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ENGINEER INTELLIGENCE STUDY

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THE PORT OF POTI, USSR (U)

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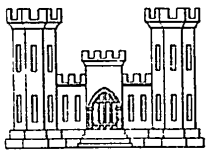

PREPARED UNDER THE DIRECTION OF THE
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PORT OF POTI, USSR

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ENGINEER INTELLIGENCE STUDY

PORT OF POTI, USSR

EXPLANATORY NOTES

Anchorages

Anchorages are given where appropriate in the following classes:

Class I	800-yard diameter	38-foot depth
Class II	500-yard diameter	30-foot depth
Class III	300-yard diameter	20-foot depth
Class IV	200-yard diameter	15-foot depth

Usable berthing space

Wharves with alongside depths of 5 feet or more at mean low water are the only facilities listed.

The following classification of wharf berths is used in this report:

Class B-type - (Large coaster) Length of 350 feet with depths of 19 to 24 feet alongside.

Class C-type - (Standard coaster) Length of 250 feet with depths of 16 to 19 feet alongside.

Lighter - Length of 100 feet with depths of 5 to 12 feet alongside.

Facilities included

Wharves known to handle general cargo, or believed to be suitable for handling general cargo, are listed as general cargo wharves. However, where there are minor facilities for handling grain, coal, or petroleum products on a general cargo wharf, the wharf is classified as a general cargo facility. When a wharf is used exclusively for fitting out, coal, grain, petroleum, repair, and other special uses, it is classified and tabulated as such.

EXPLANATORY NOTES-Continued

Distances

Unless otherwise stated, distances are expressed in yards or nautical miles.

Depths of water and heights above water

Expressed in feet. In presenting navigation and construction features, depths of water and heights above water are in terms of chart datum (zero tide).

Construction details

Expressed in feet or meters. Slopes of embankments, breakwaters, etc. are expressed in the text in terms of the horizontal base to the vertical rise as 3 to 1 or 4 to 3.

Harbor areas

For less than 1 square nautical mile, areas are listed in acres. Over 850 acres, the areas are listed in terms of square nautical miles.

Covered storage space

The total area in warehouses, transit sheds, and similar structures is given in square feet of floor area. No deduction is made for aisle, fire, elevator, or other such space.

Place names

The latest available designation for places and areas is given. English terms for words such as wharf, bay, canal, and basin have been given preference.

Estimated unloading military capacity

The estimated unloading military capacity of a port is determined on the following basis:

One long (2,240-pound) ton of general cargo handled in a 20-hour day for each linear foot of usable general cargo wharf.

EXPLANATORY NOTES-Continued

However, this estimate has been reduced in some cases to compensate for local conditions which restrict cargo handling operations.

Potentialities for expansion

Description of the expansion possibilities of the port to increase the military discharge capacity. The phased program to be used as a guide for planning purposes is as follows:

Phase I - The repair, improvement, and modernization of existing facilities, including minor dredging.

Phase II - Improvements such as the construction of additions or extensions to existing wharves or piers, including dredging requirements.

Phase III - Suggestions for the location of new piers or wharves.

Points of vulnerability

The points of vulnerability in the port are those which if rendered useless by any means, in whole or in part, would adversely affect the present and ultimate capacity of the port.

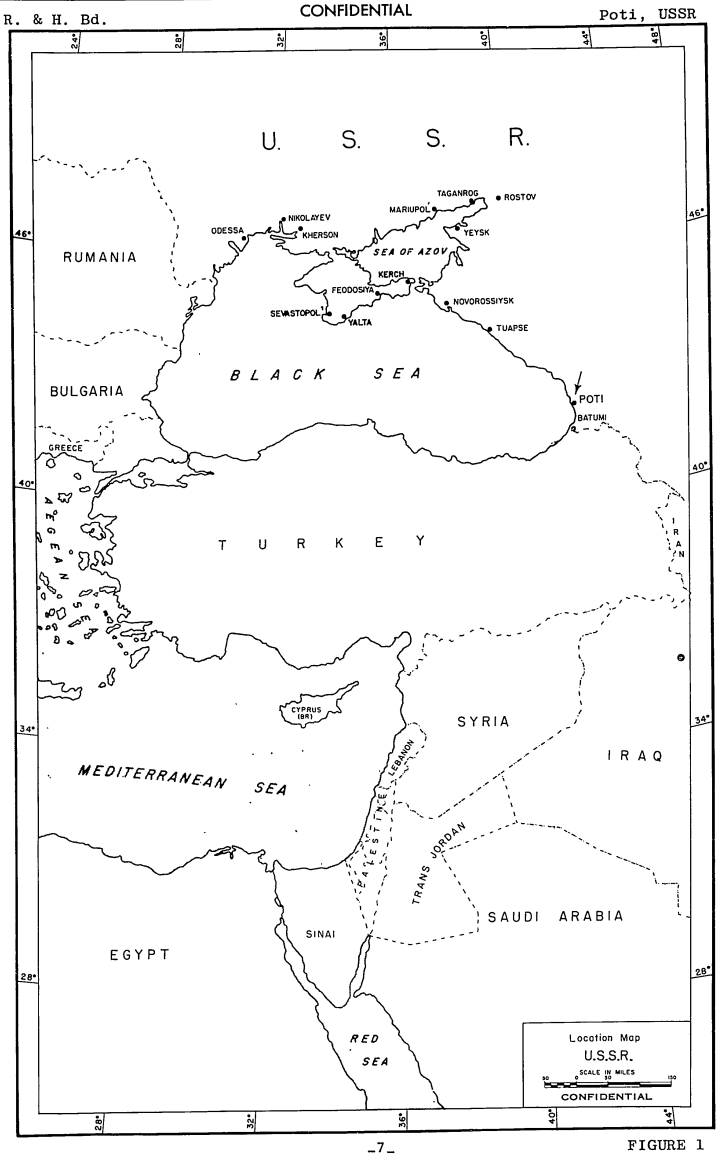


FIGURE 1

R. & H. Bd. Poti, USSR

Uncontrolled aerial view showing port area of Poti, USSR.

1944

FIGURE 2

R. & H. Bd.

POTI, USSR

(42°09'N, 41°39'E)

1. Introduction

Poti is located on the eastern part of the Black Sea coast about 40 miles northward of the Turkish border. (Figure 1) The port lies just northward of the north mouth of the Rion River, and the city proper is southward of the port on Bol'shoy Island (Ostrov Bol'shoy), an island which forms part of the delta of the Rion River. The principal industries are the export of manganese ore and the transshipment of general cargo. The population was about 20,000 in 1948. The port serves as a naval base for submarines and surface vessels.

2. Harbor

a. Summary

The harbor at Poti is artificially formed by 2 breakwaters and is afforded no appreciable natural protection. The total water area within the breakwaters is about 160 acres with general depths of 26 to 28 feet. Outer Harbor, an area under development, is separated from Inner Harbor by North Mole. Inner Harbor is comprised of North Harbor, Inner Basin, and South Harbor. Inner Basin, an eastern extension of North Harbor, is the center of port activity. (Figure 2)

b. Approaches

The harbor is entered directly from the Black Sea. Depths of greater than 60 feet with no obstructions exist within 2 miles of the port. The western side of Bol'shoy Island is fringed by shoals with depths of less than 30 feet. Adequate navigation aids and pilotage are available.

c. Entrances

The entrance channel to Outer Harbor between the breakwaters is periodically dredged to a depth of 29.5 feet, and a bottom width of about 93 yards extends from the northern portion of the entrance through Outer Harbor to Inner Harbor. A distance of about 290 yards exists between the breakwaters at the entrance.

d. Breakwaters and other protective works

South Breakwater extends from the northern side of the north mouth of the Rion River in a western direction for about 550 yards and then in a northern direction for about 1,300 yards. The outer 880 yards is riprap construction, and the inner portion is masonry quayed with a parapet on the outer side. A 5-foot-gage track extends about 800 yards from the root. The breakwater is used for stern mooring, but it is too narrow for cargo purposes. (Figures 3 and 5)

North Breakwater extends westward from a position on the mainland about 1,200 yards northward of the root of South Breakwater. It extends westward for about 350 yards, then southwestward for about 125 yards. The outer 180 yards is riprap and the inner part is rubble covered with concrete.

A newly constructed inner breakwater extends southward from a position near the midpoint of North Breakwater to North Mole Quay (Ref.7), with the exception of an opening about one-third the total span. It is constructed of stones and concrete blocks placed in a steel frame.

e. Dimensions, shape, and water area of each basin

Outer Harbor, irregular in shape and divided by the recently constructed inner breakwater, has a water area of

View of South Breakwater opposite Middle Mole Pier (wharf Ref. 2). Vulnerability point No. 1.

1954 50X1

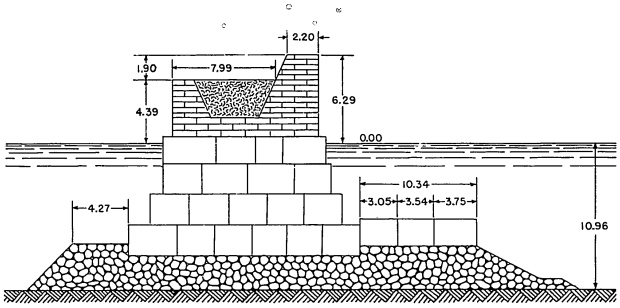
R. & H. Bd. Poti, USSR

View looking W at entrance to Inner Basin. Vulnerability point No. 2.

1946

FIGURE 4

R. & H. Bd Poti, USSR



Diagrammatic sketch of cross section of middle portion of South Breakwater. Dimensions in meters.

50X1

FIGURE 5

about 55 acres and includes the harbor area northward of North Mole and eastward of South Breakwater. Central depths range from 29 to 18 feet. Outer Harbor, which is currently under development, serves as a fairway to Inner Harbor and provides berthing for naval vessels at recently constructed piers and at bow and stern moorings.

Inner Harbor with a total water area of about 105 acres consists of North Harbor, Inner Basin, and South Harbor.

North Harbor is rectangular in shape with a length of about 600 yards and a width of about 260 yards. Its uses are the handling of manganese ore, coal, and general cargo, the bunkering of oil and coal, the transfer of passengers, and the berthing of naval vessels. Central depths range from 28 to 22 feet.

Inner Basin, an eastern extension of North Harbor, is irregularly shaped with a water area of about 18 acres. It is used for the handling of manganese ore and general cargo, the berthing of naval vessels, and for ship repair and shipbuilding. It is entered through a channel 70 yards wide and 26 feet deep. In 1954 the central depth was 26.5 feet. (Figure 4)

South Harbor is irregularly shaped with a water area of about 47 acres and central depths of 26 to 18 feet. It is used for general cargo, grain, and the mooring of naval vessels.

f. Liability to silting, dredging required, composition of bottom

A series of northwesterly gales may silt Outer Harbor and decrease depths as much as 1.5 feet throughout the harbor. Periodic dredging is required to maintain a depth of

29.5 feet in the entrance channel. The bottom along the shoreline consists of a band of sand, with the remainder mainly mud except for an area of ooze off Poti harbor.

g. Bridges and other obstructions crossing navigable parts of the harbor

There are no obstructions to navigation in the harbor area except for movable entrance barrier nets, supported by cylindrical buoys between the outer ends of South Breakwater and North Breakwater, and between North Mole and a position opposite on South Breakwater.

H. Anchorages

Anchorages may be taken in depths of 72 to 90 feet over an ooze, mud, and sand bottom in the open roadstead west-southwestward of South Breakwater. The area available is unlimited, but it is unsheltered. Within the harbor vessels moor stern-to to the inner side of South Breakwater. Several mooring buoys are within the harbor.

i. Hydrographic conditions affecting navigation

Tides are negligible, but the water level varies about 1.7 feet above and below mean sea level from other causes. Westerly winds raise the water level, and easterly winds lower it. Short period oscillations (seiches) can raise the water level as much as 2.9 feet within an hour, and over longer intervals the water level may fluctuate as much as 3.3 feet. During gales from the westward and northwestward the harbor is inaccessible. Ice conditions do not interfere with port operations.

3. Wharves

a. Summary

The wharves usable for general cargo transfer are

situated principally in Inner Harbor, and about one-half of that wharfage is situated in Inner Basin. The manganese and coal wharves extending along the northern side of Inner Basin are suitable for general cargo purposes; however, the eastern side of Inner Basin is not quayed and is used only for naval repair functions. North Harbor has cargo quays along the southern side of North Mole Quay (Ref. 7), and along the northern side of Middle Mole Pier (Ref. 2). South Harbor includes Grain Quay (Ref. 1) and the southern side of Middle Mole Pier. Outer Harbor is used for berthing naval vessels.

b. Types of wharf facilities

The wharves throughout the port are quay type with stone masonry wall retaining solid fill, except the newly constructed naval wharves in Outer Harbor which are of unknown construction.

c. Wharfage by usage, by depths

There is a total of 8,046 linear feet of usable berthing space which provides 6,820 linear feet usable for general cargo. These wharves by use and depths are shown in the tabularion on the following page.

29.5 feet in the entrance channel. The bottom along the shoreline consists of a band of sand, with the remainder mainly mud except for an area of ooze off Poti harbor.

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c. Wharf footage by usage, by depths

There is a total of 8,045 linear feet of usable berthing space which provides 6,820 linear feet usable for general cargo. These wharves by use and depths are shown in the tabulation on the following page.

R. & H. Bd. — Poti, USSR

Usable Berthing Space (feet)	Depths Alongside (feet)	Total No. of Berths (by class)
	COMMERCIAL	
	General Cargo	
3,480	18 to 22	8 - B 2 - C 1 lighter
	Manganese Ore and Coal*	
2,990	19 to 24	6 - B 2 - C 2 lighters
	Grain*	
350	22	1 - B
6,820		
	NAVAL	
875	19 and over	...
350	7 and over	...
1,225		
8,045		

* Indicates usable for general cargo.

d. Vessel accommodation by class at commercial wharves

The wharves provide accommodation for 15 Class B, 4 Class C, and 3 lighters.

e. Estimated military port capacity

It is estimated that the port can unload 6,800 long tons of general cargo in a 20-hour day. A phased study of the expansion possibilities indicates the capacity could be increased about 3,500 long tons. (Par. 12)

R. & H. Bd. — Poti, USSR

f. Tabular details with sections and photos

The known details of piers and quays with photographs, where available, are shown in the table of Wharves under 10 reference numbers. These numbers are used to designate their locations on the port plan, Figure 18.

Wharves (Piers, Quays, etc.)

Details of Wharf	Grain Quay
Ref. on Port Plan	1
Use	Grain.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water (feet)	10
Dimensions (feet): Length overall	350
Usable berthing space	350
Depth alongside (MSL)	22
Width of apron	45
Berthing Capacity	1 Class B.
Transit Sheds (number): Construction	1 Masonry.
Dimensions (feet)	325 by 110
Number of floors	1
Total floor area (sq.ft.)	35,750
Handling Facilities	4 grain-loading spouts; elevated conveyor to grain storage facilities.
Railroad Facilities	Tracks (5'-gage) pass N end of quay.
Road Clearance	Truck access to shipside.
Utilities: Water	Hydrants on quay.
Electricity	Lighted.
Potentialities for Expansion	Under Phase II extend quay SW 150 ft.; dredge entire length of quay and approaches to 24 ft.
Remarks	Grain elevator located close SE of quay.

TABLE I

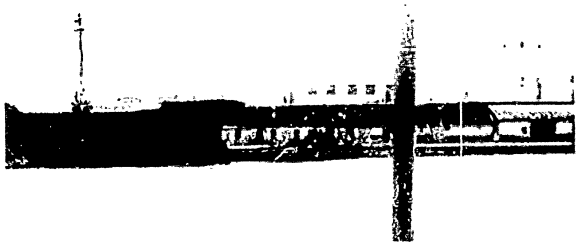
View looking SE at Grain Quay (wharf Ref. 1). Note grain-loading towers.

June 1946

50X1

FIGURE 6

R. & H. Bd. Poti, USSR



View looking S at northern side of Middle Mole Pier (wharf Ref. 2).

1954

FIGURE 7

R. & H. Bd. Poti, USSR

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	Middle Mole Pier		
Ref. on Port Plan	2		
Use	General cargo and passengers.		
Type and Construction	Quay; masonry wall retaining solid fill.		
Load Capacity of Deck	n a		
Height of Deck above Water (feet)	10		
Dimensions (feet):	S Side	Face	N Side
Length overall	790	330	850
Usable berthing space	700	330	700
Depth alongside (MSL)	22	22	20
Width of apron	30	30	20 to 30
Berthing Capacity	4 Class B, 1 Class C, 1 lighter.		
Transit Sheds (number):	2		
Construction	n a		
Dimensions (feet)	455 by 60; 725 by 60		
Number of floors	1		
Total floor area (sq.ft.)	70,800		
Handling Facilities	One 5-ton electric traveling portal jib crane on S side.		
Railroad Facilities	Track each side length of apron 10 ft. from coping; 2 tracks extend the length of center pier between sheds.		
Road Clearance	Truck access, paved roadway.		
Utilities:			
Water	Hydrants at 150-ft. intervals.		
Electricity	8 outlets, lighted.		
Potentialities for Expansion	Under Phase I dredge outer 500 ft. of N and S sides to 24 ft.; extend present 22-ft. depths to increase total usable berthing space, each side to 750 ft		
	A 1,100-ton cold storage plant is on the SW part of the pier.		

50X1

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	East Quay
Ref. on Port Plan	3
Use	Berthing naval vessels.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water	n a
Dimensions (feet):	
Length overall	350
Usable berthing space	350
Depths alongside	Over 7 ft.
Width of apron	n a
Berthing Capacity	...
Transit Sheds	None.
Handling Facilities	None.
Railroad Facilities	...
Road Clearance	Truck access.
Utilities:	
Water	Available.
Electricity	n a
Potentialities for Expansion	None.
Remarks	Partially deteriorated.

TABLE I

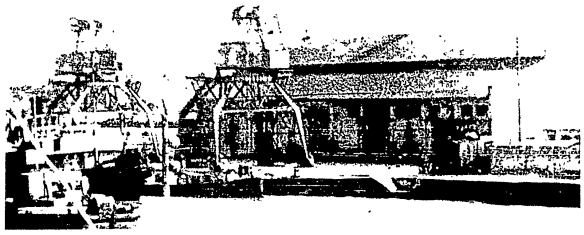
View looking S at East Quay (wharf Ref. 3). Note silo-type grain elevator at right.

1954

50X1

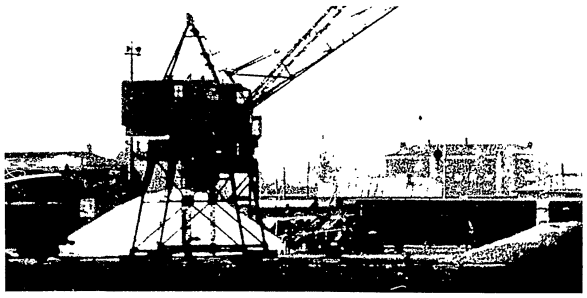
FIGURE 8

R. & H. Bd. Poti, USSR



View looking SE at outer part of South Quay (wharf Ref. 4). Note 5-ton cranes.

1954



View looking S at middle part of South Quay.

1954

FIGURE 9

R. & H. Bd. Poti, USSR

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	South Quay
Ref. on Port Plan	4
Use	General cargo and bunkering petroleum.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water (feet)	15
Dimensions (feet):	
Length overall	1,950
Usable berthing space	1,750
Depths alongside (MSL)	22 to 18
Width of apron	70
Berthing Capacity	4 Class B, 1 Class C.
Transit Sheds (number):	5
Construction	Masonry and wood.
Dimensions (feet)	625 by 60; 300 by 60; and 3 smaller.
Number of floors	1
Total floor area (sq. ft.)	83,000
Handling Facilities	Four 5-ton electric portal traveling jib cranes.
Railroad Facilities	2 flush tracks (5'-gage) length of apron, nearest 10 ft. from coping.
Road Clearance	Truck access, paved roadway.
Utilities:	
Water	Hydrants at 150-ft. intervals.
Electricity	8 outlets, lighted.
Potentialities for Expansion	Under Phase I dredge outer 1,750 ft. to 24 ft., and inner 200 ft. to 22 ft.
Remarks	Fuel oil is available; quantity and pipe connections not known.

50X1

50X1

TABLE I

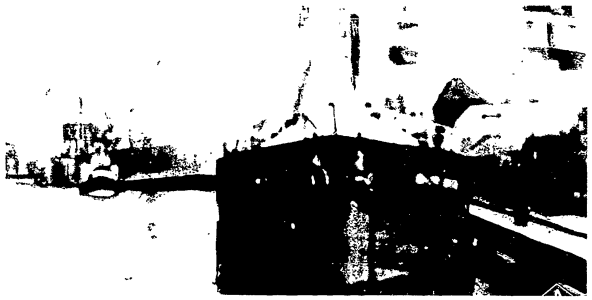
Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	North Quay
Ref. on Port Plan	5
Use	Manganese ore.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water (feet)	15
Dimensions (feet): Length overall	1,050
Usable berthing space	1,050
Depths alongside (MSL)	22 to 19
Width of apron	Open.
Berthing Capacity	2 Class B, 1 Class C, 1 lighter.
Transit Sheds	None.
Handling Facilities	Six 12.5-ton electric traveling portal jib cranes equipped with 7-ton grab buckets; ore loading rate 60 to 75 T/hr. each.
Railroad Facilities	Tracks (5'-gage) along stringpiece and in rear.
Road Clearance	Truck access.
Utilities: Water	Hydrants at 150-ft. intervals.
Electricity	5 outlets, lighted.
Potentialities for Expansion	Under Phase I dredge outer 1,000 ft. to 24 ft.
Remarks	6 acres of ore storage area on quay.

View looking E at North Quay (wharf Ref. 5). Note repair facilities at right of root of quay.

50X1

1954

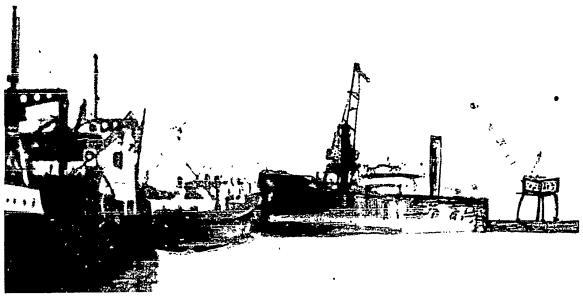


View looking W at North Quay. At left is Northwest Quay (wharf Ref. 6).

50X1

1953

R. & H. Bd. Poti, USSR



View looking NE at inner part of Northwest Quay (wharf Ref. 6). At right is North Quay (wharf Ref. 5).

1951

FIGURE 11

R. & H. Bd. Poti, USSR

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	Northwest Quay
Ref. on Port Plan	6
Use	Manganese ore.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water (feet)	10
Dimensions (feet):	
Length overall	720
Usable berthing space	700
Depth alongside (MSL)	24
Width of apron	Open.
Berthing Capacity	1 Class B, 1 Class C.
Transit Sheds	None.
Handling Facilities	Three 12.5-ton electric traveling portal jib cranes equipped with 7-ton grabs; ore loading rate 60 to 75 T/hr. each.
Railroad Facilities	2 flush tracks (5'-gage) length of apron, nearest track 10 ft. from coping; 2 tracks behind ore storage area.
Road Clearance	Truck access, paved roadway.
Utilities:	
Water	Hydrants at 150-ft. intervals.
Electricity	4 outlets, lighted.
Potentialities for Expansion	Under Phase I dredge entire berthing length to 24 ft.
Remarks	Ore stockpile in rear of pier served by a 3- to 5-ton electric traveling portal crane, and 3 mobile 3- to 5-ton cranes. Loading to draft of 27 ft. is accomplished by breasting vessel 12 ft. from quay. Quay in good state of repair.

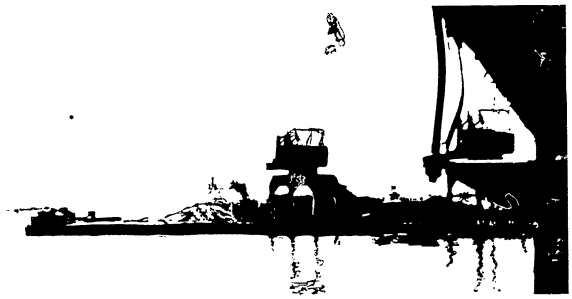
50X1

TABLE I

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	North Mole Quay
Ref. on Port Plan	7
Use	Manganese ore and coal.
Type and Construction	Quay; masonry wall retaining solid fill.
Load Capacity of Deck	n a
Height of Deck above Water (feet)	12
Dimensions (feet): Length overall	1,240
Usable berthing space	1,240
Depth alongside (MSL)	22
Width of apron	Open.
Berthing Capacity	3 Class B, 1 lighter.
Transit Sheds	None.
Handling Facilities	Four 12.5-ton electric traveling portal jib cranes with 7-ton grab buckets, 60 to 75 T/hr. each.
Railroad Facilities	2 flush tracks length of span.
Road Clearance	Truck access, paved roadway.
Utilities: Water	Hydrants at 150-ft. intervals.
Electricity	6 outlets.
Potentialities for Expansion	Under Phase I dredge outer 1,000 ft. to 24 ft.
Remarks	Fuel oil connections are on the quay.

TABLE I



View looking N at outer part of North Mole Quay (wharf Ref. 7). Note 12.5-ton traveling portal jib cranes.

1946 50X1

FIGURE 12

R. & H. Bd. Poti, USSR

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	South Naval Pier
Ref. on Port Plan	8
Use	Berthing naval vessels.
Type and Construction	Pier; construction unknown.
Load Capacity of Deck	n a
Height of Deck above Water	n a
Dimensions (feet):	
Length overall	300
Usable berthing space	300
Depth alongside	Over 19
Width of apron	Open.
Berthing Capacity	...
Transit Sheds	None.
Handling Facilities	n a
Railroad Facilities	Near root.
Road Clearance	Near root.
Water and Electricity	n a
Potentialities for Expansion	...
Remarks	...

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	North Naval Pier
Ref. on Port Plan	9
Use	Berthing naval vessels.
Type and Construction	Pier; construction unknown.
Load Capacity of Deck	n a
Height of Deck above Water	...
Dimensions (feet):	N Side / S Side
Length overall	200 / 200
Usable berthing space	200
Depth alongside	Over 19
Width of apron	Approximately 30
Berthing Capacity	...
Transit Sheds	None.
Handling Facilities	None.
Railroad Facilities	...
Road Clearance	...
Water and Electricity	n a
Potentialities for Expansion	None.
Remarks	...

Wharves (Piers, Quays, etc.)-Continued

Details of Wharf	North Wharf
Ref. on Port Plan	10
Use	Berthing naval vessels.
Type and Construction	Offshore wharf; construction unknown.
Load Capacity of Deck	n a
Height of Deck above Water	n a
Dimensions (feet):	
Length overall	375
Usable berthing space	375
Depth alongside (MSL)	Over 19
Width of apron	Open.
Berthing Capacity	...
Transit Sheds	None.
Handling Facilities	None.
Railroad Facilities	None.
Road Clearance	None.
Water and Electricity	n a
Potentialities for Expansion	Under Phase II extend wharf 125 ft. W, widen apron to 60 ft.; dredge alongside to 24 ft. Provide rail and road clearance.
Remarks	...

4. Mechanical handling facilities (cargo)

a. Cranes ashore and afloat

The tabulation below lists the cranes located at the wharves:

Location	Number	Capacity (tons)	Type
Wharf Ref. 2	1	5.0	Electric traveling portal jib.
Wharf Ref. 4	4	5.0	do
Wharf Ref. 5	6	12.5	do
Wharf Ref. 6	3	12.5	do
Do	1	3 to 5	do
Do	3	3 to 5	Diesel, mobile.
Wharf Ref. 7	4	12.5	Electric traveling portal jib.

Four floating cranes with capacities of 25 to 100 tons are at the port.

b. Specialized handling equipment

A grain loader with 4 spouts is on Grain Quay (Ref. 1), and an elevated conveyor extends from the quay to the grain storage facilities.

5. Port maintenance and engineer equipment afloat

a. Tugs

Three tugs are normally at the port. One of the tugs has about 1,500 hp. and the other 2 have from 600 to 750 hp.

b. Dredges

A suction dredge, 197 by 131 feet, with 2 suction tubes was at the port in 1954.

c. Other equipment

There are no piledrivers, block handling cranes, salvage equipment, or fireboats reported.

6. Hards and unimproved sites usable for cargo landing within the port

Within the breakwaters, the undeveloped areas near the root of South Breakwater and the southeastern part of Outer Harbor could possibly be utilized for landing cargo. The beach northward of the port for about 6 miles has a gentle slope of 100 to 1 from the shoreline to the 30-foot curve which is about 0.5 mile offshore.

7. Storage facilities

a. General cargo

The covered storage area usable for general cargo includes 6 warehouses with a total floor area of 73,400 sq.ft., and 8 transit sheds with a total floor area of 189,550 sq.ft. The covered storage warehouses are located eastward of Outer Harbor, except for 2 southward of Inner Basin.

b. Bulk warehouses, other than grain and tank storage

No data are available.

c. Cold storage

One plant with a capacity of 1,100 long tons is located on the outer part of the south side of Middle Mole Pier (Ref. 2).

d. Tank storage

Eight tanks with an estimated total storage capacity of 475,200 barrels are located at Poti. Four, with a total capacity of 19,200 barrels, are situated about 500 feet southeastward of Grain Quay; 3, with a total capacity of 426,000 barrels, are situated about 1,800 feet eastward of Inner Basin; and 1 of approximately 30,000-bbl. capacity is about 1 mile northwestward of Outer Harbor. The tanks southeastward of

Grain Quay have about 20 feet each above ground, and the tanks eastward of Inner Basin are partially buried.

e. Grain elevators

A grain elevator consisting of several concrete silo-type towers, and 3 other storage buildings is located close southeastward of Grain Quay (Ref. 1). A conveyor system runs between Grain Quay and the elevator. (Figure 13)

f. Open storage

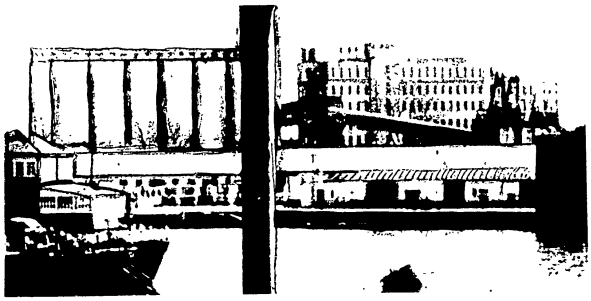
About 10 acres of open storage space are available at Poti. Approximately 7 acres are eastward of Outer Harbor and northward of Inner Basin, and about 3 acres are southward of Inner Basin on Middle Mole and in the vicinity of Grain Quay. Most of the open storage space is served by rail.

8. Clearance facilities

a. Rail

(1) Lines clearing port - A single-track, 5-foot-gage line leads northeastward from Poti to the rail system at Mikha-Tskhakaya. At the junction point an electrified line leads eastward to Samtredia and Tbilisi, and another line leads northwestward to Sukhumi and Tuapse.

(2) Rail facilities in port - About 11 miles of track serve the port area. Most of the wharves have railroad clearance. The main line enters the port from the northeastward and branches westward along the Rion to the eastward of Inner Harbor. A branch serves the area southward of Inner Basin, including Middle Mole and South Breakwater, and another branch serves the area northward of Inner Basin including North Mole Pier. A third branch serves the area northeastward of Outer Harbor. A passenger station is on Middle Mole Pier (Ref. 2).



View looking SE at grain elevator. Note conveyor system leading from quay.

1954 50X1

FIGURE 13

A double-ended railroad yard is located about 1 mile eastward of the southern part of the port. It is 5 tracks wide and about 2,000 feet long. In the vicinity of the yard is a station building, several repair shops, and storehouses.

b. Road

(1) Roads and highways clearing port - A highway 13 to 20 feet wide with a bituminous surface over a crushed stone base leads northeastward parallel to the railroad to Mikha-Tskhakaya, where it connects with the improved Novorossiysk-Batumi highway.

(2) Streets and roads in town and port area - All the roads in the port are paved with asphalt or concrete. There are access roads to most wharves which are in fair condition and capable of accommodating the usual port traffic. A highway bridge of probable masonry construction, 375 by 15 feet, crosses the Rion south of the port and connects with the town of Poti.

c. Inland waterways

The Rion is navigable by steamer about 40 miles to Samtredia. Shallow draft river boats navigate 90 miles above the mouth.

d. Oil pipelines

None.

9. Ship supplies

a. Fuel

(1) Petroleum products - Fuel oil is available at North Mole Quay (Ref. 7) and South Quay (Ref. 4). Type of fuel, rate of delivery, and number and size of connections are not known.

(2) Coal - Coal of poor quality is available at North Mole Quay. The delivery rate is 60 to 75 tons per hour. The amount of coal for ships' use is not known.

b. Utilities

(1) Water - Water is piped to most of the wharves. It is available in adequate quantities, but the pressure is weak. The water is usually potable. A 300-ton water barge is at the port.

(2) Electricity - Most wharves are served with electricity. There are about 35 outlets on the wharves with current characteristics of 220/330 volts, a. c.

10. Shipbuilding and repair

a. Summary

The Yelyava Shipyard, situated on the eastern side of Inner Basin, has facilities capable of building vessels of patrol craft size, and accomplishing underwater repairs on medium-sized oceangoing vessels. Several repair shops, a machine shop, and a foundry are at the shipyard. The work force consists of about 1,000 workers. Shipbuilding facilities reportedly are under construction on the eastern side of Outer Harbor.

b. Details of docking installations

(1) Graving docks - None.

(2) Floating drydocks - Two floating drydocks are normally at the port. The larger drydock is approximately 400 feet long with 70 feet between sidewalls, and of 11,000 tons lifting capacity. It is equipped with a 5-ton portal jib crane. (Figure 14) The smaller floating dock is about 370 feet long with 65 feet between sidewalls, and of about 2,000 tons capacity. It is equipped with a 3-ton portal jib crane.

(3) Marine railways - Five marine railways are situated at the northeastern corner of Inner Basin. These railways are capable of lifting 500-ton vessels with lengths of 150 feet. (Figure 15)

View of floating drydock in SE part of Inner Basin. Vessel is the naval transport "Volga" (11,000 tons loaded), reportedly drydocked at Poti.

1954 50X1

FIGURE 14

R. & H. Bd.

Poti, USSR

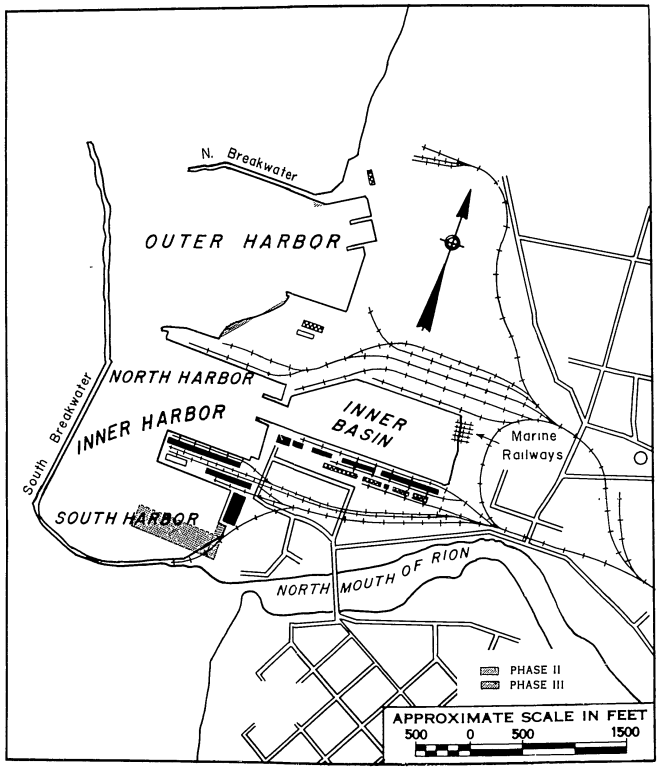
View looking E at repair yard on E side of Inner Basin.
Note vessels on marine railways.

1954

50X1

FIGURE 15

R. & H. Bd. Poti, USSR



Plan of suggested expansion and improvement.

FIGURE 16

R. & H. Bd. Poti, USSR

11. Planned development and improvements

Information concerning planned development and improvements at the port of Poti is not available; however, a considerable amount of construction work recently has taken place in Outer Harbor. Piers for berthing naval vessels have been completed in the northeast part of Outer Harbor and, except for an entrance gap of 500 feet, a new inner breakwater in the form of extensions between North Breakwater and North Mole encloses the eastern half of Outer Harbor. Construction of submarine pens and repair facilities was reported in this area of the harbor, but the information may be unreliable. Concrete blocks have been placed irregularly along the outer part of South Breakwater indicating a reinforcement of the existing riprap construction. Cranes were reported under construction in the vicinity of Inner Harbor.

12. Potentialities for expansion

a. Summary

Potential expansion of the port of Poti within the limits of the breakwaters can be accomplished by constructing a pier near the root of South Breakwater, extending 2 existing wharves, constructing a marginal wharf northeastward of North Mole, providing landing craft hards at the eastern end of Inner Basin, and by performing minor dredging in the vicinity of existing facilities.

The port's military discharge capacity can be increased about 3,500 long tons per 20-hour day of which 500 tons can be accomplished under Phase I, 500 tons under Phase II, and 2,500 tons under Phase III. (Figure 16)

b. Phase I - Suggested repairs and improvements to existing facilities

Improve existing facilities by performing minor dredging, not detrimental to footings, as follows: Middle Mole Pier (Ref. 2), dredge outer 500 feet - north and south sides - to 24 feet and increase total usable berthing space on each side to 750 feet by extending present 22-foot depths; North Quay (Ref. 5) and North Mole Quay (Ref. 7), dredge outer 1,000 feet to 24 feet; South Quay (Ref. 4), dredge outer 1,750 feet to 24 feet and inner 200 feet to 22 feet; Northwest Quay (Ref. 6), dredge entire length to 24 feet. Provide landing craft hard about 200 feet in length at eastern end of Inner Basin. Upon completion of Phase I, the increase of discharge capacity is estimated at 500 long tons.

c. Phase II - Suggested major improvements, additions, and extensions to existing facilities

Extend Grain Quay (Ref. 1) southward 150 feet and dredge entire length of quay and approaches to 24 feet, as practicable. Extend North Wharf (Ref. 10) 125 feet westward, widen the apron to at least 60 feet, and dredge entire length to 24 feet. Provide railroad spurs and road clearance for Outer Harbor wharves. Upon completion of Phase II the increase of discharge capacity is estimated at 500 long tons.

d. Phase III - Suggested locations of new piers or wharves

Construct an open pile timber deck pier, 750 feet long and 250 feet wide, extending westward from the root of South Breakwater. Provide a marginal wharf 750 feet long northeastward of North Mole in the southeastern part of Outer Harbor.

Perform dredging to a depth of 26 feet alongside and in approaches to both facilities; provide road and rail clearance. Upon completion of Phase III, the increase of discharge capacity is estimated at 2,500 long tons.

13. Construction data

a. Availability of construction materials

Lumber is obtained from nearby forests, and stone and limestone are known to be available in the general vicinity. Fill material may be obtained by dredging.

b. Weather and climatic factors affecting construction

January is the coldest month with minimum temperatures averaging from 35°F. to 40°F., and mid-day temperatures about 45°F. July and August have maximum day temperatures averaging about 80°F., and 90°F. is likely to be reached during summer. The mean relative humidity is about 81 percent. Rainfall is heavy with an annual average of about 64 inches falling on about 145 days. Fog occurs 2 to 4 days a month except in July and August. Prevailing winds are easterly. During gales from the westward and northwestward the harbor is inaccessible.

c. Labor and craftsmen factors

Skilled and unskilled labor are present in adequate numbers. If the need existed, additional labor resources possibly could be obtained from other parts of the USSR. Women are employed as crane operators and hold other port jobs.

d. Foundation conditions

Within the harbor the bottom is principally mud and ooze. Along the shoreline the bottom consists of a band of sand. The remainder of the sea bottom is mostly mud except for an area of ooze off the harbor.

e. Water supply

Water is supplied from the Rion and is piped to the wharves by the municipal system. The port supply is adequate for boiler use. The water is usually potable.

f. Electric power

The port is on the Caucasian electric grid which includes several hydroelectric plants, one of which is on the Rion River. About 35 outlets are on the quays. The current is 220/380 volts, a.c.

g. Fuel

Fuel oil connections are on North Mole Quay (Ref. 7) and South Quay (Ref. 4). The type and quantity of the petroleum supply at the port are not known. A stockpile of 4,000 to 5,000 tons of coal is normally at the port.

14. Points of vulnerability in the port area

a. Summary

Poti is important as an outlet for manganese ore and as a naval base and repair facility. Destruction of South Breakwater would expose the port to the prevailing sea and swell from the Black Sea and render the port facilities useless. Damage at the entrance to Inner Basin would seriously curtail cargo and repair operations. Blocking railroad and highways would decrease clearance.

b. Strategic points

The vulnerable points are listed below and are shown on the annotated map, Figure 17.

Ref. on Fig. 17	Description
1	South Breakwater.
2	Entrance to Inner Basin.
3	Railroad.
4	Highway.

15. Comments on principal sources

The information used in compiling this study was secured mainly from the Washington area.

Cross sections and photographs of several of the facilities were lacking, as were factual details of the wharves, warehouses, petroleum installations, and basins.

R. & H. Bd.

Poti, USSR

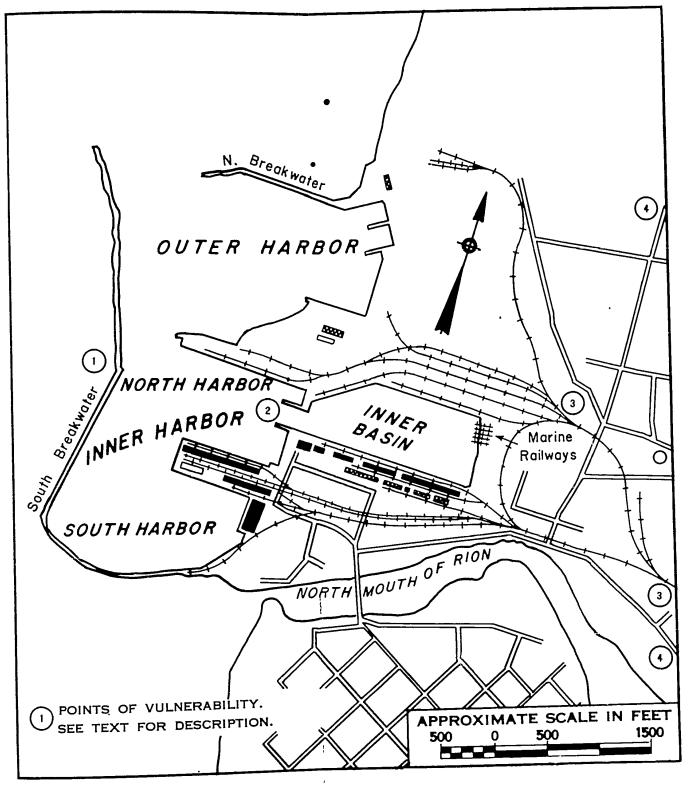


FIGURE 17

PORT FACILITIES

Poti, USSR

SHIP SUPPLIES-Continued

Utilities

Water

Water is piped to most wharves. The quantity is adequate, but the pressure is weak. A 300-ton water barge is at the port.

Electricity

Most wharves are served with electricity. Current is 220/380-v., a.c.

SHIPBUILDING AND REPAIR

The Yelyava Shipyard is capable of building patrol-type vessels and performing underwater repairs on medium-sized oceangoing vessels. There are several repair shops, a machine shop, and a foundry.

Two floating drydocks are at the port. The larger is about 400 ft. long with 70 ft. between sidewalls and of 11,000 tons lifting capacity.

Five marine railways capable of lifting 500-ton vessels with lengths of 150 ft. are at the port.

The work force numbers about 1,000.

PLANNED DEVELOPMENT AND IMPROVEMENTS

Information on development and improvements is not available, however, a considerable amount of development has taken place in Outer Harbor. New piers for berthing naval vessels, and an inner breakwater enclosing the eastern portion are included in the work completed.

POTENTIALITIES FOR EXPANSION

The port's military discharge capacity can be increased about 3,500 long tons per 20-hr. day of which 500 tons can be accomplished under Phase I, 500 tons under Phase II, and 2,500 tons under Phase III. The expansion includes construction of a pier, extension of 2 existing wharves, construction of a marginal wharf, providing landing craft hards, and minor dredging.

CONSTRUCTION DATA

Availability of construction materials

Lumber is obtained from nearby forests, and stone and limestone are known to be available in the general location. Fill is obtained by dredging.

Weather and climatic factors affecting construction

The minimum temperatures average 35°F. to 40°F. during January. A temperature of 90°F. is likely to be reached during summer. The mean relative humidity is about 81 percent, and the average rainfall is about 64 in. Prevailing winds are easterly.

Labor and craftsmen factors

Labor resources are adequate.

Foundation conditions

The harbor bottom is mostly mud and ooze. Along the shoreline is sand.

Water supply

Water is supplied from the Rion and is piped to the wharves. It is adequate for boiler use.

Electric power

The Caucasian electric grid, which has several hydroelectric stations, including one on the Rion, provides electric power. The current is 220/380-v., a.c.

Fuel

Fuel oil connections are on South Quay and North Mole Quay. Type of fuel, rate of delivery, and data on connections are not known.

A stockpile of 4,000 to 5,000 tons of coal is available.

POINTS OF VULNERABILITY IN THE PORT AREA

The points of vulnerability at the port are the South Breakwater, the entrance to Inner Basin, and the highway and railroad. Destruction of South Breakwater would expose the port to the prevailing sea and swell from the Black Sea and render the port facilities useless.

GENERAL REMARKS

Poti is on the E coast of the Black Sea about 40 miles N of the Turkish border. The principal industries are the export of manganese ore and the transshipment of general cargo. The population was about 20,000 in 1948. The port serves as a naval base for submarines and surface vessels.

SUMMARY OF PORT FACILITIES

R. & H. Bd.

Poti, USSR

HARBOR AND ENTRANCE

The artificial harbor has a water surface area of 160 acres. It is protected by 2 breakwaters, and is entered directly from the Black Sea.

The entrance depth is 29.5 ft., and a bottom width of 93 yd. extends through Outer Harbor to Inner Harbor. Distance between the breakwaters is about 290 yd.

South Breakwater extends W about 550 yd. from S part of port, and N about 1,300 yd., protecting the harbor from SW through NW. North Breakwater protects the N part, extending W about 350 yd., and SW about 125 yd.

Outer Harbor, irregular in shape with a water area of about 55 acres and central depths of 29 to 18 ft., is used for berthing naval vessels.

Inner Harbor, with a total water area of about 105 acres, is composed of North Harbor, Inner Basin, and South Harbor.

North Harbor is rectangular with an area of 40 acres. It is used for ore, coal, and general cargo. Central depths are from 28 to 22 ft.

Inner Basin - E of North Harbor - is irregularly shaped with an area of 18 acres. It is used for ore, general cargo, and ship repair. Central depth is about 26.5 ft.

South Harbor, irregularly shaped with an area of 47 acres, is used for general cargo and grain. Central depths are from 26 to 18 ft.

ANCHORAGES

Anchorage in the roadstead WSW of South Breakwater may be taken in depths of 72 to 90 ft. over an ooze, mud, and sand bottom.

HYDROGRAPHIC CONDITIONS AFFECTING NAVIGATION

Tides are negligible. W winds raise the water level; E winds lower it. Gales from W and NW render the harbor inaccessible.

WHARVES

Usable Berthing Space (feet)	Depths Alongside (feet)	Total No. of Berths (by class)
	COMMERCIAL	
	General Cargo	
3,480	18 to 22	8 - B, 2 - C, 1 lighter
	Ore and Coal*	
2,990	19 to 24	6 - B, 2 - C, 2 lighters
	Grain*	
350	22	1 - B
6,820		
	NAVAL	
875	19 and over	...
350	7 and over	...
1,225		
8,045		

* Indicates usable for general cargo.

ESTIMATED MILITARY PORT CAPACITY

It is estimated that the port can unload approx. 6,800 long tons of general cargo in a 20-hr. day.

A phased study of the expansion possibilities indicates the capacity could be increased about 3,500 long tons.

MECHANICAL HANDLING FACILITIES

Cranes ashore and afloat

Number	Capacity (tons)	Type
13	12.5	Electric traveling portal jib.
5	5.0	do
1	3 to 5	do
3	3 to 5	Diesel, mobile.
4	25 to 100	Floating.

Specialized equipment
A grain loader with 4 spouts is located on Grain Quay.

PORT MAINTENANCE AND ENGINEER EQUIPMENT AFLOAT

Tugs
Three tugs are normally at the port. One of the tugs has about 1,500 hp., and the other 2 have from 600 to 750 hp.
Dredges
A suction dredge is used to maintain harbor depths.

HARDS AND UNIMPROVED SITES USABLE FOR CARGO LANDING WITHIN THE PORT

The undeveloped areas at the root of South Breakwater and the SE part of Outer Harbor could be utilized for landing cargo. The beach N of the port has a gentle slope of 100 to 1.

STORAGE FACILITIES

General cargo (sq.ft.)
Transit sheds 189,550
Warehouses 73,400
Tank storage
Eight tanks with a total capacity of 475,200 bbl. are at the port.
Grain elevators
Four grain storage facilities are situated near Grain Quay.
Open storage
About 10 acres of open storage space are available at the port.

CLEARANCE FACILITIES

Rail
A single-track, 5'-gage line leads NE to the rail system at Mikha-Tskhakaya.
About 11 miles of track serve the port area. Most of the wharves have rail clearance.
Road
A road, 13 to 20 ft. wide with a bituminous surface over a crushed stone base, leads NE parallel to the railroad to Mikha-Tskhakaya, where it connects with the main improved Novorossiysk-Batumi highway. There is paved road access to most wharves.
Inland waterway
The Rion is navigable by steamer about 40 miles, and by shallow draft river boats about 90 miles.
Oil pipelines
None.

SHIP SUPPLIES

Fuel
Petroleum
Fuel oil is available at South Quay and North Mole Quay.
Coal
Coal is available at North Mole Quay. The quality is poor.

SHIP SUPPLIES-Continued

Utilities
Water
Water is piped to most wharves. The quantity is adequate, but the pressure is weak. A 300-ton water barge is at the port.
Electricity
Most wharves are served with electricity. Current is 220/380-v., a.c.

SHIPBUILDING AND REPAIR

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CONSTRUCTION DATA

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The minimum temperatures average 35°F. to 40°F. during January. A temperature of 90°F. is likely to be reached during summer. The mean relative humidity is about 81 percent, and the average rainfall is about 64 in. Prevailing winds are easterly.
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A stockpile of 4,000 to 5,000 tons of coal is available.

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The points of vulnerability at the port are the South Breakwater, the entrance to Inner Basin, and the highway and railroad. Destruction of South Breakwater would expose the port to the prevailing sea and swell from the Black Sea and render the port facilities useless.

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Poti is on the E coast of the Black Sea about 40 miles N of the Turkish border. The principal industries are the export of manganese ore and the transshipment of general cargo. The population was about 20,000 in 1948. The port serves as a naval base for submarines and surface vessels.

TABLE II

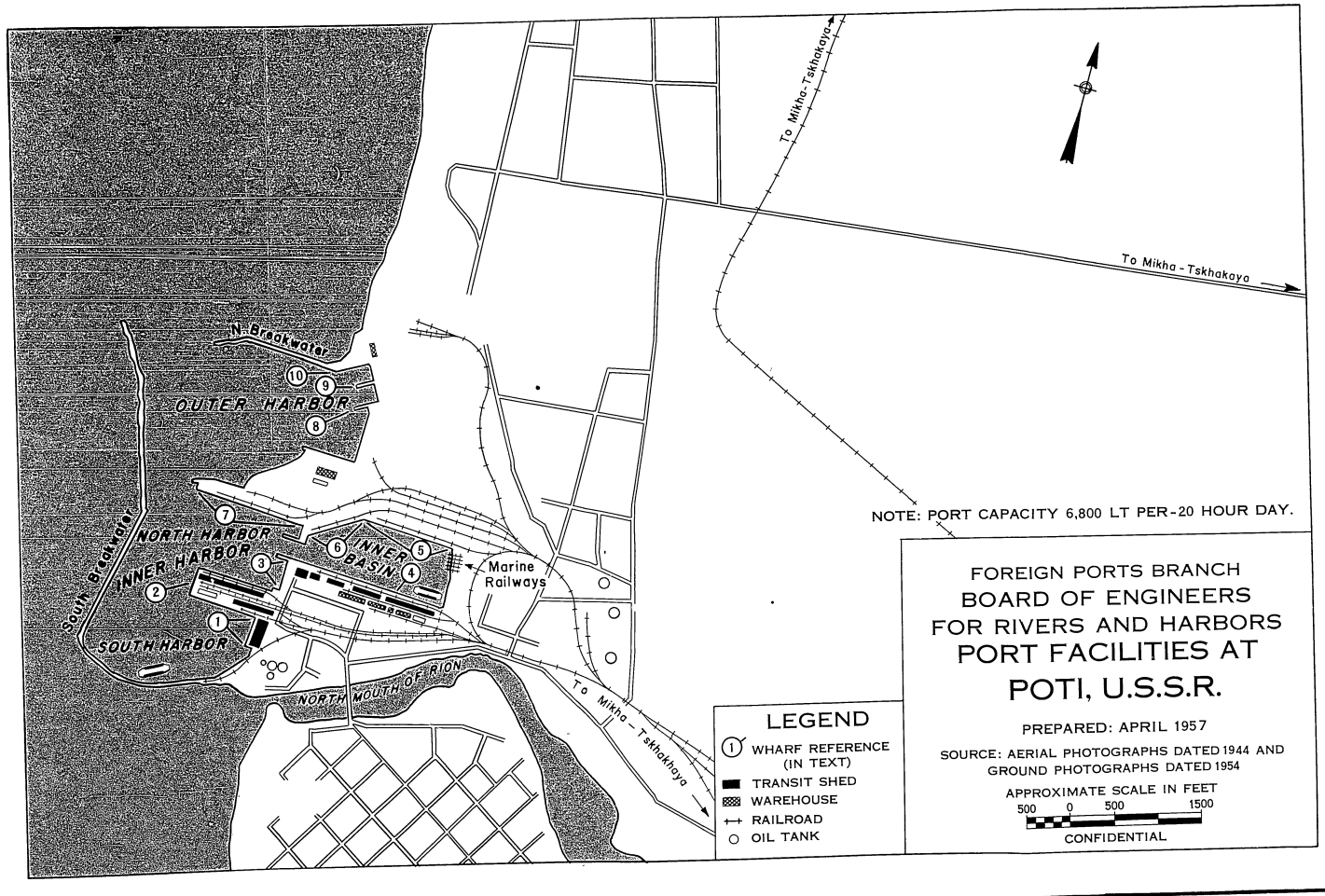
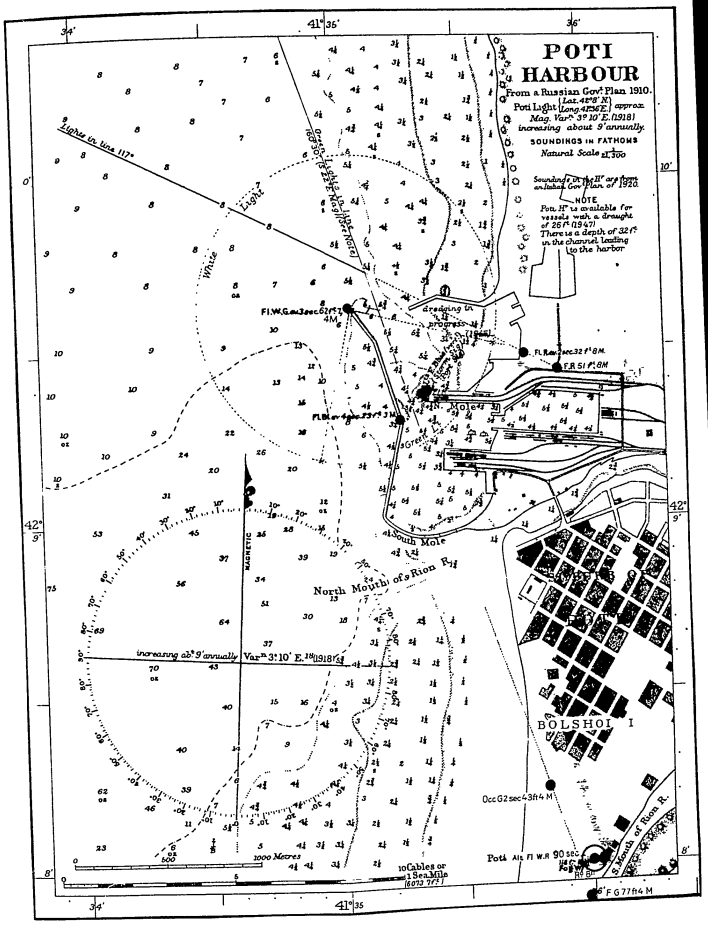


FIGURE 18

R. & H. Bd.

Poti, USSR



B. A. Chart 2236 (inset)

FIGURE 19

STAT