

7081

Diag. Cht. No. 4705

Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey TOPOGRAPHIC

Field No. TU-D-50 Office No. T-7081

LOCALITY

State Philippines

General locality West Coast of Luzon

Locality Subic Bay, Zambales Province

1945

CHIEF OF PARTY

WILBUR R. PORTER, Comdr., USC&GS

LIBRARY & ARCHIVES

DATE JUNE 5, 1950

7081

DESCRIPTION OF RECOVERABLE TOPOGRAPHIC STATION

Year: 1950

Sketch for shoreline and air photograph reference
distances and reference points:

Sheet No. TU-D-50

Datum

Meters

Lat. 14 46 572.9

Long. 120 15 454.7

Approximate elevation above high-water mark	2.0	feet

Location method: Planetable, Sextant, Theodolite, Air photographic plot

Detailed description: On the west coast of Luzon, in

Subic Bay, at Nabasan Point, east of Grande Island on a rock 10 feet in diameter and about 2 feet above H.W. Station is a porcelain insulator $3\frac{3}{4}$ inch in diameter cemented in a drill hole and surrounded with a cement patty. NABA

1939 is inscribed on the cement patty. Station

is 35 meters south of a small island west of Nabasan Point.

[illegible]

Distances must be horizontal distances actually measured on the ground--not scaled.

Above distances measured by:

REFERENCES: Topographic Manual, paragraphs 16, 29, 30, 57, and page 52; Hydrographic Manual, 2351.

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

REG. NO.

TOPOGRAPHIC TITLE SHEET

The Topographic Sheet should be accompanied by this form, filled in as completely as possible, when the sheet is forwarded to the Office.

Field No. TU-D-50

REGISTER NO.

State Philippines

General locality West Coast of Luzon

Locality Subic Bay

Scale 1:10,000 Date of survey 27 March, 1950 - 18 April

Vessel TULIP

Chief of party WILBUR R. PORTER, Comdr., USC&GS

Surveyed by Ens. C. S. Rozal

Inked by Arsenio Malay

Heights in feet above.....to ground to tops of trees

Contour, Approximate contour, Form line interval.....feet

Instructions dated CS-7 1 March, 1950

Remarks:.....

DESCRIPTIVE REPORT TO ACCOMPANY

TOPOGRAPHIC SHEET TU-D-50

A. AUTHORITY:

Project instructions, Project CS-7(US) dated 1 March 1950 from the Director of Coast Surveys, Manila Field Station addressed to Commanding Officer, Ship TULIP.

B. PURPOSE:

This survey was executed to revise the topographic features of Subic Bay and to locate signals to be used as control for hydrography.

C. SURVEY LIMITS AND DATES:

The limits for this sheet is that part of the east shore of Subic Bay from latitude $14^{\circ} 45.4'$ to latitude $14^{\circ} 48.4'$ and from longitude $120^{\circ} 13.0'$ to longitude $120^{\circ} 17.0'$. The survey was started on 27 March 1950 and was finished on 18 April 1950.

D. CONTROL:

The following triangulation stations were used as control in the survey:

CAMAYAN 2, 1947	CHIQUITA BEACON, 1908, 1947
CUBI 2, 1947	GRANDE LIGHT HOUSE, 1947
GRANDE 2, 1947	MAST, 1950 (Traverse)
TRIB, 1950	BOA, 1950

E. INSTRUMENTS:

A standard U.S. Coast and Geodetic Survey planetable and equipment, alidade No. 133, a pair of stadia rods graduated for this particular alidade and declinoire No. 133 were used in this survey.

F. SURVEY METHODS:

Standard topographic procedure was used throughout the survey. The stations for hydrography were located by either cuts from triangulation stations, or by 3-point fix, or by stadia distances with a check cut from a triangulation station or a 3-point fix station.

Topographic features were all located by stadia distances from either triangulation stations, or 3-point fix stations or traverses.

The traverse run around Grande Island and Chiquita Island had an error of closure which is more than the prescribed maximum limit and a re-run was made. The errors of closure in the re-run and in all other traverses were found negligible and no adjustment was found necessary. Junctions with Sheet TU-C-50

on the west and Sheet TU-B-50 on the north were satisfactory.

G. COMPARISON WITH PREVIOUS SURVEY:

Comparison was made with H.O. Anchorage Chart BO, 1948 Edition.

The shoreline has changed appreciably especially at the different points where the shore has been shifted to as much as 125 meters toward the land. The greatest shifting of the shoreline was found at Apalant Point and at Nabasan Point. There is only a slight change in the charted position of the sandy shore between topographic station Lam and topographic station Lor. A slight shifting toward the land was also found in the sandy shore between TRIB, 1950 and topographic station Nip.

The limits of the mangrove east of Apalant Point has shifted 30 meters toward the sea. A part of the eastern shore of Triboa Bay which was formerly covered by mangrove as shown on the chart is now clear. The mangrove might have been cleared by people who built huts in that vicinity. The mangrove on the eastern shore of Ilanin Bay and the wrecks on the northern part of Triboa Bay are not placed on the chart.

There is slight change in the shoreline of Grande Island and Chiquita Island. The sea wall on the eastern side of Grande Island as shown on the chart is longer by 110 meters than it should be. The pier appearing on the chart which is west of the existing concrete pier is no longer there. The existing concrete pier is no longer used.

H. GENERAL DESCRIPTION OF THE COAST:

Entering from seaward to Subic Bay, on the starboardside view are the steep sloping coasts of Chiquita Island and Grande Island covered with rocks and trees. Camayan Point is the most prominent point on the east side of the Bay. Hills and mountains covered with trees form the background. The shore on the east side of Subic Bay is generally rocky except those parts lined with mangroves and a small portion which is sandy. The sandy shore is between topographic station Lam and topographic station Lor and also between TRIB, 1950 and topographic station Nip.

Numerous fish traps which are temporary in nature are found near shore.

LST, LCI and pontoon wrecks are found in the northern part of Triboa Bay.

I. REMARKS AND RECOMMENDATION:

At the start of the survey the plotted position of Camayan 2, 1947 was out on the topo sheet. Using Camayan 2, 1947 as one of the control in the traverse run around Grande Island

and Chiquita Island, the error of closure was found out to be more than the prescribed limit. The position of Camayan 2, 1947 was replotted and checked before the station was used as control again. A re-run was made and the error of closure was found negligible. Due to limited time and difficulty of access the shoreline back of the mangroves were not located.

The shoreline is accurately located and the survey is deemed adequate to supersede prior surveys.

J. STATISTICS:

Number of topographic recoverable station-	- - - - -	2
Number of unrecoverable topographic stations	- - -	57
Statute miles of low water line	- - - - -	8.0
Statute miles of high water line	- - - - -	8.0
Area in square statute miles	- - - - -	13.4

Respectfully submitted,

/s/ CALIXTO S. ROZAL
Ensign, C&GS

Encl:

1. List of planetable positions
2. List of located wrecks
3. Description of recoverable topographic stations

APPROVED AND FORWARDED:

/s/ WILBUR R. PORTER
Comdr., USC&GS
Cond'g Ship TULIP

LIST OF PLANE TABLE POSITIONS

Object	Latitude:	D.M. :	Longitude:	D.P. :	Remark & Description
		Meters:		Meters:	
1. Nip	14° 47'	:1737.1: :(106.9):	120° 15'	:1518.2: :(276.1):	White wash on rock
2. Cat	14° 47'	:1348.4: :(495.6):	120° 15'	:1653.8: :(140.5):	White was on beached pontoon
3. Tan	14° 47'	:1153.4: :(690.6):	120° 15'	:1682.2: :(112.1):	White wash on tree trunk
4. Far	14° 47'	:1325.3: { 518.7:	120° 15'	: 744.7: :(1049.6):	White banner on fish trap
5. Sin	14° 47'	:1267.9: :(576.1):	120° 15'	: 322.7: :(1471.6):	White wash on foremast of wreck
6. Now	14° 47'	: 747.6: :(1096.4):	120° 15'	:1341.6: :(452.7):	White wash on tree trunk
7. Mid	14° 47'	: 718.4: :(1125.6):	120° 15'	:1175.2: :(619.1):	Mast of LST wreck
8. Dix	14° 47'	: 654.5: :(1189.5):	120° 15'	:1226.1: :(568.2):	Banner on pole
9. Abe	14° 47'	: 699.6: :(1144.4):	120° 15'	:1362.1: :(432.2):	Mast on LCI wreck
10. Fun	14° 47'	: 214.1: :(1629.9):	120° 15'	:1404.4: :(389.9):	White wash on funnel of wreck
11. Lia	14° 47'	: 313.9: :(1530.1):	120° 16'	: 13.1: :(1781.2):	White wash on rock
12. Arm	14° 47'	: 286.4: :(1557.6):	120° 16'	: 362.9: :(1431.4):	White wash on rock
13. Cow	14° 47'	: 197.9: :(1646.1):	120° 16'	: 308.9: :(1485.4):	Banner on tree
14. Ana	14° 47'	: 228.1: :(1615.9):	120° 16'	: 433.4: :(1360.9):	White wash on bow of IST wreck
15. Egg	14° 47'	: 46.9: :(1797.1):	120° 16'	: 382.5: :(1411.8):	Banner on pole
16. Fin	14° 47'	: 227.5: :(1616.5):	120° 16'	: 565.8: :(1228.5):	White wash on rock
17. Sad	14° 47'	: 144.1: :(1699.9):	120° 16'	: 572.3: :(1222.0):	White wash on bow of LCI wreck
18. Mil	14° 47'	: 101.9: :(1742.1):	120° 16'	: 688.0: :(1106.3):	White wash on bow of LCI wreck

Object:	Latitude:	D.M. :	Longitude:	D.P. :	Remark & Description
		:Meters:		:Meters:	
19.Den:	14° 47'	120.7:	120° 16'	786.2:	White wash on bow of LCI
		:(1723.3):		:(1008.1):	wreck
20.Out:	14° 47'	128.1:	120° 16'	961.7:	Banner on tree trunk
		:(1715.9):		:(832.6):	
21.Aim:	14° 47'	25.0:	120° 16'	1217.3:	White wash on tree trunk
		:(1819.0):		:(577.0):	
22.Cam:	14° 46'	1726.4:	120° 16'	1210.2:	White wash on beached pon-
		:(117.6):		:(584.3):	toon
23.Put:	14° 46'	1637.1:	120° 16'	1503.1:	White wash on beached pon-
		:(206.9):		:(291.4):	toon
24.Dim:	14° 46'	1444.5:	120° 16'	1240.7:	White wash on tree trunk
		:(399.5):		:(553.8):	
25.Mug:	14° 46'	1361.2:	120° 16'	964.9:	White wash on rock
		:(482.8):		:(829.6):	
26.Ban:	14° 46'	1381.7:	120° 16'	707.7:	Banner on fish trap
		:(462.3):		:(1086.8):	
27.Leo:	14° 46'	1334.4:	120° 16'	116.9:	Banner on fish trap
		:(509.6):		:(1677.6):	
28.Met:	14° 46'	1144.7:	120° 15'	1558.3:	White wash on rock
		:(699.3):		:(236.2):	
29.Ran:	14° 46'	991.2:	120° 15'	949.6:	Banner on fish trap
		:(852.8):		:(844.9):	
30.Tub:	14° 46'	1022.1:	120° 15'	361.0:	White wash on LCVP wreck
		:(821.9):		:(1433.5):	
31.Bat:	14° 46'	839.4:	120° 15'	530.8:	White banner on fish trap
		:(1004.6):		:(1263.7):	
32.Axe:	14° 46'	754.7:	120° 15'	740.0:	White wash on rock
		:(1089.3):		:(1054.5):	
33.Cab:	14° 46'	615.4:	120° 15'	451.1:	White wash on rock
		:(1228.6):		:(1343.4):	
34.Nab:	14° 46'	572.9:	120° 15'	454.7:	White wash on rock
		:(1271.1):		:(1339.8):	
35.Joy:	14° 46'	319.4:	120° 15'	1085.3:	North gable of house
		:(1524.6):		:(709.2):	
36.Set:	14° 46'	276.9:	120° 15'	482.4:	White banner on fish trap
		:(1567.1):		:(1312.1):	

Object	Latitude:	D.M.	Longitude:	D.P.	Remarks & Description
		Meters		Meters	
37. Owl:	14° 46'	258.2 (1585.8)	120° 15'	795.9 (998.6)	White banner on fish trap
38. Rig:	14° 46'	71.3 (1772.7)	120° 15'	1058.6 (735.9)	West gable of house
39. Ski:	14° 45'	1692.2* (151.8)	120° 15'	99.8 (1694.8)	East gable of red roofed house
40. Toy:	14° 46'	208.0 (1636.0)	120° 14'	1376.3 (418.2)	White wash on cowl of wreck
41. War:	14° 45'	1813.4* (30.6)	120° 14'	1538.7 (255.9)	White wash on stranded buoy
42. Big:	14° 45'	1746.2* (97.8)	120° 14'	938.1 (856.5)	Center of stranded lighted buoy
43. Quo:	14° 45'	1623.3* (220.7)	120° 14'	969.3 (825.3)	North end of quonset hut on barge
44. Tri:	14° 45'	1393.0* (451.0)	120° 14'	799.4 (995.2)	Trunk of biggest tree SW of a Camayan 2
45. Kay:	14° 45'	1375.1* (468.9)	120° 14'	733.7 (1060.9)	White wash on rock
46. Lor:	14° 45'	1131.2* (712.8)	120° 14'	1233.5 (561.1)	White wash on rock
47. Lam:	14° 45'	641.9* (1202.1)	120° 14'	1544.5 (250.1)	White banner on tree
48. Who:	14° 46'	1175.6 (668.4)	120° 13'	744.9 (1049.6)	White wash at end of rip-rap
49. Yak:	14° 46'	979.6 (864.4)	120° 13'	1243.8 (550.7)	White banner on dolphin at NE corner of concrete pier
50. Lax:	14° 46'	892.8 (951.2)	120° 13'	1006.3 (788.2)	East gable of ruined concrete building
51. Dot:	14° 46'	889.0 (955.0)	120° 13'	1203.9 (590.6)	White wash on concrete base of cannon
52. Mel:	14° 46'	616.9 (1227.1)	120° 13'	1687.8 (106.7)	White banner on fish trap

Object	Latitude	D.M.	Longitude	D.P.	Remarks & Description
		Meters		Meters	
53. Fet:	14° 46'	506.7 (1337.3):	120° 13'	1309.0 (485.5):	White wash on rock
54. F.Pole:	14° 46'	564.0 (1280.0):	120° 13'	948.4 (846.1):	Flag Pole
55. Red:	14° 46'	841.4 (1002.8):	120° 13'	592.7 (1201.8):	White wash on rock
56. Dog:	14° 46'	301.6 (1542.4):	120° 13'	588.5 (1206.0):	White wash on rock
57. Fed:	14° 46'	239.2 (1604.8):	120° 13'	809.3 (985.2):	White wash on rock
58. Gem:	14° 45'	1713.2* (130.8):	120° 13'	833.4 (961.2):	White wash on rock
59. Old:	14° 45'	1545.8* (298.2):	120° 13'	652.2 (1142.4):	White wash on rock

Note: (*) Backward
Deduced

Tabulated by: C.S. Rozal

Checked by: A.G. Jardiolin

Copy Checked by: C.S.R.

LIST OF LOCATED WRECKS

Object	Latitude	DM	Longitude	DP	Remarks
		Meters		Meters	
Barge	14° 46'	(1010.0) 834.0	120° 13'	(527.3) 1267.2	Center of wreck
LCI	14° 46'	(1035.7) 808.3	120° 13'	(524.8) 1269.7	" " "
Ship	14° 46'	(1651.7) 192.3	120° 14'	(411.2) 1383.3	" " "
Pontoon	14° 46'	(126.0) 1718.0	120° 16'	(559.5) 1235.0	" " "
Pontoon	14° 46'	(127.3) 1716.7	120° 16'	(527.1) 1267.4	" " "
LCI	14° 47'	(1661.7) 182.3	120° 16'	(1522.7) 271.6	" " "
LCI	14° 47'	(1467.7) 376.3	120° 15'	(42.8) 1751.5	" " "
LCI	14° 47'	(1319.3) 524.7	120° 15'	(215.3) 1579.0	" " "
LCI	14° 47'	(1357.8) 486.2	120° 15'	(229.0) 1565.3	" " "
Ship	14° 47'	(1615.0) 229.0	120° 15'	(371.9) 1422.4	" " "
LCI	14° 47'	(1144.4) 699.6	120° 15'	(432.2) 1362.1	" " "
LST	14° 47'	(1149.2) 694.8	120° 15'	(599.5) 1194.8	" " "
Ship	14° 47'	(576.8) 1267.2	120° 15'	(1479.5) 314.8	" " "
Pontoon	14° 47'	(1224.1) 619.9	120° 15'	(410.8) 1383.5	" " "
Pontoon	14° 47'	(1165.2) 678.8	120° 15'	(394.9) 1399.4	" " "
Barge with Quonset	14° 46'	(251.7) 1592.3*	120° 14'	(872.6) 921.9	" " "
Barge with Quonset	14° 46'	(229.3) 1614.7*	120° 14'	(828.0) 966.5	" " "

* Deduced

Scaled & tabulated by C.S.R.
 Checked by A.G.J.
 Copy checked by C.S.R.

GEOGRAPHIC NAMES

Survey No. **T-7081**

Name on Survey	On Chart No.		On previous survey No.		On U. S. quadrangle Maps		From local information		On local Maps		P. O. Guide or Map		Rand McNally Atlas		U. S. Light List	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
																1
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Form 504

U. S. COAST AND GEODETIC SURVEY

DEPARTMENT OF COMMERCE

DESCRIPTIVE REPORT

Type of Survey TOPOGRAPHIC

Field No. TU-D-50 Office No. 7-7681

LOCALITY

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General locality West Coast of Luzon

Locality Subic Bay, Zambales Province

1945

CHIEF OF PARTY

WILBUR R. PORTER, Comdr., USC&GS

LIBRARY & ARCHIVES

DATE JUNE 5, 1950

DEPARTMENT OF COMMERCE
U.S. COAST AND GEODETIC SURVEY

REG. NO.

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Scale 1:10,000 Date of survey 27 March - 18 April, 1950

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Chief of party WILBUR R. PORTER, Comdr., USC&GS

Surveyed by Ens. C. S. Rozal

Inked by Arsenio Malay

Heights in feet above.....to ground to tops of trees

Contour, Approximate contour, Form line interval.....feet

Instructions dated CS-7 1 March, 1950

Remarks:.....

DESCRIPTIVE REPORT TO ACCOMPANY

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I. REMARKS AND RECOMMENDATION:

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Respectfully submitted,

/s/ CALIXTO S. ROZAL
Ensign, C&GS

Encl:

1. List of planetable positions
2. List of located wrecks
3. Description of recoverable topographic stations

APPROVED:AND FORWARDED:

/s/ WILBUR R. PORTER
Comdr., USC&GS
Cond'g Ship TULIP

LIST OF PLANE TABLE POSITIONS

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5. Sin	14° 47'	1267.9: (576.1):	120° 15'	322.7: (1471.6):	White wash on foremast of wreck
6. Now	14° 47'	747.6: (1096.4):	120° 15'	1341.6: (452.7):	White wash on tree trunk
7. Mid	14° 47'	718.4: (1125.6):	120° 15'	1175.2: (619.1):	Mast of LST wreck
8. Dix	14° 47'	654.5: (1189.5):	120° 15'	1226.1: (568.2):	Banner on pole
9. Abe	14° 47'	699.6: (1144.4):	120° 15'	1362.1: (432.2):	Mast on LCI wreck
10. Fun	14° 47'	214.1: (1629.9):	120° 15'	1404.4: (389.9):	White wash on funnel of wreck
11. Lie	14° 47'	313.9: (1530.1):	120° 16'	13.1: (1781.2):	White wash on rock
12. Arm	14° 47'	286.4: (1557.6):	120° 16'	362.9: (1431.4):	White wash on rock
13. Cow	14° 47'	197.9: (1646.1):	120° 16'	308.9: (1485.4):	Banner on tree
14. Ana	14° 47'	228.1: (1615.9):	120° 16'	433.4: (1360.9):	White wash on bow of IST wreck
15. Egg	14° 47'	46.9: (1797.1):	120° 16'	382.5: (1411.8):	Banner on pole
16. Pin	14° 47'	227.5: (1616.5):	120° 16'	565.8: (1228.5):	White wash on rock
17. Sad	14° 47'	144.1: (1699.9):	120° 16'	572.3: (1222.0):	White wash on bow of LCI wreck
18. Mil	14° 47'	101.9: (1742.1):	120° 16'	688.0: (1106.3):	White wash on bow of LCI wreck

Object:	Latitude:	D.M. :	Longitude:	D.P. :	Remark & Description
		Meters:		Meters:	
19.Den:	14° 47'	120.7: (1723.3):	120° 16'	786.2: (1008.1):	White wash on bow of LCI wreck
20.Out:	14° 47'	128.1: (1715.9):	120° 16'	961.7: (832.6):	Banner on tree trunk
21.Aim:	14° 47'	25.0: (1819.0):	120° 16'	1217.3: (1577.0):	White wash on tree trunk
22.Cam:	14° 46'	1726.4: (117.6):	120° 16'	1210.2: (584.3):	White wash on beached pon-toon
23.Put:	14° 46'	1637.1: (206.9):	120° 16'	1503.1: (291.4):	White wash on beached pon-toon
24.Dim:	14° 46'	1444.5: (399.5):	120° 16'	1240.7: (553.8):	White wash on tree trunk
25.Mug:	14° 46'	1361.2: (482.8):	120° 16'	964.9: (829.6):	White wash on rock
26.Ban:	14° 46'	1381.7: (462.3):	120° 16'	707.7: (1086.8):	Banner on fish trap
27.Leo:	14° 46'	1334.4: (509.6):	120° 16'	116.9: (1677.6):	Banner on fish trap
28.Met:	14° 46'	1144.7: (699.3):	120° 15'	1558.3: (236.2):	White wash on rock
29.Ran:	14° 46'	991.2: (852.8):	120° 15'	949.6: (844.9):	Banner on fish trap
30.Tub:	14° 46'	1022.1: (821.9):	120° 15'	361.0: (1433.5):	White wash on LCVP wreck
31.Bat:	14° 46'	839.4: (1004.6):	120° 15'	530.8: (1263.7):	White banner on fish trap
32.Axe:	14° 46'	754.7: (1089.3):	120° 15'	740.0: (1054.5):	White wash on rock
33.Cab:	14° 46'	615.4: (1228.6):	120° 15'	451.1: (1343.4):	White wash on rock
34.Naba:	14° 46'	572.9: (1271.1):	120° 15'	454.7: (1339.8):	White wash on rock
35.Joy:	14° 46'	319.4: (1524.6):	120° 15'	1085.3: (709.2):	North gable of house
36.Set:	14° 46'	276.9: (1567.1):	120° 15'	482.4: (1312.1):	White banner on fish trap

Object	Latitude: D.M.	Longitude: D.P.	Remarks & Description
	:Meters :	:Meters :	
37. Owl:	14° 46' : 258.2 : :(1585.8):	120° 15' : 795.9 : :(998.6):	White banner on fish trap
38. Rig:	14° 46' : 71.3 : :(1772.7):	120° 15' : 1058.6 : :(735.9):	West gable of house
39. Ski:	14° 45' : 1692.2* : :(151.8):	120° 15' : 99.8 : :(1694.8):	East gable of red roofed house
40. Toy:	14° 46' : 208.0 : :(1636.0):	120° 14' : 1376.3 : :(418.2):	White wash on cowl of wreck
41. War:	14° 45' : 1813.4* : :(30.6):	120° 14' : 1538.7 : :(255.9):	White wash on stranded buoy
42. Big:	14° 45' : 1746.2* : :(97.8):	120° 14' : 938.1 : :(856.5):	Center of stranded lighted buoy
43. Quo:	14° 45' : 1623.3* : :(220.7):	120° 14' : 969.3 : :(825.3):	North end of quonset hut on barge
44. Tri:	14° 45' : 1393.0* : :(451.0):	120° 14' : 799.4 : :(995.2):	Trunk of biggest tree SW of Camayan 2
45. Kay:	14° 45' : 1375.1* : :(468.9):	120° 14' : 733.7 : :(1060.9):	White wash on rock
46. Lor:	14° 45' : 1131.2* : :(712.8):	120° 14' : 1233.5 : :(561.1):	White wash on rock
47. Lam:	14° 45' : 641.9* : :(1202.1):	120° 14' : 1544.5 : :(250.1):	White banner on tree
48. Who:	14° 46' : 1175.6 : :(668.4):	120° 13' : 744.9 : :(1049.6):	White wash at end of rip-rap
49. Yak:	14° 46' : 979.6 : :(864.4):	120° 13' : 1243.8 : :(550.7):	White banner on dolphin at NE corner of concrete pier
50. Lax:	14° 46' : 892.8 : :(951.2):	120° 13' : 1006.3 : :(788.2):	East gable of ruined concrete building
51. Dot:	14° 46' : 889.0 : :(955.0):	120° 13' : 1203.9 : :(590.6):	White wash on concrete base of cannon
52. Mel:	14° 46' : 616.9 : :(1227.1):	120° 13' : 1687.8 : :(106.7):	White banner on fish trap

Object	Latitude	D.M.	Longitude	D.P.	Remarks & Description
		Meters		Meters	
53. Fat:	14° 46'	506.9	120° 13'	1309.0	White wash on rock
		(1337.3)		(485.5)	
54. F. Pole:	14° 46'	564.0	120° 13'	948.4	Flag Pole
		(1280.0)		(846.1)	
55. Red:	14° 46'	841.4	120° 13'	592.7	White wash on rock
		(1002.6)		(1201.8)	
56. Dog:	14° 46'	301.6	120° 13'	588.5	White wash on rock
		(1542.4)		(1206.0)	
57. Fed:	14° 46'	239.2	120° 13'	809.3	White wash on rock
		(1604.8)		(985.2)	
58. Gem:	14° 45'	1713.2	120° 13'	833.4	White wash on rock
		(130.8)		(961.2)	
59. Old:	14° 45'	1545.8*	120° 13'	652.2	White wash on rock
		(298.2)		(1142.4)	

Note: (*) Backward
Deduced

Tabulated by: C.S. Rozal

Checked by: A.G. Jardiolin

Copy Checked by: C.S.R.

LIST OF LOCATED WRECKS

Object	Latitude	DM	Longitude	DP	Remarks
		Meters		Meters	
Barge	14° 46'	(1010.0): 834.0	120° 13'	(527.3): 1267.2	Center of wreck
LCI	14° 46'	(1035.7): 808.3	120° 13'	(524.8): 1269.7	" " "
Ship	14° 46'	(1651.7): 192.3	120° 14'	(411.2): 1383.3	" " "
Pontoon	14° 46'	(126.0): 1718.0	120° 16'	(559.5): 1235.0	" " "
Pontoon	14° 46'	(127.3): 1716.7	120° 16'	(527.1): 1267.4	" " "
LCI	14° 47'	(1661.7): 182.3	120° 16'	(1522.7): 271.6	" " "
LCI	14° 47'	(1467.7): 376.3	120° 15'	(42.8): 1751.5	" " "
LCI	14° 47'	(1319.3): 524.7	120° 15'	(215.3): 1579.0	" " "
LCI	14° 47'	(1357.8): 486.2	120° 15'	(229.0): 1565.3	" " "
Ship	14° 47'	(1615.0): 229.0	120° 15'	(371.9): 1422.4	" " "
LCI	14° 47'	(1144.4): 699.6	120° 15'	(432.2): 1362.1	" " "
LST	14° 47'	(1149.2): 694.8	120° 15'	(599.5): 1194.8	" " "
Ship	14° 47'	(576.8): 1267.2	120° 15'	(1479.5): 314.8	" " "
Pnntoon	14° 47'	(1224.1): 619.9	120° 15'	(410.8): 1383.5	" " "
Pontoon	14° 47'	(1165.2): 678.8	120° 15'	(394.9): 1399.4	" " "
Barge with: Quonset	14° 46'	(251.7): 1592.5*	120° 14'	(872.6): 921.9	" " "
Barge with: Quonset	14° 46'	(229.3): 1614.7*	120° 14'	(828.0): 966.5	" " "

* Deduced

Sealed & tabulated by C.S.R.
 Checked by A.G.J.
 Copy checked by C.S.R.

Sketch for shoreline and air photograph reference distances and reference points:

Sheet No. TU-D-50

Datum

Lat.	14	46	572.
14	46	572.	

Long. 120 15 454.7

feet

ographic plot

NABASAN PT.

REFERENCE POINTS IDENTIFIABLE ON AIR PHOTOGRAPHS

Above distances measured by:

REFERENCES: Topographic Manual, paragraphs 16, 29, 30, 57, and page 52; Hydrographic Manual, 2351.

A hand-drawn map of the study area. The map is oriented with North (N) at the top. A dashed line runs vertically through the center. Locations are marked with circles and labeled: 'Red' on the left, 'Lax' in the center, 'F. Pole' on the right, 'Yak' at the top left, 'Dot' at the top center, and 'Fat' at the top right. A square labeled 'former gun battery' is located near 'F. Pole'. A small 'A' is at the bottom left corner.

16-21082-3 APC

ORIGINAL

Form 504	
U. S. COAST AND GEODETIC SURVEY	
DEPARTMENT OF COMMERCE	
7 DESCRIPTIVE REPORT	
Type of Survey	TOPOGRAPHIC
Field No.	TU-D-50
Office No.	T-7081
LOCALITY	
State	Philippines
General locality	West Coast of Luzon
Locality	Subic Bay, Zambales Province
<u>194 50</u>	
CHIEF OF PARTY	
WILBUR R. PORTER, Comdr., USC&GS	
LIBRARY & ARCHIVES	
DATE	JUN 5 1950

DEPARTMENT OF COMMERCE
U. S. COAST AND GEODETIC SURVEY

TOPOGRAPHIC TITLE SHEET

Each Topographic and Graphic Control Sheet, and each Air Photographic Drawing should be accompanied by this form, completed so far as practicable, when forwarded to the Washington office.

Registry No. _____

Field No. TU-D-50Scale 1:10,000State Philippines General locality West Coast of LuzonSpecific locality Subic BayDates: Survey began 27 March 1950 Completed 18 April 1950

Photography _____, Supplemented by ground surveys to _____

Project No. CS-7 Instructions dated 1 March 1950Vessel } or TULIP Chief of party WILBUR R. PORTER, Comdr., USCGC
Party }Field work by Ens. C. S. Rozal Office work by Ensign Calixto S. RozalFinal inking by Arsenio MalayGround elevations } in feet above { M. H. W.
Treetop elevations } or { _____Contours } by { Planetable } Interval _____ ft.
Approximate contours } { Multiplex }
Form lines } { _____ }REMARKS _____

DESCRIPTIVE REPORT TO ACCOMPANY

TOPOGRAPHIC SHEET TU-D-50

A. AUTHORITY:

Project instructions, Project CS-7(US) dated 1 March 1950 from the Director of Coast Surveys, Manila Field Station addressed to Commanding Officer, Ship Tulip.

B. PURPOSE:

This survey was executed to revise the topographic features of Subic Bay and to locate signals to be used as control for hydrography.

C. SURVEY LIMITS AND DATES:

The limits for this sheet is that part of the east shore of Subic Bay from latitude $14^{\circ} 45.4$ to latitude $14^{\circ} 48.4$ and from longitude $120^{\circ} 13.0$ to longitude $120^{\circ} 17.0$. The survey was started on 27 March 1950 and was finished on 18 April 1950.

D. CONTROL:

The following triangulation stations were used as control in the survey:

CAMAYAN 2, 1947	CHIQUITA BEACON, 1908, 1947
CUBI 2, 1947	GRANDE LIGHT HOUSE, 1947
GRANDE 2, 1947	MAST, 1950 (Traverse)
TRIB, 1950	BOA, 1950

E. INSTRUMENTS:

A standard U.S. Coast and Geodetic Survey planetable and equipment, alidade No. 133, a pair of stadia rods graduated for this particular alidade and declinoire No. 133 were used in this survey.

F. SURVEY METHODS:

Standard topographic procedure was used throughout the survey. The stations for hydrography were located by either cuts from triangulation stations, or by 3-point fix, or by stadia distances with a check cut from a triangulation station or a 3-point fix station.

Topographic features were all located by stadia distances from either triangulation stations, or 3-point fix stations or traverses.

The traverse run around Grande Island and Chiquita Island had an error of closure which is more than the prescribed maximum limit and a re-run was made. The errors of closure in the re-run and in all other traverses were found negligible and no adjustment was found necessary. Junctions with Sheet TU-C-50 on the west and Sheet TU-B-50 on the north were satisfactory.

G. COMPARISON WITH PREVIOUS SURVEY:

Comparison was made with H.O. Anchorage Chart BO, 1948 Edition.

The shoreline has changed appreciably especially at the different points where the shore has been shifted to as much as 125 meters toward the land. The greatest shifting of the shoreline was found at Apalant Point and at Nabasan Point. There is only a slight change in the charted position of the sandy shore between topographic station Lam and topographic station Lor. A slight shifting toward the land was also found in the sandy shore between TRIB, 1950 and topographic station Nip.

The limits of the mangrove east of Apalant Point has shifted 30 meters toward the sea. A part of the eastern shore of Triboa Bay which was formerly covered by mangrove as shown on the chart is now clear. The mangrove might have been cleared by people who built huts in that vicinity. The mangrove on the eastern shore of Ilanin Bay and the wrecks on the northern part of Triboa Bay are not placed on the chart.

There is slight change in the shoreline of Grande Island and Chiquita Island. The sea wall on the eastern side of Grande Island as shown on the chart is longer by 110 meters than it should be. The pier appearing on the chart which is west of the existing concrete pier is no longer there. The existing concrete pier is no longer used.

H. GENERAL DESCRIPTION OF THE COAST:

Entering from seaward to Subic Bay, on the starboardside view are the steep sloping coasts of Chiquita Island and Grande Island covered with rocks and trees. Camayan Point is the most prominent point on the east side of the Bay. Hills and mountains covered with trees form the background. The shore on the east side of Subic Bay is generally rocky except those parts lined with mangroves and a small portion which is sandy. The sandy shore is between topographic station Lam and topographic station Lor and also between TRIB, 1950 and topographic station Nip.

Numerous fish traps which are temporary in nature are found near the shore.

LST, LCI and pontoon wrecks are found in the northern part of Triboa Bay.

I. REMARKS AND RECOMMENDATION:

At the start of the survey the plotted position of Camayan 2, 1947 was out on the topo sheet. Using Camayan 2, 1947 as one of the control in the traverse run around Grande Island and Chiquita Island, the error of closure was found out to be more than the prescribed limit. The position of Camayan 2, 1947 was replotted and checked before the station was used as control again. A re-run was made and the error of closure was found negligible. Due to limited time and difficulty of access the shoreline back of the mangroves were not located.

The shoreline is accurately located and the survey is deemed adequate to supercede prior surveys.

J. STATISTICS:

Number of topographic recoverable station - - - - -	2
Number of unrecoverable topographic stations - - - - -	57
Statute miles of low water line - - - - -	8.0
Statute miles of high water line - - - - -	8.0
Area in square statute miles - - - - -	13.4

Respectfully submitted,

Calixto S. Rozal
CALIXTO S. ROZAL
Ensign, C&GS

Incl:

1. List of planetable positions
2. List of located wrecks
3. Description of recoverable topographic stations

APPROVED AND FORWARDED:

Wilbur R. Porter
WILBUR R. PORTER
Comdr., USC&GS
Comdg. Ship TULIP

LIST OF PLANE TABLE POSITIONS

Object	Latitude		DM	Longitude		DP	Remark & Description
	o	'	Meters	o	'	Meters	
1. Nip	14	47	: 1737.1 :	120	15	: 1518.2 :	White wash on rock
			:(106.9):			:(276.1):	
2. Cat	14	47	: 1348.4 :	120	15	: 1653.8 :	White wash on beached
			:(495.6):			:(140.5):	pontoon
3. Tan	14	47	: 1153.4 :	120	15	: 1682.2 :	White wash on tree
			:(690.6):			:(112.1):	trunk
4. Far	14	47	: 1325.3 :	120	15	: 744.7 :	White banner on fish
			:(518.7):			:(1049.6):	trap
5. Sin	14	47	: 1267.9 :	120	15	: 322.7 :	White ^{***} on foremast of
			:(576.1):			:(1471.6):	wreck
6. Now	14	47	: 747.6 :	120	15	: 1341.6 :	White wash on tree
			:(1096.4):			:(452.7):	trunk
7. Mid	14	47	: 718.4 :	120	15	: 1175.2 :	Mast of LST wreck
			:(1125.6):			:(619.1):	
8. Dix	14	47	: 654.5 :	120	15	: 1226.1 :	Banner on pole
			:(1189.5):			:(568.2):	
9. Abe	14	47	: 699.6 :	120	15	: 1362.1 :	Mast of LCI wreck
			:(1144.4):			:(432.2):	
10. Fun	14	47	: 214.1 :	120	15	: 1404.4 :	White wash on funnel
			:(1629.9):			:(389.9):	of wreck
11. Lia	14	47	: 313.9 :	120	16	: 13.1 :	White wash on rock
			:(1530.1):			:(1781.2):	
12. Arm	14	47	: 286.4 :	120	16	: 362.9 :	White wash on rock
			:(1557.6):			:(1431.4):	
13. Cow	14	47	: 197.9 :	120	16	: 308.9 :	Banner on tree
			:(1646.1):			:(1485.4):	
14. Ana	14	47	: 228.1 :	120	16	: 433.4 :	White wash on bow
			:(1615.9):			:(1360.9):	of LST wreck
15. Egg	14	47	: 46.9 :	120	16	: 382.5 :	Banner on pole
			:(1797.1):			:(1411.8):	
16. Fin	14	47	: 227.5 :	120	16	: 565.8 :	White wash on rock
			:(1616.5):			:(1228.5):	
17. Sad	14	47	: 144.1 :	120	16	: 572.3 :	White wash on bow
			:(1699.9):			:(1222.0):	of LCI wreck
18. Mil	14	47	: 101.9 :	120	16	: 688.0 :	White wash on bow
			:(1742.1):			:(1106.3):	of LCI wreck
19. Den	14	47	: 120.7 :	120	16	: 786.2 :	White wash on bow
			:(1723.3):			:(1008.1):	of LCI wreck
20. Out	14	47	: 128.1 :	120	16	: 961.7 :	Banner on tree trunk
			:(1715.9):			:(832.6):	
21. Aim	14	47	: 25.0 :	120	16	: 1217.3 :	White wash on tree
			:(1819.0):			:(577.0):	trunk
22. Cam	14	46	: 1726.4 :	120	16	: 1210.2 :	White wash on beached
			:(117.6):			:(584.3):	pontoon
23. Put	14	46	: 1637.1 :	120	16	: 1503.1 :	White wash on beached
			:(206.9):			:(291.4):	pontoon
24. Dim	14	46	: 1444.5 :	120	16	: 1240.7 :	White wash on tree
			:(399.5):			:(553.8):	trunk
25. Mug	14	46	: 1361.2 :	120	16	: 964.9 :	White wash on rock
			:(482.8):			:(829.6):	
26. Ban	14	46	: 1381.7 :	120	16	: 707.7 :	Banner on fish trap
			:(462.3):			:(1086.8):	

Object	Latitude		DM	Longitude		DP	Remarks & Description
	: o	: ' : Meters		: o	: ' : Meters		
27. Leo	: 14	46	: 1334.4	: 120	16	: 116.9	: Banner on fish trap
	:		: (509.6)	:		: (1677.6)	:
28. Met	: 14	46	: 1144.7	: 120	15	: 1558.3	: White wash on rock
	:		: (699.3)	:		: (236.2)	:
29. Ran	: 14	46	: 991.2	: 120	15	: 949.6	: Banner on fish trap
	:		: (852.8)	:		: (844.9)	:
30. Tub	: 14	46	: 1022.1	: 120	15	: 361.0	: White wash on LCVP
	:		: (821.9)	:		: (1433.5)	: wreck
31. Bat	: 14	46	: 839.4	: 120	15	: 530.8	: White banner on
	:		: (1004.6)	:		: (1263.7)	: fish trap
32. Axe	: 14	46	: 754.7	: 120	15	: 740.0	: White wash on rock
	:		: (1089.3)	:		: (1054.5)	:
33. Cab	: 14	46	: 615.4	: 120	15	: 451.1	: White wash on rock
	:		: (1228.6)	:		: (1343.4)	:
34. Naba	: 14	46	: 572.9	: 120	15	: 454.7	: White wash on rock
	:		: (1271.1)	:		: (1339.8)	:
35. Joy	: 14	46	: 319.4	: 120	15	: 1085.3	: North gable of house
	:		: (1524.6)	:		: (709.2)	:
36. Set	: 14	46	: 276.9	: 120	15	: 482.4	: White banner on
	:		: (1567.1)	:		: (1312.1)	: fish trap
37. Owl	: 14	46	: 258.2	: 120	15	: 795.9	: White banner on
	:		: (1585.8)	:		: (998.6)	: fish trap
38. Rig	: 14	46	: 71.3	: 120	15	: 1058.6	: West gable of house
	:		: (1772.7)	:		: (735.9)	:
39. Ski	: 14	45	: 1692.2*	: 120	15	: 99.8	: East gable of red
	:		: (151.8)	:		: (1694.8)	: roofedhouse
40. Toy	: 14	46	: 208.0	: 120	14	: 1376.3	: White wash on cowl
	:		: (1636.0)	:		: (418.2)	: of wreck
41. War	: 14	45	: 1813.4*	: 120	14	: 1538.7	: White wash on
	:		: (30.6)	:		: (255.9)	: stranded buoy
42. Big	: 14	45	: 1746.2*	: 120	14	: 938.1	: Center of stranded
	:		: (97.8)	:		: (856.5)	: lighted buoy.
43. Quo	: 14	45	: 1623.3*	: 120	14	: 969.3	: North end of gounset
	:		: (220.7)	:		: (825.3)	: hut on barge.
44. Tri	: 14	45	: 1393.0*	: 120	14	: 799.4	: Trunk of biggest tree
	:		: (451.0)	:		: (995.2)	: SW of Δ Camayan 2.
45. Kay	: 14	45	: 1375.1*	: 120	14	: 733.7	: White wash on rock
	:		: (468.9)	:		: (1060.9)	:
46. Lor	: 14	45	: 1131.2*	: 120	14	: 1233.5	: White wash on rock
	:		: (712.8)	:		: (561.1)	:
47. Lam	: 14	45	: 641.9*	: 120	14	: 1544.5	: White banner on
	:		: (1202.1)	:		: (250.1)	: tree
48. Who	: 14	46	: 1175.6	: 120	13	: 744.9	: White wash at end
	:		: (668.4)	:		: (1049.6)	: of rip-rap.
49. Yak	: 14	46	: 979.6	: 120	13	: 1243.8	: White banner on dolo
	:		: (864.4)	:		: (550.7)	: hin at NE corner of concrete pier.
50. Lax	: 14	46	: 892.8	: 120	13	: 1006.3	: East gable of ruined
	:		: (951.2)	:		: (788.2)	: concrete building.
51. Dot	: 14	46	: 889.0	: 120	13	: 1203.9	: White wash on con-
	:		: (955.0)	:		: (590.6)	: crete base of cannon

Object	:Latitude o	: DM ' Meters	: Longitude o	: DP ' Meters	: Remarks & Description
52. Mel	: 14 46	: 616.9	: 120 13	: 1687.8	: White banner on
	:	:(1227.1)	:	:(106.7)	: fish trap.
53. Fat	: 14 46	: 506.7	: 120 13	: 1309.0	: White wash on
	:	:(1337.3)	:	:(485.5)	: rock
54. F. Pole	: 14 46	: 564.0	: 120 13	: 948.4	: Flag Pole
	:	:(1280.0)	:	:(846.1)	:
55. Red	: 14 46	: 841.4	: 120 13	: 592.7	: White wash on
	:	:(1002.6)	:	:(1201.8)	: rock
56. Dog	: 14 46	: 301.6	: 120 13	: 588.5	: White wash on
	:	:(1542.4)	:	:(1206.0)	: rock
57. Fed	: 14 46	: 239.2	: 120 13	: 809.3	: White wash on
	:	:(1604.8)	:	:(985.2)	: rock
58. Gem	: 14 45	: 1713.2*	: 120 13	: 833.4	: White wash on
	:	:(130.8)	:	:(961.2)	: rock
59. Old	: 14 45	: 1545.8*	: 120 13	: 652.2	: White wash on
	:	:(298.2)	:	:(1142.4)	: rock

Note: () Backward
* Deduced

Tabulated by: C.S. Roza 1

Checked By: A.G. Jardioli

Copy Checked by: C.S.R.

LIST OF LOCATED WRECKS

Object	: Latitude	: DM	: Longitude	: DP	: Remarks
	o	: Meters	o	: Meters	
Barge	: 14 46	:(1010.0):	120 13	:(527.3)	: Center of wreck
	:	: 834.0 :		:1267.2 :	
LCI	: 14 46	:(1035.7):	120 13	:(524.8)	: " " "
	:	: 808.3 :		:1269.7 :	
Ship	: 14 46	:(1651.7):	120 14	:(411.2)	: " " "
	:	:192.3 :		:1383.3 :	
Pontoon	: 14 46	:(126.0):	120 16	:(559.5)	: " " "
	:	:1718.0 :		:1235.0 :	
Pontoon	: 14 46	:(127.3):	120 16	:(527.1)	: " " "
	:	:1716.7 :		:1267.4 :	
LCI	: 14 47	:(1661.7):	120 16	:(1522.7)	: " " "
	:	: 182.3 :		: 271.6 :	
LCI	: 14 47	:(1467.7):	120 15	:(42.8)	: " " "
	:	: 376.3 :		:1751.5 :	
LCI	: 14 47	:(1319.3):	120 15	:(215.3)	: " " "
	:	: 524.7 :		:1579.0 :	
LCI	: 14 47	:(1357.8):	120 15	:(229.0)	: " " "
	:	: 486.2 :		:1565.3 :	
Ship	: 14 47	:(1615.0):	120 15	:(371.9)	: " " "
	:	: 229.0 :		:1422.4 :	
LCI	: 14 47	:(1144.4):	120 15	:(432.2)	: " " "
	:	: 699.6 :		:1362.1 :	
LST	: 14 47	:(1149.2):	120 15	:(599.5)	: " " "
	:	: 694.8 :		:1194.8 :	
Ship	: 14 47	:(576.8):	120 15	:(1479.5)	: " " "
	:	:1267.2 :		: 314.8 :	
Pontoon	: 14 47	:(1224.1):	120 15	:(410.8)	: " " "
	:	: 619.9 :		:1383.5 :	
Pontoon	: 14 47	:(1165.2):	120 15	:(394.9)	: " " "
	:	: 678.8 :		:1399.4 :	
Barge with Quonset	: 14 46	:(251.7):	120 14	:(872.6)	: " " "
	:	:1592.3* :		: 921.9 :	
Barge with Quonset	: 14 46	:(229.3):	120 14	:(828.0)	: " " "
	:	:1614.7* :		: 966.5 :	

* Deduced

Scaled & tabulated by C. S. R.

Checked by A.G.J.

Copy checked by C.S.R.

DESCRIPTION OF RECOVERABLE TOPOGRAPHIC STATION

Name NABA (Navy 1939)

Year 1950

Sketch for shoreline and air photograph reference

General locality Luzon, P.I.

Sheet No. TU-D-50

distances and reference points:

Locality Subic Bay

Datum

Chief of party W. R. Porter

Lat. 14 ' 46 ' 572.9 Meters

Scaled by C.S.R.

Long. 120 15 454.7

Checked by A.G.J.

Approximate elevation above high-water mark 2.0 feet

Location method: Planetable, Sextant, Theodolite, Air photographic plot

Detailed description: On the west coast of Luzon, in Subic

Bay, at Nabasan Point, east of Grande Island on a

rock 10 feet in diameter and about 2 feet above H.W.

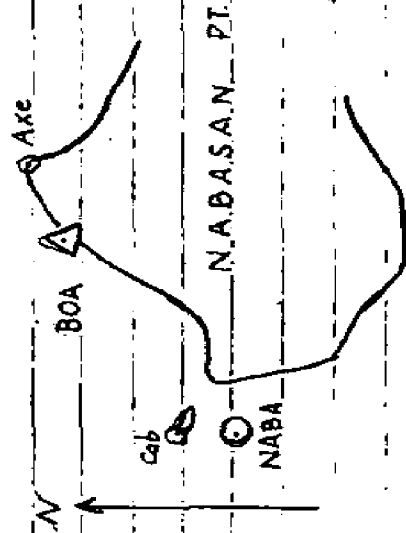
Station is a porcelain insulator 3/4 inch in diameter

cemented in a drill hole and surrounded with a cement

patty. NABA 1939 is inscribed on the cement patty.

Station is 35 meters south of a small island west of

Nabasan Point.



SHORELINE REFERENCE DISTANCES

Object	Distance in meters	Direction	Azimuth
		00° 00'	

REFERENCE POINTS IDENTIFIABLE ON AIR PHOTOGRAPHS

Object	Distance in meters	Direction	Azimuth
		00° 00'	

Distances must be horizontal distances actually measured on the ground—not scaled.

Above distances measured by:

REFERENCES: Topographic Manual, paragraphs 164, 29, 30, 57, and page 52; Hydrographic Manual, 2451.

Year 1950

Sketch for shoreline and air photograph reference
distances and reference points:

General locality Luzon, P.I.

Sheet No. TU-D-50

Locality

Datum

Chief of party **W. R. Porter**

Motors

Scaled by C.S.R.

0.795 97 77

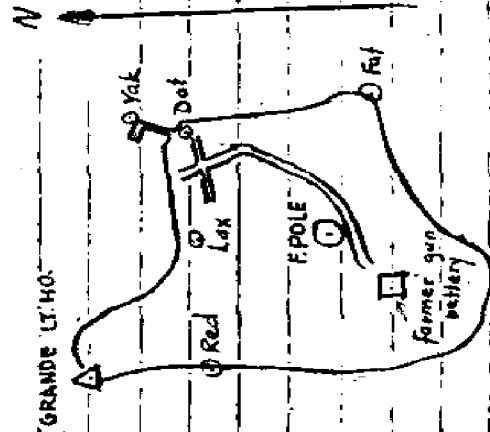
Checked by A. G. J.

02 13 7.876 7

Approximate elevation above high-water mark . feet

feet

Location method: Planetable, Sextant, Theodolite, Air photographic plot



Detailed description: On the west coast of Luzon, in Subic Bay

at Grande Island, about 670 meters southeast of Grande Light House, and 200 meters northeast by east of the former gun battery located at the highest portion of the island. Station is a steel flagpole mounted on a concrete foundation 25 meters north of the old road leading to the gun battery.

[illegible]

Distances must be horizontal distances actually measured on the ground—not scaled.

Above distances measured by:

REFERENCES: Topographic Manual, paragraphs 16, 29, 30, 57, and page 52; Hydrographic Manual, 2351.