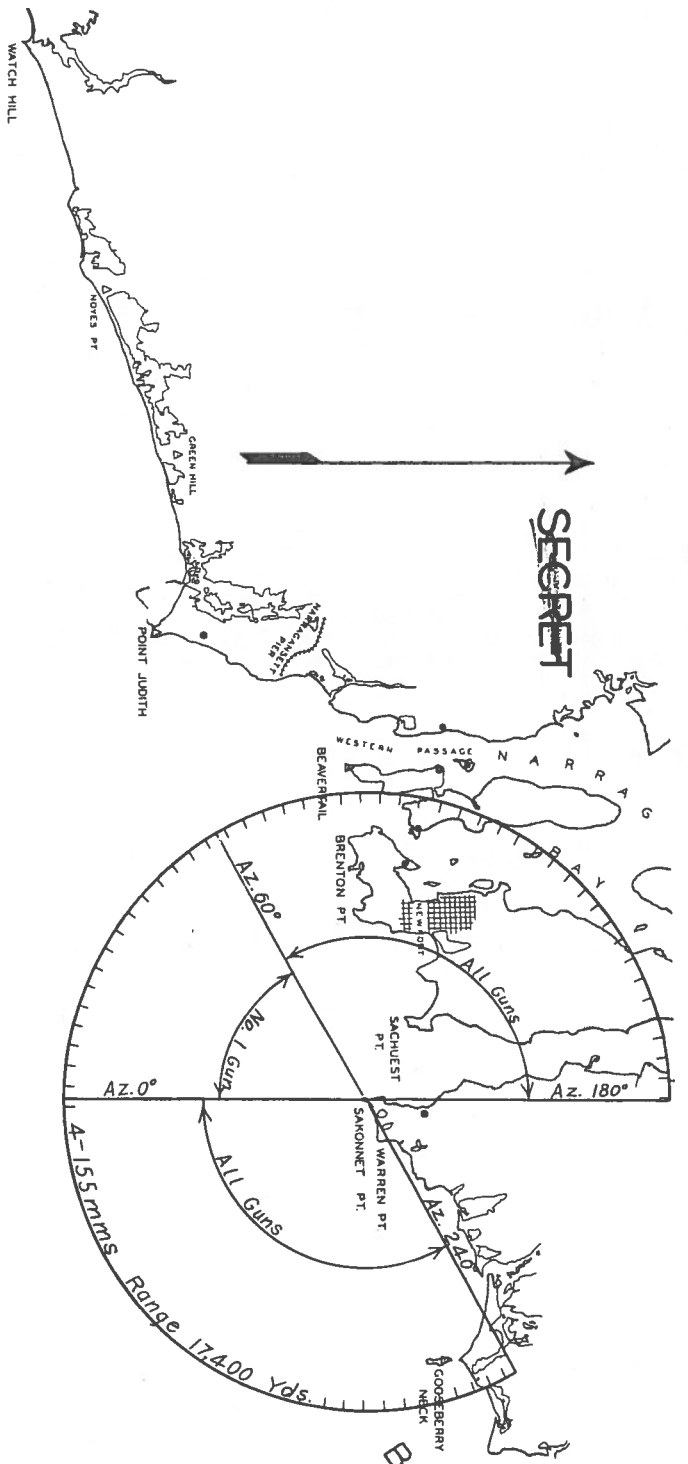


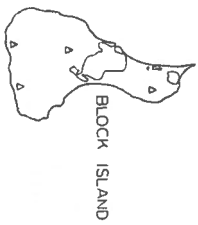
EXHIBIT NO. 7-A

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K ISLAND SOUND



BLOCK ISLAND

155MM BATTERY
SAKONNET POINT

MONTAUK LIGHT

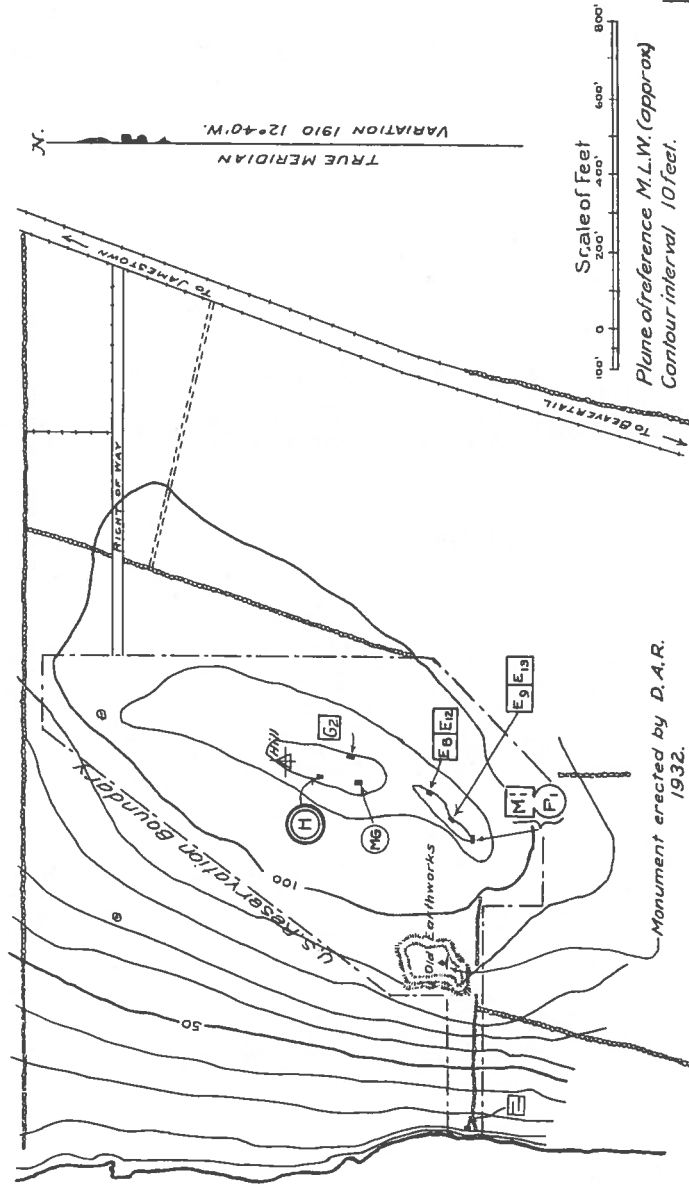
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EXHIBIT 8-A

EDITION OF JAN. 28, 1925.
 REVISIONS: DEC. 10, 1928, OCT. 25, 1934;
 APR. 4, 1938.

SERIAL NUMBER

NARRAGANSETT BAY, R.I.
 PROSPECT HILL.



On Caretaking Status.

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Exhibit 10-A

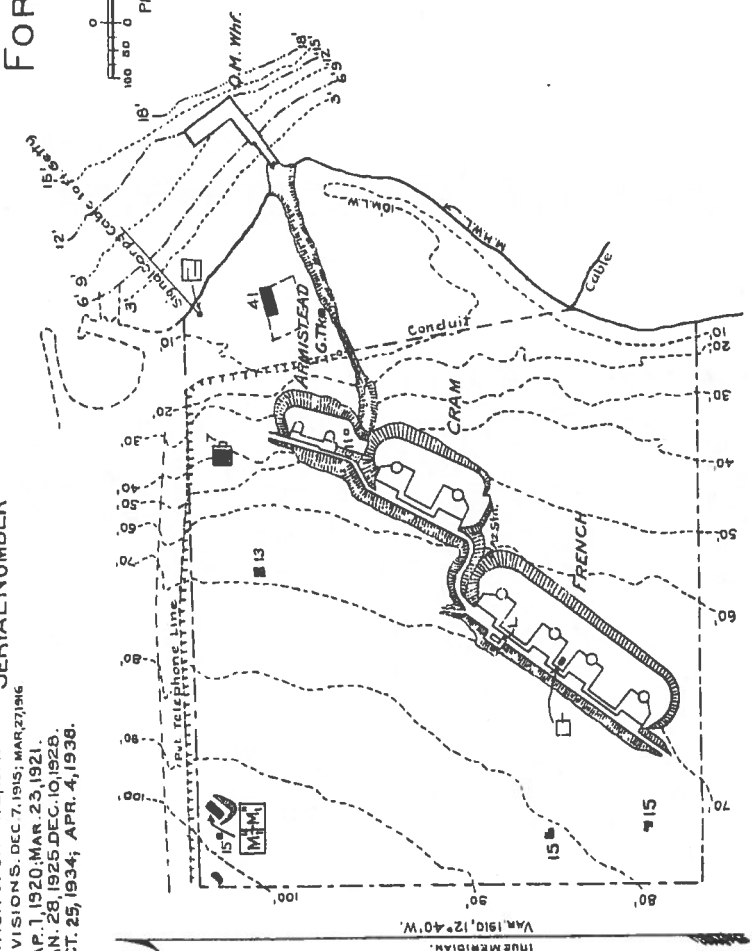
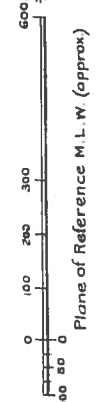
LEGEND

1. T.N.C.O. QUARTERS
2. OLD WELL.
3. GARAGE.
4. PUMP SHELTER.
5. Q. M. STOREHOUSE

EDITION OF JAN'Y. 2, 1914.
 REVISIONS: DEC. 7, 1915; MAR. 27, 1916
 MAP. 1, 1920; MAR. 23, 1921.
 JAN. 28, 1925; DEC. 10, 1928.
 OCT. 25, 1934; APR. 4, 1938.

SERIAL NUMBER

NARRAGANSETT BAY, R.I. BATTERIES.
 FORT PHILIP KEARNY *FRENCH.....4-6" DIS.
 CRAM.....2-6" "
 ARMISTEAD 2-3" P.
 * Armament removed.



On Caretaking Status.

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Exhibit 11-A

NARRAGANSETT BAY, R.I. FORT WETHERILL.

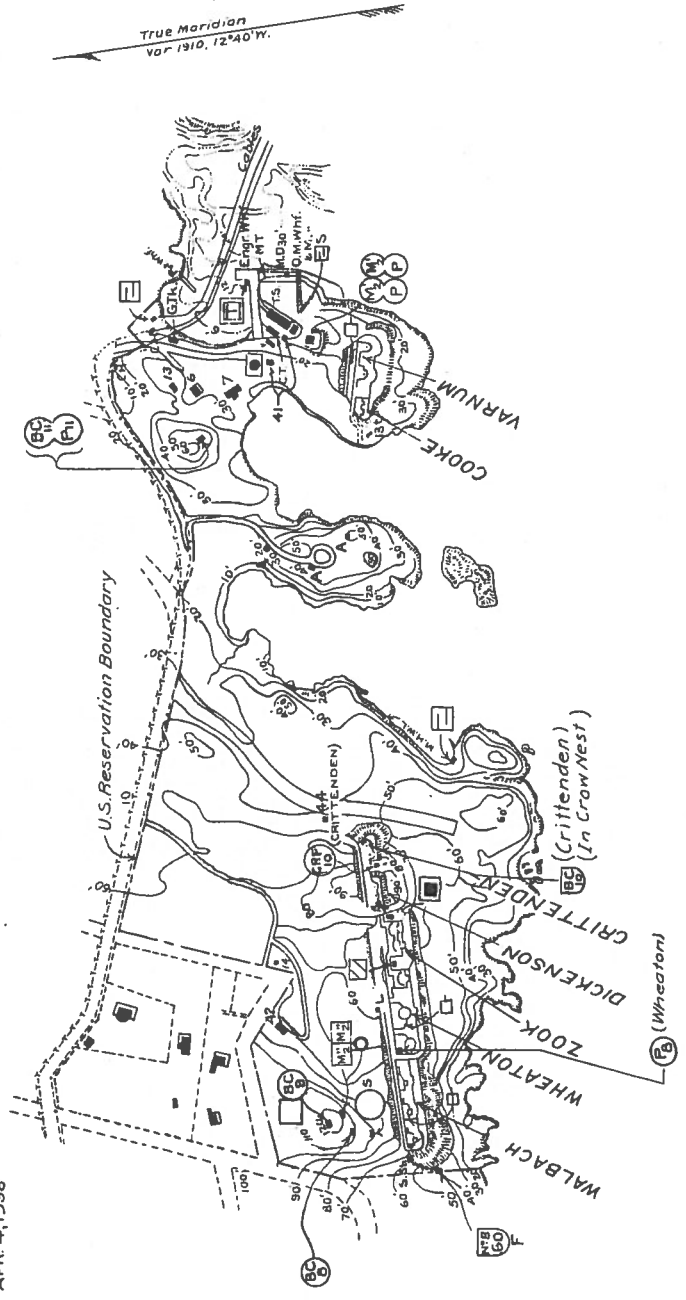
SERIAL NUMBER

EDITION OF: MAR. 27, 1916.
REVISIONS: MAR. 11, 1920; MAR. 23, 1921.
JAN. 28, 1925; DEC. 10, 1928; OCT. 25, 1934;
APR. 4, 1938

LEGEND.

- 1.
- 2.
- 3.
- 4.
- 5.
6. N.C.O. QUARTERS.
7. BARRACKS.
- 8.
- 9.
- 10.
- 11.
- 12.
13. GARAGE.
- 14.
- 21.
41. ORD. ST. ROOM.
42. E.D. STOREHOUSE.
- 43.
- 71.
44. E.D. STONE CRUSHER.

- BATTERIES.
- VARNUM...2-12" N. DIS.
 - WHEATON...2-12" Dis.
 - WALBACH...2-10" "
 - ZOOK...3-6" "
 - DICKENSON...2-6" P.
 - CRITTENDEN...2-3" P.
 - COOKE...2-3" P.
- * Armament removed
• Armament not required in Project.
- A. A. Btry. No. 4
A - 3-3" Fixed Guns



SCALE OF FEET.
100 0 1 2 3 4 5 600 1200 1800

PLANE OF REFERENCE M.L.W.

On Caretaking Status

SECRET

Exhibit 12A

LEGEND.

1. 2. 3. 4. 5. 6. 7. BARRACKS. 8. 9. 10. 12. 13. 14. 15. 20. ROCK FILL EMBANKMENT. 40. 41. STORE HOUSE, E. D. 70

EDITION OF JAN'Y. 2, 1914. SERIAL NUMBER

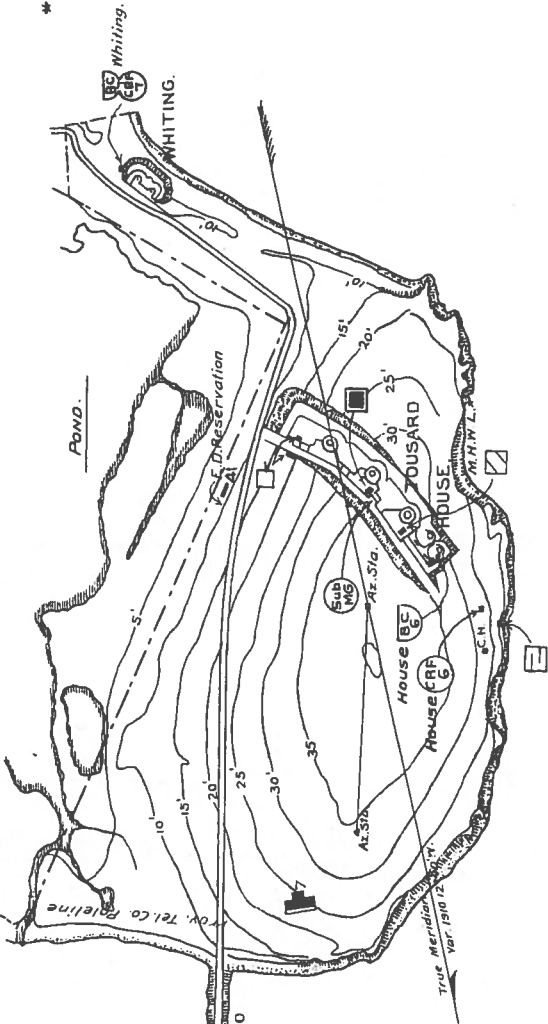
REVISIONS: DEC. 7, 1915; MAR. 27, 1916. MAR. 1, 1920; MAR. 23, 1921. JAN. 28, 1925. DEC. 10, 1926. OCT. 25, 1934. APR. 4, 1936

NARRAGANSETT BAY, R.I. FORT GETTY.

BATTERIES.

* TOSUARD... 3-12" Dis House... 2-6" P. WHITING... 2-3" P.

* Armament not required in Project.



On Caretaking Status

SECRET

Exhibit 13A

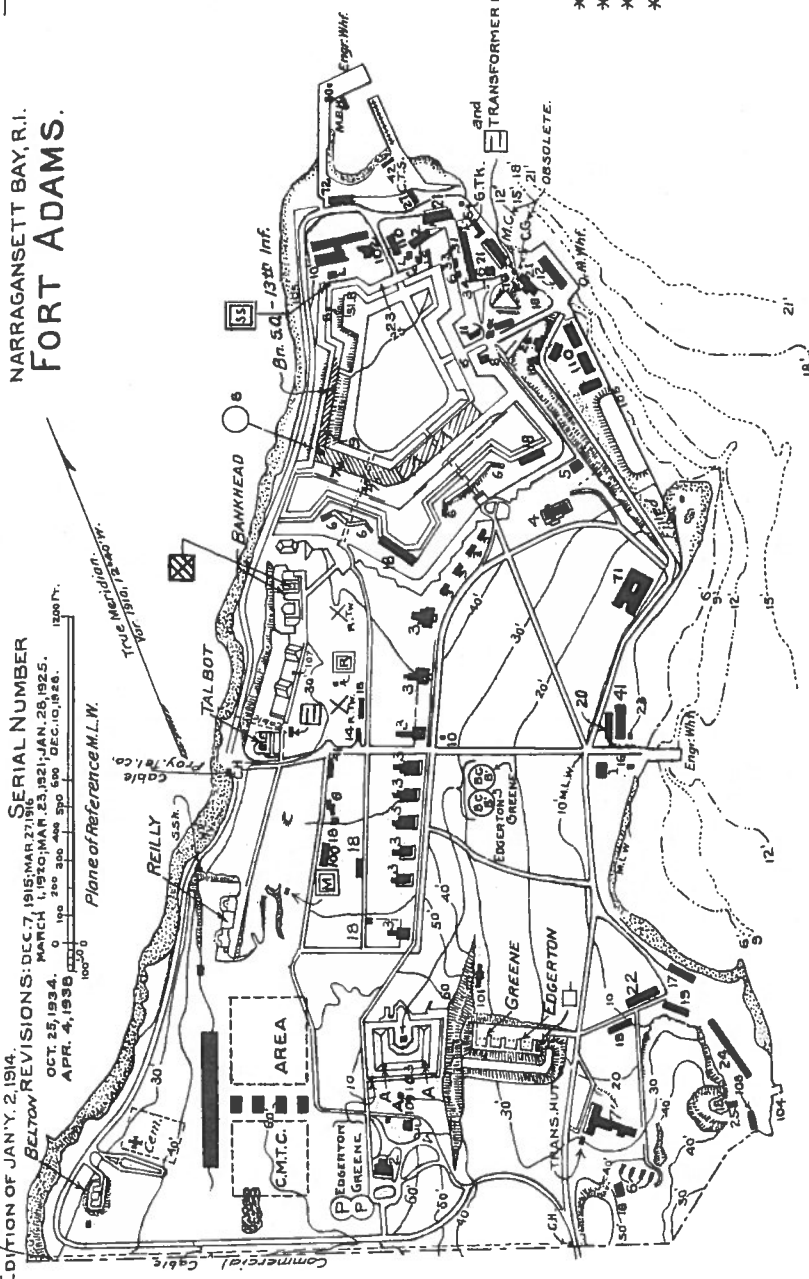
NARRAGANSETT BAY, R.I. FORT ADAMS.

EDITION OF JAN'Y. 2, 1914.
 BELTOW REVISIONS: DEC. 7, 1915; MAR. 27, 1916.
 OCT. 25, 1934. MARCH 1, 1935; MAR. 23, 1935; JAN. 26, 1935.
 APR. 4, 1938. 0 1/4" = 200' 0 1/4" = 400' 0 1/4" = 800' 0 1/4" = 1600'.
 Plane of reference M.L.W.

LEGEND.

1. ADMINISTRATION BLDG.
2. COMMANDING OFFICERS QRS.
3. OFFICERS QUARTERS.
4. HOSPITALS.
5. HOSPITAL STWD. QRS.
6. N.C.O. QUARTERS.
7. BARRACKS.
8. GUARD HOUSE.
9. POST EXCHANGE.
10. BAND STAND.
11. BAKERY.
12. COAL SHED.
- 13.
14. FIRE APPARATUS HOUSES.
- 15.
16. POST OFFICE.
17. WAGON SHED.
18. GARAGES.
19. WAGON SHED AND HOST-
 LERS QUARTERS.
100. C.M.T.C. HDQRS.
101. SHELL HOUSE.
102. C.M.T.C. PROC. PLANT.
103. REDOUBT.
104. FORAGE DOCK (S).
105. SEA WALL.
106. TOOL HOUSES.
107. GREEN HOUSE.
108. FORAGE SHED.
109. STABLE.
21. 0 M STOREHOUSES
22. Q.M. GARAGE & REPAIR SHOP
24. Q.M. STABLES
25. Q.M. BLACKSMITH SHOP
31. ARTILLERY ENGINEER.
- 32.
33. ORD. GARAGE.
34. ORD. OFF. & MACH. SHOP.

41. STOREHOUSE, Q.M.
42. STOREHOUSE & SHOP, L.D.
72. N.C.O. CLUB
71. SERVICE CLUB.
80. FOG BELL AND LIGHT.
23. Q.M. SHOPS.
110. C.C.C. WAREHOUSE
20. GUN SHED
44. E.D. GARAGE.
45. E.D. STORE ROOM
26. Q.M. OFFICE
27. Q.M. LUMBER STD. &
 W.P.A. MATERIALS



- BATTERIES.
- EDGERTON... 4-12" M.
 - GREENE... 4-12" M.
 - * REILLY... 2-10" Dis.
 - * BANKHEAD... 3-6" P.
 - * TALBOT... 4-4.7" P.
 - * BELTON... 2-3" P.

* Armament removed.
 A.A. Btry. No. 5
 A-3-3" Fixed Guns

Active Status.
 Armament on Caretaking Status.

SECRET

Exhibit 14-A

NARRAGANSETT BAY, R.I.
FORT GREBLE.

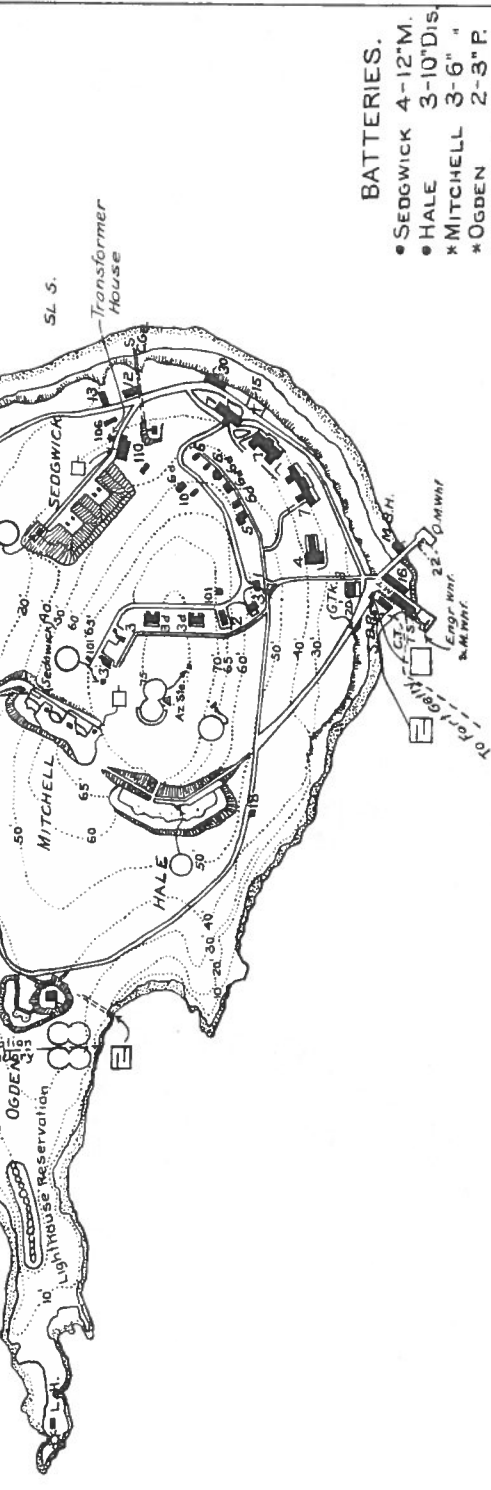
LEGEND.

1. ADMINISTRATION BLDG.
2. COMMANDING OFF. QRS.
3. OFFICERS' QUARTERS.
- 3A. DOUBLE OFFICERS QRS.
4. HOSPITAL.
5. STW'D. QRS.
6. N.C.O. QTRS.
- 6A. DOUBLE N.C.O. QRS.
7. BARRACKS.
8. GUARD HOUSE.
9. FIRE STATION.
10. STABLE.
11. WAGON SHED.
12. CEMETERY.
13. COAL SHED.
14. BLACKSMITH SHOP.
15. PLUMBERS QRS.
16. GARAGE.
17. RESERVOIR SHELTERS.
18. PUMP HOUSE.
19. COVERED RESERVOIR.
20. ORDNANCE STOREHOUSE.
21. TARGET BUTT.
22. QUARTERS ENGR. OF PUMPING STATION.
23. FERRY SLIP.
24. ORDNANCE ST. HOUSE.
- 25.
- 26.
- 27.
- 28.
- 29.
- 30.
- 31.

42 E.D. CARPENTER
 SHOP & ST. HOUSE.
 70.
 90s
 110 CARPENTER SHOP.

EDITION OF JAN'y 2, 1914.
 REVISIONS: DEC 7, 1915; MAR 27 1916; MAR 1, 1920.
 DEC 10, 1928.
 1200 FT. 1000 800 600 400 200 0

Plane of Reference M.I.W. (approx.)
 REVISIONS: MAR. 23, 1921; APR. 4, 1938
 True Meridian
 Var. 1910 - 12° 40' W.



BATTERIES.
 • SEDGWICK 4-12" M.
 • HALE 3-10" Dis
 • MITCHELL 3-6" "
 • OGDEN 2-3" P.
 * Armament removed

On Caretaking Status. • Armament not required in Project

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DECLASSIFIED
 Authority NND 760162
 By N m NARA, Date 2/16/87

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ANNEX A

EXHIBIT 16-A

H. D. OF NARRAGANSETT BAY

WAR RESERVE AND BATTLE ALLOWANCE OF AMMUNITION

Approved by the Secretary of War in the 5th Indorsement,
WD, AGO March 28, 1933 (AG 381.4 (2-16-33) (Misc.) E)
(OCCA 471.308/04), except as noted under (a).

Batteries:	Guns:	Caliber & Type	Projec- tile	Rounds			Remarks
				W.R.:	C.S.:	B.A.:	
Sakonnet	2	16-inch	:	400:	300:	100:	(a)
Point	:	:	:	:	:	:	
Sakonnet	2	8-inch	:	500:	200:	300:	
Point	:	LRG	:	:	:	:	
Sakonnet	4	155-mm	:	1600:	800:	800:	Store in NC Store-
Point	:	:	:	:	:	:	house, Ft. Greble.
Point	2	16-inch	:	400:	300:	100:	(a)
Judith	:	:	:	:	:	:	
Point	4	155-mm	:	1600:	800:	800:	Store at Btry. French,
Judith	:	:	:	:	:	:	Ft. Kearney.
Narragan-	2	8-inch Ry:	:	500:	500:	0:	250 rounds to be for-
sett Pier:	:	:	:	:	:	:	warded with battery.
Greene	4	12-inch M	:	960:	360:	600:	Of B.A. of 600 rds.,
:	:	:	:	:	:	:	) each battery is to
:	:	:	:	:	:	:	) have 100 1046-lb. and
:	:	:	:	:	:	:	) 500 700-lb. projec-
:	:	:	:	:	:	:	) tiles; of Cent. Stor.
Edgerton	4	12-inch M	:	960:	360:	600:	) of 360 rds., each
:	:	:	:	:	:	:	) battery is to have 100
:	:	:	:	:	:	:	) 1046-lb. and 260 700-
:	:	:	:	:	:	:	) lb. projectiles. Store
:	:	:	:	:	:	:	) projectiles at battery
:	:	:	:	:	:	:	) 697 powder charges at
:	:	:	:	:	:	:	) Btry. Bankhead, 503 at
:	:	:	:	:	:	:	) Btry. Belton.
Varnum	2	12-inch	870-lb:	480:	-	480:	
:	:	MRG	:	:	:	:	
Wheaton	2	12-inch	1070-lb:	480:	-	480:	
:	:	MRG	:	:	:	:	
House	2	6-inch BC:	(A.P. :	600:	200:	400:	
:	:	:	(H.E. :	200:	-	200:	
Dickenson:	2	6-inch BC:	(A.P. :	1200:	400:	800:	Store 465 powder charges
:	:	:	(H.E. :	400:	-	400:	at Btry. Zook.
Cram	2	6-inch DC:	(A.P. :	1200:	400:	800:	
:	:	:	(H.E. :	400:	-	400:	
Whiting	2	3-inch BC:	:	400:	100:	300:	
Critten-	2	3-inch BC:	:	800:	200:	600:	Store 300 powder charges
den	:	:	:	:	:	:	at Btry. Walbach.
Armistead:	2	3-inch BC:	:	800:	200:	600:	
:	:	:	:	:	:	:	

NOTES: (a) Magazine capacity limits B.A. to 100 rounds.

Ammunition to be stored at battery to which it pertains except
as other wise stated.

~~No increase in 3, 6 or 12-inch ammunition over that now on hand
can be accommodated until surplus 10-inch ammunition is re-
moved from H.D.~~

EXHIBIT 16-A

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Total
					Material	Labor	Land	
4	1	A	<u>SAKONNET POINT</u>	\$	\$	\$	\$	\$
			<u>16" Battery, 2-16" Guns, Sakonnet Point</u>	1,040,000	527,650	237,350	28,362	1,833,362
			<u>Ordnance:</u>					
			2 - 16" Guns and Carriages					
			at \$520,000	\$1,040,000				
			<u>Engineers:</u>					
			Purchase of 99 acres of Land					
			(Ref.: AG 660.2 (10-6-37)					
			(Misc.) E; OCCA 601/17-B)	\$28,362				
			<u>Type "C" Emplacement:</u>					
4	2	A	<u>8" Battery, 2-8" Guns, (Fixed)</u>	250,000	106,000	50,000	9,280	415,280
			<u>Sakonnet Point</u>					
			<u>Ordnance:</u>					
			2 - 8" Carriages (fixed)					
			at \$125,000	\$250,000				
			(Navy Guns on hand)					
			<u>Engineers:</u>					
			Purchase of 22 acres of Land					
			(Ref.: AG 660.2 (10-6-37)					
			(Misc.) E; OCCA 601/17-B)	\$9,280				
4	3	A	<u>155 mm Battery, 4-155 mm,</u>	10,000	4,500	2,500	7,755	24,755
			<u>Sakonnet Point</u>					
			<u>Ordnance:</u>					
			Modification of Trails for:					
			4 - 155 mm Guns	\$800				
			4 - Sights for 155 mm Guns					
			at \$2,300	9,200	\$10,000			
			<u>Engineers:</u>					
			Purchase of 4 1/2 acres of Land					
			(Ref.: AG 660.2 (10-6-37)					
4	4	A	<u>4 Emplacements:</u>					
			Material	\$4,500				
			Labor	\$2,500				
			Total	\$7,000				

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Total
					Material	Labor	Land	
5	1	A	<u>POINT JUDITH</u>	\$	\$	\$	\$	\$
			<u>16" Battery, 2-16" Guns, Point Judith</u>	1,040,000	527,650	237,350	97,375	1,902,375
			<u>Ordinance:</u>					
			2 - 16" Guns and Carriages at \$520,000	\$1,040,000				
			<u>Engineers:</u>					
			Purchase of 140 acres of Land (Ref.: AG 560.2 (10-6-37) (Misc.) E; OCCA 601/17-B)	\$97,375				
			<u>Type "C" Emplacement:</u>					
			<u>Material Labor Total</u>					
			Protective Magazine					
			Traverse	\$141,400	\$ 86,600	\$228,000		
2 Gun Blocks	76,000	20,000	96,000					
Mounting 2 Guns	10,000	20,000	30,000					
1 Plotting and Switchboard Room	33,750	16,250	50,000					
1 Latrine	4,000	2,000	6,000					
Power and Light Equipment	157,500	17,500	175,000					
Water Supply and Sewerage	20,000	10,000	30,000					
Plant and Temporary Buildings	35,000	15,000	50,000					
Contingencies	50,000	50,000	100,000					
Total	\$527,650	\$237,350	\$765,000					
5	2	A	<u>155 mm Battery, 4-155 mm, Point Judith</u>	10,000	4,500	2,500	16,700	33,700
			<u>Ordinance:</u>					
			Modification of Trails for: 4-- 155 mm Guns	\$800				
			4 - Sights for 155 mm Guns at \$2,300	\$9,200	\$10,000			
			<u>Engineers:</u>					
			Purchase of 9.5 acres of Land (Ref.: AG 560.2 (10-6-37) (Misc.) E; OCCA 601/17-B)	\$16,700				
			<u>4 Emplacements:</u>					
			<u>Material Labor Total</u>					
				\$4,500	\$2,500	\$7,000		
			<u>NARRAGANSETT PIER</u>					
5	3	B	<u>8" Railway Battery, 2-8" Railway Guns, Narragansett Pier</u>	443,300	4,500	2,500		450,300
			<u>Ordinance:</u>					
			2 Carriages, Railway for 8" Guns	\$400,000				
			2 Sets (on carriage) Fire Control Equipment	13,300				
			2 Ammunition Cars	10,000				
			2 Powder Cars	10,000				
			2 Tool Cars	10,000	\$443,300			
			<u>Engineers:</u>					
			Lay new track at \$12.50 per yard; repair 580 yards track.	\$4,500	\$2,500	\$7,000		
			Land to be leased in an emergency.					
TOTALS				\$2,793,300	\$1,174,800	\$532,200	\$159,412	\$4,659,712

Class A - To be procured and installed in peacetime.

Class B - To be procured in peacetime and installed when an emergency arises.

Class C - To be procured and installed when an emergency arises.

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ANNEX B

FIRE CONTROL INSTALLATIONS

1. The tactical organization of the batteries of the harbor defense is shown in Exhibit 1-A of Annex A, Seacoast Guns. The system of communication between the elements of the command is shown in the Fire Control Diagram for the Eventual Status of the harbor defense, which accompanies this annex as Exhibit 1-B. The location on the ground of the new elements of the fire control system, provided for in this plan, is shown on map attached, marked Exhibit 2-B.

2. In determining the fire control system needed by a battery, cognizance is taken of the following:

a. The angle of intersection at the target must be 15° or greater, and the area within 15° of the baseline (as measured from both base ends) is to be excluded because the construction of the plotting board arms does not permit utilizing this area.

b. The DPF may be depended on to furnish reasonably accurate ranges to a distance of 500 yards for each 10 feet of its height above sea level, but is more dependent on clear weather than either the horizontal base or the CRF since accurate waterlining is essential. For the horizontal base or the CRF, sighting on the mast is sufficient and haze may not interfere with accurate range finding.

c. Atmospheric conditions in this region are such that visibility extends beyond 20,000 yards on exceptionally clear days only; it may be depended on up to 12,000 yards; and is ordinarily in the vicinity of 15,000 yards.

d. The extreme ranges of which the modern long range batteries are capable require the use of a number of baselines in order that the full range and field may be utilized. Some of these baselines are at such distance from the battery that unless a simplified and small scale plotting board is used, relocating will be necessary. This may be accomplished directly by use of the seacoast director, or by the use of an intermediate plotting board.

e. The same baseline will frequently serve more than one long range battery (though each battery may have its own fire control personnel using separate observing rooms); and in some places the same baseline will serve batteries belonging to different harbor defenses.

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3. a. The orientation data of each harbor defense are based on rectangular coordinates whose origin is some convenient geodetic point on a meridian passing through the harbor defense. The data obtained by instruments oriented on a system of rectangular coordinates are not applicable to guns, plotting boards, and fire control instruments oriented on the rectangular coordinates of another harbor defense. Therefore position finding and spotting data obtained by the fire control stations of one harbor defense are not available to batteries of the adjacent harbor defense. The three harbor defenses of the Narragansett Bay Sub-Area have overlapping batteries, and their orientation data should be redetermined on one system extending from Montauk to Buzzards Bay. The case becomes obvious when spotting and position finding stations of Block Island are visualized since such stations should serve the two batteries at Montauk, Battery Davis at Fort Michie, and the four long range batteries at Point Judith and Sakonnet Point. See Exhibit 3-B.

b. A study has been undertaken to determine the projection which will involve the smallest error when applied to the Narragansett Bay Sub-Area as a whole. Several reasons make it advisable to carry through this redetermination of orientation data:

(1) The accuracy of some of the data in use in the harbor defenses is in doubt.

(2) The new batteries and fire control stations included in the project must be surveyed.

(3) The U. S. Coast and Geodetic Survey is redetermining its basic data, on the New 1927 North American Datum and thereby affording an opportunity for increasing the accuracy of harbor defense data, if it is availed of; or introducing an element of future discord if all data is not resolved to the new Datum. It happens that the work on the New 1927 North American Datum has been carried through the Narragansett Bay Sub-Area, three points (Gay Head, Block Island ECC and Montauk-2) being primary triangulation points.

c. The following steps will be taken should the War Department so direct and the funds become available:

(1) Direction of the work on lines which are mathematically and technically sound.

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(2) Execution of the necessary field work including placing of monuments and determination of the location of each fire control instrument and battery directing point.

(a) The field work may be carried out by employees of the Corps of Engineers or by Engineer troops.

(3) Carrying out of the necessary computations and drafting room work.

d. A preliminary estimate of the entire cost of the work is \$7,200.

4. a. The Fire Control Diagram of the Eventual Status of the harbor defense is appended as Exhibit 1-B. This diagram shows the fire control system as it will be when all changes contemplated by the approved Project and the annexes thereto, shall have been effected.

b. Whenever changes in the fire control system are made (such, for example, as construction of new duct lines or the laying of new cables) this diagram shall constitute a guide and shall be consulted in order that the trend of new work shall be to provide for the eventual needs of the command.

c. Whenever alterations are made in the approved Project or its annexes, affecting the fire control diagram, the diagram should be modified to accord with the alterations. This fire control diagram of the eventual status, and the fire control diagram of the existing status of the harbor defense will both be maintained and kept up to date at all times.

5. Post Telephone Lines.

a. Between forts (or the distant groups at Sakonnet Point and Point Judith), two telephone pairs have been provided, connecting each fort with the fort which is the administrative headquarters of the harbor defense; thus two pairs are provided from Point Judith to Fort Adams; two from Fort Kearney to Fort Adams, and so for the other forts and for Sakonnet Point. The two trunk lines are considered adequate for administrative needs.

b. Within a fort, one post telephone line has been provided from each battery, group or higher command post to the post telephone switchboard; where a plotting room is distant from the BC station, a post telephone line has been provided from the plotting room also.

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c. If additional post telephones are authorized, it should be done sparingly. The above provision will enable the harbor defense to operate, and concentration of effort and funds on the fire control system is important.

6. Spotters. A spotter with azimuth instrument usually should be provided at each base end station and at each battery.

7. Steel Fire Control Tower.

a. The long range of modern batteries has resulted in the necessity of providing very wide fields of view for the observing instruments of many of the base end stations. The required field is often greater than 180° ; in the case of the long range station at Point Judith it is 225° and at Gay Head it is 329° . To avoid interference of one station with the view from an adjacent station, it is essential (where the need for a wide view exists) to provide for one observing room above another. Those wide angles can be obtained equally well with a concrete building; the advantage of the steel tower (in addition to lower cost) is in its quick erection if an emergency arises before funds have become available to purchase the site and build the station.

b. The required wide angle of view is usually best obtainable from some one location, only; if that site is not occupied, it becomes necessary to build several stations instead of one. It not infrequently happens that the desired site is on an estate which the owner will not sell at any reasonable cost but the wartime use of which would present no difficulties. A quickly erected steel tower best meets this case.

c. The cost of the steel tower above is estimated as 25% of the cost of a concrete station. The cost of sheathing for protection against the weather must be added.

d. Preliminary design of a steel fire control tower has been prepared by the Corps Area Engineer and submitted to the Chief of Engineers.

8. The next succeeding paragraphs are concerned with description of places required for new fire control installations. Following these are paragraphs dealing with the requirements of each battery. The numbers used refer to the fire control stations shown in Exhibit 2-B.

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9. Baseline 1 - 2. This baseline extends from Noyes Point to Green Hill and is 15,355 yards long. It is shown in Exhibit 2-B as Baseline 1 - 2, and affords observation over and beyond the area included in the 25° intersection line shown in Exhibit 4-B, as limited by the 20,000 yard limit of visibility which is an approximation.

a. Noyes Point. The proposed fire control station, marked 1, is located on a rise about 900 yards from the beach. There is a Coast and Geodetic Survey station, "Chapman", nearby. The arc of visibility from a height 14 feet above ground level is from Watch Hill Light counterclockwise to Point Judith; an instrument height of 14 feet above the ground is needed because of the presence of several cottages in the foreground. About one acre of ground should be obtained; the cost is estimated as \$400. A 2-story fire control structure should be built. This would provide a combined base end and spotting station for the 16-inch and 8-inch batteries near Point Judith. An antiaircraft observer should be provided for in one of the observing rooms. Both stations should be equipped with observers' and spotters' azimuth instruments.

(1) Each observing room should permit of a view from Watch Hill on the west, through the south to Green Hill on the east, or from azimuth 74° to azimuth 249°.

(2) If an emergency arises before this station has been constructed, it will be possible to establish two emergency base end stations here by erecting two wooden platforms for azimuth instruments on tripods; the two structures should be approximately 50 yards apart to avoid interference.

b. Green Hill. The proposed fire control station, marked 2, is located on Green Hill. A Coast and Geodetic Survey station is located at this point. The site is about 1,100 yards from the shore. It is pasture land and will cost approximately \$450 for one acre, which is a sufficient area. A 3-story fire control station should be constructed here. The arc of view is from a line tangent to Watch Hill Point on the west to a line tangent to Point Judith on the east; or from azimuth 71° to azimuth 279°. Each station should be equipped with an azimuth instrument for an observer and one for a spotter. An antiaircraft observer should be provided for in one of these stations, and a spotter for the 155-mm battery at Point Judith in another room.

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(1) If this station has not been constructed when an emergency arises, the location can be occupied and used at once by two azimuth instruments on tripods located about 50 yards apart.

10. Baseline 2 - 3. This baseline extends from Green Hill, just described, to a location on Point Judith Neck approximately 1,500 yards northwest of Point Judith Light and about 700 yards north of the 155-mm gun site. The location is in an open field belonging to the Colonial Farm owned by Thomas L. Greene, and has a view from the direction of Noyes Point on the west, around through the south and east to a line tangent to the shoreline south of Narragansett Pier on the northeast, or from azimuth 77° counterclockwise to azimuth 212° . Approximately 2 acres should be purchased, at an estimated cost of \$400 per acre. There is a bench mark known as "Point Judith", placed by the Corps of Engineers in 1922 at this point, the latitude and longitude of which are given in a table at the end of this annex. The ground at this site is approximately 30 feet above sea level. Suitably designed buildings here will not be conspicuous because of higher ground and wooded areas in the background and the presence of other buildings in the vicinity. The proposed baseline 2 - 3 is approximately 9,345 yards long.

a. At location 3 provision should be made for two structures about 150 yards apart, one with four observing rooms, one above another in order to permit of the wide field of view (225°) required; a fifth room (which should be the lowest) is required as a group commander's station for the Point Judith Group. One each of the four base end stations is required for the 16-inch battery at Point Judith, the 8-inch battery at Narragansett Pier, the 16-inch battery at Sakonnet Point and the 8-inch battery at Sakonnet Point.

b. The second fire control station at Point Judith should have four observing rooms one above another. The station should be approximately 150 yards distant from the long range station described in paragraph 10 a above. Interference with the field of view from the long range station must be avoided; this will be accomplished by locating the second station about 150 yards at azimuth 210° from the first station or to the west of that azimuth. The field of view of this second station should be from azimuth 315° counterclockwise to azimuth 212° . One of the four base end stations is required for each major caliber battery of the inner defense.

c. Each observing room of these two stations should be equipped with azimuth instrument for observer, and the stations for Wheaton and Varnum with spotters' instruments also.

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11. Baseline 3 - 4.

a. The baseline is planned to extend northeast from Station 3 at Point Judith to Station 4 on Boston Neck, 13,217 yards (measured between Coast and Geodetic Survey stations of these names). Two 4-story base end stations will be required at 4. They should be so located on the ground with reference to each other as to avoid interference. The southern one of the two stations should provide a base end for the 16-inch battery at Point Judith, and the 8-inch battery at Narragansett Pier, and the 16-inch and 8-inch batteries at Sakonnet Point; the observing rooms should have a field of view from a line tangent to the high ground of Point Judith Neck just south of Narragansett Pier, to a line across Beavertail tangent to Brenton Point or from azimuth 17° counterclockwise to azimuth 271° . The northerly station should provide a base end station each for Batteries Wheaton, Varnum, Edgerton and Greene, and should have the same field of view; viz, from a line tangent to the high ground of Point Judith Neck just south of Narragansett Pier (azimuth 17°) around through the east to a line tangent to Brenton Point, azimuth 271° .

b. The location on Boston Neck has a ground level of approximately 76 feet. The instrument height of the lowest room in both structures should be 10 feet above the ground. Each of the eight observing rooms should be equipped with a DPF and a spotter's azimuth instrument.

c. All instruments in both stations require the same field of view, which is 106° wide. There is no difficulty in so placing the two stations that this limited arc of view can be obtained without interference.

d. Approximately one and one-half acres of ground should be obtained. The cost is estimated as \$600. There is a Coast and Geodetic Survey station "Boston Neck" located nearby and a U. S. Engineer Department survey station "Narrow River East" just west of Clump of Rocks at the south point of the Neck.

(1) The land on which the stations are to be located is owned by Frank L. Hinkley, Industrial Trust Building, Providence, Rhode Island. As scaled off from a 1:10,000 land survey map, the position is: latitude $41^{\circ} 27' 50''$; longitude $71^{\circ} 26' 30''$.

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12. Auxiliary Station "5".

a. Hazard Tower on the east side of Point Judith Neck about one-half mile south of Narragansett Pier and 500 yards from the shore on the west side of the Point Judith - Narragansett Pier road, is a valuable location for a spotting station. See Exhibit 5-A. The tower is approximately 101 feet high, on ground about 65 feet above sea level, giving a height of about 166 feet; it is 13 feet square at the top and of massive construction. The platform is of plank covered with canvas, and is surrounded by a parapet about $2\frac{1}{2}$ feet high. The tower is on the property of Isaac Peace Hazard. The latitude and longitude are given in the table of orientation data appended hereto. There is an all-around view from the west side of Western Passage, through the east and south to the direction of Noyes Point on the southwest.

b. The property probably cannot be purchased for any reasonable price. Its use in time of emergency should be contemplated. Spotters should be located here, with instruments on tripods, for the four major caliber batteries of the inner defense and the 155-mm battery at Point Judith. An anti-aircraft observer should be located on the tower.

13. Auxiliary Station at St. George's School Tower.

a. The location designated "6" on Exhibit 2-B is a massive stone tower 101 feet above ground and approximately 205 feet above sea level. The observing platform is paved and is 22 feet square, facing with the points of the compass. At each corner a pillar rises about 25 feet above the observing platform with two lesser pillars on each face, which prevent full usefulness of the tower as a base end station. There is a stone grill-work parapet rising 8 feet above the floor; this can be avoided by using a plank platform about 5 feet high.

b. Range Finders. From a platform raising the instruments to 9 feet above the floor, and at a distance of instrument centers of two feet or less inside the stone parapet, it is practicable to observe past the pillars through an arc from Point Judith to East Rock off Sakonnet Point. In an emergency, if permission to use this chapel tower is obtainable, two DPF's should be mounted here as auxiliary instruments; their effective range would be approximately 16,500 yards.

c. Spotters. By moving across the tower, spotters with field glasses can observe the water in all directions over a wide area, to the limit of visibility, including the Sakonnet River; across Sakonnet peninsula to Gooseberry Neck; and on the west across Brenton Point to Beavertail and the shore of Point Judith Neck. If the tower can be used, a spotter should be located here for each of the four major caliber batteries of the inner defense and for the 155-mm battery at Sakonnet Point.

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d. An antiaircraft observer should be located here.

14. Baseline 7 - 8. This baseline from Sachuest Neck to Warren Point is 7,168 yards long and affords a view from a line tangent to Coggeshall Ledge Point, 4,000 yards east of Brenton Point, across the entrance of Narragansett Bay and thence through the south to the southeast. It also covers the Sakonnet River for some distance above and below the antisubmarine net.

a. Sachuest Neck. Two stations should be constructed, each with four rooms one above another. The stations should both have a view from a line tangent to Coggeshall Ledge Point east of Brenton Point, azimuth 64° , to a line across Sakonnet Point, azimuth 291° ; this arc of 133° is easily provided for. In addition, the observing rooms of one of the two stations should have a view up the Sakonnet River to azimuth approximately 215° . The batteries best suited to fire on the river being the major caliber batteries of the inner defense, the observing rooms which should be given this additional field of view to azimuth 215° are those pertaining to Batteries Varnum, Edgerton and Greene.

(1) In order to satisfy these conditions, the fire control station for the four long range batteries should be located approximately 100 yards from the other station, at azimuth 65° . With this disposition the observing rooms for the 16-inch and 8-inch batteries at Point Judith and Sakonnet Point will have a field of view from azimuth 64° counterclockwise to azimuth 291° ; and the observing rooms for the heavy batteries of the inner defense (except Wheaton) will have a field of view from azimuth 64° counterclockwise to azimuth 215° .

(2) The southern half of Sachuest Neck is open grass land rising to a height of about 50 feet. Approximately two acres should be purchased; the cost is estimated as \$500 an acre. A right of way should be provided for.

(3) The observing rooms of Batteries Varnum, Greene and Edgerton should be equipped with DPF's; all other stations with azimuth instruments. All stations should be equipped with spotters azimuth instruments. One antiaircraft observer should be provided for.

b. Warren Point. This location rather than one on Sakonnet Point is determined on because the view is equally good and the length of baseline greater, the presentation is better, and the baseline will operate farther toward the east. Two stations should be constructed, one with four observing rooms one above another, and the other with five. Two stations for the four

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heavy batteries of the inner defense should have a view from a line to Sachuest Neck counterclockwise to the south, or from azimuth 110° to azimuth 5° . The stations for the four long range batteries and Battery Milliken should have a view from a line tangent to Brenton Point (azimuth 85°) to Gooseberry Neck (azimuth 258°). If the building provided for the long range batteries is approximately 50 yards at azimuth 345° from the other, interference will be avoided. One building should include a group command post for Group 3, which should be the lowest room.

(1) The location selected is open grass land, west of the house of Mrs. Gorham Parks. One acre should be obtained; the cost is estimated as \$2,000.

(2) From a height of approximately 16 feet above ground the view extends across Sakonnet peninsula from Sachuest Neck counterclockwise to Gooseberry Neck; an instrument height of 12 feet above the ground will suffice since waterlining across Sakonnet peninsula is unnecessary. Each of the base end stations should be equipped with azimuth instrument.

(3) The shore of Sakonnet peninsula including Warren Point is built up with summer residences and the choice of sites is strictly limited.

15. Baseline 8 - 9. This baseline extends from Warren Point just described to Gooseberry Neck, a distance of 12,676 yards.

a. Gooseberry Neck. Replacing a lost survey mark of the Coast and Geodetic Survey, the Commanding Officer, Harbor Defenses of Narragansett Bay, in 1932 put in a concrete post with copper bolt, the location of which is given in the table of orientation data following; it is on the highest part of the Neck near the center. A 3-story station should be built, providing an observing room for the 16-inch and 8-inch batteries at Sakonnet Point and Battery Milliken at Fort Rodman. The arc of view is from Sakonnet Point through the south to Mishaum Point or from azimuth 74° to azimuth 247° . Each of the observing rooms should be equipped with an azimuth instrument for observer and one for spotter. An antiaircraft observer should be provided for, and a spotter for the 155-mm battery at Sakonnet Point.

(1) In an emergency arising before this station is built, azimuth instruments on tripods can be set up in line at about 50 yards interval.

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(2) Gooseberry Neck is owned by the estate of Joseph McCormick of Providence, Rhode Island. It was held in 1931 for \$80,000 but there is reason to believe that the valuation now is much less. One acre, near the south end of the Neck, should be purchased. The elevation here is approximately 20 feet above mean low water. The cost is estimated as \$500.

16. Baseline 9 - 10. This baseline, 12,649 yards long, extends from Gooseberry Neck across the west entrance of Buzzards Bay to Cuttyhunk and may be used either to east or west.

a. Cuttyhunk. There is a Coast and Geodetic Survey station on the high point of the island from which the field of view is from a line tangent to the north shore of the Elizabeth Islands at azimuth 240° around through the north, west and south to a line tangent to the south shore of these islands, azimuth 271° , an angle of 329° . The summit of the hill must be occupied; the alternative would be to provide several stations instead of this one, in order to cover Vineyard Sound, Buzzards Bay and the sea area to the west. One and one-half acres should be obtained to prevent nearby building. The land is owned by Cornelius A. Wood, Shawsheen Village, Andover, Mass., to whom most of the island belongs. The price of one and one-half acres is estimated as \$900.

(1) A 3-story structure should be built, to provide a base end station for the 16-inch and 8-inch batteries at Sakonnet and Battery Milliken at Fort Rodman. Each station should be equipped with a DPF and spotter's azimuth instrument. The lowest DPF at an instrument height three feet above ground level (which is approximately 166 feet above mean sea level) will have an effective radius of 13,500 yards. An antiaircraft observer should be provided for.

(2) If an emergency arises before this station has been provided, azimuth instruments on tripods can be used; but because of the wide arc desired, there will be some mutual interference.

17. Baseline 10 - 11. This baseline extending from Cuttyhunk to Gay Head is 12,577 yards long. It crosses the western entrance of Vineyard Sound, and may be used to east or west.

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a. Gay Head. The fire control station here should be two stories high, providing a base end station for the 16-inch battery at Sakonnet Point and for Battery Milliken. The field of view from this location, near which there is a Coast and Geodetic Survey station "Gay Head-2", is from a line tangent to the north shore of Martha's Vineyard, azimuth 229° , through the north, west and south to a line tangent to the south shore, azimuth 295° , an arc of 294° . The station for the 16-inch battery should be equipped with DFF; at an instrument height eight feet above ground level or approximately 150 feet, the effective range is 12,000 yards. Each station should include provision for a spotter. An antiaircraft observer should be located here.

(1) If the station has not been constructed when an emergency occurs, azimuth instruments on tripods may be employed on the ground level; the two parties should be separated by about 50 yards to reduce interference with each other.

(2) Two acres of land should be purchased, to prevent nearby construction of buildings which would mask the station. The price is estimated as \$400 an acre.

REQUIREMENTS OF EACH BATTERY.

16. Long Range Batteries near Point Judith.

a. It is proposed to provide the 16-inch battery at Point Judith Neck and the 8-inch railway battery at Narragansett Pier with the baselines shown in Exhibit 4-B; viz,

Noyes Point to Green Hill (1 - 2);
Green Hill to Point Judith (2 - 3);
Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8).

b. Spotting stations are proposed as follows:
Noyes Point (1);
Green Hill (2);
Boston Neck (4);
Sachuest Neck (7).

c. The harbor defense commander shall prepare orientation data for the use of the railway battery commander, to be handed him on his arrival at the outbreak of an emergency. These data should be tied in with the harbor defense data and include distances and azimuths from one or more points which may be used to set up a transit with which to orient the guns, when in position at South Pier or at the alternative position.

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d. Should the alternative plan of constructing an 8-inch fixed battery at Point Judith be carried into effect, the fire control provisions made for the 8-inch railway battery will be equally suitable for the fixed battery.

19. 155-mm Battery at Point Judith.

a. This battery should be provided with a 15-foot CRF, mounted on concrete block and so located near the guns as to have a field of view from the shore-line on the west counterclockwise to a line tangent to the shore-line near Narragansett Pier on the northeast. Temporary shelter for this instrument can be constructed when an emergency arises.

b. Spotting stations for this battery should be included in one of the base end stations at Green Hill (2), and at Hazard Tower (5).

20. Major Caliber Batteries of Inner Defense.

a. The existing baselines of these batteries are entirely inadequate; the base end stations are so low (with reference to the rugged topography of Narragansett Bay), and some of the baselines so short, that the greater part of the important fields of fire (lying between Point Judith Neck and Sakonnet peninsula) cannot be fired on. The fields of fire of which the guns as emplaced are capable are shown in Annex A, Seacoast Guns. In Exhibits 5-B to 7-B the dead spaces due to limitations of the position finding stations are shown. The areas which are covered by the present baselines are also shown, in color.

b. In place of the present baselines whose ends are located on the reservations of the inner defense and are thus generally perpendicular to the line of fire, it is proposed to substitute two baselines lying generally parallel to the line of fire and well advanced, as is practicable since Point Judith and Sakonnet Point are to be fortified. One of the new baselines will extend northeast from Point Judith to Boston Neck, facing east across the main field of fire of these four batteries; the other will extend northwest from Sakonnet peninsula to Sachuest Neck, facing southwesterly across the main field of fire. These two baselines, with DFF's at the north ends will cover the entire useful field of fire of all four batteries.

21. Battery Wheaton, two 12-inch DC, See Exhibit 5-B.

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a. The present baseline extends from Prospect Hill (B¹S¹) (DPF) to Fort Wetherill (azimuth instrument) (B²S²) and is approximately 3,150 yards long. The limiting arc of 15° intersections is shown in the exhibit. The maximum range at which targets can be tracked is now 11,000 yards although the range of the guns is 17,300 yards; and due to masking of the observing stations it is possible for a hostile vessel to pass the defenses without coming under fire of Battery Wheaton. The masked areas are shown in the exhibit; the tinted areas, only, are now covered. The present baseline should be abandoned, the B¹ station with DPF being retained as an emergency station.

b. Two new baselines are required, as follows:

Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8).

c. A plotting board which will take these baselines will be required.

d. Spotters in base end stations are proposed as follows:

Point Judith (3);
Boston Neck (4);
Sachuest Neck (7);
Auxiliary spotting stations at Hazard Tower (5);
St. George's School Tower (6).

If the last two stations, at Hazard Tower and St. George's School Tower, can be established, the other three will not be needed.

22. Battery Varnum, two 12-inch BC, See Exhibit 6-B.

a. The present baseline extends from B¹ at Prospect Hill to B² at Fort Wetherill, a distance of about 3,150 yards. The limiting arc of 15° intersections is shown in the exhibit. The maximum range at which targets can be tracked with the present baseline is 11,000 yards although the range of the guns is 17,300 yards. A vessel might pass the defenses to the interior to Narragansett Bay without coming under the fire of Battery Varnum. The masked areas are shown in the exhibit; the tinted areas, only, are now covered. The present baseline should be abandoned. The B¹ station with DPF should be retained as an emergency station.

b. Two new baselines are proposed, as follows:

Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8).

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c. A plotting board which will take these baselines will be required.

d. Spotting stations are proposed, to be included in base end stations at Point Judith (3);

Boston Neck (4);
Sachuest Neck (7);
Auxiliary spotting stations at Hazard Tower (5), and
St. George's School Tower (6).

If these two auxiliary stations can be established, the other three will not be required.

23. Battery Edgerton, four 12-inch mortars. See Exhibit 7-B.

a. This battery has no permanent primary station; its primary is temporarily housed in a wooden structure on the old redoubt at Fort Adams which is unsuitably located and is deteriorating. The battery has a B² with DPF at Prospect Hill, giving a baseline, 4,900 yards long, and a B³ at Fort Wetherill with DPF which, in connection with B¹ gives a 2,600 yard baseline. All three stations are masked over wide sectors by high ground, buildings or considerable wooded area. The 2,600-yard baseline is too short to permit tracking beyond 9,000 yards, as shown in the exhibit. The B¹ - B² base is long enough but both stations are blinded over the sectors shown. The present baselines should be abandoned. The B² station with DPF should be retained as an emergency station for both Battery Edgerton and Battery Greene.

b. Two new baselines are proposed, as follows:

Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8).

c. One or more plotting boards should be provided which will enable fire to be directed on the area from a line toward Boston Neck on the right to Sakonnet Point and the Sakonnet River on the left, or from azimuth 73° to azimuth 221°, an arc of 212°.

d. Spotting stations proposed are:

Boston Neck (4), and
Sachuest Neck (7);
Auxiliary stations at Hazard Tower (5), and
St. George's School Tower (6).

The last two, should they be established, will be sufficient.

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24. Battery Greene, four 12-inch mortars. See Exhibit 7-B.

a. The primary station of this battery is in the same temporary frame structure as B¹ Edgerton. The secondary station is at Prospect Hill, is equipped with DPF, and provides a baseline approximately 4,900 yards long. The tertiary station equipped with azimuth instrument is at Fort Wetherill and in connection with B¹ provides a baseline 2,600 yards long. This shorter baseline is limited by the 15° intersection curve to the area shown, most of which is dead space. The longer baseline would be adequate for the western part of the Bay but more than half of its field is masked. The three stations (two of which are temporary) are blinded by higher ground, buildings or wooded areas. B² Edgerton at Prospect Hill with its DPF is to be retained for emergency use of both Greene and Edgerton, and the other stations abandoned.

b. Two new baselines are proposed:

Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8).

c. One or more plotting boards should be provided which will cover the arc from due west to slightly north of east, and will permit of using the proposed baselines.

d. Spotting stations are planned as follows:

Boston Neck (4), and
Sachuest Neck (7);
Auxiliary spotting stations at Hazard Tower (5), and
St. George's School Tower (6).

If the last two can be established, the other will not be required.

RAPID FIRE BATTERIES OF INNER DEFENSE.

25. No important changes are needed to enable these six batteries to protect the mine fields and approaches thereto. There are three 6-inch and three 3-inch batteries in pairs; a 6-inch and a 3-inch battery at Fort Wetherill, covering the Eastern Passage; a 6-inch and a 3-inch battery at Fort Getty and a 6-inch and a 3-inch battery at Fort Kearney, these four batteries covering the Western Passage. Exhibits 8-B to 13-B show the field of fire covered by each battery.

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26. Battery Dickenson, two 6-inch barbette guns at Fort Wetherill. The battery has a DPF at Fort Wetherill, with the field of view shown in Exhibit 10-B. The instrument height is 101 feet, giving an effective range with present instrument of 8,100 yards. This is scarcely half of the maximum range of the guns, 16,400 yards. As this battery is capable of a high rate of fire and covers a valuable field it should be equipped with an M-1 DPF and the older DPF employed elsewhere. An M-1 DPF will permit Battery Dickenson to fire up to its extreme range, over an arc of 72° .

27. Battery Crittendon, two 3-inch Pedestal Mounts at Fort Wetherill. There is a 9-foot CRF at the battery with the field of view shown in Exhibit 11-B. No change in the present installation is necessary.

28. Battery House, two 6-inch barbette guns at Fort Getty. The battery is capable of a high rate of fire, to a range of 16,400 yards. The present 15-foot CRF adequately covers the mine field of the Western Passage and the approaches thereto, and is reasonably satisfactory. See Exhibit 12-B.

29. Battery Whiting, two 3-inch Pedestal Mounts at Fort Getty. This battery is equipped with 9-foot CRF which is satisfactory. The battery covers the Western Passage mine field as shown in Exhibit 13-B.

30. Battery Cram, two 6-inch DC at Fort Kearney. See Exhibit 8-B. There is an unfinished CRF station at the battery, to complete which will cost approximately \$1,500. A 15-foot CRF instrument is on hand. The station should be completed.

31. Battery Armistead, two 3-inch Pedestal Mounts at Fort Kearney. See Exhibit 9-B.

a. No fire control station has been provided. At the shorter ranges the higher ground of "The Bonnet" to the south of Fort Kearney obstructs fire; otherwise No. 1 gun could fire as far to the west as Lower Pier, the site of the 8-inch railway battery. The battery covers the eastern half, only, of the mine field, and as No. 2 gun could not fire closer to No. 1 than about 15° while the latter is manned (to azimuth 341°) this left gun cannot fire on the mine field at all. The battery covers the anti-submarine net effectively. As the mine field is covered by the two rapid fire batteries at Fort Getty, no action is necessary.

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b. Battery Armistead should be provided with a station for 9-foot CRF, (the instrument is on hand), so located as to cover the mine field and to track boats approaching the field of fire of the guns from due south, enabling fire to be opened as soon as such vessels come into view of the guns. There is a suitable location on the parades, in rear of No. 2 gun.

32. Long Range Batteries near Sakonnet Point.

a. It is proposed to provide the following baselines for the 16-inch and 8-inch batteries on the Sakonnet peninsula, as shown in Exhibit 14-B:

Point Judith to Boston Neck (3 - 4);
Sachuest Neck to Warren Point (7 - 8);
Gooseberry Neck to Cuttyhunk (9 - 10).

b. There will incidentally be formed the baseline Warren Point to Gooseberry Neck (8 - 9) which may or may not be used, the area covered by this baseline being also covered by the two adjacent baselines.

c. For the 16-inch battery two additional baselines are required:

Green Hill to Point Judith (2 - 3);
Cuttyhunk to Gay Head (10 - 11).

d. Spotting stations are proposed for both batteries to be included in the base end stations at Boston Neck (4);

Sachuest Neck (7);
Gooseberry Neck (9), and
Cuttyhunk (10).

e. For the 16-inch battery, a spotter should be provided for in the base end stations at

Green Hill (2), and
Gay Head (11).

33. 155-mm Battery at Sakonnet Point.

a. A 15-foot CRF should be provided for this battery. No station is proposed, but a concrete platform should be located on the massive clump of rocks shown 400 yards from the end of the Point in Exhibit 6-A. Temporary shelter for the instrument can be erected at time of an emergency with storage at the 8-inch battery during periods when not required.

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b. A spotter for this battery should be provided for at the battery, at the tower of St. George's School (6), and at Gooseberry Neck (9).

COMMAND POSTS

34. a. The H Station at Prospect Hill is suitably located but consists of an observing room only. It should be enlarged to provide six rooms each approximately 15 by 20 feet, or an over all size of approximately 30 by 60 feet. There is ample space available, with very little excavation. The floor level should be slightly below the floor of the present observing room. Trees should be planted to screen the station.

b. Group 4. A station for the antiaircraft group including the center of antiaircraft intelligence should be provided as a part of the H station and will require two of the six rooms.

c. Mine Group. The command post of the Mine Group has been located in an existing station at Prospect Hill, formerly the Group I station.

d. An auxiliary command post of the Mine Group, for convenience in controlling the secondary armament covering the Western Passage, has been established in a crows nest of the Battery Toussard emplacement at Fort Getty, above the casemate.

e. Group 2. The old G-2 station at Prospect Hill should continue as such. The old Group 2 included Batteries Wheaton, Varnum and Walbach. The new Group 2 includes Batteries Wheaton, Varnum, Edgerton and Greene.

f. Group 1. This group comprises all batteries, including antiaircraft batteries, at Point Judith and Narragansett Pier. A station has been provided in this project, in a fire control structure at Point Judith.

g. Group 3. This group comprises the batteries, including the antiaircraft batteries, on the Sakonnet peninsula and a command post has been provided in a Warren Point fire control station.

OBSERVING STATIONS ON BLOCK ISLAND

35. a. See Exhibit 3-B. It is approximately 19,000 yards from Point Judith to Block Island, and 25,000 yards from Montauk Point to Block Island. It is 45,000 yards from Sakonnet Point.

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The arcs of fire of batteries at all three places pass near Block Island. Because the haze which prevails much of the time over New England waters permits observation as far as 20,000 yards on unusually clear days only, the opportunity of using these long range batteries beyond about half their range depends on airplane observation or position finders on Block Island. Airplane observation may be interfered with.

b. Foreign naval vessels are credited with an extreme range of about 40,000 yards which they are not apt to use (considering ammunition expenditure) beyond about 35,000 yards; but they must be held more than 35,000 yards off Point Judith if our Navy is to be able to pass freely, secure from hostile gunfire, between Narragansett Bay and Block Island Sound. If hostile vessels can lie closer than about 35,000 yards off Point Judith, our vessels cannot pass securely in and out of Narragansett Bay. Since visibility from the mainland is ordinarily limited to an extreme distance of 20,000 yards, observation from Block Island is essential. The arcs of fire of the long range batteries are shown in Exhibit 3-B.

(1) Great Salt Pond on Block Island has a channel depth of 23 feet at mean low water; it is probable that the Inshore Patrol will utilize it as a base. There is a second-rate airplane landing field at Block Island, in daily use during the tourist season. A photostat of the U. S. Coast and Geodetic Survey chart No. 356, dated November 1902, now out of print, is attached as Exhibit 15-B; on it are shown the proposed base end stations.

36. There are four points on Block Island, conveniently disposed, from each of which observation can be obtained over a very wide arc: Clayhead on the north, Beacon Hill in the center, "Paine" on the southeast and "Southwest" on that part of the island. Each one is the location of a Coast and Geodetic Survey station. By occupying these four places, a series of baselines can be formed which will give observation in all directions to a considerable distance. The limiting curves of these baselines are shown in Exhibit 3-B.

a. Clayhead. The field of view from the location of the Coast and Geodetic Survey station of this name is from a line tangent to the high ground 900 yards northwest of Beacon Hill on the southwest, clockwise to a line tangent to the southeast shore of Block Island or from azimuth 43° to azimuth 347° , a field of view of 304° . The station is on open grass land 142 feet high; its coordinates are given in attached table of orientation data. A DPF should be provided for this location. One house belonging to the Samuel Hayes estate at a distance of about 300 yards obstructs the view to the northeast through an arc of

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about three degrees. The value of the land is estimated as \$250. per acre. One acre should be purchased and an instrument base for DPF should be put in. No shelter need be erected until an emergency arises. An antiaircraft observer should be located at Clayhead.

b. Block Island ECC. The Coast and Geodetic Survey station of this name is in the center of a stone observation tower about 12 feet in diameter and 16 feet above ground level, at the corner of a small stone house occupying the summit of Beacon Hill, which is the high point of Block Island. The elevation of the observation platform of the tower is approximately 227 feet above sea level. The view is 360° uninterrupted except through an angle of about 5° by a hill 800 yards to the south and through an angle of about 2° by the hill on which "Paine" is located. A DPF should be provided for this location; it would be effective at this height to a distance of about 18,000 yards if visibility permitted waterlining. No preparation is needed except to level the base with cement at time of an emergency, when shelter can be erected. An antiaircraft observer should be located here.

(1) "Block Island ECC" is a primary triangulation station of the Coast and Geodetic Survey; the present station was established in 1932 and is tied in with the new 1927 North American Datum.

(2) The owner of this property is Thomas T. Daggett, Sandy Valley Road, Dedham, Mass.; an occasional employee of his is Selim F. Mitchell, Box 296, Block Island, Rhode Island.

c. "Paine" station, located by the Corps of Engineers in 1922 to replace a lost Coast and Geodetic Survey station, is on the top of a bald hill, 183 feet above high water, near the southeast corner of Block Island. The view from five feet above ground level is from the direction of "Clayhead" on the north around through the east and south to a line slightly north of west, or from azimuth 181° clockwise to azimuth 114°, an angle of 293°. The land is estimated at \$250 an acre; one acre should be purchased. An observing station should be built because Pilot Hill 500 yards to the north cuts off a small part of the field of view from the ground; an instrument height of about 15 feet above ground should be provided. A DPF and an azimuth instrument for spotter should be provided.

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d. "Southwest" is on an open, flat hilltop, 165 feet above sea level. This is the location of a Coast and Geodetic Survey station. The field of view is from a line slightly west of north counterclockwise to a line tangent to "Paine", or from azimuth 178° to azimuth 260°, an angle of 278°.

(1) Two acres should be purchased, to prevent nearby construction. The value of the land is estimated as \$250 per acre.

37. Baselines.

a. It is proposed to form four baselines by use of the four stations described above; their approximate lengths are:

Clayhead to Paine, 6,885 yards;
Clayhead to Southwest, 8,213 yards;
Block Island ECC to Paine, 3,751 yards;
and Southwest to Paine, 3,250 yards.

The areas over which these baselines will operate are shown by the limiting arcs of intersections in Exhibit 3-B; the areas over which the DFF's at Clayhead and at Paine will operate effectively are also shown.

b. Because data obtained at Block Island will be required by the Harbor Defenses of Long Island Sound and also by four batteries of the Harbor Defenses of Narragansett Bay, and in order to avoid multiplication of fire control personnel and costs, it is proposed to operate this network of baselines as a function of harbor defense headquarters of Narragansett Bay, using but one set of instruments and personnel, the latter being a detail from the headquarters battery.

c. A practicable method of using the data obtained by the Block Island fire control stations will be to plot the range and azimuth of a target, from "Block Island ECC", and telephone these data to the mainland, to be replotted by such batteries as may be assigned to the target.

d. A Government reservation formerly used by the Bureau of Fisheries of the Department of Commerce, consisting of approximately 2 acres on Beach Avenue, Block Island, on the east shore of Trims Pond just east of Fort Island is to be transferred to the War Department; pending Congressional authorization for the transfer, the use of the tract is granted by license from the Department of Commerce to the War Department (3d Ind., WD AGO, June 7, 1934, AG 601.4 Block Is. RI; 5-21-34; Misc.). The location is shown in Exhibit 15-B. On this reservation should be located the

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necessary temporary barracks for the fire control and searchlight personnel; and a plotting room and room for a small switchboard should be provided. There is a suitable beach nearby for landing the cable from Point Judith.

AREA BETWEEN BLOCK ISLAND AND GAY HEAD

38. Subaqueous Sound Ranging.

a. It is 68,000 yards from Block Island to Gay Head, between which there are no sites for observation stations. Observation from Block Island may cover 20,000 yards of this distance, from the west; and observation from Gay Head - Cuttyhunk may cover 20,000 yards from the east. There remains a gap of 28,000 yards. To provide for fire on this area, the center of which lies due south of Sakonnet Point at a distance of 21,000 yards, the installation of subaqueous sound ranging equipment is proposed.

b. A suitable location for the shore installation is the 16-inch reservation on Sakonnet peninsula.

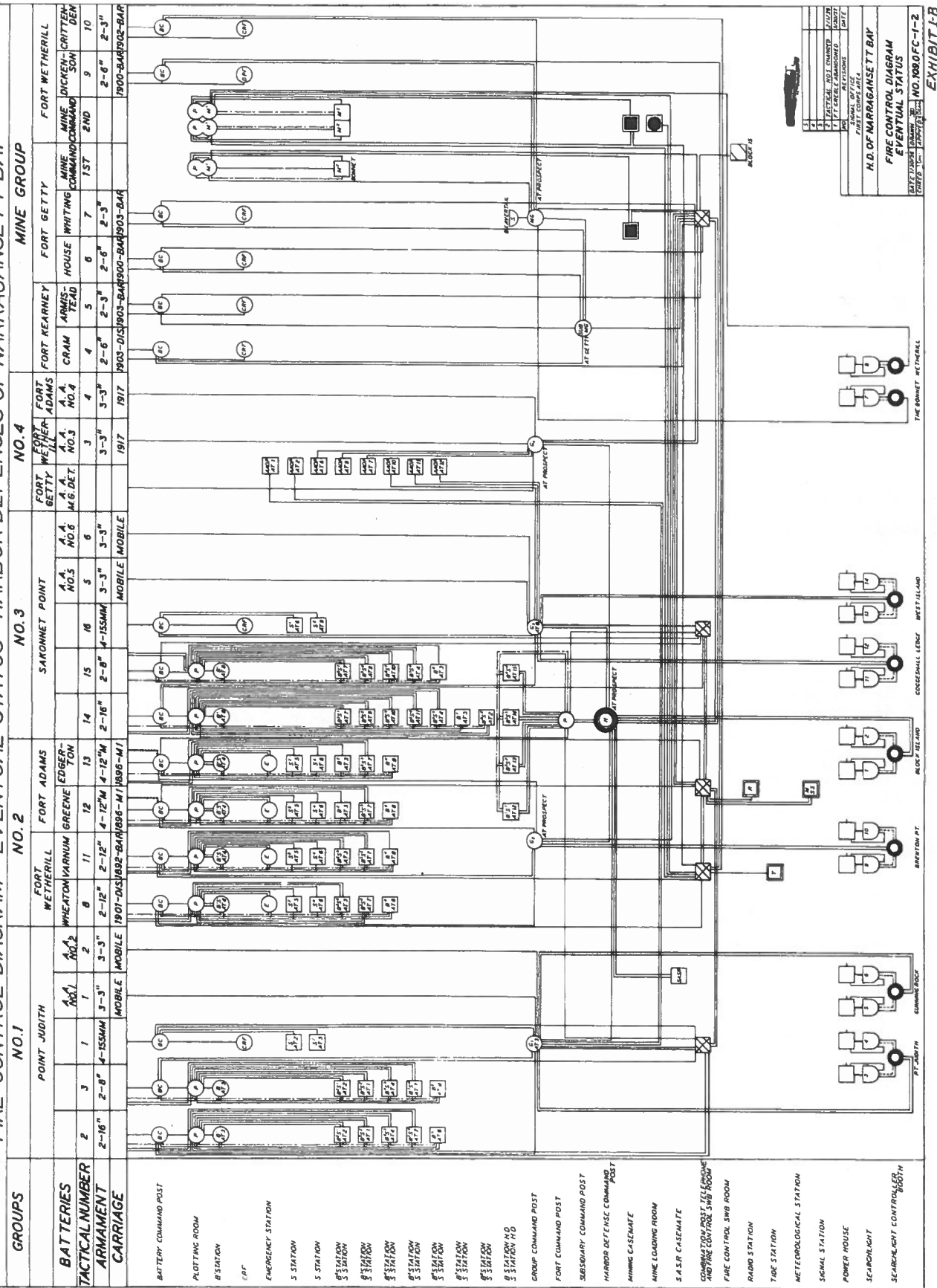
c. The installation should lie at azimuth 0° from Sakonnet Point past the midway point of the Block Island - Gay Head line, to the maximum distance over which the subaqueous sound ranging equipment will function. When its further development permits, the installation should be continued to a distance of 23,000 yards south of that line or a total distance from Sakonnet Point of 44,000 yards.

39. Seacoast Director. Should the seacoast director now under development be adopted, its use is proposed with the two 16-inch and two 8-inch batteries provided for in this Project.

40. Cost Estimate. An estimate of cost and priority guide is appended as Exhibit 18-B. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

~~SECRET~~

FIRE CONTROL DIAGRAM—EVENTUAL STATUS—HARBOR DEFENSES OF NARRAGANSETT BAY



REPRODUCED AT THE NATIONAL ARCHIVES

DECLASSIFIED
Authenticity NND 760762
By JWL NARA Date 5-23

DT 1014V3

EXHIBIT D

DATE	1/30/78	DRAWN	ED
NO. 109.0 FC-1-2			

EVENTUAL STATUS

FIRE CONTROL DIAGRAM

17.2 OF 17.2

HONORABLE SEN. J. J. HARRIS

SIGNAL OFFICE
FIRST FORMS AREA

DATE	REVISIONS	QTY
10-20-77	1	1

SECRET

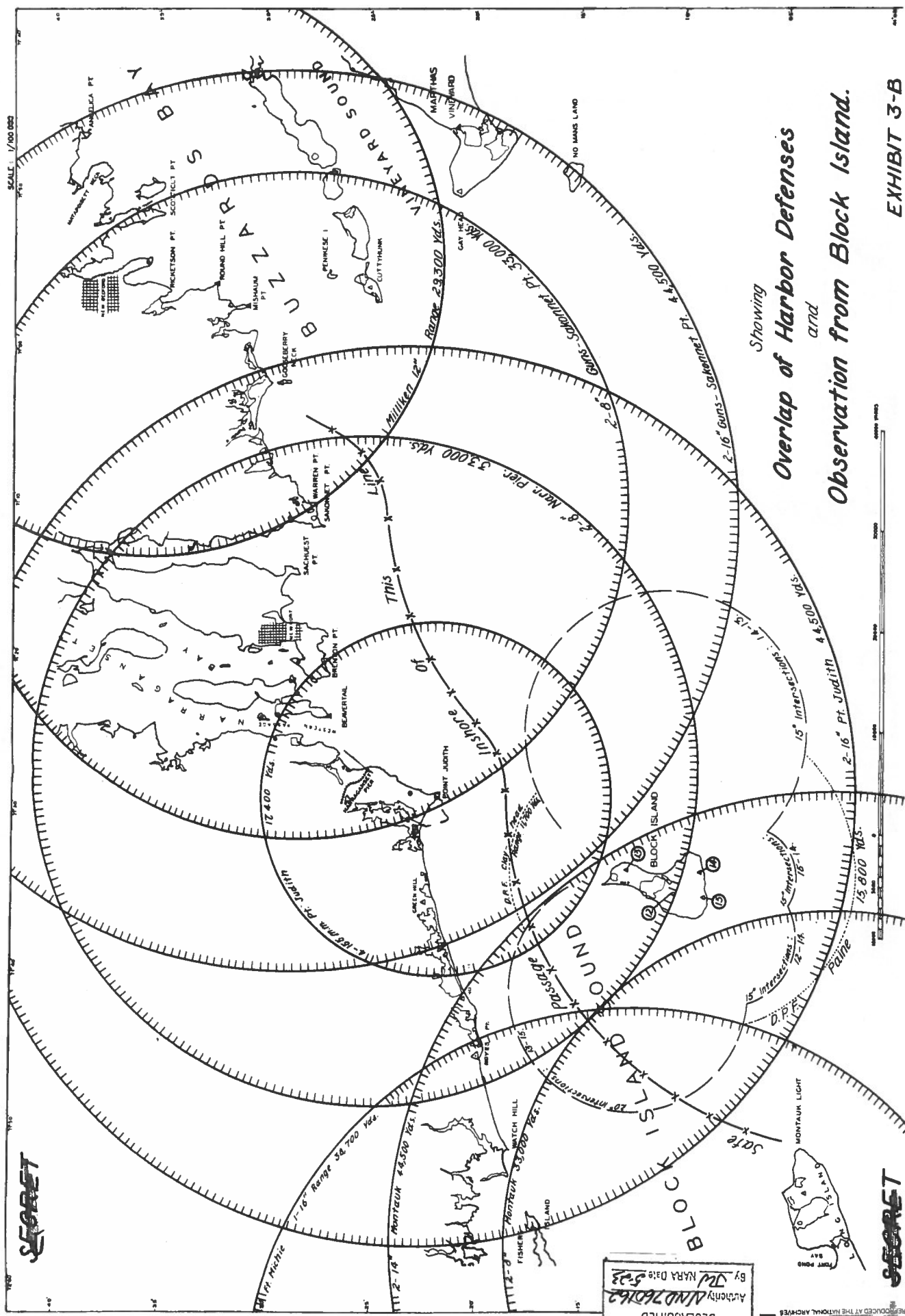


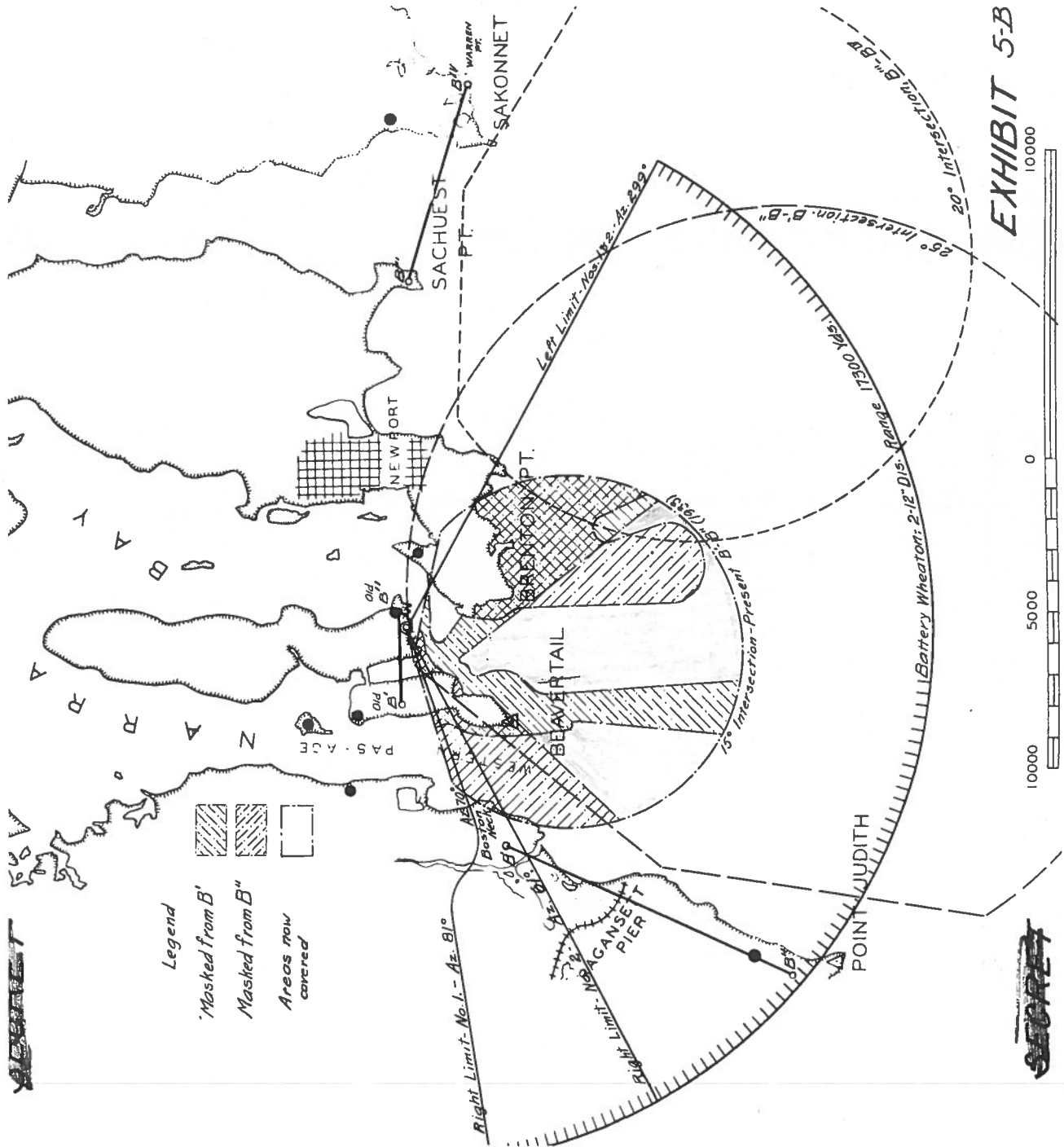
7500

A map of the Montauk Light area. The map shows the coastline of Montauk Point, with the light located at the tip. The map includes labels for 'MONTAUK LIGHT' and 'MONTAUK POINT'. The map is oriented with the light at the top and the point at the bottom.

*Showing
Overlap of Harbor Defenses
and
Observation from Block Island.*

EXHIBIT 3-B





Legend

Masked from B'

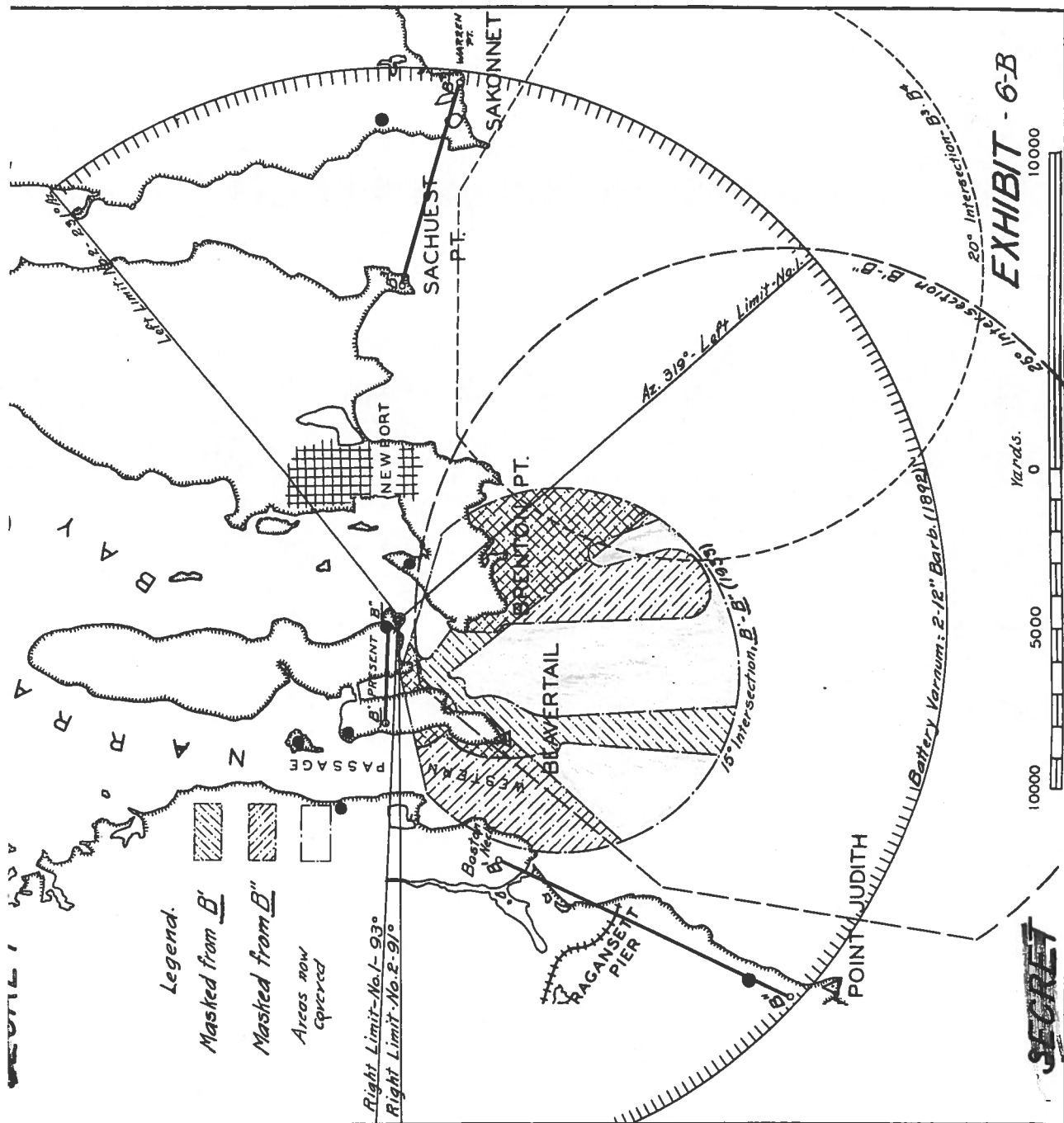
Masked from B''

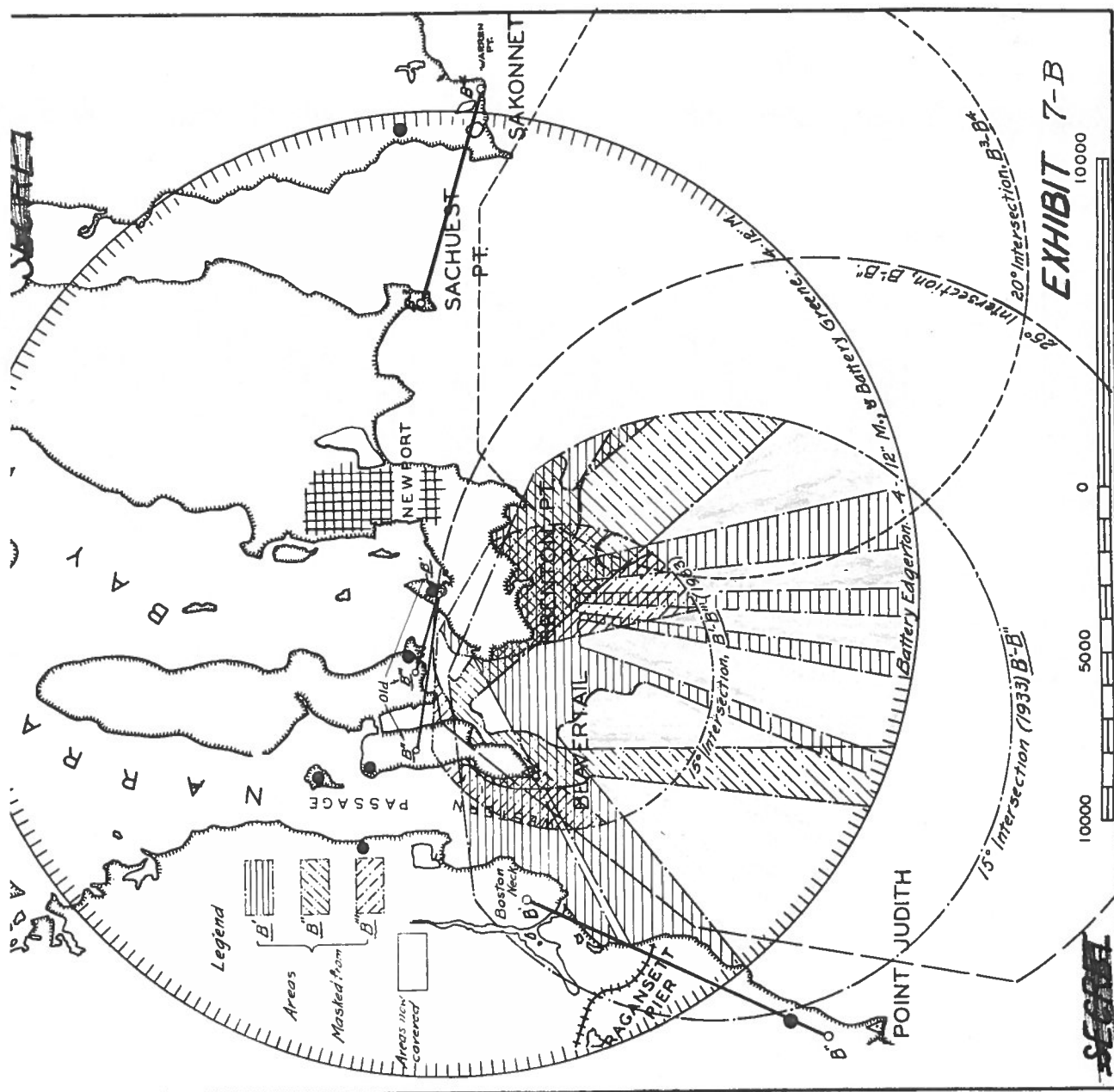
Areas now covered

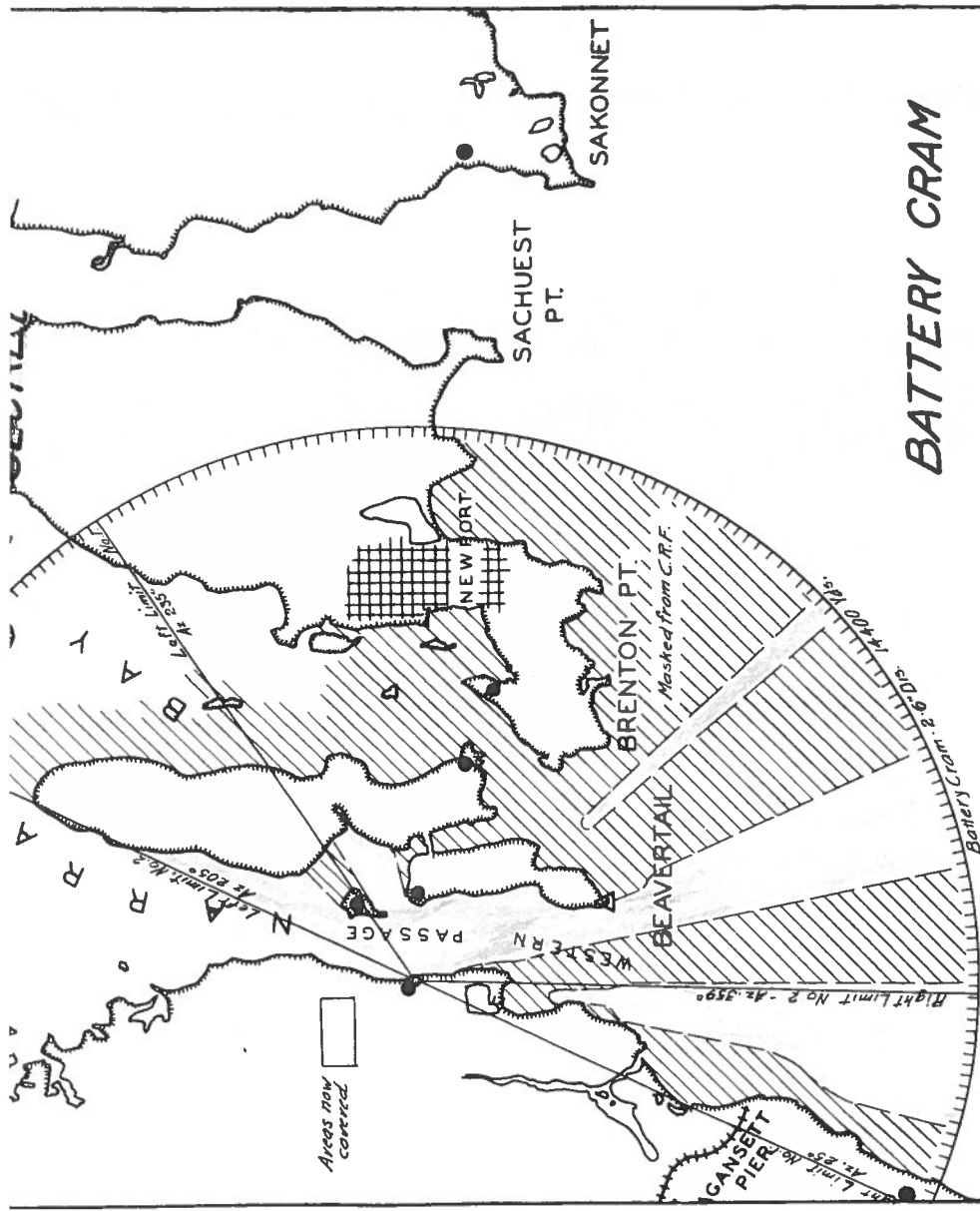
EXHIBIT 5-B



SECRET







BATTERY CRAM

Tinted area is now covered

EXHIBIT 8-B

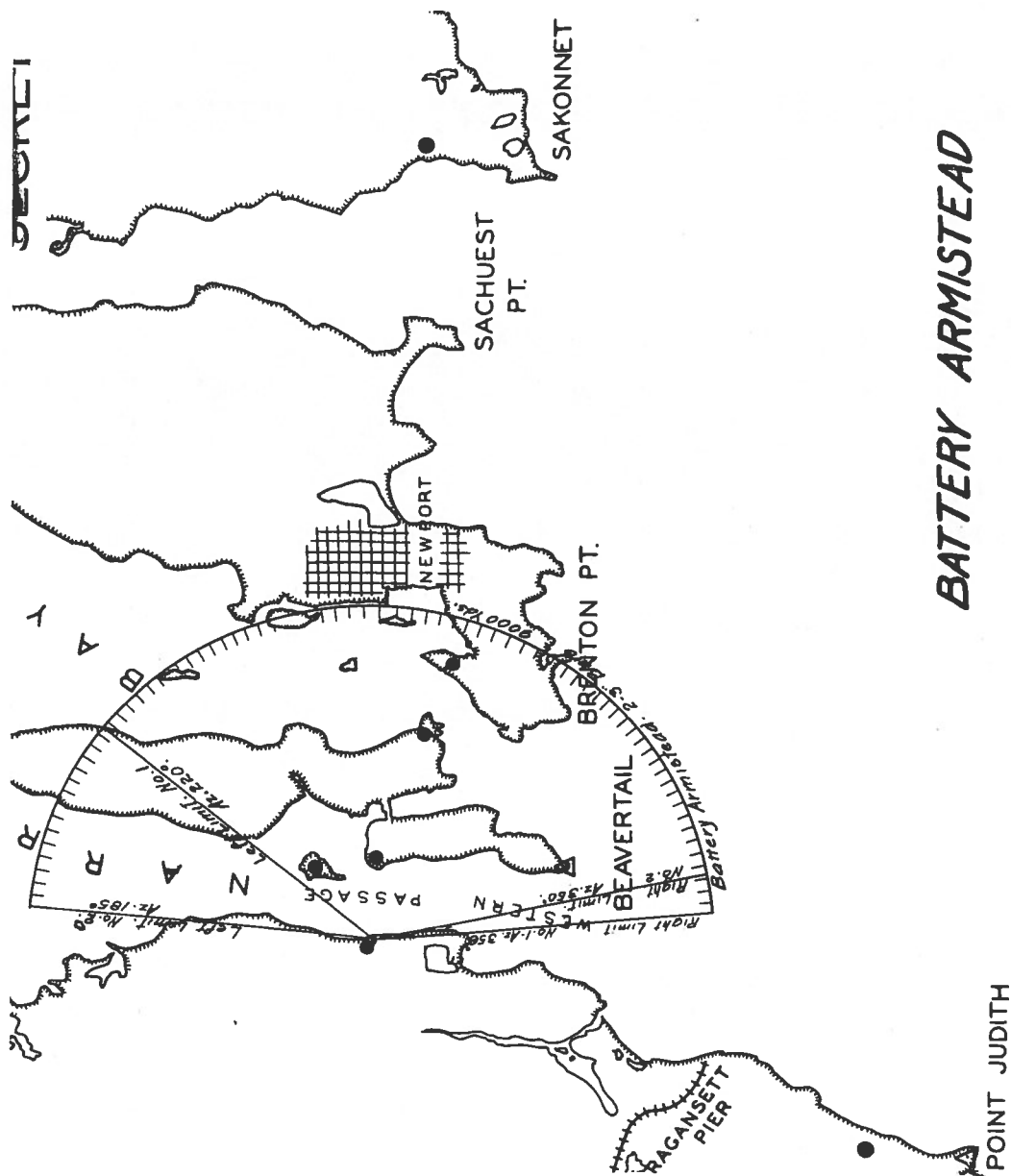
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5000

10000

SECRET

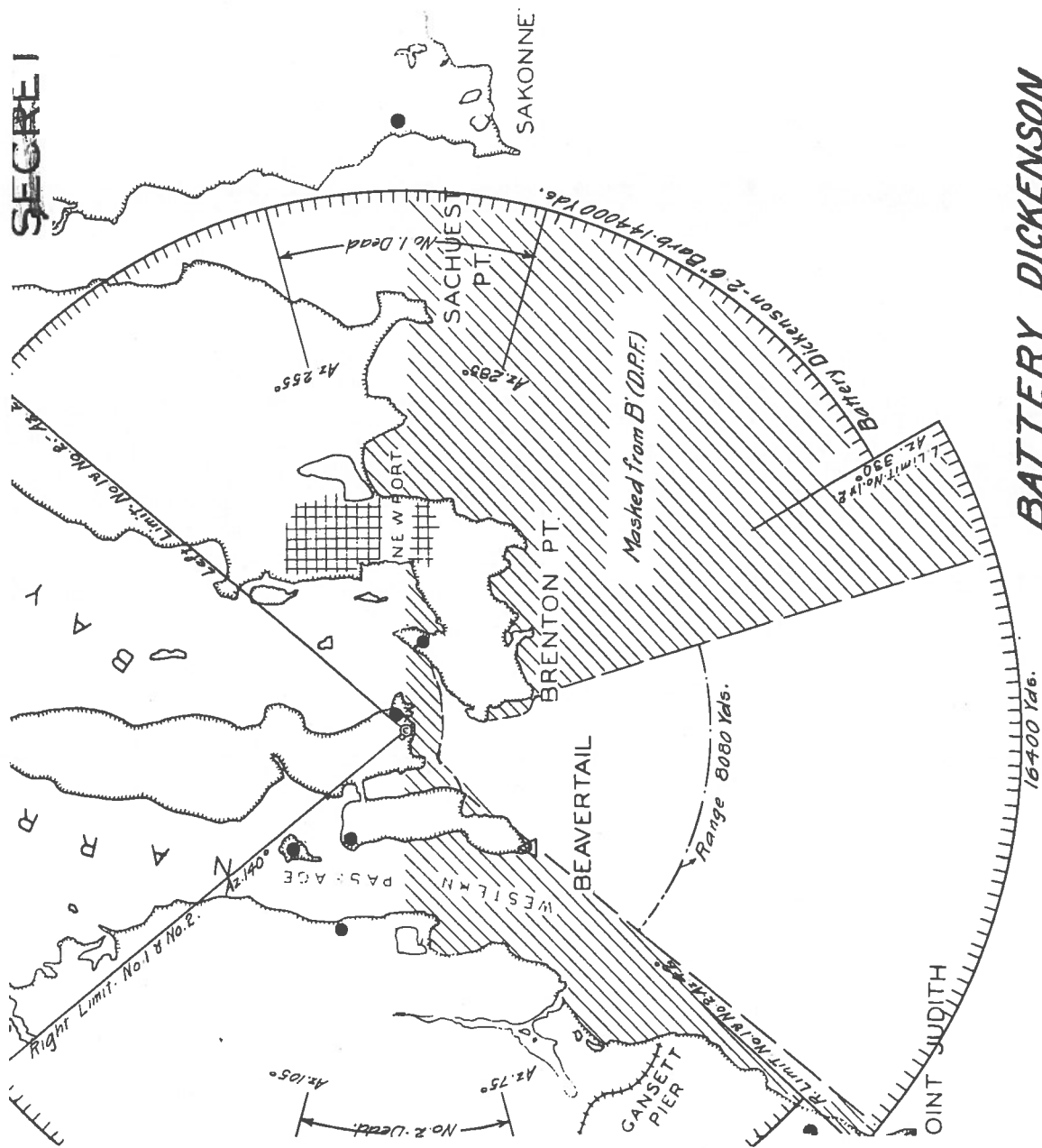


BATTERY ARMISTEAD

EXHIBIT 9-B



SECRET

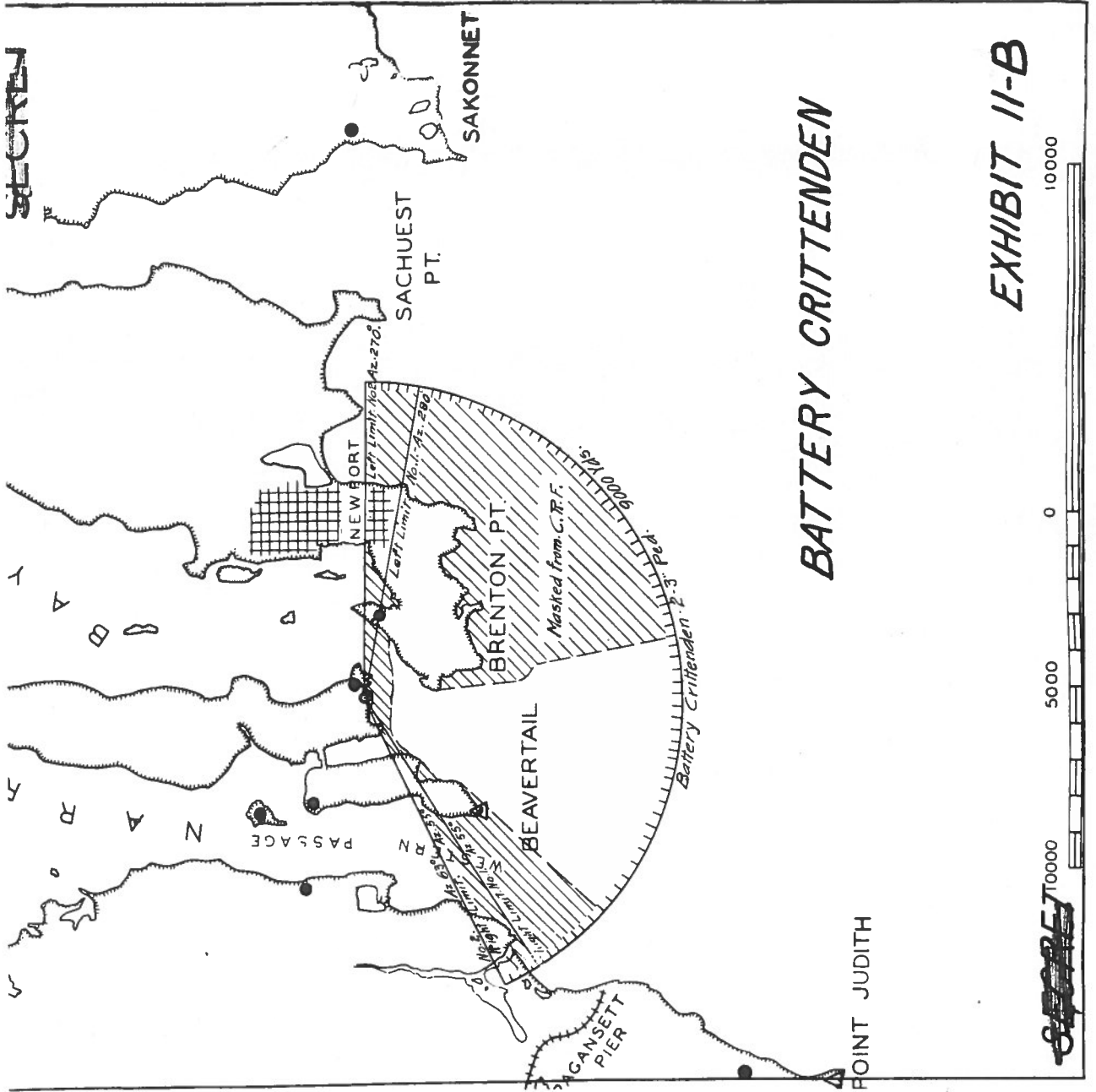


BATTERY DICKENSON

EXHIBIT 10-B

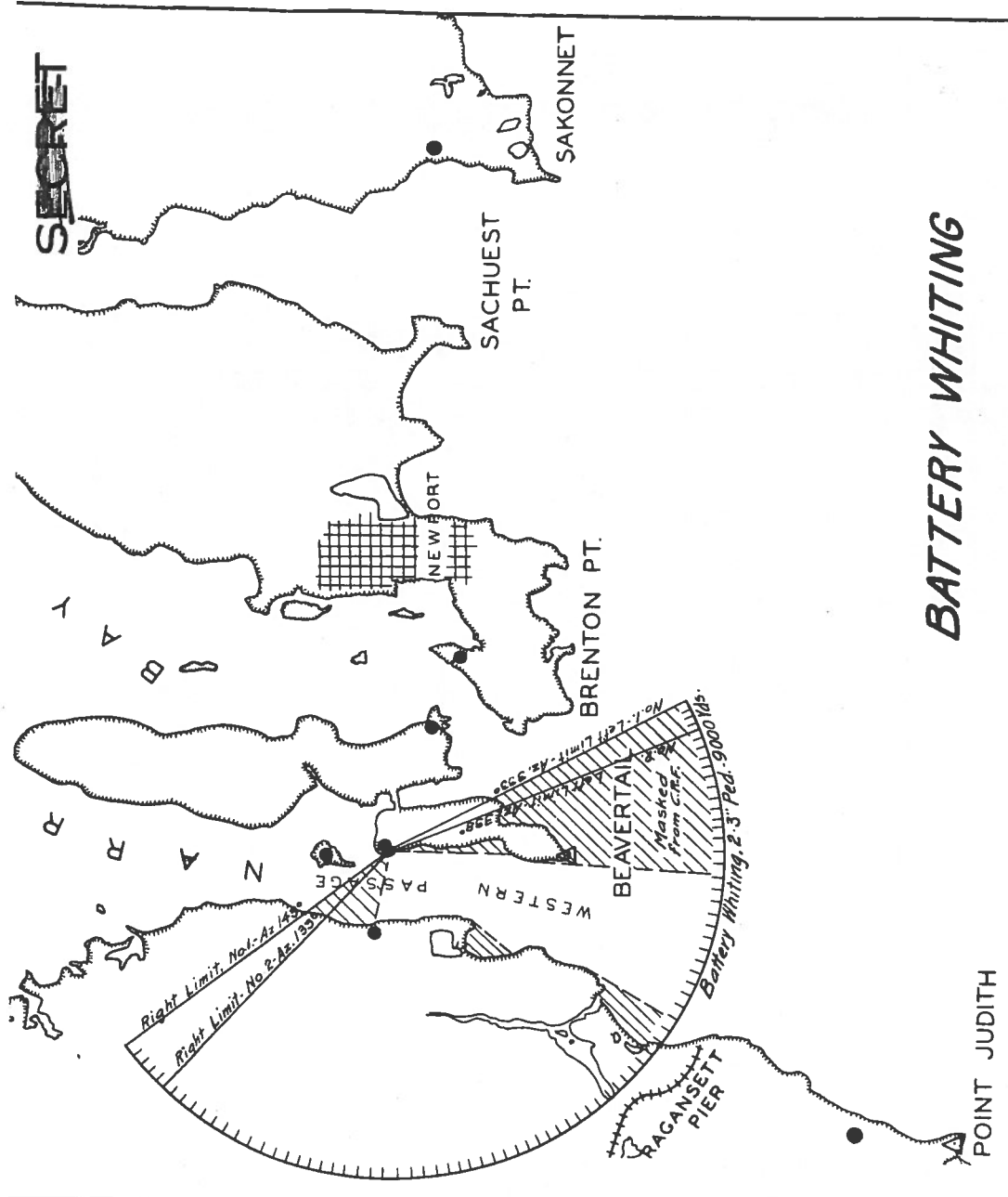


SECRET



BATTERY CRITTENDEN

EXHIBIT 11-B

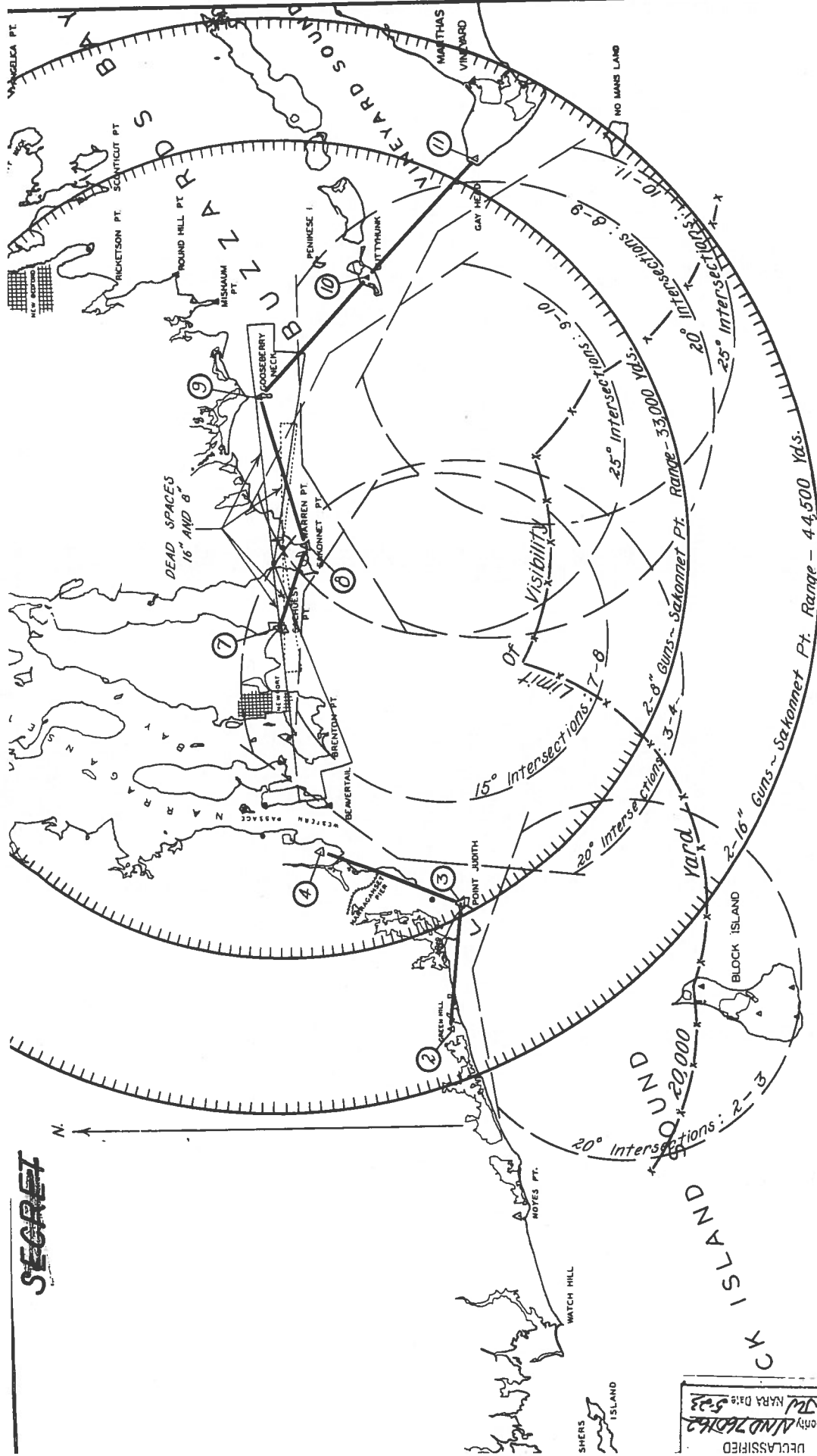


SECRET

BATTERY WHITING

POINT JUDITH

SECRET



*Arcs Covered by Proposed Baselines
16" and 8" Batteries at Sakonnet Pt.*

EXHIBIT 14-B

UNCLASSIFIED
Authority AND 760162
By JLD NARA Date 5-23



SECRET

SECRET

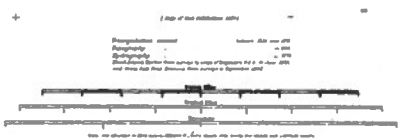
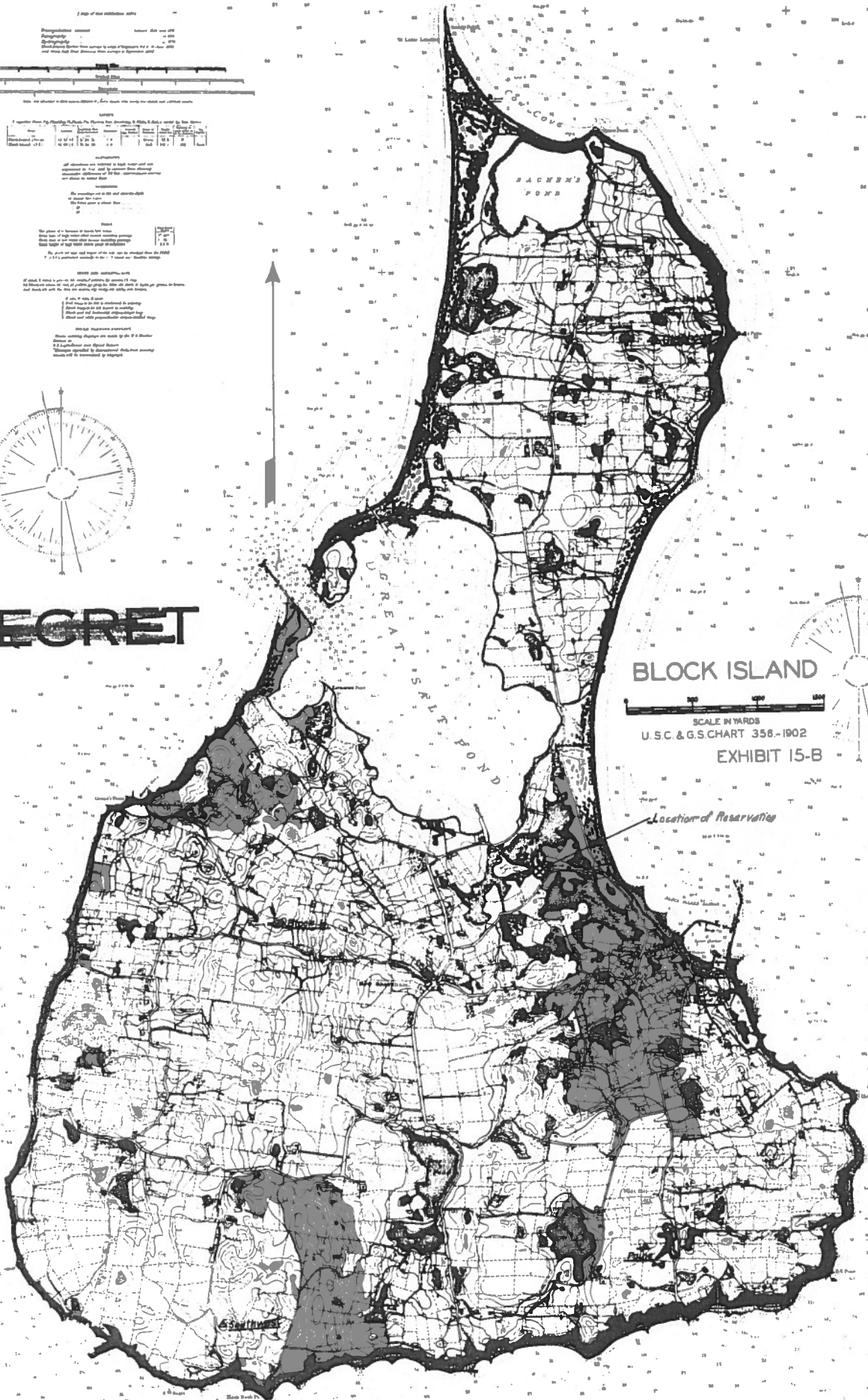
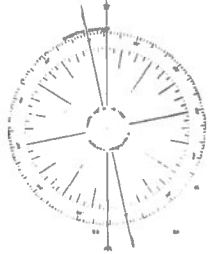


TABLE 1
Vertical Scale of Block Island, N.Y., from Mean Low Water to Mean High Water

Height above MLLW	Area in Acres
0 to 10	1,200
10 to 20	1,000
20 to 30	800
30 to 40	600
40 to 50	400
50 to 60	200
60 to 70	100
70 to 80	50
80 to 90	25
90 to 100	10
100 to 110	5
110 to 120	2
120 to 130	1
130 to 140	0.5
140 to 150	0.2
150 to 160	0.1
160 to 170	0.05
170 to 180	0.02
180 to 190	0.01
190 to 200	0.005
200 to 210	0.002
210 to 220	0.001
220 to 230	0.0005
230 to 240	0.0002
240 to 250	0.0001
250 to 260	0.00005
260 to 270	0.00002
270 to 280	0.00001
280 to 290	0.000005
290 to 300	0.000002
300 to 310	0.000001
310 to 320	0.0000005
320 to 330	0.0000002
330 to 340	0.0000001
340 to 350	0.00000005
350 to 360	0.00000002
360 to 370	0.00000001
370 to 380	0.000000005
380 to 390	0.000000002
390 to 400	0.000000001



BLOCK ISLAND
SCALE IN YARDS
U.S.C. & G.S. CHART 358-1902
EXHIBIT 15-B



~~SECRET~~

ORIENTATION DATA

U. S. COAST AND GEODETIC SURVEY

(To accompany Exhibit 16-B)

Name of Station	Latitude			Longitude		
	O	I	"	O	I	"
Montauk - 2*	41	03	53.829	71	54	18.669
Montauk Light	41	04	15.113	71	51	27.291
Watch Hill Lighthouse	41	18	13.646	71	51	32.555
Chapman (Noyes Point)	41	19	55.443	71	45	24.106
Quonochontaug Pond	41	19	55.962	71	43	39.742
Green Hill	41	22	24.700	71	35	51.593
Southwest	41	09	01.799	71	35	48.857
Block Island ECC*	41	10	31.430	71	35	30.904
Barlow's House cupola	41	03	57.13	71	34	44.32
Paine	41	09	18.840	71	33	44.968
Clayhead	41	12	44.106	71	33	40.383
Point Judith (1922)	41	22	18.452	71	29	22.844
White House W. Chimney	41	23	20.46	71	29	18.66
Point Judith Lighthouse	41	21	39.330	71	28	54.833
Hazard Tower	41	24	55.746	71	27	26.813
McSparren - 3	41	29	47.306	71	27	24.588
Narrow River East	41	26	27.883	71	26	21.652
Boston Neck	41	28	19.08	71	26	05.43
Beavertail Light	41	26	57.329	71	23	59.678
St. George's Academy (NW spire)	41	29	29.361	71	16	24.350
Sachuest Neck	41	28	59.371	71	14	54.544
East Rock	41	27	04.650	71	11	38.340
Sakonnet Point	41	27	16.36	71	11	46.09
Gooseberry Neck	41	29	20.083	71	02	19.612
Mishaum Point	41	30	56.112	70	57	16.438
Cuttyhunk	41	25	14.887	70	56	02.646
Round Hill	41	32	24.784	70	55	50.615
Clark's Point	41	35	34.154	70	54	03.713
Sconticut Point (Barn cupola 1913)	41	35	00.308	70	51	38.349
Gay Head	41	20	50.30	70	50	13.97
No Man's Land - 2	41	15	11.73	70	48	49.28

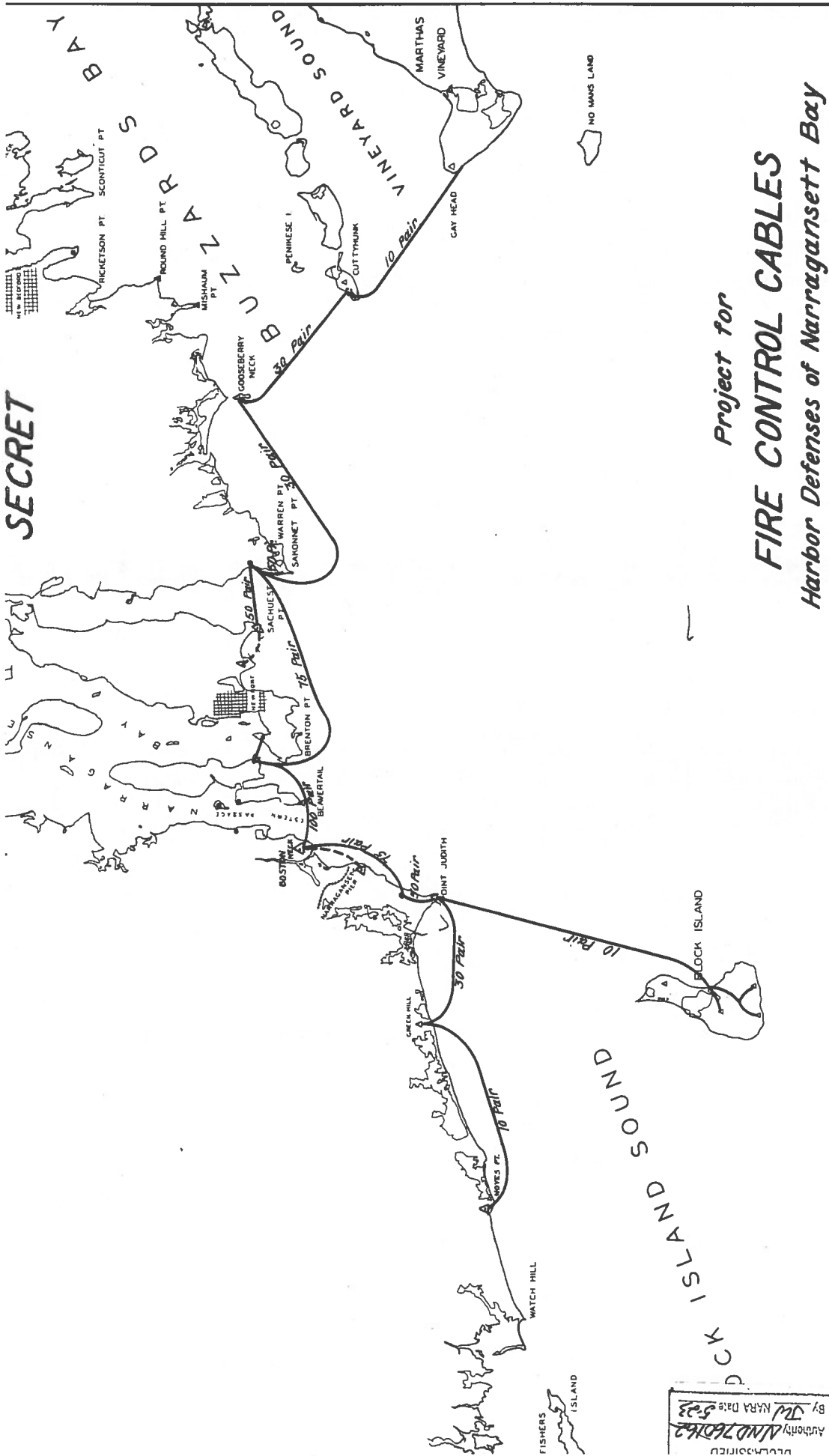
*New 1927 North American Datum.

To Accompany EXHIBIT 16-B

ORIENTATION DATA

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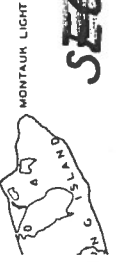


Project for
FIRE CONTROL CABLES
Harbor Defenses of Narragansett Bay

EXHIBIT 17-B



SECRET



Authority: *AND 760162*
By: *JD*
NARA Date: *5-23*

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	1	A	<u>Redetermination of Orientation</u> <u>Data, Narragansett Bay</u> <u>Sub-area and Surveys</u>	\$	\$ 1,200	\$ 6,000	\$	\$	\$	\$ 7,200
4	2	A	<u>"H" STATION; HARBOR DEFENSE</u> <u>COMMAND POST, Prospect Hill</u> Ordinance: 1 DFF (Swasey) On Hand 1 Azimuth Instrument, M-1910 \$1,800 \$1,800 Engineer: Addition of 4 rooms to existing structure: Mat. 3,000 Lab. 2,000 5,000 Signal: Additional Equipment: 2 Hand & chest sets 80 2 Switchkey sets 60 1 Radio set SCR-177 3,450 Contingency 100 3,690 Wiring & installation: Mat. 200 Lab. 400 600 <u>OBSERVING STATIONS, HARBOR DEFENSE</u> <u>COMMAND POST (Prospect)</u> <u>Block Island</u>	1,800	3,000	2,000		3,890	400	11,090
5	3	B ¹	<u>B¹ (H.D.C.F.), Beacon Hill,</u> <u>Block Island</u> Ordinance: 1 DFF M1 4,500 1 Azimuth Instrument M1910 1,800 6,300 Engineer: Land, 1 acre 250 Base & shelter for DFF: Mat. 250 Lab. 250 750 Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279 Wiring & installation: Mat. 10 Lab. 40 50	6,300	250	250	250	289	40	7,379
5	3	B ²	<u>B² (H.D.C.F.), Clayhead,</u> <u>Block Island</u> Ordinance: 1 DFF M1 4,500 1 Azimuth Instrument M1910 1,800 6,300 Engineer: Land, 1 acre 250 Base & shelter for DFF: Mat. 250 Lab. 250 750 Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279 Wiring & installation: Mat. 10 Lab. 40 50	6,300	250	250	250	289	40	7,379

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	3		<u>B3S3 (H.D.C.F.) Paine, Block Island</u>	\$ 6,300	\$ 250	\$ 250	\$ 250	\$ 289	\$ 40	7,379
		B	<u>Ordnance:</u> 1 DFF M1 \$4,500 1 Azimuth Instru- ment M1910 1,800 \$6,300							
		C	<u>Engineer:</u> Land, 1 acre 250 Base & shelter for DFF: Mat. 250 Lab. 250 750							
		B	<u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
		C	<u>Wiring & Installa- tion:</u> Mat. 10 Lab. 40 50							
5	3		<u>B4S4 (H.D.C.F.), Southwest, Block Island</u>	6,300	250	250	500	289	40	7,629
		B	<u>Ordnance:</u> 1 DFF M1 4,500 1 Azimuth Instru- ment M1910 1,800 6,300							
		C	<u>Engineer:</u> Land, 2 acres 500 Base & shelter for DFF: Mat. 250 Lab. 250 1,000							
		B	<u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
		C	<u>Wiring & Installa- tion:</u> Mat. 10 Lab. 40 50							
5	2		<u>PLOTTING ROOM (H.D.C.F.), Beach Avenue, Block Island</u>	4,000	6,000	2,000		4,069	50	16,119
		B	<u>Ordnance:</u> 1 Board, Plotting, 110° type 1,500 1 Board, Spotting M2 2,500 4,000							
		C	<u>Engineer:</u> Land (Government Res- ervation 2 acres) Dormitory: Mat. 2,000 Lab. 1,000 Plotting & Switch- board Room: Mat. 4,000 Lab. 1,000 8,000							
		B	<u>Signal:</u> 6 Telephones with head & chest sets 480 1 T.I. Bell, small 9 1 Radio Set SCR-177 3,450 Contingency 100 4,039							
		C	<u>Wiring & Installa- tion:</u> Mat. 30 Lab. 50 80							

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	5	A	<u>G-1, GROUP COMMAND POST,</u> <u>Point Judith</u> (Ref. Exh. 2-B) <u>Controlling:</u> 2-16" Btry., Pt. Judith 2-8" Ry. Btry., Narr. Pier 4-155 mm Btry., Pt. Judith AA Btry. No. 1, Pt. Judith AA Btry. No. 2, Narr. Pier <u>Ordnance:</u> 1 BC Telescope Available 1 Azimuth Instrument M1910 \$1,800 \$1,800 <u>Engineer:</u> For cost of station see "Fire Control Stations," Pt. Judith. <u>Signal:</u> 4 Telephones, desk, complete 200 9 Telephones, wall with head & chest sets 720 2 Hand sets 32 2 Switchkey sets 60 1 Radio set SCR-177 3,450 1 Telephone Post System 15 Contingency 150 4,627	\$ 1,800	\$	\$	\$	\$ 4,627	\$	\$ 5,427
4	5	A	<u>2-16" BATTERY, Point Judith</u> <u>BC STATION, vicinity of Battery,</u> <u>(2-16", Point Judith)</u> <u>Ordnance:</u> 1 BC Telescope 775 775 <u>Engineer:</u> Construction of station: Mat. 2,000 Lab. 1,000 Land 500 3,500 <u>Signal:</u> 5 Telephones with head & chest sets 400 2 Switchkey sets 60 2 Hand sets 32 1 Telephone Post System 15 1 T.I. Bell, small 9 1 Set, Firing Signal 60 Contingency 100 676 Wiring & Installa- tion: Mat. 50 Lab. 100 150	775	2,000	1,000	500	726	100	5,101
4	5	A	<u>B1 STATION, Point Judith</u> <u>(2-16", Point Judith)</u> <u>Ordnance:</u> 2 Azimuth Instruments, M1910 3,600 3,600 <u>Engineer:</u> For cost of station see "Fire Control Station", Pt. Judith. <u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	3,600				279		3,879

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	4	A	B ² S ¹ , GREEN HILL, (2-16", Point Judith)	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,879
			Ordinance: 2 Azimuth Instruments M1910 \$3,600 \$3,600 Engineer: For cost of station see "Fire Control Stations", Green Hill. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
	1	B	B ³ S ² , NOYES POINT, (2-16", Point Judith)	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Station", Noyes Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
	4	6	A	B ⁴ S ³ , BOSTON NECK, (2-16", Point Judith)	6,300			279		6,579
			Ordinance: 1 DFF 4,500 1 Azimuth Instrument M1910 1,800 6,300 Engineer: For cost of station see "Fire Control Station", Boston Neck. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
	4	7	A	B ⁵ S ⁴ , SACHUEST POINT, (2-16", Point Judith)	3,600			279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Station", Sachuest Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

SECRET

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	8	A	<u>B⁶, WARREN POINT, (2-16",</u> <u>Point Judith</u>	* 3,600	\$	3	\$	3	275	3,875
			Ordnance: 2 Azimuth Instruments M1910 \$3,600 33,600							
			Engineer: For cost of station see "Fire Control Station", Warren Point							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 275							
5	4	A	<u>PLOTTING ROOM, (2-16",</u> <u>Point Judith</u>	39,960				4,785	300	45,045
			Ordnance: 1 Arm metal 25 1 Board, Plotting 4,000 1 Board, Deflection 1,900 1 Board, Range Cor- rection 900 1 Corrector Percentage 125 1 Board, Spotting 2,500 1 Board, Fire Adjust- ment 250 1 Rule set forward 15 1 Indicator Wind Com- ponent 135 1 Director seascope 30,000 4 Recorders, T. In- terval 110 39,960							
			Engineer: Construction included in cost of Battery Emplacement, Annex A.							
			Signal: 11 Telephones with head & chest sets 880 1 Hand set 16 1 Switchkey set 30 1 T.I. Bell, small 9 1 Switching Panel 100 1 Radio Set (SCR-177) 3,450 Contingency 150 4,635 Wiring & Installa- tion: Mat. 150 Lab. 300 450							
5	4	A	<u>GUN EMPLACEMENT, (2-16",</u> <u>Point Judith</u>					900	300	1,200
			Ordnance: Contained in Annex A.							
			Engineer: Contained in Annex A.							
			Signal: 6 Telephones with head & chest sets 480 2 T.I. Bell, large 60 1 Set of firing signals 60 Contingency 100 700 Wiring & Installa- tion: Mat. 200 Lab. 300 500							

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	5		<u>8" RAILWAY BATTERY,</u> <u>Narragansett Pier</u>	\$	\$	\$	\$	\$	\$	\$
			BC STATION, vicinity of Battery, (2-8" Railway, Narragansett Pier)	775	1,000	500		726	100	3,101
		B	Ordinance: 1 BC Telescope \$775 \$775							
		C	Engineer: Construction of station: Mat. 1,000 Lab. 500 1,500							
4	5	B	Signal: 3 Telephones with head & chest sets 400 2 Switchkey sets 60 2 Hand sets 32 1 Telephone Post System 15 1 T.I. Bell, small 9 1 Set, Firing Signal 60 Contingency 100 676							
		C	Wiring & Installation: Mat. 50 Lab. 100 150							
			<u>B¹ - POINT JUDITH (8" Railway,</u> <u>Narragansett Pier)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Stations" Point Judith. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	4	B	<u>B² S¹, GREEN HILL (8" Railway,</u> <u>Narragansett Pier)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Station" Green Hill. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
			<u>B³ S², NOYES POINT (8" Railway,</u> <u>Narragansett Pier)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Sta- tion", Narragansett Pier. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
5	1	B	<u>B³ S², NOYES POINT (8" Railway,</u> <u>Narragansett Pier)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Sta- tion", Narragansett Pier. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
			<u>B³ S², NOYES POINT (8" Railway,</u> <u>Narragansett Pier)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Sta- tion", Narragansett Pier. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	6	B	B ⁴ S ³ , BOSTON NECK (8" Railway Narragansett Pier)	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,879
			Ordnance: 2 Azimuth Instruments M1910 \$3,600 \$3,600 Engineer: For cost of station see "Fire Control Station" Boston Neck Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	7	A	B ⁵ S ⁴ , SACHUEST POINT (8" Railway Narragansett Pier)	3,600				279		3,879
			Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Station" Sachuest Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	8	A	B ⁶ , WARREN POINT (8" Railway Narragansett Pier)	3,600				279		3,879
			Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For cost of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
5	5	B	PLOTTING ROOM (Plotting Car) Equipment, (8" Railway Narragansett Pier)	44,960				4,874	100	49,934
			Ordnance: 1 Army metal 25 1 Board, Plotting 4,000 1 Board, Deflection 1,900 1 Board, Range Correction 900 1 Corrector Percentage 125 1 Board, Spotting 2,500 1 Board Fire Adjustment 250 1 Rule set forward 15 1 Indicator Wind Component 135 1 Director seacoast 30,000 4 Recorders, T.I. 110 39,960 1 Plotting Car 5,000 5,000							

SECRET

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	5	B	<u>PLOTTING ROOM (CONT'D.)</u> <u>Engineer:</u> Contained in Annex A <u>Signal:</u> 12 Telephones with head & chest sets \$960 1 Hand set 16 1 Switchkey set 30 2 T.I. Bell, small 18 1 Switching Panel 100 1 Radio Set, SCR-177 3,450 Contingency 150 34,724 Wiring & Installation: Mat. 150 Lab. 100 250	\$	\$	\$	\$	\$	\$	\$
5	5	B	<u>8" RAILWAY BATTERY FIRING POSITION</u> <u>Narragansett Pier</u> <u>Ordnance:</u> Contained in Annex A <u>Engineer:</u> Contained in Annex A <u>Signal:</u> 2 T.I. Bells, large 60 6 Telephones with head & chest sets 480 1 Set Firing Signal 60 Contingency 100 700 <u>155-mm BATTERY, Point Judith</u>					700		700
4	14	B	<u>BC STATION, near Battery</u> <u>(155-mm Battery, Point Judith)</u> <u>Ordnance:</u> 1 BC Telescope 775 1 Corrector Percentage 125 900 C <u>Engineer:</u> Construction of station: Mat. 1,000 Lab. 500 1,500 B <u>Signal:</u> 5 Telephones with head & chest sets 400 1 Switchkey set 30 1 Hand set 16 1 T.I. Bell, small 9 Contingency 50 505 C Wiring & Installation: Mat. 50 Lab. 100 150	900	1,000	500	555	100	3,055	
4	14	B	<u>CRF STATION, near Battery</u> <u>(155-mm Battery, Point Judith)</u> <u>Ordnance:</u> 1 CRF, 15 ft. Available 1 Azimuth Instrument M1910 1,800 1,800 C <u>Engineer:</u> Construction of Base & Shelter: Mat. 1,000 Lab. 500 1,500	1,800	1,000	500	244	50	3,594	

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	14		<u>OWF STATION (CONT'D.)</u>	\$	3	3	3	3	3	\$
		B	<u>Signal:</u> 2 Telephones with head & chest sets \$160 1 T.I. Bell, small 9 Contingency 25 \$194							
		C	<u>Wiring & Installation:</u> Mat. 50 Lab. 50 100							
4	4	B	<u>S¹ - SPOTTING STATION.</u> <u>Green Hill</u> <u>(155-mm Battery, Point Judith)</u>	1,800				100		1,900
			<u>Ordnance:</u> 1 Azimuth Instrument M1910 1,800 1,800							
			<u>Engineer:</u> For construction of station see "Fire Control Station" Green Hill.							
			<u>Signal:</u> 1 Telephone with head & chest set 80 Contingency 20 100							
4	14	B	<u>S² - SPOTTING STATION.</u> <u>Hazard Tower</u> <u>(155-mm Battery,</u> <u>Point Judith)</u>	1,800				100		1,900
			<u>Ordnance:</u> 1 Azimuth Instrument M1910 1,800 1,800							
			<u>Engineer:</u> No construction, exist- ing Tower. Private property. See text of Annex B, paragraph 12 and Station "5".							
			<u>Signal:</u> 1 Telephone with head & chest set 80 Contingency 20 100							
4	14		<u>OWNS (4, 155-mm) Point Judith</u>	9,200				910	100	10,210
		B	<u>Ordnance:</u> 4 Sights for 155-mm gun at \$2,300 each 9,200 9,200							
		B	<u>Signal:</u> 8 Telephones with head & chest sets 640 4 T.I. Bells, large 120 Contingency 100 860							
		C	<u>Wiring & Installation:</u> Mat. 50 Lab. 100 150							
			<u>A1 BATTERY NO. 1, Pt. Judith) See</u> <u>AA BATTERY NO. 2, Narr. Pier) Annex</u> <u>"E".</u>							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	16		G-2, GROUP COMMAND POST, Prospect Hill	\$ 775				\$ 640	\$ 50	\$ 1,465
			Controlling: Btry. Wheaton, 2-12" DC, Ft. Wetherill Btry. Varnum, 2-12" DC, Ft. Wetherill Btry. Greene, 4-12" M, Ft. Adams Btry. Edgerton, 4-12" M, Ft. Adams							
		B	Ordnance: 1 PC Telescope \$775 3775							
			Engineer: Existing Structure							
			Signal: Additional Equipment Required: 6 Telephones with head & chest sets 480 2 Switchkey sets 50 Contingency 75 615							
		C	Wiring & Installation: Mat. 25 Lab. 50 75							
			BATTERY WHEATON, (2-12" DC, Fort Wetherill)							
4	17		BC STATION, near Battery, Fort Wetherill					40		40
			Ordnance: 1 Azimuth Instrument On Hand							
			Engineer: Existing Structure							
			Signal: Equipment installed, except: 1 Switchkey set 30 Contingency 10 40							
4	6	A	B191 - BOSTON NECK, (2-12" DC, Battery Wheaton	1,800				279		3,079
			Ordnance: 1 DFF Available 1 Azimuth Instrument M1910 1,800 1,800							
			Engineer: For construction of station see "Fire Control Station" Boston Neck.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	5	A	<u>A²S³, POINT JUDITH</u> <u>(2-12" DC, Battery Wheaton)</u> Ordnance: 2 Azimuth Instruments M1910 \$3,600 \$3,600 Engineer: For construction of station see "Fire Control Station" Point Judith. Signal: 3 Telephones with head & chest sets 240 1 Bell, T.I., small 9 Contingency 30 279	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,879
4	7	A	<u>B³S⁵, SACHUEST POINT,</u> <u>(2-12" DC, Battery Wheaton)</u> Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Sachuest Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	3,600				279		3,879
4	8	A	<u>B⁴, WARREN POINT, (2-12" DC,</u> <u>Battery Wheaton)</u> Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	3,600				279		3,879
4	17	B	<u>S², HAZARD TOWER, (2-12" DC,</u> <u>Battery Wheaton)</u> Ordnance: 1 Azimuth Instrument M1910 1,800 1,800 Engineer: No construction. Exist- ing Tower. Private Property. See text of Annex B, paragraph 12 Auxiliary Station "5". Signal: 1 Telephone with head & chest set 80 Contingency 20 100	1,800				100		1,900

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	17	B	<u>S^t. GEORGE'S SCHOOL TOWER</u> <u>(2-12" DC, Battery Wheaton)</u> Ordnance: 1 Azimuth Instrument M1910 \$1,800 \$1,800 Engineer: Private Tower. See text of Annex B, paragraph 13 Auxiliary Station "6". Signal: 1 Telephone with head & chest set 80 Contingency 20 100 <u>E - EMERGENCY STATION,</u> <u>Old B-Station (2-12" DC,</u> <u>Battery Wheaton)</u> Ordnance: 1 DPF (Swasey) On Hand Engineer: Existing Structure Signal: Equipment installed.	\$ 1,800	\$	\$	\$	\$ 100	\$	\$ 1,900
4	17	A	<u>PLOTTING ROOM, Fort Wetherill</u> <u>(2-12" DC, Battery Wheaton)</u> Ordnance: 1 Board, Plotting & Relocating 1,500 1 Board, Deflection, M1905 On Hand 1 Board, Range Cor- rection, M1905 On Hand 1 Percentage Corrector 125 1 Board, Spotting 2,500 1 Board, Fire Adjust- ment 250 1 Rule set forward 15 1 Rule Prediction On Hand 1 Wind Component In- dicator On Hand 4,390 Engineer: Existing Structure Signal: 1 Switching Panel 100 100 Wiring & Installation: Mat. 30 Lab. 20 50 <u>GUN EMPLACEMENT - FORT WETHERILL,</u> <u>(2-12" DC, Battery Wheaton)</u> Existing Battery: Ordnance: Equipment installed Engineer: Existing Structure Signal: Equipment installed	4,390				130	20	4,840

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
			<u>BATTERY VARNUM</u> <u>(2-12" BC</u> <u>Fort Wetherill)</u> <u>BC STATION, near Battery,</u> <u>Fort Wetherill</u> <u>Ordnance:</u> 1 Azimuth Instrument On Hand <u>Engineer:</u> Existing Structure <u>Signal:</u> Equipment installed except: 1 Switchkey set 330 Contingency 10 <u>\$40</u>	\$	\$	\$	\$	3	\$	\$
								40		40
4	6	A	<u>B-1, BOSTON NECK,</u> <u>(2-12" BC,</u> <u>Battery Varnum</u> <u>Ordnance:</u> 1 DPF Available 1 Azimuth Instrument Available <u>Engineer:</u> For construction of station see "Fire Control Station" Boston Neck. <u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 <u>279</u>					279		279
4	5	A	<u>B-2, POINT JUDITH,</u> <u>(2-12" BC,</u> <u>Battery Varnum)</u> <u>Ordnance:</u> 2 Azimuth Instruments M1910 3,600 <u>3,600</u> <u>Engineer:</u> For construction of station see "Fire Control Station" Point Judith. <u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 <u>279</u>	3,600				279		3,879
4	7	A	<u>B-3, SACHUEST POINT</u> <u>(2-12" BC,</u> <u>Battery Varnum)</u> <u>Ordnance:</u> 1 Azimuth Instrument M1910 1,800 1 DPF (Swasey) Available <u>1,800</u> <u>Engineer:</u> For construction of station see "Fire Control Station" Sachuest Point. <u>Signal:</u> 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 <u>279</u>	1,800				279		2,079

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	B	A	B ⁴ , WARREN POINT, (2-12" DC Battery Varnum) Ordinance: 2 Azimuth Instruments \$3,600 33,600 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	\$ 3,600	\$	\$	\$	279	\$	\$ 3,879
4	18	B	S ² , HAZARD TOWER, (2-12" BC, Battery Varnum) Ordinance: 1 Azimuth Instrument Available Engineer: No construction. Existing Tower. Private Property. See text, Annex B, paragraph 12, Auxiliary Station "5". Signal: 1 Telephone with head & chest set 80 Contingency 20 100					100		100
4	18	B	S ⁴ , St. GEORGE'S SCHOOL TOWER, (2-12" BC Battery Varnum) Ordinance: 1 Azimuth Instrument Available Engineer: Existing Tower, Private Property. See text, Annex B, paragraph 13, Auxiliary Station "5". Signal: 1 Telephone with head & chest set 80 Contingency 20 100 E - EMERGENCY STATION, Old B Station, Prospect Hill (2-12" BC, Battery Varnum) Ordinance: 1 DFF (Swasey) Available Engineer: Existing Structure Signal: Equipment installed					100		100

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	5	A	<u>B² POINT JUDITH</u> <u>(4-12" M, Battery Greene)</u> Ordinance: 1 Azimuth Instrument Available 1 Azimuth Instrument Available 1 M910 \$1,800 \$1,800 Engineer: For construction of station see "Fire Control Station" Point Judith. Signal: 3 Telephones with head & chest set 240 1 T.I. Bell, small 9 Contingency 30 279	\$ 1,800	\$	\$	\$	279	\$	2,079
4	7	A	<u>B³ SACHUEST POINT</u> <u>(4-12" M, Battery Greene)</u> Ordinance: 1 DFF Available 1 Azimuth Instrument 1,800 1,800 Engineer: For construction of station see "Fire Control Station" Point Judith. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	1,800				279		2,079
4	8	A	<u>B⁴ WARREN POINT, (4-12" M, Battery Greene)</u> Ordinance: 1 Azimuth Instrument Available 1 Azimuth Instrument 1,800 1,800 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	1,800				279		2,079
4	19	B	<u>S² HAZARD TOWER, (4-12" M, Battery Greene)</u> Ordinance: 1 Azimuth Instrument M910 1,800 1,800 Engineer: No construction. Existing Tower. Private Property. See text of Annex B, paragraph 12, Auxiliary Station "5". Signal: 1 Telephone with head & chest set 80 Contingency 20 100	1,800				100		1,900

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	19	B	<u>S⁴, St. GEORGE'S SCHOOL TOWER.</u> <u>(4-12" M, Battery Greene)</u> <u>Ordnance:</u> 1 Azimuth Instrument Available <u>Engineer:</u> Private Tower. See text of Annex B, paragraph 13, Auxiliary Station "6". <u>Signal:</u> 1 Telephone with head & chest set 380 Contingency 20 \$100	\$	\$	\$	\$	\$ 100	\$	\$ 100
			<u>E - EMERGENCY STATION.</u> <u>(old B2, Battery Edgerton at</u> <u>Prospect Hill) (4-12" M,</u> <u>Battery Greene)</u> <u>Ordnance:</u> 1 DFF Available <u>Engineer:</u> Existing Structure <u>Signal:</u> Equipment installed.							
4	19	A	<u>PLOTTING ROOM, Fort Adams,</u> <u>(4-12" M, Battery Greene)</u> <u>Ordnance:</u> 1 Board, Plotting & Re- locating 1,500 1 Board, Plotting 110° M1915 On Hand 1 Board, Deflection M1906 On Hand 1 Board, Range Cor- rection M1905 On Hand 1 Percentage Corrector M1 On Hand 1 Board, Spotting 2,500 1 Board, Fire Adjust- ment 250 1 Rule set forward On Hand 1 Rule Prediction On Hand 1 Indicator Wind Compo- nent On Hand 4,250 <u>Engineer:</u> Existing Structure <u>Signal:</u> 7 Telephones wall with head & chest sets 560 1 Switching Panel 100 660 Wiring & Installation: Mat. 25 Lab. 75 100	4,250				685	75	5,010
4	19	A	<u>GUN EMPLACEMENT, Fort Adams</u> <u>(4-12" M, Battery Greene)</u> Existing Battery. All equip- ment installed except: <u>Signal:</u> 6 Telephones with head & chest sets 480 480					480		480

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	20	A	BATTERY EDGERTON, (4-12" M, Fort Adams)	\$	\$	\$	\$	\$	\$	\$
			BC STATION, near Battery, Fort Adams					40		40
4	6	A	Ordinance: 1 Azimuth Instrument On Hand M1910 Engineer: Existing Structure Signal: Equipment installed except: 1 Switchkey set \$30 Contingency 10 \$40							
			B ¹ , BOSTON NECK (4-12" M, Battery Edgerton)	1,800				279		2,079
4	5	A	Ordinance: 1 DFF Available 1 Azimuth Instrument M1910 1,800 1,800 Engineer: For construction of station see "Fire Control Station" Boston Neck. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
			B ² , POINT JUDITH, (4-12" M, Battery Edgerton)	1,800				279		2,079
4	7	A	Ordinance: 1 Azimuth Instrument M1910 Available 1 Azimuth Instrument M1910 1,800 1,800 Engineer: For construction of station see "Fire Control Station" Point Judith. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
			B ³ , SACHUEST POINT, (4-12" M, Battery Edgerton)	1,800				279		2,079

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	8	A	<u>B⁴. WARREN POINT. (4-12" M. Battery Edgerton)</u> Ordinance: 2 Azimuth Instruments \$3,600 \$3,600 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 Bell, T.I. small 9 Contingency 30 279	\$ 3,600	\$	\$	\$	279	\$	\$ 3,879
4	20	B	<u>S². HAZARD TOWER. (4-18" M. Battery Edgerton)</u> Ordinance: 1 Azimuth Instrument M1910 1,800 1,800 Engineer: No construction. Existing Tower. Private Property. See text of Annex B, paragraph 12, Auxiliary Station "5". Signal: 1 Telephone with head & chest set 80 Contingency 20 100	1,800				100		1,900
4	20	B	<u>S⁴. St. GEORGE'S SCHOOL TOWER (4-12" M. Battery Edgerton)</u> Ordinance: 1 Azimuth Instrument M1910 1,800 1,800 Engineer: Private Property. Existing Tower. See text of Annex B, paragraph 13, Auxiliary Station "6". Signal: 1 Telephone with head & chest set 80 Contingency 20 100 E - EMERGENCY STATION, (Old B ⁴ Battery Edgerton at Prospect Hill) (4-12" M. Battery Edgerton) Ordinance: 1 DFF Available Engineer: Existing Structure Signal: Equipment installed	1,800				100		1,900

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	20	A	<u>PLOTTING ROOM, Fort Adams</u> <u>(4-12" M, Battery Edgerton)</u> <u>Ordinance:</u> 1 Board, Plotting & Re- locating \$1,500 1 Board, Plotting 110° M1915 On Hand 1 Board, Deflection M1906 On Hand 1 Board, Range Correc- tion, M1905 On Hand 1 Percentage Cor- rector, M1 On Hand 1 Board, Spotting 2,500 1 Board, Fire Adjust- ment 250 1 Rule set forward On Hand 1 Rule Prediction On Hand 1 Wind Component, In- dicator On Hand \$4,250 <u>Engineer:</u> Existing Structure <u>Signal:</u> 7 Telephones wall with head & chest sets 560 1 Switching Panel 100 660 Wiring & Installation: Mat. 25 Lab. 75 100	4,250				685	75	5,010
4	20	A	<u>GUN EMPLACEMENT, Fort Adams</u> <u>(4-12" M, Battery Edgerton)</u> Existing Battery. All equipment installed except: <u>Signal:</u> 6 Telephones with head & chest sets 480 480					480		480
4	8	A	<u>G-3, GROUP COMMAND POST,</u> <u>Warren Point</u> <u>Controlling:</u> 2 - 16" Btry., Sakonnet Pt. 2 - 8" (Fixed) Sakonnet Pt. 4 - 155mm Btry., Sakonnet Pt. AA Btry. # B, near Sakonnet Pt. AA Btry. # 6, near Warren Pt. <u>Ordinance:</u> 1 Azimuth Instrument M1910 1,800 1 RC Telescope Available 1,800 <u>Engineer:</u> For construction see "Fire Control Sta- tion" Warren Point. <u>Signal:</u> 4 Telephones, desk, complete 200 9 Telephones with head & chest set 720 2 Hand sets 32 2 Switchkey sets 60 1 Radio SCR-177 3,450 1 Telephone Post System 15 Contingency 150 4,627	1,800				4,627		6,427

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	1	A	<u>16" BATTERY (2-16" Guns),</u> <u>Sakonnet Point</u>	\$	\$	\$	\$	\$	\$	\$
			<u>BC STATION, vicinity of Battery,</u> <u>(2-16", Sakonnet Point)</u>	775	2,000	1,000	500	725	100	5,101
			Ordnance: 1 BC Telescope \$775 3775 Engineer: Construction of Station: Mat. 2,000 Lab. 1,000 Land 500 3,500 Signal: 5 Telephones with head & chest sets 400 2 Switchkey sets 50 2 Hand sets 32 1 Telephone Post System 15 1 T.I. Bell, small 9 1 Set Firing Signals 60 Contingency 100 676 Wiring & Installation: Mat. 50 Lab. 100 150							
4	8	A	<u>B¹, WARREN POINT (2-16",</u> <u>Sakonnet Point)</u>	3,600				279		3,879
			Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	7	A	<u>B²S¹, SACHUEST POINT, (2-16",</u> <u>Sakonnet Point)</u>	3,600				279		3,879
			Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Sachuest Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	9	C	<u>B³S², GOOSEBERRY NECK, (2-16", Sakonnet Point)</u>	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,879
			Ordnance: 2 Azimuth Instruments M1910 \$3,600 \$3,600							
			Engineer: For construction of station see "Fire Control Station" Gooseberry Neck.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
	10	B	<u>B⁴S³, CUTTYHUNK, (2-16", Sakonnet Point)</u>	6,300				279		6,579
			Ordnance: 1 DPF 4,500 1 Azimuth Instrument M1910 1,800 6,300							
			Engineer: For construction of station see "Fire Control Station" Cuttyhunk.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	11	B	<u>B⁵S⁴, GAY HEAD, (2-16", Sakonnet Point)</u>	6,300				279		6,579
			Ordnance: 1 DPF 4,500 1 Azimuth Instrument M1910 1,800 6,300							
			Engineer: For construction of station see "Fire Control Station" Gay Head.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	6	A	<u>B⁶S⁵, BOSTON NECK, (2-16", Sakonnet Point)</u>	6,300				279		6,579
			Ordnance: 1 DPF 4,500 1 Azimuth Instrument M1910 1,800 6,300							
			Engineer: For construction of station see "Fire Control Station" Boston Neck.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	5	A	<u>B⁷, POINT JUDITH, (2-16", Sakonnet Point)</u>	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,8
			Ordnance: 2 Azimuth Instruments M1910 \$3,600 \$3,600							
			Engineer: For construction of station see "Fire Control Station" Point Judith.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	4	B	<u>B⁸, GREEN HILL, (2-16", Sakonnet Point)</u>	3,600				279		3,8
			Ordnance: 2 Azimuth Instruments M1910 3,600 3,600							
			Engineer: For construction of station see "Fire Control Station" Green Hill.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	12	A	<u>PLOTTING ROOM, Sakonnet Point (2-16", Sakonnet Point)</u>	39,960				4,785	300	45,0
			Ordnance: 1 Arm metal 25 1 Board, Plotting 4,000 1 Board, Deflection 1,900 1 Board, Range Correction 900 1 Corrector Percentage 125 1 Board, Spotting 2,500 1 Board, Fire Adjustment 250 1 Rule set forward 15 1 Indicator Wind Component 135 1 Director Seascope 30,000 4 Recorders, T.I. 110 39,960							
			Engineer: Construction included in cost of Battery Emplacement. See Annex "A".							
			Signal: 11 Telephones with head & chest sets 880 1 Hand set 16 1 Switchkey set 30 1 T.I. Bell, small 9 1 Switching Panel 100 1 Radio set, SCR-177 3,450 Contingency 150 4,635 Wiring & Installation: Mat. 150 Lab. 300 450							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	12	A	<u>GUN EMPLACEMENT, Sakonnet Point</u> Ordnance: Contained in Annex "A" Engineer: Contained in Annex "A" Signal: 5 Telephones with head & chest sets \$480 2 T.I. Bell, large 60 1 Set Firing Signal 60 Contingency 100 \$700 Wiring & Installation: Mat. 200 Lab. 300 500	\$	\$	\$	\$	\$ 900	\$ 300	\$ 1,200
4	2	A	<u>6" (Fixed) BATTERY, (2-8" Guns, Sakonnet Point)</u> <u>BC STATION at Battery, Sakonnet Point</u> Ordnance: 1 Azimuth Instrument M1910 1,800 1,800 Engineer: Construction included in Emplacement. See Annex "A". Signal: 5 Telephones with head & chest sets 400 1 Switchkey set 60 1 Hand set 16 1 Telephone Post System 15 1 T.I. Bell, small 9 Contingency 75 575 Wiring & Installation: Mat. 50 Lab. 100 150	1,800				625	100	2,525
4	8	A	<u>B¹, WARREN POINT, (2-8", Fixed, Sakonnet Point)</u> Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Warren Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	3,600				279		3,879
4	7	A	<u>B²₁, SACHVEST POINT, (2-8", Fixed, Sakonnet Point)</u> Ordnance: 2 Azimuth Instruments M1910 3,600 3,600 Engineer: For construction of station see "Fire Control Station" Sachvest Point. Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279	3,600				279		3,879

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	9		<u>B^{3S2}, GOOSEBERRY NECK, (2-8", Sakonnet Point)</u>	\$ 3,600	\$	\$	\$	\$ 279	\$	\$ 3,879
		B	Ordinance: 2 Azimuth Instruments M1910 \$3,600 \$3,600							
		B	Engineer: For construction of station see "Fire Control Station" Gooseberry Neck							
		B	Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	10		<u>B^{4S3}, CUTTYHUNK, (2-8", Sakonnet Point)</u>	6,300				279		6,579
		B	Ordinance: 1 DFF 4,500 1 Azimuth Instrument M1910 1,800 6,300							
		B	Engineer: For construction of station see "Fire Control Station" Cuttyhunk.							
		B	Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	6	A	<u>B^{5S4}, BOSTON NECK, (2-8", Sakonnet Point)</u>	6,300				279		6,579
			Ordinance: 1 DFF 4,500 1 Azimuth Instrument M1910 1,800 6,300							
			Engineer: For construction of station see "Fire Control Station" Boston Neck.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							
4	5	A	<u>B⁶, POINT JUDITH, (2-8", Sakonnet Point)</u>	3,600				279		3,879
			Ordinance: 2 Azimuth Instruments M1910 3,600 3,600							
			Engineer: For construction of station see "Fire Control Station" Point Judith.							
			Signal: 3 Telephones with head & chest sets 240 1 T.I. Bell, small 9 Contingency 30 279							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	13	A	<u>FLOTING ROOM, Sakonnet Point,</u> <u>(2-8", Fixed, Sakonnet Point)</u>	\$ 39,960	\$	\$	\$	\$ 4,785	\$ 300	\$ 45,045
			Ordnance:							
			1 Arm metal \$25							
			1 Board, Plotting 4,000							
			1 Board, Deflection 1,900							
			1 Board, Range Correction 900							
			1 Corrector Percentage 125							
			1 Board, Spotting 2,500							
			1 Board, Fire Adjustment 250							
			1 Rule set forward 15							
			1 Indicator Wind Component 135							
			1 Director asocomast 30,000							
			4 Recorders, T.I. 110	\$39,960						
			Engineer:							
			Construction included in cost of Battery Emplacement. See Annex "A".							
			Signal:							
			11 Telephones with head & chest sets 880							
			1 Hand set 16							
			1 Switchkey set 30							
			1 T.I. Bell, small 9							
			1 Switching Panel 100							
			1 Set, Radio SCR-177 3,450							
			Contingency 150	4,535						
			Wiring & Installation:							
			Mat. 150							
			Lab. 300	450						
4	13	A	<u>GUN EMPLACEMENT, (2-8", Fixed, Sakonnet Point)</u>					715	200	915
			Ordnance:							
			Contained in Annex "A"							
			Engineer:							
			Contained in Annex "A"							
			Signal:							
			6 Telephones with head & chest sets 480							
			2 T.I. Bells, large 60							
			Contingency 75	615						
			Wiring & Installation:							
			Mat. 100							
			Lab. 200	300						
4	15	B	<u>155-mm BATTERY, Sakonnet Point</u>	900	1,000	500		555	100	3,055
			BC STATION, near Battery, (155-mm, Sakonnet Point)							
			Ordnance:							
			1 BC Telescope 775							
			1 Corrector Percentage 125	900						
		C	Engineer:							
			Construction of station:							
			Mat. 1,000							
			Lab. 500	1,500						
		B	Signal:							
			5 Telephones with head & chest sets 400							
			1 Switchkey set 30							
			1 Hand set 16							
			1 T.I. Bell, small 9							
			Contingency 50	505						
			Wiring & Installation:							
			Mat. 50							
			Lab. 100	150						

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	15	B	<u>CRF STATION near Battery,</u> <u>(155-mm, Sakonnet Point)</u>	\$ 1,800	\$ 1,000	\$ 500		\$ 244	\$ 100	\$ 3,644
			<u>Ordnance:</u> 1 CRF, 15 ft. Available 1 Azimuth Instrument M1910 \$1,800 1,800							
		C	<u>Engineer:</u> Construction of Base & Shelter: Mat. 1,000 Lab. 500 1,500							
		B	<u>Signal:</u> 2 Telephones with head & chest sets 160 1 T.I. Bell, small 9 Contingency 25 194							
4	15	B	<u>S¹, St. GEORGE'S SCHOOL TOWER,</u> <u>(155-mm, Sakonnet Point)</u>	1,800				100		1,900
			<u>Ordnance:</u> 1 Azimuth Instrument M1910 1,800 1,800							
			<u>Engineer:</u> Private Tower. See text of Annex "B", paragraph 13, Auxiliary Station "6".							
		B	<u>Signal:</u> 1 Telephone with head & chest set 80 Contingency 20 100							
4	9	B	<u>S², GOOSEBERRY NECK (155-mm,</u> <u>Sakonnet Point)</u>	1,800				100		1,900
			<u>Ordnance:</u> 1 Azimuth Instrument M1910 1,800 1,800							
			<u>Engineer:</u> For construction of station see "Fire Control Station" Gooseberry Neck.							
		B	<u>Signal:</u> 1 Telephone with head & chest set 80 Contingency 20 100							
4	15	B	<u>GUNS (4-155-mm), Sakonnet Point</u>	9,200				910	100	10,210
			<u>Ordnance:</u> 4 Sights for 155-mm guns 9,200 9,200							
		B	<u>Signal:</u> 8 Telephones with head & chest sets 640 4 T.I. Bells, large 120 Contingency 100 860							
		C	<u>Wiring & Installation:</u> Mat. 50 Lab. 100 150							

AA BATTERY No. 5, Sakonnet Point) See
 AA BATTERY No. 6, Warren Point) Annex
 "G"

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	21	A	<u>C-4, AA GROUP COMMAND POST</u> <u>See Annex "E"</u>	\$	\$	\$	\$	\$	\$	\$
			<u>MG, MINE GROUP COMMAND POST.</u> <u>Prospect</u> Controlling: Auxiliary Command Post, Ft. Getty: MC-1, 1st Mine Command, Prospect MC-2, 2d Mine Command, Ft. Wetherill Btry. Dickinson, 2-6" BC, Ft. Wetherill Btry. Crittenden, 2-3", Ft. Wetherill Ordinance: 1 DFP (Swasey) Available Engineer: Existing structure Signal: Equipment installed except: 2 Switchkey sets \$60 2 Hand sets 32 Contingency 25 \$117					117		117
			<u>AUXILIARY MG, COMMAND POST.</u> <u>Fort Getty</u> Controlling: Btry. Cram, 2-6" DC, Ft. Kearney Btry. Armistead, 2-3", Ft. Kearney Btry. House, 2-6" BC, Ft. Getty Btry. Whiting, 2-3", Ft. Getty Ordinance: 1 Azimuth Instrument Available Engineer: Existing Structure Signal: Equipment installed except: 2 Switchkey sets 60 2 Hand sets 32 Contingency 25 117					117		117
4	21	A	<u>BATTERY CRAM, 2-6" DC.</u> <u>Fort Kearney</u> <u>BC STATION, Fort Kearney,</u> <u>(Battery Cram, 2-6" DC)</u> Ordinance: 1 Azimuth Instrument Available 1 Corrector Percentage 125 125 Engineer: Existing Structure Signal: Equipment installed <u>CRP STATION, Fort Kearney</u> <u>(Battery Cram, 2-6" DC)</u> Ordinance: 1 CRP, 15 ft. On Hand Engineer: Existing Construction Signal: Equipment installed <u>GUN EMPLACEMENT (Battery Cram,</u> <u>2-6" DC)</u> All Equipment Installed.	125						125

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	21	A	<u>BATTERY ARMISTEAD, (2-3", Fort Kearney)</u>	\$	\$	\$	\$	\$	\$	\$
			<u>BC STATION, Fort Kearney, (2-3", Battery Armistead)</u>							
			Ordinance: 1 Azimuth Instrument Available							
			Engineer: Existing Construction							
			Signal: Equipment installed							
			<u>CRF STATION, Fort Kearney, (2-3", Battery Armistead)</u>							
			Ordinance: 1 CRF, 9 ft. On Hand							
			Engineer: Existing Construction							
			Signal: Equipment installed							
			<u>GUN EMPLACEMENT (2-3", Battery Armistead)</u>							
			All Equipment Installed.							
			<u>BATTERY HOUSE, (2-6" BC, Fort Getty)</u>							
			<u>BC STATION, Fort Getty, (2-6" BC, Battery House)</u>	125						125
			Ordinance: 1 Azimuth Instrument Available							
			1 Corrector Percentage \$125 \$125							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>GUN EMPLACEMENT (2-6" BC, Battery House)</u>							
			All Equipment Installed.							
			<u>BATTERY WHITING, (2-3", Fort Getty)</u>							
			<u>BC STATION, Fort Getty, (2-3", Battery Whiting)</u>							
			Ordinance: 1 Azimuth Instrument Available							
			Engineer: Existing Construction							
			Signal: Equipment installed							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
			CRF STATION, Fort Getty. (2-3", Battery Whiting)	\$	\$	\$	\$	\$	\$	\$
			Ordnance: 1 CRF, 9 ft. On Hand							
			Engineer: Existing Construction							
			Signal: Equipment installed							
			CUN EMPLACEMENT, (2-3", Battery Whiting)							
			All Equipment Installed.							
			MC-1, 1st MINE COMMAND 4 Groups - Western Passage controlled from Casemate, Fort Getty.							
4	21	A	BC - M ¹ , PROSPECT					2,610	75	2,685
			Ordnance: 1 DFF Available							
			1 Azimuth Instrument Available							
			Engineer: Existing Structure							
			Signal: 3 Radio Sets(Mine) \$1,800							
			8 Telephones with head & chest sets 640							
			1 Telephone Post System 15							
			1 Hand set 16							
			1 Switchkey set 30							
			1 T.I. Bell, small 9							
			Contingency 100 \$2,610							
			Wiring & Installation 75 75							
4	21	B	M ² , at The "BONNET"		1,000	1,000		185	20	2,205
			Ordnance: 1 DFF Available							
		C	Engineer: Construction of Station: Mat. 1,000							
			Lab. 1,000 2,000							
		B	Signal: 2 Telephones with head & chest sets 160							
			Contingency 25 185							
			Wiring & Installation: 20 20							
4	21		SPOTTING STATION, Beavertail		250	250				500
			Ordnance: 1 Azimuth Instrument Available							
		C	Engineer: Shelter to be constructed in an emergency: Mat. 250							
			Lab. 250 500							
			Signal: Equipment on hand Cable connection installed							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
			<u>PLOTTING ROOM, Fort Getty</u>	\$	\$	\$	\$	\$	\$	\$
			Ordinance: Equipment on hand							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>MINE CASEMATE, Fort Getty</u>							
			Existing installation, suitable and adequate.							
			<u>ME-2, 2d MINE COMMAND</u>							
			8 Groups, Eastern Passage controlled from Casemate, Fort Wetherill.							
4	21	A	<u>BC - M₁¹ - M₂¹, Fort Wetherill</u>					2,610	75	2,685
			Ordinance: 2 DFF's Available							
			Engineer: Existing Structure							
			Signal: 3 Radio sets, (Mine) \$1,800 8 Telephones with head & chest sets 640 1 Telephone Post System 15 1 Hand set 15 1 Switchkey set 30 1 T.I. Bell, small 9 Contingency 100 \$2,610 Wiring & Installation: 75 75							
			<u>M₂² - M₂², Fort Wetherill</u>							
			Ordinance: 2 DFF's Available							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>SPOTTING STATION, Beavertail</u>							
			Ordinance: 1 Azimuth Instrument Available							
			Engineer: Shelter to be constructed in an emergency, See M ₁ ¹ 1st MINE COMMAND.							
			Signal: Equipment on hand Cable connection installed							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
			<u>PLOTTING ROOM, Fort Wetherill</u>	\$	\$	\$	\$	\$	\$	\$
			Ordinance: Equipment on hand							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>MINE CASEMATE, Fort Wetherill</u>							
			Existing installation, suitable and adequate.							
			<u>BATTERY DICKENSON, (2-6" BC, Fort Wetherill)</u>							
4	21	A	<u>BC STATION, Fort Wetherill, (2-6" BC, Battery Dickenson)</u>	4,625						4,625
			Ordinance: 1 Azimuth Instrument On Hand 1 DPF \$4,500 1 Corrector Percentage 125 \$4,625							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>GUN EMPLACEMENT, (2-6" BC, Battery Dickenson)</u>							
			All Equipment installed.							
			<u>BATTERY CRITTENDEN, (2-3", Fort Wetherill)</u>							
			<u>BC STATION, Fort Wetherill</u>							
			Ordinance: 1 Azimuth Instrument Available							
			Engineer: Existing Structure							
			Signal: Equipment installed							
			<u>CRF STATION, Fort Wetherill (2-3", Battery Crittenden)</u>							
			Ordinance: 1 CRF, 9 ft. On Hand							
			Engineer: Existing Construction							
			Signal: Equipment installed							
			<u>GUN EMPLACEMENT (2-3", Battery Crittenden)</u>							
			All Equipment Installed.							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	1		<u>FIRE CONTROL STATIONS</u>	\$	\$	\$	\$	\$	\$	\$
			<u>NOYES POINT, (Loc. 1, Ex. 2-B)</u>		2,500	1,250	400	100	200	4,450
			Containing:							
			B ² S ² , 16" Judith B ³ S ² , 8" Ry. Narragansett Pier AAOP							
		C	<u>Engineer:</u>							
			Land, 1 acre	\$400						
		B	1 Station, 2-story (Tower):	Mat. 2,500						
		C	Erection	Lab. 1,250	\$4,150					
			<u>Signal:</u>							
		C	Complete wiring of Tower:	Mat. 100 Lab. 200	300					
4	4		<u>GREEN HILL (Loc. 2, Ex. 2-B)</u>		2,700	1,300	450	150	300	4,900
			Containing:							
			B ² S ² , 16" Judith B ² S ² , 8" Ry. Narragansett Pier B ² S ² , 16" Sakonnet S ¹ - 155-mm, Pt. Judith							
		A	<u>Engineer:</u>							
			Land, 1 acre	450						
			1 Station, 3-story (Tower):	Mat. 2,700						
			Erection	Lab. 1,300	4,450					
		A	<u>Signal:</u>							
			Complete wiring of Station:	Mat. 150 Lab. 300	450					
4	5		<u>POINT JUDITH (Loc. 3, Ex. 2-B)</u>		9,900	3,500	800	450	900	15,550
			1, 5-room Station Containing: G-1 B ¹ , 16" Pt. Judith B ¹ , 8" Ry. Narragansett Pier B ⁷ , 16" Sakonnet B ⁶ , 8" Sakonnet							
			1, 4-room Station Containing: B ² S ³ , Wheaton, 2-12" DC B ² S ³ , Varnum, 2-12" BC B ² , Edgerton, 4-12" M B ² , Greens, 4-12" M							
		A	<u>Engineer:</u>							
			Land, 2 acres	800						
			2 Stations	Mat. 9,900						
			Erection	Lab. 3,500	14,200					
		A	<u>Signal:</u>							
			Complete Wiring of Stations:	Mat. 450 Lab. 900	1,350					
		C	<u>HAZARD TOWER, 1/2 mile south of Narr. Pier (Loc. 5, Ex. 2-B)</u>							
			Auxiliary Station: S ² , Wheaton S ² , Varnum S ² , Edgerton S ² , Greens S ² , 155-mm Pt. Judith AAOP							
			Privately owned tower; no construction involved. See text paragraph 12, Annex "B".							

Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	6		<u>BOSTON NECK (Loc. 4, Ex. 2-B)</u> 1, 4-room Station Containing: B ⁴ S ² , 16" Pt. Judith B ⁴ S ² , 8" Ry. Narr. Pier B ⁶ S ² , 16" Sakonnet B ⁶ S ⁴ , 8" Sakonnet 1, 4-room Station Containing: B ¹ S ¹ , Wheaton B ¹ S ¹ , Varnum B ¹ S ¹ , Edgerton B ¹ S ¹ , Greens A <u>Engineer:</u> Land, 1 1/2 acres \$600 2 Station: Mat. 6,400 Erection Lab. 3,200 <u>\$10,200</u> A <u>Signal:</u> Complete wiring of Stations: Mat. 400 Lab. 800 <u>1,200</u>	\$	\$ 6,400	\$ 3,200	\$ 600	\$ 400	\$ 800	\$ 11,400
4	14	C	<u>ST. GEORGE'S SCHOOL TOWER</u> <u>(Loc. 6, Ex. 2-B)</u> Auxiliary Station: S ⁴ , Wheaton S ⁴ , Varnum S ⁴ , Edgerton S ⁴ , Greens S ¹ , 155-mm Sakonnet AACF C <u>Engineer:</u> Erection of Platform etc. in an Emergency: Mat. 250 Lab. 250 <u>500</u>		250	250				500
4	7		<u>SACHEST POINT (Loc. 7, Ex. 2-B)</u> 1, 4-room Station Containing: B ⁶ S ⁴ , 16" Judith B ⁶ S ⁴ , 8" Ry. Narr. Pier B ² S ¹ , 16" Sakonnet B ² S ¹ , 8" Fixed, Sakonnet AACF 1, 4-room Station Containing: B ⁶ S ⁵ , Wheaton B ⁶ S ⁵ , Varnum B ⁶ S ³ , Edgerton B ⁶ S ³ , Greens A <u>Engineer:</u> Land, 2 acres 1,000 2 Stations: Mat. 6,400 Erection Lab. 3,200 <u>10,600</u> A <u>Signal:</u> Complete wiring of Stations: Mat. 400 Lab. 800 <u>1,200</u>		6,400	3,200	1,000	400	800	11,800

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	8		<u>WARREN POINT (Loc. 8, Ex. 2-B)</u> 1, 5-room Station Containing: B⁶, 16" Judith B⁶, 8" Ry. Narr. Pier B¹, 16" Sakonnet B¹, 8" Sakonnet Q-3 1, 4-room Station Containing: B⁶, Wheaton B⁶, Varnum B⁶, Edgerton B⁶, Greene (B - Milliken, H.D. of New Bedford) A <u>Engineer:</u> Land, 1 acre \$2,000 2 Stations Mat. 7,400 Erection Lab. 3,700 <u>\$13,100</u> A <u>Signal:</u> Complete wiring of Stations: Mat. 450 Lab. 900 <u>1,350</u>		\$ 7,400	\$ 3,700	\$ 2,000	\$ 450	\$ 900	\$ 14,450
4	9		<u>GOOSEBERRY NECK (Loc. 9, Ex. 2-B)</u> 1, 3-room Station Containing: B^{3S2}, 16" Sakonnet B^{3S2}, 8" (Fixed) Sakonnet (BS - 12" Milliken, H.D. of New Bedford) S² - 155-mm Sakonnet AAOP C <u>Engineer:</u> Land, 1 acre 500 1 Station Mat. 3,800 Erection Lab. 1,600 <u>5,300</u> C <u>Signal:</u> Complete wiring of Station: Mat. 150 Lab. 350 <u>500</u>		3,800	1,600	500	150	350	5,800
4	10		<u>CUTTYHUNK (Loc. 10, Ex. 2-B)</u> 1, 3-story Station, Containing: B^{4S3}, 16" Sakonnet B^{4S3}, 8" (Fixed) Sakonnet (BS - 12" Milliken, H.D. of New Bedford) AAOP A <u>Engineer:</u> Land, 1 1/2 900 1 Station Mat. 2,700 Erection Lab. 1,350 <u>4,950</u> C <u>Signal:</u> Complete wiring of Station Mat. 150 Lab. 300 <u>450</u>		2,700	1,350	900	150	300	5,400
4	11		<u>GAY HEAD (Loc. 11, Ex. 2-B)</u> 1, 2-story Station, Containing: B^{5S4}, 16" Sakonnet (B - Milliken, H.D. of New Bedford) AAOP A <u>Engineer:</u> Land, 2 acres 800 1 Station Mat. 2,500 Erection Lab. 1,250 <u>4,550</u> C <u>Signal:</u> Complete wiring of Station Mat. 100 Lab. 200 <u>300</u>		2,500	1,250	800	100	200	4,850

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	41	A	<u>FIRE CONTROL SWITCHBOARD ROOMS</u>	\$	\$	\$	\$	\$	\$	\$
			<u>POINT JUDITH FIRE CONTROL SWITCHBOARD ROOM</u>					3,900	1,000	4,900
			<u>Engineer:</u> Construction included in Emplacement of Battery.							
			<u>Signal:</u>							
			1 Switchboard, BD-74	\$1,600						
			1 Panel, BD-75	150						
			1 Rectifier	60						
			1 Motor Generator	200						
			1 Battery, Storage, 30 volts	250						
			1 T.I. Apparatus	365						
			1 Power Panel	75						
			Miscellaneous material	200						
			Contingency	1,000	33,900					
			Labor	1,000	1,000					
5	22	A	<u>SAKONNET POINT FIRE CONTROL SWITCHBOARD ROOM</u>					3,900	1,000	4,900
			<u>Engineer:</u> Construction included in Emplacement of Battery.							
			<u>Signal:</u>							
			1 Switchboard, BD-74	1,600						
			1 Panel, BD-75	150						
			1 Rectifier	60						
			1 Motor Generator	200						
			1 Battery, Storage, 30 volts	250						
			1 T.I. Apparatus	365						
			1 Power Panel	75						
			Miscellaneous material	200						
			Contingency	1,000	3,900					
			Labor	1,000	1,000					
5	23	C	<u>BLOCK ISLAND FIRE CONTROL SWITCHBOARD ROOM</u>					3,900	1,000	4,900
			<u>Engineer:</u> Construction included under "Plotting Room"(5-2-B/C)							
			<u>Signal:</u>							
			1 Switchboard, BD-74	1,600						
			1 Panel, BD-75	150						
			1 Rectifier	60						
			1 Motor Generator	200						
			1 Battery, Storage, 30 volts	250						
			1 T.I. Apparatus	365						
			1 Power Panel	75						
			Miscellaneous	200						
			Contingency	1,000	3,900					
			Labor	1,000	1,000					

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
			<u>RADIO STATIONS</u>	\$	\$	\$	\$	\$	\$	
			<u>HARBOR DEFENSE RADIO STATION,</u> <u>Fort Adams</u>							
			Existing & Equipped							
4	23	A	<u>PORT RADIO STATION, Fort Adams</u>					4,200		4,200
			Signal:							
			1 SCR-177		\$4,200	\$4,200				
4	23	A	<u>PORT RADIO STATION, Fort Wetherill</u>					4,200		4,200
			Signal:							
			1 SCR-177		4,200	4,200				
			<u>METEOROLOGICAL & SIGNAL STATION,</u> <u>Fort Adams</u>							
			Existing & Equipped							
			<u>TIDE STATIONS, Fort Wetherill</u>							
			Existing & Equipped							
			<u>CABLES</u>							
			<u>SUBMARINE CABLES</u>							
5	6		<u>NOYES POINT - GREEN HILL</u>					25,275	600	25,875
		B	59,400', 10 pr. WC-321							
			@ \$.37 per foot		21,978					
			Contingency 15%		3,297	25,275				
		C	Cable Terminal Mat.		350					
			Noyes Point Lab.		150					
			Miscellaneous		100	600				
4	24		<u>GREEN HILL - POINT JUDITH</u> <u>155-mm Position</u>					22,425	600	23,025
		A	39,000', 25 pr. WC-325							
			@ \$.50 per foot		19,500					
			Contingency		2,925	22,425				
		A	Cable Terminal Mat.		350					
			Greenhill Lab.		150					
			Miscellaneous		100	600				
5	7		<u>BLOCK ISLAND - POINT JUDITH</u>					42,435	1,100	43,535
		B	73,800', 25 pr. WC-325							
			@ \$.50 per foot		36,900					
			Contingency 15%		5,535	42,435				
		C	Cable Terminal) Mat.		350					
			Point Judith) Lab.		150					
		C	Cable Terminal) Mat.		350					
			Block Island) Lab.		150					
		C	Miscellaneous		100	1,100				

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	25		<u>16" JUDITH - NARRAGANSETT PIER</u> <u>8" Railway</u>					\$ 19,958	\$ 1,100	\$ 21,058
			28,700', 75 pr. WC-328							
			@ \$.65 per foot			\$17,355				
			Contingency 15%			2,603				\$19,958
		A	Cable Terminal, 16" Pt. Judith: Mat.			350				
			Lab.			150				
4	26		<u>8" NARRAGANSETT PIER - BOSTON NECK</u>					13,455	600	14,055
			18,000', 75 pr. WC-328							
			@ \$.65 per foot			11,700				
			Contingency 15%			1,755				13,455
		A	Cable Terminal, Boston Neck: Mat.			350				
			Lab.			150				
4	27		<u>BOSTON NECK - FORT WETHERILL</u>					22,425	100	22,525
			30,000', 75 pr. WC-328							
			@ \$.65 per foot			19,500				
			Contingency 15%			2,925				22,425
		A	Miscellaneous			100				100
4	28		<u>FORT WETHERILL - 16" SAKONNET POINT</u>					58,305	800	59,105
			78,000', 75 pr. WC-328							
			@ \$.65 per foot			50,700				
			Contingency			7,605				58,305
		A	Cable Terminal, 16" Sakonnet Point: Mat.			350				
			Lab.			150				
4	29		<u>16" SAKONNET POINT - 155-mm BATTERY,</u> <u>SAKONNET POINT</u>					6,325	650	6,975
			11,000', 25 pr. WC-325							
			@ \$.50 per foot			5,500				
			Contingency			825				6,325
		A	Cable Terminal, 155-mm Sakonnet Point: Mat.			350				
			Lab.			150				
4	30		<u>16" SAKONNET POINT - SACHUEST POINT</u>					12,334	800	13,134
			16,500', 75 pr. WC-328							
			@ \$.65 per foot			10,725				
			Contingency			1,609				12,334
		A	Cable Terminal, Sachuest Point: Mat.			350				
			Lab.			150				
4	30		Miscellaneous			300				800

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	31		<u>155-mm SAKONNET POINT - WEST ISLAND</u>	\$	\$	\$	\$	\$ 1,659	\$ 625	\$ 2,284
		A	3,900', 10 pr. WC-321 @ \$.37 per foot \$1,443 Contingency 216 \$1,659							
		A	Cable Terminal, West Island: Mat. 350 Lab. 150 Miscellaneous 125 625							
4	32		<u>WARREN POINT - GOOSEBERRY NECK</u>					24,150	625	24,775
		B	42,000', 25 pr. WC-325 @ \$.50 per foot 21,000 Contingency 3,150 24,150							
		C	Cable Terminal, Gooseberry Neck: Mat. 350 Lab. 150 Miscellaneous 125 625							
5	8		<u>GOOSEBERRY NECK - CUTTYHUNK ISLAND</u>					23,805	650	24,455
		B	41,400', 25 pr. WC-325 @ \$.50 per foot 20,700 Contingency 3,105 23,805							
		C	Cable Terminal, Cuttyhunk Island: Mat. 350 Lab. 150 Miscellaneous 150 650							
5	9		<u>CUTTYHUNK ISLAND - GAY HEAD</u>					20,169	700	20,869
		B	47,400', 10 pr. WC-321 @ \$.37 per foot 17,538 Contingency 2,631 20,169							
		C	Cable Terminal, Gay Head: Mat. 350 Lab. 150 Miscellaneous 200 700							
4	33		<u>FORT GETTY - THE "BONNET"</u>					4,488	650	5,138
		B	10,550', 10 pr. WC-321 @ \$.37 per foot 3,903 Contingency 585 4,488							
		C	Cable Terminal, The Bonnet: Mat. 350 Lab. 150 Miscellaneous 150 650							
5	10		<u>BLOCK ISLAND HARBOR - CLAY HEAD</u> (Block Island)					6,893	600	7,493
		B	16,200', 10 pr. WC-321 @ \$.37 per foot 5,994 Contingency 899 6,893							
		C	Cable Terminal, Clay Head: Mat. 350 Lab. 150 Miscellaneous 100 600							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	11		<u>BLOCK ISLAND HARBOR - "PAINE"</u> (Block Island)	\$	\$	\$	\$	\$ 9,478	\$ 600	\$ 10,078
		B	22,275', 10 pr. WC-321 @ \$.37 per foot \$8,242							
			Contingency 1,236							
		C	Cable Terminal, Paine: Mat. 350 Lab. 150							
			Miscellaneous 100 600							
5	12		<u>"PAINE" - "SOUTH WEST"</u> (Block Island)					6,032	600	6,632
		B	14,175', 10 pr. WC-321 @ \$.37 per foot 5,245							
			Contingency 787 6,032							
		C	Cable Terminal, "South West" Mat. 350 Lab. 150							
			Miscellaneous 100 600							
			<u>LAND CABLES</u>							
4	34		<u>CABLE HUT, JUDITH - 155 mm</u> Battery					185	250	435
		A	500', 50 pr. Subterranean Armored, WC-367 @ \$.32 per foot 160							
			Contingency 25 185							
		A	Trenching & Installation 250 250							
4	35		<u>155-mm BATTERY - FIRE CONTROL STATIONS</u>					1,325	855	2,180
		A	3,600', 50 pr. Subterranean Armored, WC-367 @ \$.32 per foot 1,152							
			Contingency 173 1,325							
		A	Trenching & Installation 780							
			Miscellaneous 75 855							
4	36		<u>155-mm BATTERY - 16" POINT JUDITH</u>					4,657	3,150	7,807
		A	9,000', 75 pr. Subterranean Armored, @ \$.45 per foot 4,050							
			Contingency 607 4,657							
		A	Trenching & Installation 2,900							
			Miscellaneous 250 3,150							
4	37		<u>SWITCHBOARD ROOM, 16" POINT JUDITH -</u> <u>CABLE HUT, 16" Point Judith</u>					1,319	1,350	2,669
		A	2,550', 75 pr. Subterranean Armored, @ \$.45 per foot 1,147							
			Contingency 172 1,319							
		A	Trenching & Installation 1,275							
			Miscellaneous 75 1,350							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordnance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
4	38		<u>SACHUEST NECK - ST. GEORGE</u>	\$	\$	\$	\$	\$ 1,725	\$ 5,300	\$ 7,025
		B	10,000', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot \$1,500 Contingency 225 \$1,725							
		C	Trenching & Installation 5,000 Miscellaneous 300 5,300							
5	13		<u>NOYES POINT - FIRE CONTROL STATIONS.</u>					569	1,600	2,169
		B	3,300', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot 495 Contingency 74 569							
		C	Trenching & Installation 1,600 1,600							
4	39		<u>CABLE HUT, GREEN HILL - FIRE CONTROL STATIONS</u>					834	1,600	2,434
		A	3,300', 25 pr. Subterranean Armored, WC-366 @ \$.22 per foot 726 Contingency 108 834							
		A	Trenching & Installation 1,600 1,600							
5	14		<u>CABLE HUT, BLOCK ISLAND - SWITCHBOARD ROOM</u>					662	1,000	1,662
		B	1,800', 50 pr. Subterranean Armored, WC-367 @ \$.32 per foot 576 Contingency 86 662							
		C	Trenching & Installation 1,000 1,000							
5	15		<u>CABLE HUT, CLAY HEAD - FIRE CONTROL STATIONS (Block Island)</u>					310	900	1,210
		B	1,800', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot 270 Contingency 40 310							
		C	Trenching & Installation 900 900							
5	16		<u>CABLE HUT "SOUTHWEST" - FIRE CONTROL STATIONS (Block Island)</u>					210	600	810
		B	1,200', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot 180 Contingency 30 210							
		C	Trenching & Installation 600 600							

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Ordinance	Engineer			Signal		Total
					Material	Labor	Land	Material	Labor	
5	17		<u>CABLE HUT "PAINE" - FIRE CONTROL STATIONS</u>	\$	\$	\$	\$	\$ 310	\$ 900	\$ 1,210
		B	1,800', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot \$270							
		C	Contingency 40 \$310 Trenching & Installation 900 900							
5	18		<u>BLOCK ISLAND "ROC" to SWITCHBOARD ROOM (Block Island)</u>					1,513	4,400	5,913
		B	8,775', 10 pr. Subterranean Armored, WC-364 @ \$.15 per foot 1,316							
		C	Contingency 197 1,513 Trenching & Installation 4,400 4,400							
4	40		<u>CABLE HUT 16" SAKONNET - SWITCHBOARD ROOM</u>					736	2,600	3,336
		A	3,200', 100 pr. Lead Covered, WC-419 \$.20 per foot 640							
		A	Contingency 96 736 Installation (in ducts) Mat. 800 Lab. 1,800 2,600							
5	19		<u>SWITCHBOARD ROOM, SAKONNET - MH 16"</u>					368	2,800	3,168
		A	1,600', 100 pr. Lead Covered WC-419 @ \$.20 per foot 320							
		A	Contingency 48 368 Installation (in ducts) 2,800 2,800							
5	20		<u>MH 16" SAKONNET - 8" SAKONNET</u>					759	1,070	1,829
		A	3,000', 25 pr. Subterranean Armored, WC-366 @ \$.22 per foot 660							
		A	Contingency 99 759 Trenching & Installation incl. MH 1,070 1,070							
5	21		<u>MH 16" SAKONNET - FIRE CONTROL STATIONS</u>					4,295	4,440	8,735
			8,300', 75 pr. Subterranean Armored, \$.45 per foot 3,735							
			Contingency 560 4,295 Trenching & Installation 4,240 Miscellaneous 200 4,440							
TOTALS				\$414,080	\$65,400	\$37,350	\$9,700	\$430,819	\$55,735	\$1,013,084

Class A - To be procured and installed in peacetime.
 Class B - To be procured in peacetime and installed when an emergency arises.
 Class C - To be procured and installed when an emergency arises.

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ANNEX C

SEARCHLIGHTS

1. The maximum dependable range of the 60-inch searchlight in clear weather is assumed to be 9,000 yards or less. In Exhibit 1-C are shown the areas illuminated by the existing and proposed lights.

2. a. There are two standard searchlights now installed in the Harbor Defenses of Narragansett Bay. One of these, located at Fort Wetherill, is suitably placed as a mine field light for the Eastern Passage. The other light, now installed at Fort Greble, is not required in its present location and is available for installation at one of the new positions described below, or as a reserve.

b. One portable searchlight unit should be provided for use at The Bonnet to illuminate the mine field of the Western Passage.

3. Twelve fixed lights are to be installed in positions described below. One of these units is now on hand at Fort Greble. A portable searchlight unit is to be provided as a reserve.

4. Telephone connection shall be from the group or other commander to whom the searchlight is assigned, to the location of the controller. Between controller and searchlight and between searchlight and power plant, local battery or sound power telephones shall be provided.

5. Two lights near Sakonnet Point.

a. On West Island 500 yards off Sakonnet Point, there is a location suitable for two lights which will permit of their use from the direction of Gooseberry Neck on the east clockwise to the east shore of the Sakonnet River. The island is easily accessible by boat (or barge for landing the lights) from Sakonnet Point artificial harbor. On the western extremity there is a high platform or rock, large enough to permit placing the two lights 50 yards apart. The only masks from this location are Sakonnet Lighthouse, approximately one degree; and the high point of East Island, approximately three degrees. The elevation of the ground at the point described is 35 feet above mean low water.

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b. On West Island there are four ruined buildings pertaining to a former hotel; they are of little present value. The island and its buildings belong to Marion Eppley, Newport, Rhode Island.

c. If shelter were constructed for the lights at their operating positions, the shelter would mask the adjacent light. It is proposed to mount the lights on small railroad cars and construct a light track from the lower level of the island to the operating positions, the necessary shelter being constructed on the lower level. The power plants should also be on the lower level.

d. The same field of illumination should be obtained for both lights.

e. The cost of the island is estimated as \$5,000. It should be acquired and all provision for the searchlights made in peace except shelter for lights and power plants, which may be made and the lights and power plants installed when an emergency arises.

f. The wide field of view from this position, the possibilities of concealment and protection and the accessibility of the island make it a valuable location.

g. These searchlights, Nos. 13 and 14, may have their controllers on West Island and with telephone connection to Group 3 at Warren Point, to which they are assigned.

6. Two lights at Coggeshall Ledge.

a. There are two rocky points jutting out to the south at Coggeshall Ledge; approximately 175 yards apart. From both there is a view from a line tangent to Brenton Point on the west to a line tangent to Sachuest Neck on the northeast. The east point is the property of Robert Livingston Beekman. The west point is the property of John Russell Pope. It is probable that neither plot can be purchased for any reasonable price but at the time of an emergency, semi-mobile (portable) lights can be emplaced there.

b. These two lights, Nos. 11 and 12, should be mounted on demountable steel towers as the ground level is not over 20 feet above mean low water. For this reason the lighter anti-aircraft searchlight unit (less comparator) should be provided.

c. Light frame shelter can be provided at the time of the emergency.

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d. Both lights should have the same field.

e. The controllers should be nearby, with telephone connection to the Fire Control Switchboard at Fort Adams and thence to Group 3 CP at Warren Point, to which group these searchlights are assigned. Commercial leased lines may be employed between the controllers and Fort Adams.

7. Two lights at Brenton Point.

a. The view at this location extends from a line tangent to Castle Hill on the northwest counterclockwise to a line tangent to Coggeshall Ledge. The land is owned by Milton J. Budlong and is not to be purchased for any reasonable price. The ground slopes up from an elevation of approximately 20 feet at the Point to an elevation of approximately 35 feet 50 yards inland.

b. The two lights, Nos. 9 and 10, should be mounted on demountable steel towers, one light being located approximately 50 yards inland from and thus overlooking the other. Both should cover the same field. On account of their lighter weight, antiaircraft type searchlight units (less comparator) are prescribed.

c. In this location the lights will cover the eastern mine field and the approach to the western mine field as well as a large part of the outer bay.

d. The controllers should be nearby, with telephone connection to the Fire Control Switchboard at Fort Adams and thence to Group 2 at Prospect Hill to which group these searchlights are assigned. Commercial leased lines may be employed between the controllers and Fort Adams.

8. Two lights at Gunning Rock.

a. This location is 1,500 yards south of Lower Pier at Warragansett Pier. It is at the shore end of Newton Avenue which branches off from Point Judith Road (Ocean Avenue) 0.9 mile south of Lower Pier. The house of Harold Knowlton, West Upton, Massachusetts, is close by. It is probably unnecessary to purchase land at this location, as it is unlikely to be built on and in an emergency can be leased.

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b. The arc of view is from Point Judith Light around through the east to a line tangent to Boston Neck. The elevation is approximately 35 feet. Both lights, which are designated Nos. 5 and 6, should cover the entire arc.

c. Portable lights should be provided for this location, frame shelter for lights and power plant being constructed at time of emergency.

d. The controller should be near the lights, with commercial leased telephone lines to Group 1 CP at Point Judith, the searchlights being assigned to that group.

9. Two lights at Point Judith.

a. These lights, Nos. 3 and 4, should be located in front of the lighthouse so as to avoid interference by the lighthouse. They should be fixed lights, with power plants in splinterproof shelter behind the lighthouse. This shelter should provide also for the lights, which can be run out to their operating position when required.

(1) Authorization of the Department of Commerce will be required to place these lights and their power plant in the position designated. The installation need not interfere with activities pertaining to the lighthouse.

b. The lights should be so arranged that both will bear on the water area from the shore on the west to the shore on the north.

c. While the lights in this location will be lower than is desirable (the ground level is approximately 25 feet above mean low water), it is probably unwise to place them on towers because of the conspicuous location.

d. The controllers should be near the lights. With permission of the Department of Commerce they may be placed on the platform which runs around the lighthouse just below the lamp, frame shelter being provided for the operators. Telephone connection should be provided to Group 1 CP at Point Judith, to which Lights 3 and 4 are assigned.

10. Two lights at Clayhead on Block Island.

a. Block Island is approximately 19,000 yards off Point Judith. Searchlights on the northern part of the island, about 400 yards northeast of the proposed fire control station at Clayhead (see Exhibit 15-B) will have a field extending from

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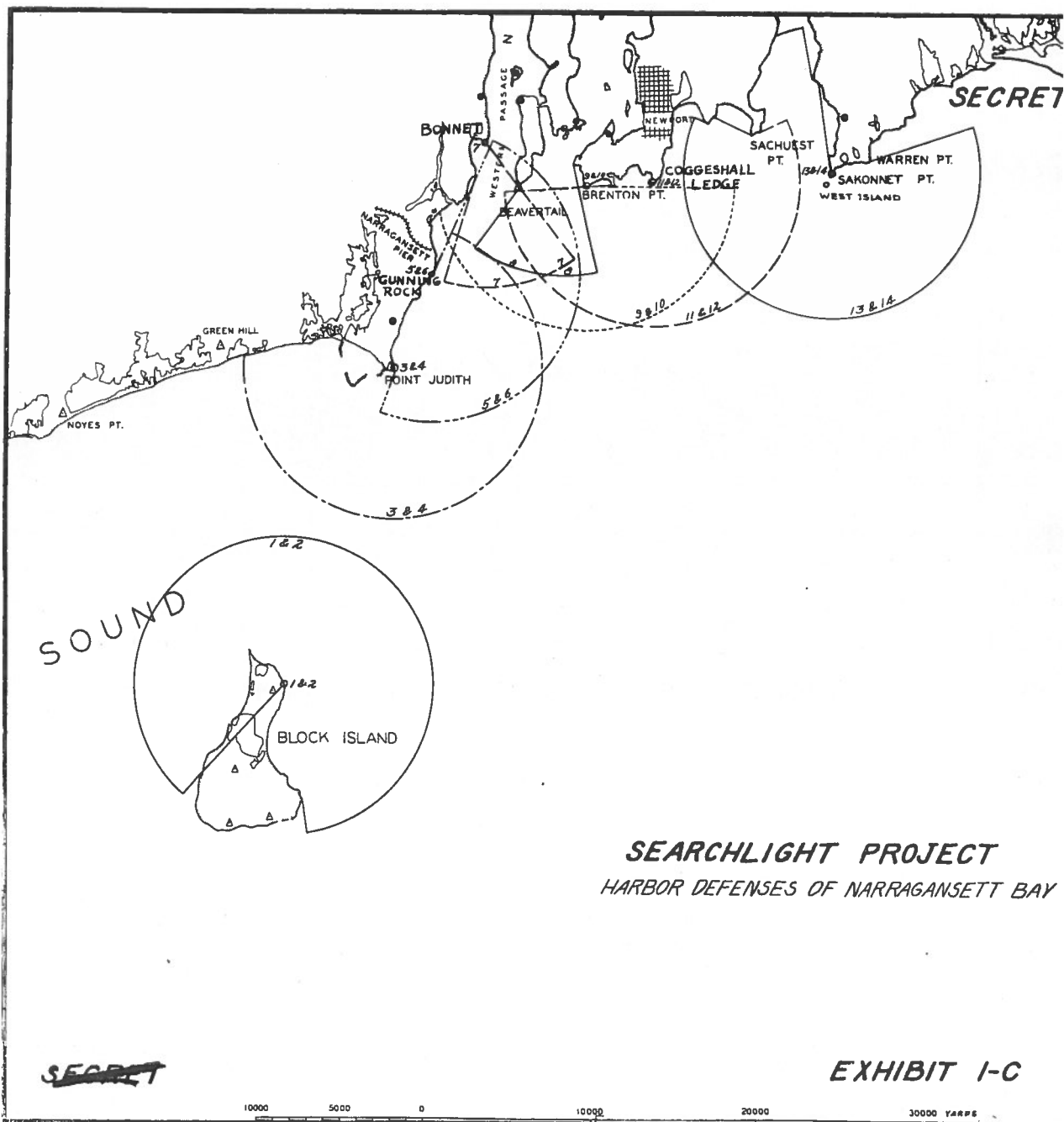
the southwest clockwise to the south, an arc of over 300 degrees. The lights should be approximately 100 yards apart. Vessels may be tracked by the Block Island baselines if within about 9,000 yards of Clayhead; or if silhouetted, may be observed from some of the fire control stations of the Harbor Defenses of Long Island Sound as well as those at Point Judith, Green Hill, and Noyes Point.

b. Portable lights should be provided for this location.

c. These lights, designated as Nos. 1 and 2, should be operated under the general instructions of the Harbor Defense Commander by a searchlight officer at Block Island. One telephone line should be provided from each controller, located near the light, to the Block Island Fire Control Switchboard. One line should be provided through the Point Judith Fire Control Switchboard to the H Station.

11. Cost Estimate. An estimate of cost and priority guide is appended as Exhibit 2-C. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Engineer			Signal		Total
				Material	Labor	Land	Material	Labor	
2	6		<u>SEARCHLIGHTS NOS. 1 & 2,</u> <u>Block Island</u> Control: H.D.C.P. (Prospect) by telephone to Controller Station, Block Island.	\$ 42,840	\$	\$	\$ 619	\$ 75	\$ 43,534
		B	Engineer: 2 Portable searchlight units (AA type) \$42,000 1,200' Power cable 600 400' Controller cable 240 42,840						
		B	Signal: 6 Telephones with head and chest sets 480 4 Hand sets 64 Contingency 75 619						
		C	Installation 75						
2	5		<u>SEARCHLIGHTS NOS. 3 & 4,</u> <u>Point Judith</u> <u>Lighthouse Reservation</u> Control: G-1, (Point Judith) by telephone to Con- troller near search- light.	8,000	2,000		619	75	10,694
		A	Engineer: Combined power plant 3,000 2,000 and searchlight shelter 2 Searchlights, Seacoast 60' from Depot Stock, overhaul & shipment 1,300 2 - 25 KW sets from Depot Stock, overhaul & shipment 1,800 2,000' Power cable 1,000 1,500' Controller cable 900 8,000 2,000						
		A	Signal: 6 Telephones with head and chest sets 480 4 Hand sets 64 Contingency 75 619						
			Installation 75						
2	2		<u>SEARCHLIGHTS NOS. 5 & 6,</u> <u>Gunning Rock</u> <u>(near Narragansett Pier)</u> Control: G-1 (Point Judith) by telephone to Con- troller near search- light.	42,840			619	75	43,534
		B	Engineer: 2 Portable searchlight units (AA type) 42,000 1,200' Power cable 600 400' Controller cable 240 42,840						
		B	Signal: 6 Telephones with head and chest sets 480 4 Hand sets 64 Contingency 75 619						
		C	Installation 75						

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Engineer			Signal		Total
				Material	Labor	Land	Material	Labor	
2	7		<u>SEARCHLIGHT NO. 7, at "The Bonnet"</u>	\$ 21,420	\$	\$	\$ 312	\$ 50	\$ 21,782
			Control: MG (Mine Group) Prospect by telephone to Controller near searchlight.						
		B	Engineer: 1 Portable searchlight unit 500' Power cable 200' Controller cable		Mat. \$21,000 300 120	Lab. 21,420			
		B	Signal: 3 Telephones with head and chest sets 2 Hand sets Contingency		240 32 40				
		C	Installation		312	450			
			<u>SEARCHLIGHT NO. 8, Fort Wetherill (installed)</u>						
			Control: MG (Mine Group) Prospect by telephone to Controller Station (M ₂ ¹ - M ₂ ¹)						
			Engineer and Signal equipment installed.						
2	1		<u>SEARCHLIGHTS NOS. 9 & 10, Brenton Point</u>	44,840			619	75	45,534
			Control: G-2 (Prospect) by telephone to Controller near light.						
		B	Engineer: 2 Portable searchlight units (AA type) 1,200' Power cable 400' Controller cable 2 Towers, steel, demountable		42,000 600 240 2,000				
		B	Signal: 6 Telephones with head and chest sets 4 Hand sets Contingency		480 64 75				
		C	Installation		619	75			

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Engineer			Signal		Total
				Material	Labor	Land	Material	Labor	
2	3		<u>SEARCHLIGHTS NOS. 11 & 12,</u> <u>Coggeshall Ledge</u>	\$ 44,840	\$		\$ 619	\$ 75	\$ 45,534
			Control: G-3, (Warren Point) by telephone to Controller near light.						
		B	Engineer: 2 Portable searchlight units (AA type) 342,000 1,200' Power cable 600 400' Controller cable 240 2 Towers, steel, demountable 2,000 44,840						
		B	Signal: 6 Telephones with head and chest sets 480 4 Hand sets 64 Contingency 75 619						
		C	Installation 75						
2	4		<u>SEARCHLIGHTS NOS. 13 & 14,</u> <u>West Island</u> <u>(South of Sakonnet Point)</u>	13,600	3,000	5,000	619	75	22,294
			Control: G-3 (Warren Point) by telephone to Controller near light.						
		A	Engineer: Land - Purchase of West Island 5,000						
		C	Combined shelter for searchlight & power plant. 5,500 Contingency 2,450 7,950 3,000						
		B	450' Trackage for SL 1,200 2 Push cars 1,000 450' Cable duct 1,350 1 Winch electric 500 1 SL 60" seascoast from Depot Stock, overhaul and shipment 650 1 25-KW set from Depot Stock, overhaul and shipment 900 1 Controller Depot Stock, overhaul 50 1 SL and 1 25-KW set available for transfer from Ft. Greble where now installed. - 5,650						
		B	Signal: 6 Telephones with head and chest sets 480 4 Hand sets 64 Contingency 75 619						
		C	Installation 75						
2	8		<u>RESERVE SEARCHLIGHT</u>	21,420					21,420
		Engineer: 1 Portable searchlight unit (AA type) 21,000 600' Power cable 300 200' Controller cable 120 21,420							
TOTALS				\$239,800	\$5,000	\$5,000	\$4,026	\$500	\$254,326

Class A - To be procured and installed in peacetime.

Class B - To be procured in peacetime and installed when an emergency arises.

Class C - To be procured and installed when an emergency arises.

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ANNEX D

UNDERWATER DEFENSE

1. The present underwater defense project was approved by the Secretary of War, January 17, 1929, and provides for eight groups of mines in the Eastern Passage and four groups of mines in the Western Passage. The groups in the Eastern Passage are controlled from Fort Wetherill. The groups in the Western Passage are controlled from Fort Getty.

2. a. The mine cases, anchors, cable, tools and other material required, as well as the panels, generators and other electrical equipment (all of which material of both classes is enumerated in Tables of Allowances - Submarine Mine Equipment) should be stored at Fort Wetherill.

b. This material should be kept on hand, complete and in serviceable condition.

3. In addition to the material comprised in the Table of Allowances, the mine project requires adequate shore installations and boats.

4. Shore Installations.

a. Casemates. The casemates at Forts Wetherill and Getty are suitable and adequate.

b. Loading Room. The loading room and wharf at Fort Wetherill will be used for both mine fields.

c. Cable Tanks. The cable tank at Fort Wetherill has a capacity of 30 reels of single conductor cable. The project requires about 53 reels. When cable is furnished in excess of the capacity of the tank at Fort Wetherill, it will be stored in the tank at Fort Greble until military stores are removed from that post, when the cable tank at Fort H. G. Wright will be used.

d. Storage. The present storage facilities at Fort Wetherill are inadequate. An additional storehouse, 43 x 90 feet, of two stories, is required for the mine material of the two fields. Pending the construction of this storehouse, the material for the Western Passage groups will be kept at Fort Greble.

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e. Explosives. Dry and adequate storage space for explosives is available in the emplacement of Battery Toussard at Fort Getty.

5. Fire Control System.

a. Eastern Passage. A double station baseline at Fort Wetherill is provided for the Eastern Passage mine field. It is too short to provide the desired accuracy in plotting, but an emergency base end could readily set up on the eastern shore.

b. Western Passage. The primary station and plotting room for the Western Passage have been installed in a double base end station at Prospect Hill formerly assigned to Batteries Toussard and Sedgwick. A suitable location should be selected on The Bonnet for the M² station. In an emergency the station should be constructed and a 10-pair submarine cable laid from the cable hut at Fort Getty to The Bonnet.

c. To supplement observation from the Group station, two instrument pillars and cable connections have been installed on the lighthouse reservation at Beavertail. Shelter should be provided for the observers at time of an emergency.

6. Boats. It is considered that two mine planters, four DB boats and twelve motor mine yawls are required to plant and maintain the submarine mines included in the project. In addition, for use during the period of planting there should be provided a third mine planter as substitute.

a. Mine Planters.

(1) The USAMP "Baird" is the only mine planter in the Corps Area; it may be considered available for use in the Harbor Defenses of Narragansett Bay.

(2) A lighthouse tender should be designated by name for service as an emergency mine planter. The necessary deck fittings as specified in the Table of Allowances, and the specified planting equipment necessary to be installed on this vessel should be kept on hand in the harbor defenses.

(3) A tug with barge may be employed as the third (substitute) mine planter.

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b. DB Boats.

(1) There is one L boat in the harbor defenses and one in the Harbor Defenses of Long Island Sound which may be considered available.

(2) In Narragansett Bay and in the vicinity of Woods Hole, Massachusetts, there is a common type of power boat usually between 50 and 60 feet in length, with hoisting boom; these boats are used for seining. Two "seiners" may be employed as DB boats.

c. Mine Yawls. In addition to the six yawls now on hand in the harbor defenses, the necessary additional launches can be obtained locally.

7. The acquisition of land is not involved in this Annex.

8. Cost Estimate. An estimate of cost and priority guide is appended as Exhibit 1-D. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	Coast	Engineer		Total
				Artillery	Material	Labor	
1	1	A	To complete MINE PROJECT (OCCA 111/GJ-31, Incl. 1)	\$ 99,817	\$	\$	\$ 99,817
			COAST ARTILLERY				
			Single Conductor System			\$18,296	
			Miscellaneous Equipment			19,921	
			Single Conductor Cable			61,600	\$99,817
8	1	A	FORT WETHERILL:		17,250	20,250	37,500
			Engineer:				
			Construction of Mine Store-				
			house 43' x 90', 2-Story,				
			at Ft. Wetherill.				
			Mat.			13,500	
			Lab.			20,250	
			Contingency			3,750	37,500
TOTALS				\$ 99,817	\$17,250	\$20,250	\$137,317

Class A - To be procured and installed in peacetime.

Class B - To be procured in peacetime and installed when an emergency arises.

Class C - To be procured and installed when an emergency arises.

Note: No expenditure of funds by the Ordnance Department, Signal Corps, Engineers, Chemical Warfare Service, or for land, is contemplated in this Annex.

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Newport Harbor

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OVERLAY to

NARRAGANSETT BAY

MINE FIELDS As of 4-11-42

WEST
PASSAGE

Group I Group II

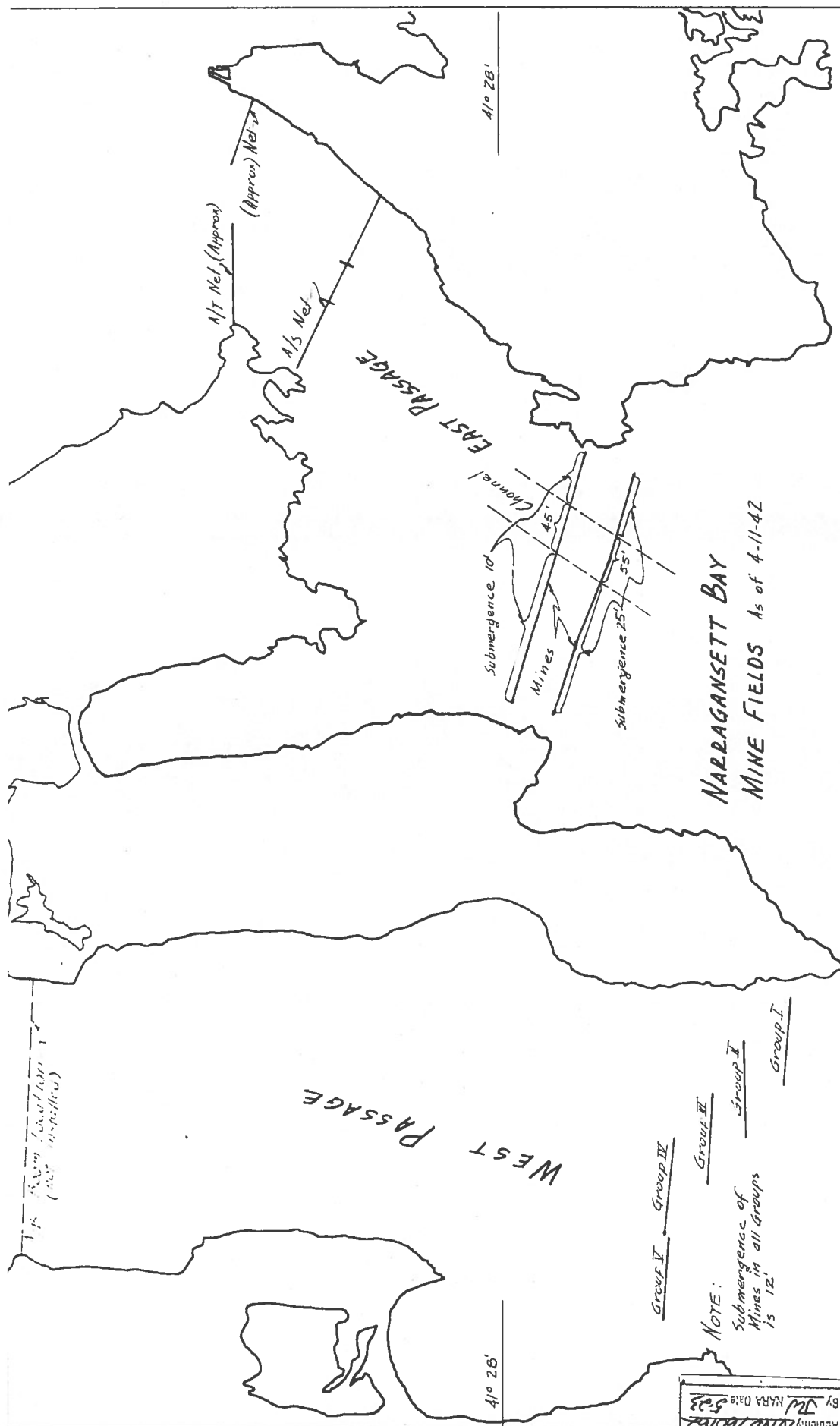
Greene

Group I

Submergence of
Mines in all Groups
is 12'

NOTE:

MECHENY/ALIVE/ALIVE
By JWL NARA Date 5-23



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ANNEX E

ANTIAIRCRAFT GUN DEFENSE

1. a. Guns. The antiaircraft gun defense of the Harbor Defenses of Narragansett Bay is shown in Exhibit 1-E. In this diagram the assumptions are made that the target is travelling at 200 miles an hour, at an altitude of 15,000 feet, and that the effective horizontal range of the guns at that altitude is 6,000 yards.

b. Machine Guns. The number of machine guns which may reasonably be required, and provided, is conditioned on the expectation of simultaneous attack by more than one flight. This project calls for 24 machine gun platoons.

(1) The exact location of the machine guns is to be determined by the harbor defense commander, considering the availability, at the time when an emergency arises, of sites which will give all-around fire, as nearly down to the horizon as is practicable.

c. Searchlights. The disposition of the antiaircraft searchlights is shown in Exhibit 1-E. To the extent permitted by the coast line, the lights have been pushed out from the batteries to such distance that targets may be illuminated before they come within range of the guns. While the searchlights are regarded as an accessory of the particular gun battery which they are provided to serve, their locations have been modified to secure the best illumination of the area covered by the seven batteries as a whole. Unless so located, the 18 lights would be insufficient.

2. Organization.

a. The antiaircraft batteries are each composed of a gun detachment. The two batteries at Fort Wetherill and Adams, together with the separate machine gun detachment, form the antiaircraft group (Group 4) with command post at the H station. This is the center of the antiaircraft intelligence service not only for Group 4 but also for Group 1 at Point Judith and Group 3 at Sakonnet Point, these latter two being seacoast gun groups which because of their isolation include the local antiaircraft defense. Information is to be telephoned direct to the nearest one of these groups by all antiaircraft observers, and by Group 1 and Group 3 to the antiaircraft group 4. Conversely information received at Group 4 is disseminated to batteries, and the alarm service of the garrisons is notified.

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b. Antiaircraft observers have been provided for at several of the outlying fire control stations, each observer being provided with telephone direct to the antiaircraft intelligence center, or to Group 1 or Group 3, whichever is nearer. These fire control stations are:

Noyes Point;	Gooseberry Neck;
Green Hill;	Cuttyhunk, and
Sachuest Neck;	Gay Head.

An antiaircraft observer is also provided for at Clayhead and at Beacon Hill on Block Island. Should it be practicable to establish a station at Hazard Tower and at St. George's School Tower, an antiaircraft observer should be located at each place.

(1) In addition to the antiaircraft observers above who are specially designated as such, antiaircraft intelligence will originate with each antiaircraft gun battery, machine gun platoon and searchlight. An observer should be placed aboard a vessel of the Inshore Patrol. Information may be received from the adjacent Harbor Defenses of Long Island Sound and of New Bedford.

(2) Provision for intelligence from more distant sources such as the Offshore Patrol, the Coast Guard and lighthouses is the function of the sub-sector commander and does not form a part of this project.

3. Machine Gun Detachment, Fort Getty. Three platoons or 12 machine guns are proposed, one to be located west of Fort Kearney, one on The Bonnet and one at Fort Getty. The first two will be connected by field wire to the nearest submarine cable to Fort Getty, thence by field wire to the platoon at that place. The Fort Getty platoon will be connected by field wire to the fire control switchboard, thence to the G-4 station. 5,000 feet of field wire will be required.

4. AA Battery No. 3, Fort Wetherill.

a. Gun Detachment. The three guns of this battery have been emplaced. The three carriages have not been altered for data transmission and the data transmission mechanisms are not installed. The director should be placed on the knoll 205 yards northeast of the battery. The director and height finder may be stored in the Ordnance Storehouse at Fort Wetherill when not in use.

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Distance of director to directing point: 620 feet;
Length of cable, director to junction box: 680 feet;
Length of cable, height finder to director: 50 feet;
Length of cables, junction box to guns: 75 feet,
75 feet, 75 feet.

A sketch of the battery position is shown in Exhibit 2-E.

b. Machine Gun Detachment. Three platoons or 12 machine guns are proposed, to be located with distance of about 1,500 yards between platoons and so placed as to cover Batteries Wheaton and Varnum, the submarine mine installation and the seacoast and antiaircraft searchlights. Communication should be by field wire to the gun battery. 8,000 feet of field wire are required.

c. Searchlight Detachment. Three lights with sound locators and portable power plants are to be provided. They should be located as follows:

- AA SL No. 7 - On Beavertail, one-half mile north of the lighthouse, approximately 4,500 yards southwest of the battery. Communication should be by the Beavertail fire control cable to Prospect Hill and the Battery.
- AA SL No. 8 - About midway between Prospect Hill and Fort Getty. Telephone communication should be by field wire to Fort Getty, thence by the fire control system to the Battery.
- AA SL No. 9 - Near Hill 135 on Conanicut Island, about 7,500 yards north of the battery. Commercial telephone lines, supplemented by field wire, will be used.

About 4,000 feet of field wire will be required.

5. AA Battery No. 4, Fort Adams.

a. Gun Detachment. The three guns of this battery have been emplaced. Carriages have not been altered for data transmission and data transmission mechanisms have not been installed. The director will be placed on the old redoubt, within 100 yards of the center of the battery. The director and height finder will be stored in a gallery of the old redoubt when not in use.

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Distance of director to directing point: 125 feet;
Length of cable, director to junction box: 100 feet;
Length of cable, height finder to director: 30 feet;
Length of cables, junction box to guns: 115 feet,
75 feet, 75 feet.

A sketch of the battery position is shown in Exhibit 3-E.

b. Machine Gun Detachment. Three platoons or 12 machine guns are proposed, two to be disposed so as to protect the two mortar batteries and the third to protect the two seacoast searchlights at Brenton Point and the antiaircraft searchlight near Castle Hill. The first two platoons should be connected by field wire with the gun battery. The third should be connected by commercial leased line to Fort Adams. 2,000 feet of field wire will be required.

c. Searchlight Detachment. Three lights with sound locators and portable power plants are to be provided. They should be located as follows:

- AA SL No. 10 - Near Castle Hill, approximately 2,900 yards southwest of the gun battery.
- AA SL No. 11 - Near Ochre Point, approximately 3,700 yards southeast of the gun battery.
- AA SL No. 12 - On Miantonomy Hill, approximately 5,000 yards northeast of the battery. As this vicinity is gradually being built up, Hill 140, one-half mile to the east, may be a better location in the future.

Telephone connections between each of the three lights and the gun battery may be provided by commercial lines to Fort Adams, supplemented by field wire. 3,000 feet of field wire will be required.

ANTIAIRCRAFT DEFENSE AT POINT JUDITH NECK

6. The two antiaircraft batteries at Point Judith Neck, each composed of a gun detachment, a machine gun detachment and a searchlight detachment, form a part of Group 1.

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7. AA Battery No. 1, Point Judith.

a. Gun Detachment. This battery is to be located on the high ground 300 yards west of the old Point Judith road which borders the 16-inch reservation on the west, on the C. L. Bidwell farm near the ruins of a farmhouse. The director will be located within 200 yards of the center of the battery. For orientation purposes, the coordinates of the west chimney of this old farmhouse are given.

Latitude	41°	23'	20.46".
Longitude	71°	29'	18.66".

b. Machine Gun Detachment. Four platoons of 16 machine guns are proposed. They should be located so as to protect the seacoast and antiaircraft searchlights at Point Judith, the 155-mm battery and the 16-inch battery. The platoons should be disposed to cover the peninsula as a whole and be placed approximately 1,500 yards apart. Connection with the gun battery may be provided by field wire. 12,000 feet of field wire will be required.

c. Searchlight Detachment. Three searchlights with sound locators and portable power plants are to be provided.

AA SL No. 3 - Near the shore of Narragansett Bay, approximately 1,500 yards north of Point Judith Light, south of the 16-inch battery and 1,550 yards southeast of the antiaircraft gun battery. Telephone connection with the gun battery may be by field wire.

AA SL No. 2 - On an island in Point Judith Pond 1,500 yards west of the gun battery. A one-pair cable and field wire may be employed to connect this light and the gun battery.

AA SL No. 1 - Near station "Wooden" of the Coast and Geodetic Survey, 6,000 yards west of the battery. Commercial leased telephone line may be used for connection with the gun battery.

12,000 feet of field wire will be required.

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8. AA Battery No. 2, Point Judith.

a. Gun Detachment. This battery is to be located in an open field belonging to John McHale, approximately 400 yards south of Hazard Tower.

(1) Should the Narragansett Pier 8-inch railway battery be located in the alternative position 450 yards west of the railway station, there is open ground 500 yards to the southeast which affords a suitable site for the antiaircraft battery (see Exhibit 5-A).

(2) The director, at either site, may be within 200 yards of the center of the battery.

b. Machine Gun Detachment. Three platoons or 12 machine guns are proposed. They should be located so as to protect the seacoast lights at Gunning Rock as well as the railway battery. Telephone connection with the gun battery may be by field wire. 10,000 feet of field wire will be required.

c. Searchlight Detachment. Three searchlights with sound locators and portable power plants are to be provided. They should be located as follows:

AA SL No. 5 - Light near the shore of Narragansett Bay, approximately one mile south of South Pier at Narragansett Pier; within 800 yards of the antiaircraft battery. Telephone connection may be by field wire.

AA SL No. 4 - On Broad Hill near Coast and Geodetic Survey station of that name, approximately 9,000 yards west of the battery and one mile northeast of Perryville. Commercial telephone line may be used for connection with the gun battery.

AA SL No. 6 - At Meetinghouse Hill also called Tower Hill, one mile east of Wakefield and approximately 3,800 yards northwest of the battery. Commercial leased line may be employed for connection with the gun battery.

3,000 feet of field wire will be required.

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ANTIAIRCRAFT DEFENSE OF SAKONNET POINT.

9. The two antiaircraft batteries at Sakonnet Point are composed, like the others of the harbor defense, of a gun, a machine gun and a searchlight detachment; these two batteries form a part of Group 3.

10. AA Battery No. 5, Sakonnet Point.

a. Gun Detachment. This battery is to be located on the high ground overlooking the Sakonnet River, on the west portion of the 16-inch gun plot. The director may be located within 200 yards of the center of the battery.

b. Machine Gun Detachment. Four platoons or 16 machine guns should be provided. They should be so located as to protect the 16-inch battery, the three antiaircraft searchlights referred to below, and the fire control stations at Sachuest Neck. For telephone connection with the gun battery, field wire (and cable to Sachuest Neck) should be used. 12,000 feet of field wire will be required.

c. Searchlight Detachment. Three portable searchlight units are to be provided. The following are suitable locations:

AA SL No. 15 - At Hill 100, 1,400 yards north of Little Compton and 4,700 yards northeast of the antiaircraft battery. Commercial leased line may be employed for connection with the battery.

AA SL No. 14 - Near the Sakonnet River, north of Church Point, near a Coast and Geodetic Survey station named "Church Point - 3" and approximately 3,000 yards northwest of the battery. Telephone connection may be by field wire.

AA SL No. 13 - On Sachuest Neck, 4,600 yards west of the battery. Telephone connection may be by field wire and fire control cable.

12,000 feet of field wire will be required.

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11. AA Battery No. 6, Sakonnet Point.

a. Gun Detachment. This battery is to be located in the northeast portion of the 10-acre plot which is the site of the 8-inch gun battery. The director may be well located on a rocky knoll at the north edge of the plot, within 200 yards of the center of the battery.

b. Machine Gun Detachment. Four platoons or 16 machine guns should be provided. They should be located so as to protect the 8-inch battery, the 155-mm battery, the seacoast searchlights on West Island and the Warren Point fire control stations. The four platoons should be disposed to cover the area of the peninsula and should be placed approximately 1,500 yards apart. Telephone connection with the gun battery should be by field wire. 20,000 feet of field wire will be required.

c. Searchlight Detachment. Three portable searchlight units are to be provided. They should be located as follows:

AA SL No. 16 - On the west side of Round Point, 1,400 yards north of the end of Sakonnet Point and approximately 2,400 yards southeast of the antiaircraft battery.

AA SL No. 17 - On the east side of the swamp which lies east of the 8-inch plot; this searchlight position is 1,200 yards east of the antiaircraft battery.

AA SL No. 18 - Approximately 400 yards north of Tumpus Beach and 4,400 yards northeast of the battery.

(1) Field telephone wire should be used to connect these three searchlights with the gun battery. 30,000 feet of field wire will be required.

12. The locations prescribed in this Annex for individual antiaircraft guns and for antiaircraft gun batteries were approved by the War Department in 12th Indorsement, WD AGO, August 31, 1933 (AG 660.2 (1-30-33) (Misc.) E).

13. The acquisition of land is not involved in this Annex.

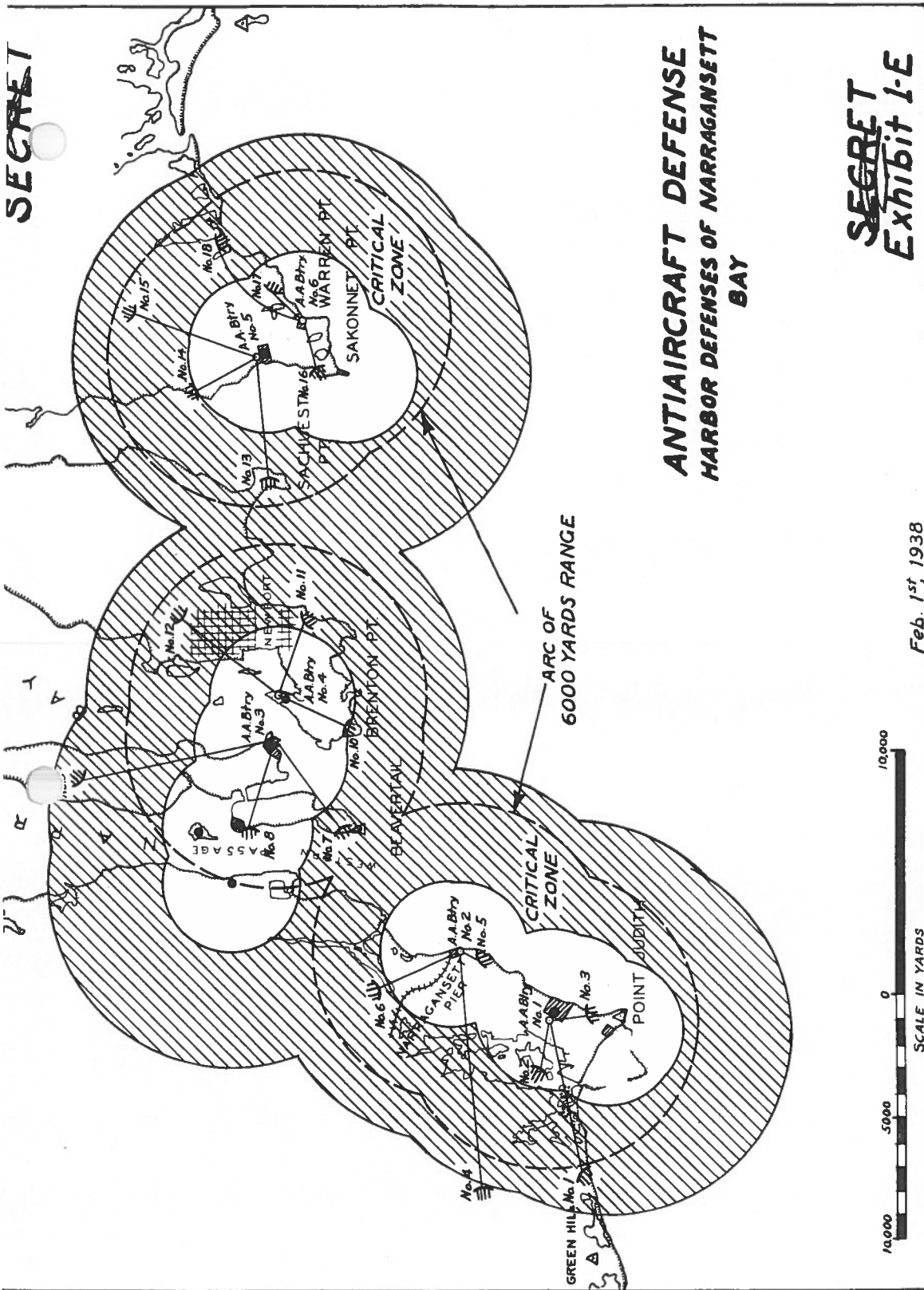
14. Cost Estimate. An estimate of cost and priority guide is appended as Exhibit 5-E. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred and installed until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

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ANTI-AIRCRAFT DEFENSE HARBOR DEFENSES OF NARRAGANSETT BAY

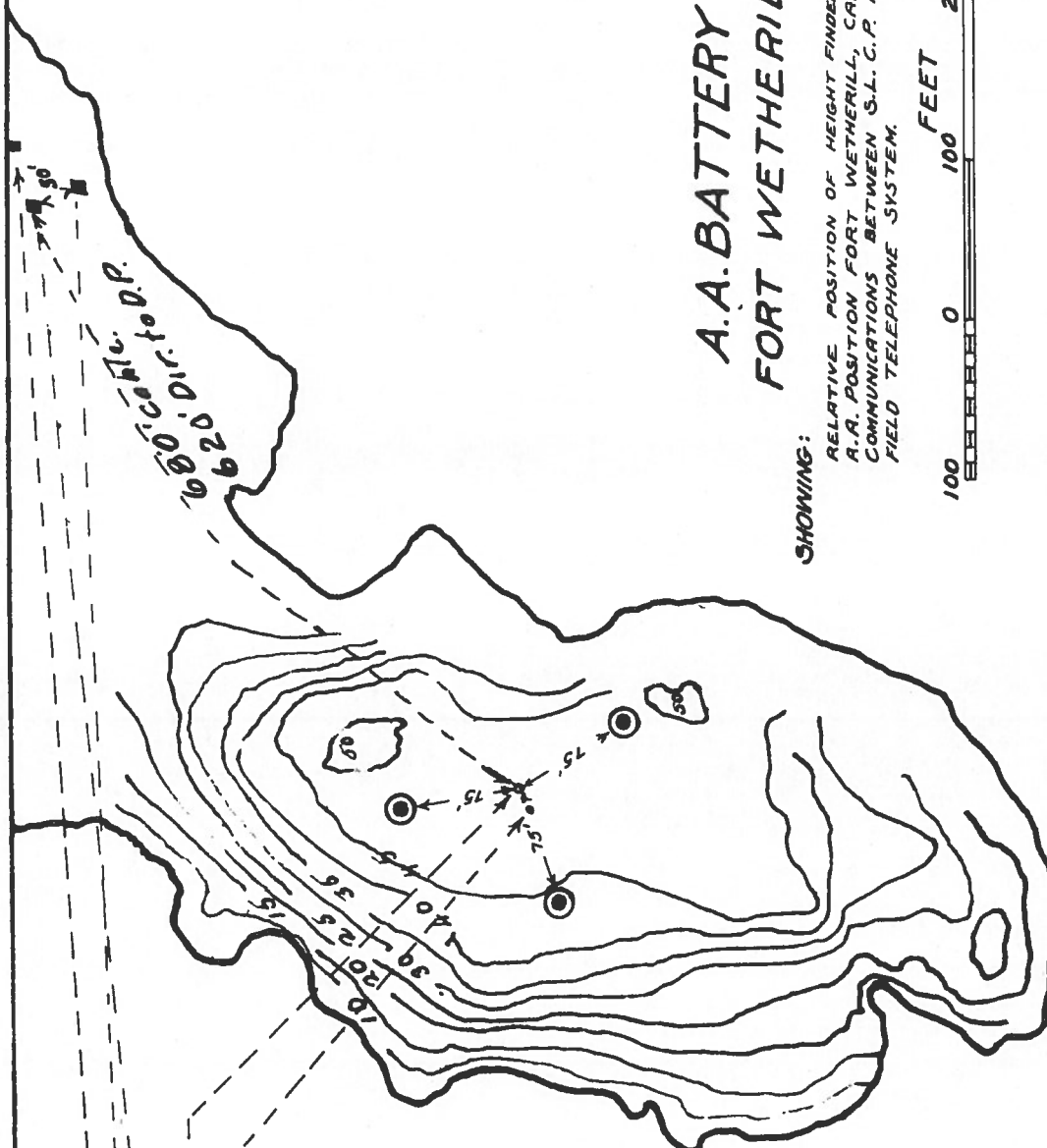
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Exhibit I-E



Feb. 1st, 1938

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SEARCHLIGHT C.P.
HEIGHT FINDER
DIRECTOR
JUNCTION BOX
DIRECTING POINT



A.A. BATTERY NO. 3 FORT WETHERILL, R.I.

SHOWING:

RELATIVE POSITION OF HEIGHT FINDER DIRECTOR AND GUNS
A.A. POSITION FORT WETHERILL, CABLE LENGTHS INDICATED
COMMUNICATIONS BETWEEN S.L.C.P. AND SEARCHLIGHTS BY
FIELD TELEPHONE SYSTEM.



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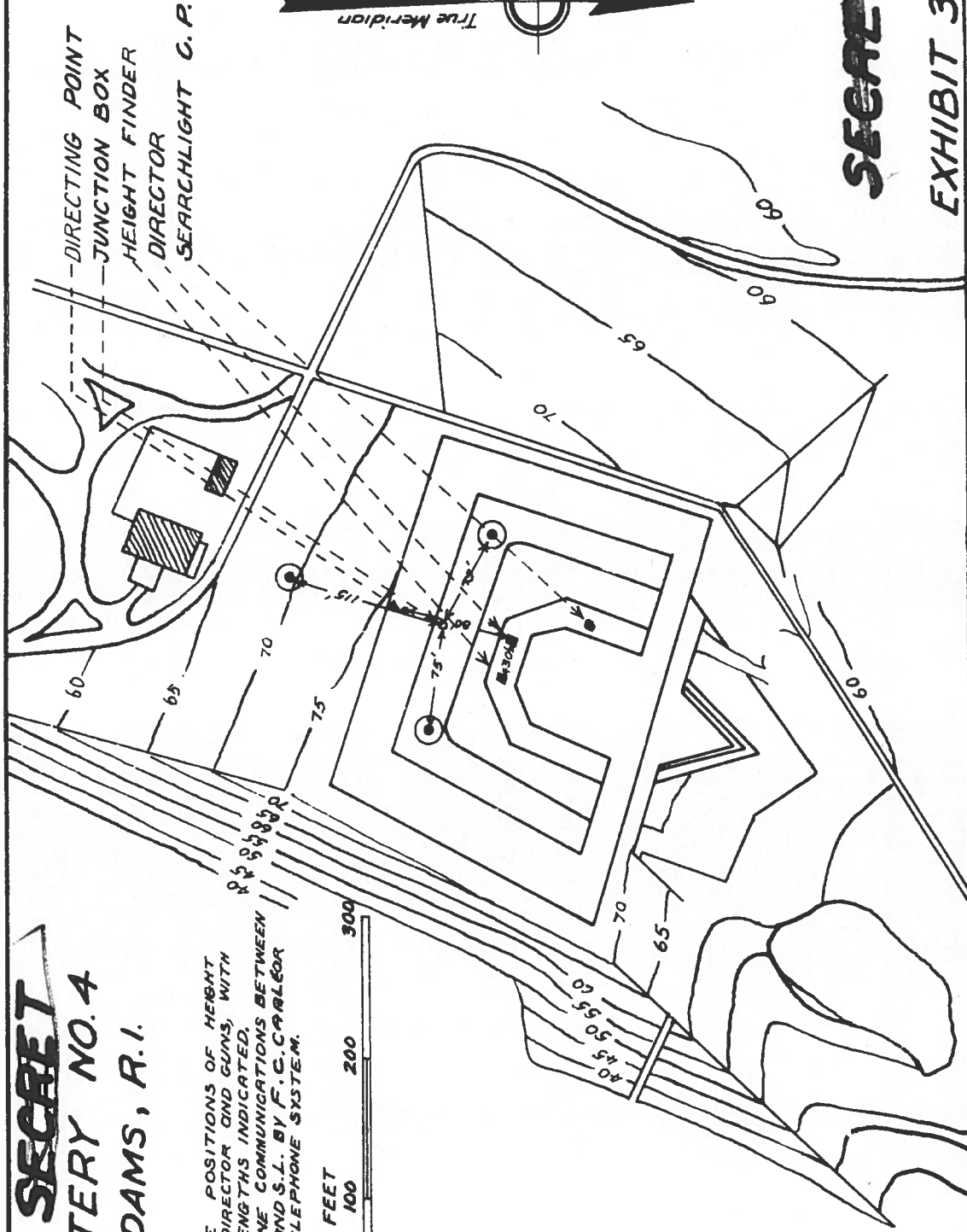
EXHIBIT 2-E

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**A.A. BATTERY NO. 4
FORT ADAMS, R.I.**

SHOWING:

RELATIVE POSITIONS OF HEIGHT
FINDER, DIRECTOR AND GUNS, WITH
CABLE LENGTH INDICATIONS,
TELEPHONE COMMUNICATIONS BETWEEN
S.L.C.P. AND S.L. BY F.C. CABLE OR
FIELD TELEPHONE SYSTEM.



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EXHIBIT 3-E

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ANNEX E

EXHIBIT 4-E

WAR RESERVE AND BATTLE ALLOWANCE
OF
ANTI-AIRCRAFT AMMUNITION

HARBOR DEFENSES OF NARRAGANSETT BAY

Approved by the Secretary of War in 5th In-
dorsement, WD AGO., March 28, 1933
(AG 381.4; 2-16-33; Misc. E).

Batteries	Type	Rounds				Remarks
		W.R.	Storage	B.A.		
No. 1 - Point Judith, North:	Mobile:	3600:	3600	-	:	1800 rounds to be forwarded with 8" Ry. Btry.
No. 2 - Point Judith, South:	Mobile:	3600:	1800	1800:	:	B.A. to be stored in Fort Adams or held in Central Storage until 16" Btry. is built.
No. 3 - Fort Wetherill	Fixed:	3600:	1800	1800:	:	Store in Btry. Walbach.
No. 4 - Fort Adams	Fixed:	3600:	1800	1800:	:	Store in Btry. Bankhead. <i>Store in Redoubt (Sec 21829-63 Aug 28, 1944)</i>
No. 5 - Sakonnet Point	Mobile:	3600:	1800	1800:	:	B.A. to be stored in Fort Adams or held in Central Storage until 16" Btry. is built.
No. 6 - Sakonnet Point	Mobile:	3600:	1800	1800:	:	)

EXHIBIT 4-E

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Priorities subject to change based on availability of funds.

Prior- ity	Item	Class	Description of Project	Ordinance	Engineer Material	Signal Material	Total
7	6		<u>G-1 STATION, POINT JUDITH</u> Control: AA No. 1, Pt. Judith AA No. 2, Pt. Judith	\$ 55	\$	\$ 245	\$ 300
		B	Ordinance: 1 Field Glass	\$55	\$55		
		B	Engineer: For Construction of Station see Annex "B", Fire Control Station.				
		B	Signal: 1 Telephone, Field 1 Switchboard, BD-72 Contingency	35 160 50		245	
7	4		<u>AA BATTERY NO. 1, POINT JUDITH</u> (Mobile) Guns: 3-3" Mobile Machine Guns: 16 - .50 cal. Searchlights: 3-AA SL Units, (Portable)	251,400	63,000	1,289	315,689
		B	Ordinance: 3 Guns AA (Mobile) complete 1 Director incl. Data Transmission System 1 Height finder 1 Stereoscopic Tester 5 BC Telescopes, AA 16 AA Machine Guns complete .50 cal. 3 Sound Locators	120,000 32,000 20,000 100 8,500 52,800 18,000		251,400	
		B	Engineer: 3 Searchlights AA (complete)	63,000	63,000		
		B	Signal: 21 Telephones, Field 1 Head Set 1 Switchboard, BD-71 1 Switchboard, BD-72 29,000', Field Wire @ \$.006 per foot Contingency	735 20 125 160 174 75		1,289	
7	5		<u>AA BATTERY NO. 2, POINT JUDITH</u> (Mobile) Guns: 3-3" Mobile Machine Guns: 12 - .50 cal. Searchlights: 3-AA SL Units, (Portable)	238,200	63,000	1,223	302,423
		B	Ordinance: 3 Guns AA (Mobile) complete 1 Director incl. Data Transmission System 1 Height finder 1 Stereoscopic Tester 5 BC Telescopes, AA 12 AA Machine Guns complete .50 cal. 3 Sound Locators	120,000 32,000 20,000 100 8,500 39,600 18,000		238,200	
		B	Engineer: 3 Searchlights AA (Complete)	63,000	63,000		
		B	Signal: 21 Telephones, Field 1 Head set 1 Switchboard, BD-71 1 Switchboard, BD-72 18,000', Field Wire @ \$.006 per foot Contingency	735 20 125 160 108 75		1,223	

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Priorities subject to change based on availability of funds.

Prior-ity	Item	Class	Description of Project	Ordinance	Engineer Material	Signal Material	Total
3	2		<u>G-4 STATION, PROSPECT</u> Control: 12 - .50 cal. Machine Guns, Ft. Getty AA Battery No. 3, Ft. Wetherill, 3 - 3" Fixed. AA Battery No. 4, Ft. Adams, 3 - 3" Fixed.	\$ 55	\$	\$ 245	\$ 300
		A	Ordinance: 1 Field Glass \$55 \$55				
		A	Engineer: Existing Structure				
		A	Signal: 1 Telephone, Field 35 1 Switchboard, BD-72 160 Contingency 50 245				
1	1	A	<u>MACHINE GUN DETACHMENT, FORT GETTY</u> Ordinance: 12 AA Machine Guns complete .50 cal. 39,600 39,600	39,600		610	40,210
		A	Signal: 11 Telephones, Field 365 1 Head set 80 1 Switchboard, BD-71 125 5,000', Field Wire @ \$.006 per foot 30 Contingency 50 610				
3	3		<u>AA BATTERY NO. 3, FORT WETHERILL</u> (Fixed) Guns: 3-3" Fixed Machine Guns: 12 - .50 cal. Searchlights: 3-AA SL Units, (Portable)	126,800	63,000	1,217	191,017
		A	Ordinance: 3 Guns (Fixed) installed 1 Director incl. Data Transmission System 32,000 1 Height finder 20,000 1 Stereoscopic Tester 100 4 PC Telescopes, AA 6,800 3 On-carriage Alterations & Equipment 6,900 4 Fuze Setters 3,400 12 AA Machine Guns .50 cal. 39,600 3 Sound Locators 18,000 126,800				
		A	Engineer: 3 Searchlights AA (complete) 63,000 63,000				
		A	Signal: 21 Telephones, Field 735 1 Head set 80 1 Switchboard, BD-71 125 1 Switchboard, BD-72 160 17,000', Field Wire @ \$.006 per foot 102 Contingency 75 1,217				
3	4		<u>AA BATTERY NO. 4, FORT ADAMS</u> (Fixed) Guns: 3-3" Fixed Machine Guns: 12 - .50 cal. Searchlights: 3-AA SL Units, (Portable)	126,800	63,000	1,175	190,975

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Priorities subject to change based on availability of funds.

Prior- ity	Item	Class	Description of Project	Ordnance	Engineer Material	Signal Material	Total
			<u>AA BATTERY NO. 4, FORT ADAMS (CONT'D)</u> (Fixed)	\$	\$	\$	\$
		A	Ordnance: 3 Guns (Fixed) installed 1 Director with Data Transmission System 332,000 1 Height finder 20,000 1 Stereoscopic Tester 100 4 BC Telescopes, AA 6,800 3 On-carriage Alterations & Equipment 6,900 4 Fuse Setters 3,400 12 AA Machine Guns .50 cal. 39,600 3 Sound Locators 18,000 <u>126,800</u>				
		A	Engineer: 3 Searchlights AA (complete) 63,000 <u>63,000</u>				
		A	Signal: 21 Telephones, Field 735 1 Head set 20 1 Switchboard, BD-71 125 1 Switchboard, BD-72 160 10,000', Field Wire 60 Contingency 75 <u>1,175</u>				
7	3		<u>G-3 STATION, WARREN POINT</u> Control: AA Battery No. 5, Sakonnet Point AA Battery No. 6, Sakonnet Point	55		245	300
		A	Ordnance: 1 Field Glass 55 <u>55</u>				
			Engineer: For Construction of Station See Annex "B" Fire Control Station, Warren Point.				
		A	Signal: 1 Telephone, Field 35 1 Switchboard, BD-72 160 Contingency 50 <u>245</u>				
7	1		<u>AA BATTERY NO. 5, SAKONNET POINT</u> Guns: 3-3" Mobile Machine Guns: 16 - .50 cal. Searchlights 3-AA SL Units, (Portable)	251,400	63,000	1,289	315,689
		A	Ordnance: 3 Guns AA (Mobile) complete 120,000 1 Director with Data Transmission System 32,000 1 Height finder 20,000 1 Stereoscopic Tester 100 5 BC Telescopes, AA 8,500 16 AA Machine Guns 52,800 3 Sound Locators 18,000 <u>251,400</u>				
		A	Engineer: 3 Searchlights AA (complete) 63,000 <u>63,000</u>				
		A	Signal: 21 Telephones, Field 735 1 Head set 20 1 Switchboard, BD-72 160 1 Switchboard, BD-71 125 29,000', Field Wire @ \$.006 per foot 174 Contingency 75 <u>1,289</u>				

SECRET

Priorities subject to change based on availability of funds.

Prior- ity	Item	Class	Description of Project	Ordinance	Engineer Material	Signal Material	Total
7	2		<u>AA BATTERY No. 6, SAKONNET POINT</u> Guns: 3-3" Mobile Machine Guns: 16 - .50 cal. Searchlights: 3-AA SL Units, (Portable)	\$ 251,400	\$ 65,000	\$ 1,445	\$ 315,845
		A	Ordinance: 3 Guns AA (Mobile) complete \$120,000 1 Director with Data Transmission System 38,000 1 Hight finder 20,000 1 Stereoscopic Tester 100 5 EC Telescopes, AA 8,500 16 AA Machine Guns 52,800 3 Sound Locators 18,000 \$251,400				
		A	Engineer: 3 Searchlights AA (complete) 65,000 65,000				
		A	Signal: 21 Field Telephones 735 1 Head set 20 1 Switchboard, BD-72 160 1 Switchboard, BD-71 125 55,000', Field Wire @ \$.006 per foot 330 Contingency 75 1,445				
7	7		<u>ANTI-AIRCRAFT OBSERVERS</u>	495		820	1,315
		B	Ordinance: 9 Field Glasses 495 495 Engineer: None Signal: 9 Telephones with head & chest sets 720 Contingency 100 820				
TOTALS				\$1,286,260	\$578,000	\$9,805	\$1,674,065

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ANNEX F

SUPPORTING AIRCRAFT.

1. Mission: To furnish observation and surveillance missions for gun defenses of Forts Adams, Getty, Wetherill and Kearney; and Sakonnet Point and Point Judith.

2. Equipment required: One (1) Observation Flight; three planes equipped with radio.

3. Landing Fields:

a. Operating:

(1) Newport Airport - $3\frac{1}{2}$ miles north of Newport, Rhode Island.

b. Emergency:

(1) State Camp Grounds, Quonset Point, Rhode Island (northeast of Wickford, Rhode Island).

(2) Atlantic Airport - 9 miles east of Westerly, Rhode Island.

(3) Marthas Vineyard Airport - $1\frac{1}{2}$ miles south of Edgartown, Massachusetts.

(4) Block Island, Rhode Island (inferior).

4. Gas and Oil. To be secured locally at the specified airports.

5. Communications:

a. Commercial telephone to airport.

b. Radio between planes on missions and the Harbor Defense command post.

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ANNEX G

GAS DEFENSE.

1. a. This project contemplates use of the Collective Protector Unit M-1 or later model, costing \$780, with four reserve canisters at \$270 each, a total of \$1,860 per unit; this unit has a rated capacity of 200 cubic feet per minute. Three cubic feet per minute per person not physically active, and ten cubic feet for personnel of plotting rooms is required. Therefore one unit will supply a maximum of 20 persons actively engaged or 67 persons not active. There are the further conditions that one unit will supply the necessary slight positive air pressure to a room of no more than 10,000 cubic feet capacity; and each person requires 150 cubic feet of space.

b. The basis for providing reserve canisters is that the life of the canister is 40 hours; and the assumption that there may be two gas attacks of eight hours each, each week for three months. This is a very ample allowance.

c. Only permanent and bombproof structures should, in general, be gas-proofed. Power plants do not require protection, nor do isolated fire control stations. Class C batteries and short range batteries of the secondary armament are not protected. Provision for gas defense is to be made whenever new emplacements are constructed.

d. For personnel outside of gas-proofed rooms, reliance is placed on gas masks, protective clothing and the employment of trained squads of men using chloride of lime to neutralize mustard gas. All this personnel and organizational equipment is outside the scope of this project.

2. a. Attack by gas must ordinarily be carried out by airplanes since otherwise the expenditure of naval ammunition would be excessive. The fire of antiaircraft guns and machine guns will be a deterrent to effective gas attack.

b. Attack with persistent gas is the chief concern.

3. Provision is made herein for complete gas-proofing of the plotting rooms, and a rest room at each battery where a room is available without undertaking new construction. Aid stations

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may be established in the rest rooms. Evacuation should be first to military and then to civil hospitals.

4. The acquisition of land is not involved in this Annex.

5. Cost Estimate. An estimate of cost and priority guide is appended as Exhibit 1-G. Those items which should be procured and installed in peacetime are marked with an A. Those which should be procured in peace but whose installation may be deferred until an emergency arises are marked B. Those items to be procured and installed when an emergency arises are marked C.

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Priorities subject to change based on availability of funds.

Priority	Item	Class	Description of Project	No. of Cubic Feet	No. of Persons	No. of Collective Prots.	No. of Reserve Canisters	Chemical Warfare Service	Engineer Material	Engineer Labor	Total
10			<u>FORT WETHERILL, R. I.</u>								
	1	A	Fire Control Switchboard Room	5,400	3	1	4	\$ 1,860	\$ 300	\$ 75	\$2,235
	2	A	Mine Casemate	8,600	4	1	4	1,860	300	75	2,235
	3	A	Mine Plotting Room	1,970	13	1	4	1,860	300	75	2,235
	4	A	Battery Wheaton Plotting Room	1,690	12	1	4	1,860	300	75	2,235
	5	B	Battery Wheaton Rest Room at Walbach	6,400	42	1	4	1,860	300	75	2,235
	6	A	Battery Varnum Plotting Room	1,920	13	1	4	1,860	300	75	2,235
	7	B	Battery Varnum Rest Room	1,890	12	1	4	1,860	300	75	2,235
	8	A	Battery Dickenson Plotting Room	1,211	9	1	4	1,860	300	75	2,235
	9	B	Battery Dickenson Rest Room at Zook	5,040	34	1	4	1,860	300	75	2,235
			<u>FORT ADAMS, R. I.</u>								
	10	A	Battery Edgerton Plotting Room	1,700	12	1	4	1,860	300	75	2,235
	11	A	Battery Greene Plotting Room	1,700	12	1	4	1,860	300	75	2,235
	12	B	Batteries Edgerton and Greene Rest Room	6,300	42	1	4	1,860	300	75	2,235
			<u>FORT GETTY, R. I.</u>								
	13	A	Battery House Plotting Room	1,300	9	1	4	1,860	300	75	2,235
	14	B	Battery House Rest Room at Tousard	3,600	24	1	4	1,860	300	75	2,235
			<u>FORT GREENLE, R. I.</u>								
	15	A	Mine Casemate	1,750	4	1	4	1,860	300	75	2,235
	16	A	Mine Plotting Room	1,680	13	1	4	1,860	300	75	2,235
			<u>FORT KEARNEY, R. I.</u>								
	17	A	Battery Cram Plotting Room	1,100	8	1	4	1,860	300	75	2,235
	18	B	Battery Cram Rest Room at French	3,600	24	1	4	1,860	300	75	2,235
TOTALS								\$23,480	\$5,400	\$1,350	\$40,230

Class A - To be procured and installed in peacetime.

Class B - To be procured in peacetime and installed when an emergency arises.

Class C - To be procured and installed when an emergency arises.

Note: No expenditure of funds by the Ordnance Department, Signal Corps, Coast Artillery Corps, or for land, is contemplated in this Annex.

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ANNEX H

ENGINEERS, CHIEF OF ENGINEERS

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
A	4	1	\$ 793,362	\$	\$	\$ 793,362
		2	165,220			165,220
		3	14,755			14,755
	5	1	862,375			862,375
		2	23,700			23,700
		3			7,000	7,000
Total			1,859,412		7,000	1,866,412
B	4	1	10,700			10,700
		2	5,000			5,000
		4	4,450			4,450
		5	17,700			17,700
		6	10,200			10,200
		7	10,600			10,600
		8	13,100			13,100
		9			5,300	5,300
		10	900	2,700	1,350	4,950
		11	800	2,500	1,250	4,550
		14			3,500	3,500
		15			3,000	3,000
		21			2,500	2,500
	5	1		2,500	1,650	4,150
		2			8,000	8,000
		3			3,250	3,250
		5			1,500	1,500
Total			73,450	7,700	31,300	112,450
C	2	1		44,840		44,840
		2		42,840		42,840
		3		44,840		44,840
		4	5,000	5,650	10,950	21,600
		5	10,000			10,000
		6		42,840		42,840
		7		21,420		21,420
		8		21,420		21,420
Total			15,000	223,850	10,950	249,800

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ANNEX H

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
D	8	1	\$ 37,500	\$	\$	\$ 37,500
Total			37,500			37,500
E	3	3	63,000			63,000
		4	63,000			63,000
	7	1	63,000			63,000
		2	63,000			63,000
		4	63,000			63,000
		5	63,000			63,000
Total			378,000			378,000
G	10	1	375			375
		2	375			375
		3	375			375
		4	375			375
		5		375		375
		6	375			375
		7		375		375
		8	375			375
		9		375		375
		10	375			375
		11	375			375
		12		375		375
		13	375			375
		14		375		375
		15	375			375
		16	375			375
		17	375			375
		18		375		375
Total			4,500	2,250		6,750
GRAND TOTAL			\$2,330,362	\$233,800	\$49,250	\$2,613,412

Approved by Chief of Engineers,
November 29, 1939.

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ANNEX J

ESTIMATES, CHIEF OF ORDNANCE

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
A	4	1	\$1,040,000	\$	\$	\$1,040,000
		2	250,000			250,000
		3	10,000			10,000
	5	1	1,040,000			1,040,000
		2	10,000			10,000
		3		443,300		443,300
Total			2,350,000	443,300		2,793,300
B	4	2	1,800			1,800
	5	3	6,300			6,300
		3		6,300		6,300
		3		6,300		6,300
		3		6,300		6,300
		2		4,000		4,000
	4	5	1,800			1,800
		5	775			775
		5	3,600			3,600
		4	3,600			3,600
		1		3,600		3,600
		6	6,300			6,300
		7	3,600			3,600
		8	3,600			3,600
	5	4	39,960			39,960
		5		775		775
	4	5		3,600		3,600
		4		3,600		3,600
	5	1		3,600		3,600
	4	6		3,600		3,600
		7	3,600			3,600
		8	3,600			3,600
	5	5		41,960		41,960
	4	14		900		900
		14		1,800		1,800
		4		1,800		1,800
		14		1,800		1,800
		14		9,200		9,200
	5	16		775		775

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ANNEX J

Annex	Priority	Item	Class A	Class B	Class C	Total
B	4	6	\$ 1,800	\$	\$	\$ 1,800
		5	3,600			3,600
		7	3,600			3,600
		8	3,600			3,600
		17		1,800		1,800
		17		1,800		1,800
		17	4,390			4,390
		5	3,600			3,600
		7	1,800			1,800
		8	3,600			3,600
		15	4,375			4,375
		6	1,800			1,800
		5	1,800			1,800
		7	1,800			1,800
		8	1,800			1,800
		19		1,800		1,800
		19	4,250			4,250
		6	1,800			1,800
		5	1,800			1,800
		7	1,800			1,800
		8	3,600			3,600
		20		1,800		1,800
		20		1,800		1,800
		20	4,250			4,250
		8	1,800			1,800
		1	775			775
		8	3,600			3,600
		7	3,600			3,600
		9			3,600	3,600
		10		6,300		6,300
		11	6,300			6,300
		6	6,300			6,300
		5	3,600			3,600
		4		3,600		3,600
		12	39,960			39,960
		2	1,800			1,800
		8	3,600			3,600
		7	3,600			3,600
		9		3,600		3,600
		10		6,300		6,300
		6	6,300			6,300
		5	3,600			3,600

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ANNEX J

Annex	Priority	Item	Class A	Class B	Class C	Total
B	4	13	\$ 39,960	\$	\$	\$ 39,960
		15		900		900
		15		1,800		1,800
		15		1,800		1,800
		9		1,800		1,800
		15		9,200		9,200
		21	125			125
		21	125			125
		21	4,625			4,625
Total			263,270	147,210	3,600	414,080
E	7	6		55		55
		4		251,400		251,400
		5		238,200		238,200
	3	2	55			55
	1	1	39,600			39,600
	3	3	126,800			126,800
		4	126,800			126,800
	7	3	55			55
		1	251,400			251,400
		2	251,400			251,400
		7		495		495
Total			796,110	490,150		1,286,260
GRAND TOTAL			\$3,409,380	\$1,080,660	\$ 3,600	\$4,493,640

Approved by Chief of Ordnance,
November 22, 1939.

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ANNEX K

ESTIMATES, CHIEF OF CHEMICAL WARFARE SERVICE

Annex:	Priority:	Item:	Class A	Class B	Total
G	10	1	\$ 1,860	\$	\$ 1,860
		2	1,860		1,860
		3	1,860		1,860
		4	1,860		1,860
		5		1,860	1,860
		6	1,860		1,860
		7		1,860	1,860
		8	1,860		1,860
		9		1,860	1,860
		10	1,860		1,860
		11	1,860		1,860
		12		1,860	1,860
		13	1,860		1,860
		14		1,860	1,860
		15	1,860		1,860
		16	1,860		1,860
		17	1,860		1,860
		18		1,860	1,860
GRAND TOTAL			\$ 22,320	\$ 11,160	\$ 33,480

Approved by the Chief of Chemical Warfare
Service,
November 28, 1939.

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ANNEX L

ESTIMATES, CHIEF SIGNAL OFFICER

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
B	4	1 : \$	826	\$ 279	\$	\$ 1,105
		2 :	5,015			5,015
		4 :	729	658		1,387
		5 :	8,756	279		9,035
		6 :	3,153	279		3,432
		6 :	40			40
		7 :	3,432			3,432
		8 :	8,209			8,209
		9 :		379	779	1,158
		10 :		558	450	1,008
		11 :		279	300	579
		12 :	6,285			6,285
		13 :	6,000			6,000
		14 :		1,659	400	2,059
		15 :		1,809	250	2,059
		17 :	40	200	150	390
		18 :	150	200		350
		19 :	1,280	200		1,480
		20 :	1,280	200		1,480
		21 :	5,604	205		5,809
		23 :	8,400			8,400
		24 :	23,025			23,025
		25 :	21,058			21,058
		26 :	14,055			14,055
		27 :	22,525			22,525
		28 :	59,105			59,105
		29 :	6,975			6,975
		30 :	13,134			13,134
		31 :	2,284			2,284
		32 :		24,150	625	24,775
		33 :		4,488	650	5,138
		34 :	435			435
		35 :	2,180			2,180
		36 :	8,707			8,707
		37 :	2,669			2,669
		38 :		1,725	5,300	7,025
		39 :	2,434			2,434
		40 :	3,336			3,336
		41 :	4,900			4,900

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ANNEX I

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
B	5	1 : \$		\$ 279	\$ 300	\$ 579
		2 :		4,039	80	4,119
		3 :		1,166	150	1,316
		4 :	6,285			6,285
		5 :		6,350	150	6,500
		6 :		25,275	600	25,875
		7 :		42,435	1,100	43,535
		8 :		23,805	650	24,455
		9 :		20,169	700	20,869
		10 :		6,893	600	7,493
		11 :		9,478	600	10,078
		12 :		6,032	600	6,632
		13 :		569	1,600	2,169
		14 :		662	1,000	1,662
		15 :		310	900	1,210
		16 :		210	1,290	1,500
		17 :		310	900	1,210
		18 :		1,513	4,400	5,913
		19 :	3,168			3,168
		20 :	1,829			1,829
		21 :	8,735			8,735
		22 :	4,900			4,900
		23 :			4,900	4,900
Total			270,038	187,042	29,424	486,504

Note: On page 26 Annex B, Priority 4, Item 15, Class C, \$100 is entered in the "labor" column instead of \$50 as indicated in the itemization on the left. Subtracting this \$50 from the total "\$486,554" shown on page 41 leaves \$486,504 which checks this figure.

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ANNEX L

Annex:	Priority:	Item:	Class A	Class B	Class C	Total
C	2	1	\$	\$ 619	\$ 75	\$ 694
		2		619	75	694
		3		619	75	694
		4		619	75	694
		5	694			694
		6		619	75	694
		7		312	50	362
Total			694	3,407	425	4,526
E	1	1	610			610
	3	2	245			245
		3	1,217			1,217
		4	1,175			1,175
	7	1	1,289			1,289
		2	1,445			1,445
		3	245			245
		4		1,289		1,289
		5		1,223		1,223
		6		245		245
		7		820		820
Total			6,226	3,577		9,803
GRAND TOTALS			\$ 276,958	\$ 194,026	\$ 29,849	\$ 500,833

Approved by the Chief Signal Officer,
November 23, 1939.

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ANNEX M

ESTIMATE, CHIEF OF COAST ARTILLERY

Annex:	Priority:	Item:	Class A :	Total
D :	1 :	1 :	\$ 99,817 :	\$ 99,817

Approved by the Chief of Coast Artillery,
December 21, 1939.

R E C A P I T U L A T I O N

Annex:	Procuring Service:	Class A :	Class B :	Class C :	Total
A :	Engineers	\$1,859,412 :		\$ 7,000 :	\$1,866,412
	Ordnance	2,350,000 :	443,300 :		2,793,300
	TOTAL	4,209,412 :	443,300 :	7,000 :	4,659,712
B :	Engineers	73,450 :	7,700 :	31,300 :	112,450
	Ordnance	263,270 :	147,210 :	3,600 :	414,080
	Signal Corps	270,038 :	187,042 :	29,424 :	486,504
	TOTAL	606,758 :	341,952 :	64,324 :	1,013,034
C :	Engineers	15,000 :	223,850 :	10,950 :	249,800
	Signal Corps	694 :	3,407 :	425 :	4,526
	TOTAL	15,694 :	227,257 :	11,375 :	254,326
D :	Coast Artillery	99,817 :			99,817
	Engineers	*37,500 :			37,500*
	TOTAL	137,317 :			137,317
E :	Engineers	378,000 :			378,000
	Ordnance	796,110 :	490,150 :		1,286,260
	Signal Corps	6,226 :	3,577 :		9,803
	TOTAL	1,180,336 :	493,727 :		1,674,063
G :	Engineers	4,500 :	2,250 :		6,750
	Chemical Warfare	22,320 :	11,160 :		33,480
	Service				
	TOTAL	26,820 :	13,410 :		40,230
	GRAND TOTAL	\$6,176,337 :	\$1,519,646 :	\$82,699 :	\$7,778,682

*Completed with 1940 F.Y. Funds.

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