



U.S. Department
of Transportation

Maritime
Administration

Report on Survey of U.S. Shipbuilding and Repair Facilities

1989

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REPORT ON SURVEY OF U.S.
SHIPBUILDING AND REPAIR FACILITIES
1989

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Office of Ship Construction
Division of Production
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Introduction

In compliance with the Merchant Marine Act of 1936, as amended, 1/ the Maritime Administration (MARAD) conducts an annual survey to obtain information from the shipbuilding and ship repair industry to be used primarily to determine if an adequate mobilization base exists for national defense and for use in a national emergency. This report on the 1989 survey of U.S. shipyard facilities was prepared by the Division of Production, Office of Ship Construction, and is for general use within the Maritime Administration and other Government agencies.

1/ Section 210

"It shall be the duty of the Secretary of Transportation to make a survey of the American merchant marine, as it now exists, to determine what additions and replacements are required to carry forward the national policy declared in Section 101 of the Act, and the Secretary of Transportation is directed to study, perfect, and adopt a long-range program for replacements and additions to the American merchant marine so that as soon as practicable the following objectives may be accomplished: ...Fourth, the creation and maintenance of efficient shipyards and repair capacity in the United States with adequate numbers of skilled personnel to provide an adequate mobilization base."

Section 211

"The Secretary of Transportation is authorized and directed to investigate, determine, and keep current records of ... (g) The number, location, and efficiency of the shipyards existing on the date of enactment of this Act or thereafter built in the United States."

Section 502(f)

"The Secretary of Transportation with the advice of and in coordination with the Secretary of the Navy, shall, at least once a year, as required for purposes of the Act, survey the existing privately-owned shipyards capable of merchant ship construction, or review available data on such shipyards if deemed adequate, to determine whether their capabilities for merchant ship construction, including facilities and skilled personnel, provide an adequate mobilization base at strategic points for purposes of national defense and national emergency."

The statistical data accumulated by the survey is a major input into the Shipyard Evaluation Analysis System Model (SEAS), a quantitative assessment of the Nation's ship construction and ship repair capability. This capability is periodically compared with Department of Defense scenarios involving various contingency attrition rates and emergency civilian shipping requirements to assess the adequacy of the shipbuilding mobilization base, including ship repair and reactivation of the Maritime Administration reserve fleet and the U.S. Navy reserve fleet.

The survey also provides a data base that is used to evaluate the feasibility of proposed shipbuilding programs. Determinations are made as to which existing shipyards might construct proposed ships consistent with ship size and delivery date requirements. The need for construction of new facilities to meet the demands of proposed shipbuilding programs can be also identified. The data gathered by the annual survey also is used extensively in MARAD responses to queries received from a variety of interests, including members of Congress, the Secretary of Transportation, the Department of Defense, the Office of Management and Budget, and other Government agencies.

Each year in late spring, Standard Form 17, "Facilities Available for the Construction or Repair of Ships," is mailed to some 350 U.S. shipyards and ship repair facilities. The survey form was developed jointly by MARAD and the Navy. A completed Form 17 represents a detailed description of a shipbuilding or ship repair facility, which is not available from any other source on a continuing and structured basis. The information requested, and available for official use, can be reviewed on a blank Form 17 shown herein as Appendix A. A graving dock characteristics summary and floating drydock characteristics summary are appended to Standard Form 17 to better identify the characteristics of the facilities.

Upon receipt of a completed Form 17 from a shipyard, MARAD forwards a copy to the Office of the Coordinator for Ship Repair and Conversion which maintains records of available facilities and capacities of various shipyards and repair plants so that the Department of Transportation and the Department of Defense can use such facilities to the best advantage in the event of national emergency.

The annual shipyard survey of 1989 has been completed. The information collected has been organized and condensed in the following narratives, exhibits, and tabulations to focus attention on those elements that are most often requested from this office.

GENERAL

A major shipbuilding and repair facility is defined in this report as one that is open and has the capability to construct, drydock, and/or topside repair vessels with a minimum length overall of 400 feet (122 m), provided that water depth in the channel to the facility is at least 12 feet (4 m). Appendix B is a statistical abstract of data gathered from 110 companies responding to MARAD's annual survey which meet this criteria. It lists the facilities sorted on a coastal basis and displays information with respect to the size and type of each building position, drydock, berth space, employment, and remarks regarding principal shipyard activities.

Table 1 has been prepared to answer the frequent question as to the number of shipbuilding positions available to build a complete specified ship. With the exception of the mobilization ship, the ship types listed in Table 1 are those historically delivered to commercial service. Length overall and beam are given for all ships and, in addition, deadweight tonnage is indicated for the bulk carriers. A single shipway or basin may have several building positions depending on the size of the ships being constructed. For example, the 1,200-foot by 192-foot (366 m by 59 m) basin at Bethlehem's Baltimore Marine Division shipyard can accommodate one 265,000-dwt. tanker or four of the smaller general cargo ships. The total number of building positions varies from 85 for the small cargo ship to three for a huge 265,000-dwt. tanker. An important consideration that is not addressed in Table 1 is the common shipbuilding practice of laying a keel on a building position already occupied by another ship. For example, in a 700-foot (213 m) basin, a complete 610-foot (186 m) containership and the stern section of a second ship could be constructed simultaneously. This production procedure maximizes the use of shipbuilding facilities, minimizes the construction period, and increases the number of ships that can be produced in a given period of time. Table 1 addresses only the number of complete ships that can be constructed simultaneously in each building position(s).

Table 2 is a somewhat different presentation of shipyard capability. In lieu of actual ships, maximum ship length is used to determine the number of shipways or basins available. In this tabulation, the emphasis is on the number of individual facilities available and not on the number of ships that can be constructed. Again, using Bethlehem's Baltimore Marine Division as an example, Table 2 lists the 1,200-foot by 192-foot (366 m by 59 m) basin as one facility regardless of what type of ship is constructed in it. Table 1 indicates that there are six building positions for a ship 475 feet (145 m) LOA at the Baltimore Marine Division, whereas Table 2 indicates that the yard has three individual shipways capable of constructing a ship about that length. Exhibit 21 is a histogram displaying the reduction in the number of available shipways as the maximum ship length increases.

SIGNIFICANT SHIPYARD ACTIVITY

On October 1, 1989, there were 91 major combatant and auxiliary ships under construction or on order for the Navy, 21 of which were T-Ships. In addition, three merchant ships were under major reconstruction to T-Ships for the Navy. (The prefix "T" designates civilian-manned ships either operated by or under charter to the Military Sealift Command.) Examples of types of vessels involved in the T-Ship program are: auxiliary crane ships, hospital ships, fleet oilers, and ocean surveillance ships. The T-Ship projects are providing much needed near-term relief to five U.S. shipbuilders, that had traditionally relied on construction of new oceangoing merchant ships.

Other major new construction activity in U.S. shipyards in October 1989 was the two medium-endurance cutters in production for the Coast Guard.

As of October 1, 1989, there were no commercial vessels over 1,000 gross tons under construction in the U.S. Exhibit 20 illustrates the steady decline since the mid-1970's in both the number of vessels and gross tonnage of the merchant ship orderbook in the United States.

Despite the continuing worldwide shipping recession and uncertain near-term future prospects, the U.S. shipbuilding and ship repair industry in FY 1989 invested over \$195 million in facilities modernization and expansion and, as of July 1, 1989, planned to spend at least an additional \$250 million during the year ending June 30, 1990.

Since enactment of the Merchant Marine Act of 1970, the U.S. shipbuilding and ship repair industry has invested approximately \$4.4 billion in plant modernization and improvements. These investments have significantly increased the capacity, capability, and productivity of the industry. With the slump in commercial ship construction, the emphasis in recent years has been on expansion of ship repair, overhaul, and conversion facilities.

MAJOR SHIPBUILDING FACILITIES

Following is a brief description of 18 of the major U.S. privately-owned shipbuilding facilities. Exhibits 1 through 18 are general arrangement plans of each yard's facilities. Exhibit 19 illustrates the geographical location of these 18 shipyards in addition to the General Dynamics Corporation's Electric Boat Division which, although a major privately-owned shipyard, is engaged exclusively in construction of submarines for the U.S. Navy.

DESCRIPTIONS AND GENERAL ARRANGEMENT PLANS
FOR
18 MAJOR U. S. SHIPBUILDING FACILITIES

1. Alabama Shipyard, Inc.

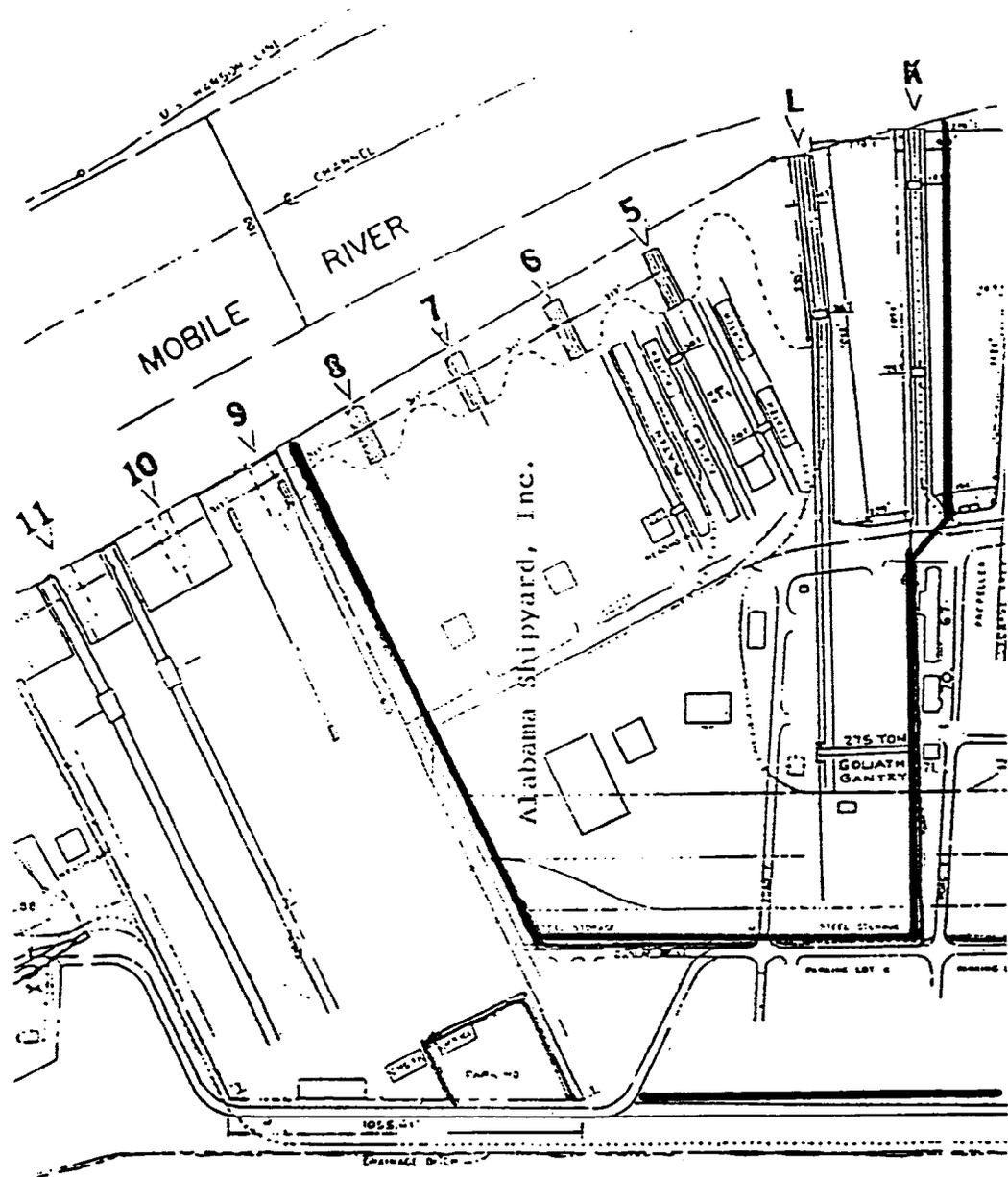
Alabama Shipyard, Inc., is a wholly-owned subsidiary of Atlantic Marine Holding Company of Jacksonville, FL. Alabama Shipyard, Inc., (formerly ADDSCO's Alabama Maritime Corporation) is a new construction facility specializing in both marine and industrial fabrication. The shipyard is located on the Tenn-Tom Waterway, across the river from Mobile, AL, about 30 miles from the Gulf of Mexico. Acquired by Atlantic Marine in 1989, the yard has been in existence since 1916 and has constructed a variety of ships (both commercial and naval, barges and drill ships).

As of October 1, 1989, work underway at Alabama Shipyard included construction of three oil barges and five crane mounted barges for the Navy, two oil storage barges, and three aircraft transportation lighters. Also, the yard was recently awarded contracts for the construction of a ship unloader crane and a passenger/vehicle ferry.

Alabama Shipyard, Inc., is capable of constructing ships up to a maximum size of 523 feet by 90 feet (160m by 27m). The shipyard has 130,000 square feet (12077 square meters) of manufacturing space, 80,000 square feet (7432 square meters) of covered warehouse space, two finger piers with total usable pier space of 3,200 feet (976 meters), and a 275-metric ton Goliath bridge crane. Various other gantry cranes, as well as a plate shop and carpenter shop are utilized for construction. The yard also has access to a twin-boom luffing derrick capable of handling 1400 metric tons which can be used for lifting heavy offshore structures.

As of mid-1989, Alabama Shipyard's employment totaled 130.

Exhibit 1 is a current general arrangement plan of Alabama Shipyard's facilities.



ALABAMA SHIPYARD, INC.
Mobile, Alabama

2. Avondale Industries, Inc. - Avondale Shipyards Division

Avondale Shipyards Division is located on the west bank of the Mississippi River approximately nine miles upriver from New Orleans, LA. Avondale, previously a wholly-owned subsidiary of Odgen Corporation, was sold in 1985 to its employees in an Employee Stock Ownership Plan (ESOP). Since 1938, Avondale has constructed a full range of Navy, and commercial ships, as well as Coast Guard cutters and offshore drilling rigs; and it has the distinction of being the only American shipyard to have constructed LASH vessels.

Avondale also maintains an active repair operation for commercial and naval ships. Inland waterway and offshore oil vessels are repaired by Avondale's Westwego and Harvey Divisions. Offshore platforms, jackets, and production modules are constructed by Avondale's Main Plant.

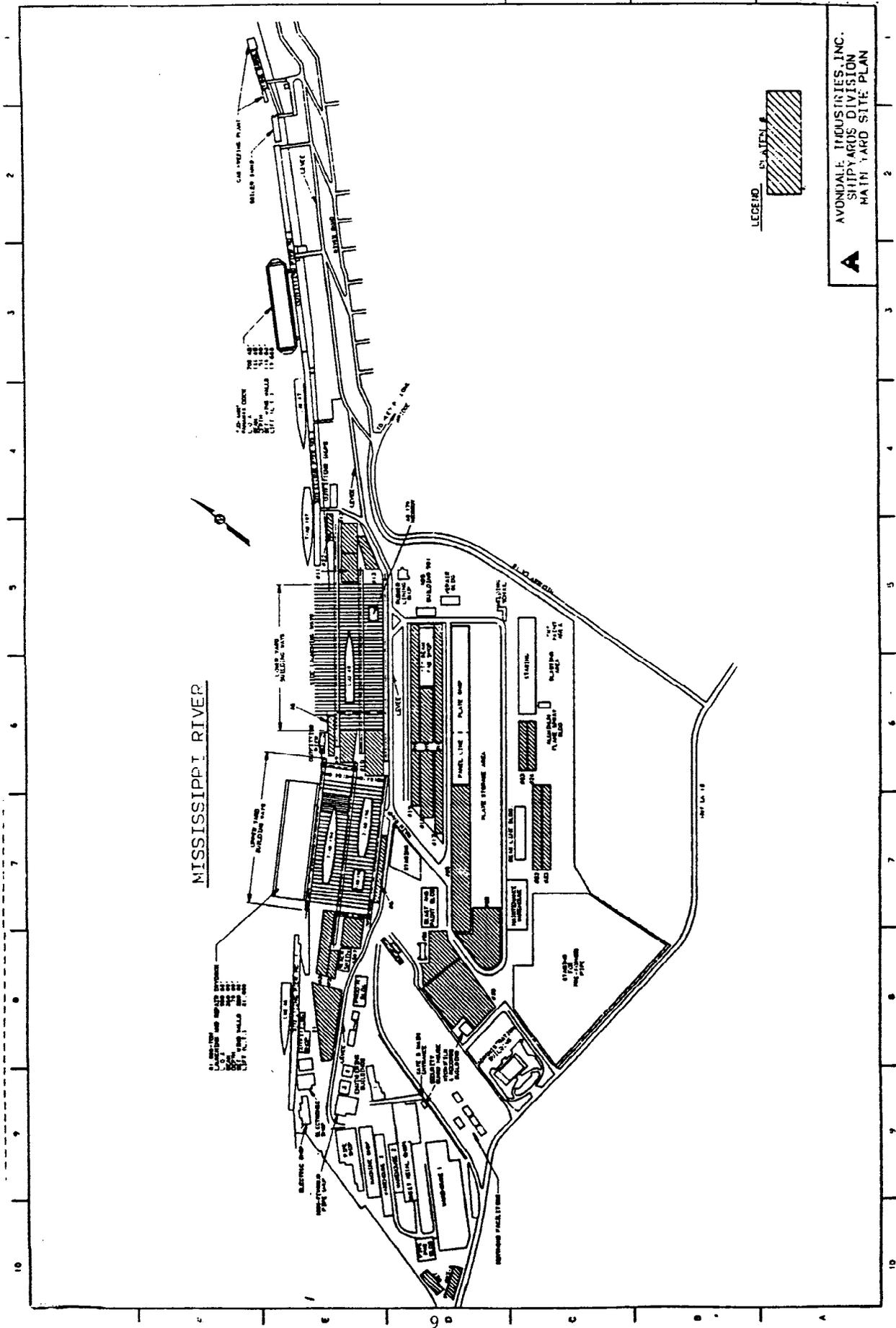
Avondale's new construction orderbook as of October 1, 1989, consisted of 10 fleet oilers (T-AO's) and five dock landing ships (LSD's) with options for added ships of each class. In addition, Avondale had under contract for jumboization four Navy fleet oilers of the AO-177 class with options for one more.

Avondale's main yard facility totals 222 acres and contains three outfitting docks equipped with supporting shops and over 6,000 feet (1829 m) of pier space. Avondale's upper yard shipbuilding area has two large positions to accommodate vessels of up to 1,020 feet (311 m) in length by 175 feet (53 m) beam. The major part of one ship can be erected along with the stern section of a second ship on position No. 1 while a third hull is being completed on position No. 2. Ships constructed in the upper yard move laterally in three positions for launching by Avondale's large floating drydock which can accommodate ships as large as 1,000 feet by 216 feet (305 m by 66 m), with a lifting capacity of 82,296 metric tons. Avondale's lower yard has a side-launching construction area that has three large positions to accommodate ships as large as 1,200 feet by 126 feet (366 m by 38 m). Ships built in the lower yard move laterally toward the river and parallel to the river in five positions. Up to five large vessels, greater than 700 feet (213 m) LOA, can be under construction simultaneously in this lower yard area. A Panamax floating drydock is moored in this area which can accommodate ships up to 750 feet by 110 feet (228 m by 34 m) and has a lifting capacity of 20,320 metric tons.

Avondale's nearby Westwego, LA, facility is capable of building vessels 450 feet (137 m) long by 90 feet (27 m) beam. In 1988, Avondale long-term leased the ex-Todd Shipbuilding Corporation's - New Orleans yard which is now called the Avondale Algiers Division and is used for ship repair, conversion, and overhaul.

In mid-1989, the total employment level at the Shipyard Division was about 7,780, up from about 6,650 a year earlier.

Exhibit 2 is a current arrangement plan of Avondale's main plant.



3. Bath Iron Works Corporation

Bath Iron Works Corporation (BIW), a wholly-owned subsidiary of Bath Acquisition Corporation, which is itself a subsidiary of Bath Holding Corporation, is located on the Kennebec River in Bath, ME. The small iron foundry which was established on this site in 1826 became Bath Iron Works, Ltd., in 1884, and the first shipbuilding began in 1889. This yard has constructed various type of ships including roll-on/roll-off cargo vessels, containerships, tankers, dredges, barges, and fishing vessels. Bath also has built a total of 198 surface combatants for the Navy.

BIW was the lead shipbuilder for the Navy's guided missile frigate (FFG-7 class) program and was awarded contracts for the construction of the 24 FFG-7 class frigates. In 1982 the Navy selected BIW as its second source for the high-technology CG 47 class Aegis cruiser program, awarding the company contracts to build eight of these Ticonderoga class cruisers - the last of which is scheduled for delivery in 1992. In 1985, BIW was selected as the lead shipbuilder for the design and construction of the Navy's Arleigh Burke class guided missile destroyer (DDG-51) program. Five DDG's have been ordered from BIW - the last is scheduled for delivery in 1994.

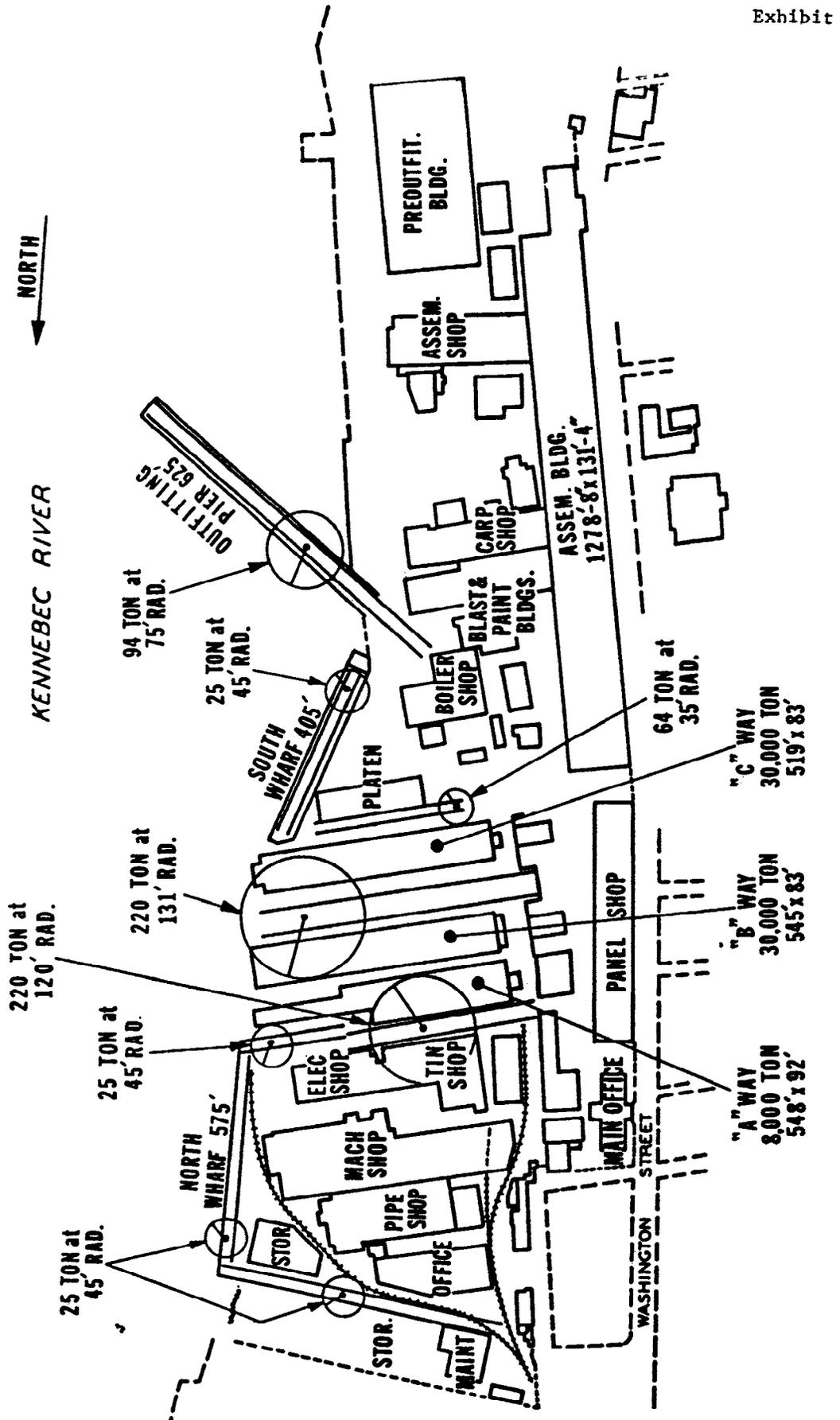
BIW's facilities include two shipways to accommodate ships of 700 feet (213 m) in length with a maximum beam of 130 feet (40 m), or two ships per way with a beam of 54 feet (16 m) each; and a 220 metric ton level-luffing crane with sufficient outreach to erect units on both shipways. A new pre-outfit building of 200 feet by 410 feet (60 m by 125 m) was opened in 1987. This building has 18 work stations for 219 metric ton erection units. BIW also added in 1987 a new 220 metric ton capacity revolver crane to serve the third shipway. The shipway can accommodate a ship 650 feet (198 m) in length with a beam of 88 feet (27 m). Two wharves and a pier provide a total of 2,150 linear feet (655 m) for outfitting and repair work.

BIW operates two support facilities in West Bath, located three miles (4.8 km) from the Main plant. The 33-acre Hardings Fabrication Plant is where the initial steel fabrication takes place. The 113,000 cubic meter consolidated warehouse uses state of the art equipment to accomplish the transfer, handling, and storage of shipbuilding inventory.

Thirty-five miles (56 km) from the Main Plant, BIW operates the Portland Overhaul and Repair Facility in Portland, ME. Its centerpiece is a large floating drydock with a lifting capacity of 65,000 metric tons which can accommodate a vessel up to 844 feet by 136 feet (257 m by 41 m).

As of mid-1989, the company's administrative and production work force totaled 11,370, compared to 9,300 a year earlier.

Exhibit 3 is a current plot plan of the Bath Iron Works main yard facilities.



BATH IRON WORKS CORP.

4. Bethlehem Steel Corporation - Baltimore Marine Division

Bethlehem's Baltimore Marine Division Sparrows Point yard is located on the Patapsco River in the port of Baltimore, MD. Established in 1891, the yard became part of the Bethlehem organization in 1916 and served as a major shipbuilder during two world wars. During World War II, Sparrows Point constructed 101 vessels of 16 different classes. During the 1950's, 1960's, and 1970's the yard was among the most active in the Nation, specializing in series construction of standard size tankers up to VLCCs, freighters, and containerships.

During the past 10 years, the yard has completed as new construction two containerships, six integrated tug barge (ITB) tankers, six offshore drilling rigs, two container feeder barges, and an oceanographic survey ship for the U.S. Navy. During this same period, the yard has adapted to changing markets by increased efforts in conversion and repair and industrial fabrication. In addition to numerous drydockings and repairs on commercial and Naval ships, three RO/ROs have been converted to Maritime Prepositioning Ships, five RO/ROs have been reflagged, and tunnel sections for a new Interstate 664 Hampton Roads Tunnel Complex have been completed.

As of October 1, 1989, a second oceanographic survey ship was under construction for the Navy and scheduled for delivery in September 1990.

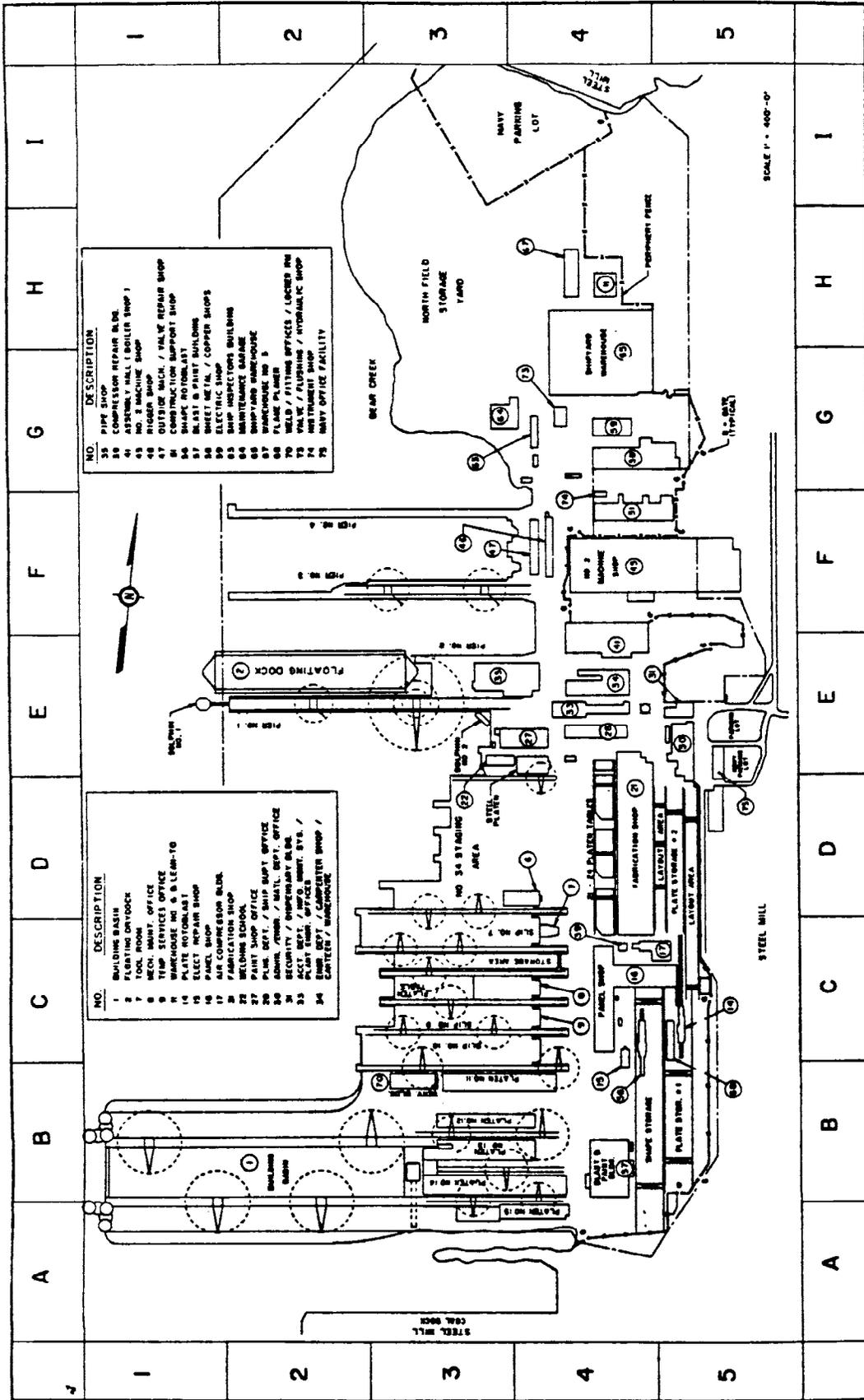
The major component of this shipyard is the building basin (the second largest in the U.S.) for construction of ships as large as 1,200 feet by 192 feet (366 m by 59 m) or up to about 300,000 dwt. A two-position intermediate gate has been installed to increase the flexibility of the basin by dividing it into two sections. In one position the basin's sections are 900 feet and 300 feet (274 m and 91 m) in length. In the second position, the sections are 685 feet and 515 feet (209 m and 157 m) in length.

Complementing the large construction basin, which is served by four 91 metric ton tower cranes, the shipyard maintains two building ways. Each way can accommodate a maximum ship size of 800 feet by 106 feet (244 m by 32 m). Four outfitting berths are available with a combined length of 2,300 linear feet (701 m). The berths are served by five tower cranes with lifting capacities up to 45 metric tons. Several mobile cranes of various capacities are also available.

Baltimore Marine Division also has a floating drydock capable of lifting 44,735 metric tons. The drydock can accommodate vessels up to 900 feet (274 m) in length with a beam of up to 136 feet (41 m) and a draft up to 30 (9 m) feet. The entry channel to the yard has a depth of 30 feet (9 m).

The total labor force at the Baltimore Marine Division was 1,250 at mid-1989, down from 1,980 a year earlier.

Exhibit 4 is a current plot plan outlining the company's Baltimore Marine Division.



B.M.D. GENERAL ARRANGEMENT September, 1988
 Bethlehem Steel Corporation
 Baltimore Marine Division

5. Fraser Shipyards, Incorporated

The Fraser Yard, the only major American shipyard and drydock operation on the western end of the Great Lakes, is located on Howards Bay in Superior, WI. Since it was founded in the 1890's by Capt. Alexander McDougall, who built 42 of his famous "whaleback" steamers and barges there, this plant has had a succession of owners. From 1900 to 1926, Superior Shipbuilding Company operated the yard and built more than 50 large Great Lakes ore carriers. The yard became a repair facility of the American Ship Building Company from 1926 to 1945 and then became known as Knudsen Brothers Shipbuilding and Dry Dock Company. Fraser-Nelson Shipbuilding and Dry Dock Company took over the plant in 1955, and the present name was adopted in 1964. In August 1977, the yard was sold to Reuben Johnson & Son, Incorporated, a Superior, WI, contracting and construction firm, but business continues under the Fraser name.

Since World War II, this complete shipbuilding and ship repair facility has specialized in vessel repair and ship modernization. In the past 15 years, Fraser has performed most of the major ship lengthening work on the Great Lakes. At this shipyard, general ship repair also has been an important source of revenue.

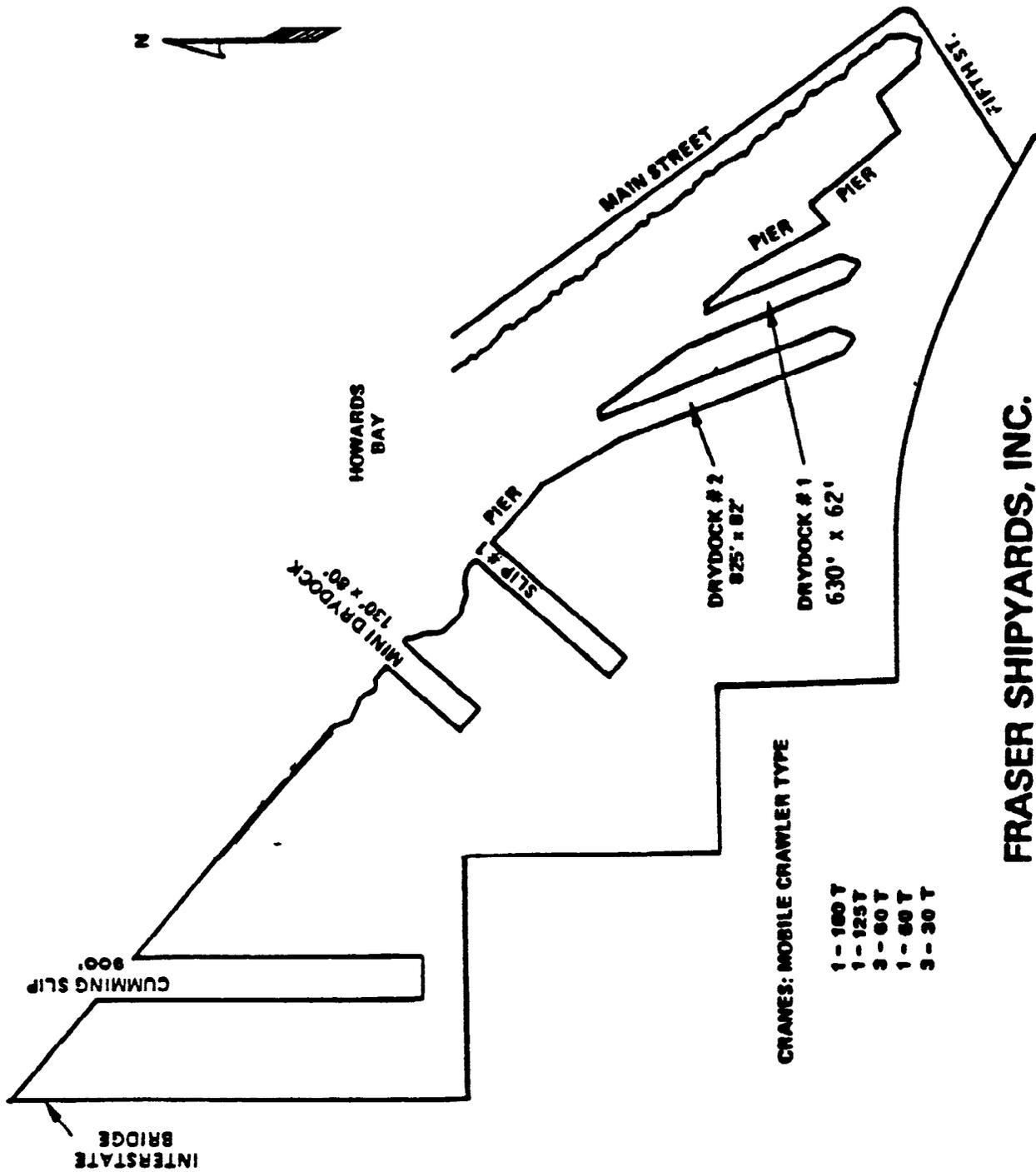
In mid-1989, with a small workload in the yard, employment including salaried personnel totaled only 61 people.

In the early 1980's, the Fraser yard instituted a major renovation of its fabrication capabilities including a 40 percent increase in its platen table capacity and extension of its railroad trackage to increase steel unloading capabilities by 300 percent. An all-new steel cutting process with hydraulic loading and unloading tables was installed, as well as major repowering of the shipyard to support the expanding facilities and to improve existing capacity. New automated welding equipment and related modern techniques also were instituted to increase productivity.

Fraser maintains two graving docks suitable for ship construction, repair, and conversion work. One basin can accommodate a vessel 825 feet by 82 feet (251 m by 25 m), and the other a vessel 620 feet by 61 feet (189 m by 19 m). A small graving-type dock was added in 1973 to build new midbody sections for the bulk ore freighters under contract for lengthening at that time. Pierside berthing totals 4,450 feet (1,356 m).

Fraser's 10 mobile cranes, ranging from 14 to 136 metric tons can service any building dock, as well as outfitting and repair berths, and also can be floated on a crane lighter for work afloat. The company also operates an "outside" repair fleet totaling 12 units -- tugs, work launches, and barges -- capable of performing repairs on vessels while they are loading or unloading cargoes in Duluth-Superior harbor and adjacent ports.

Exhibit 5 is a current plot plan of Fraser's shipbuilding and ship repair facilities.



**FRASER SHIPYARDS, INC.
SUPERIOR, WISCONSIN**

6. Ingalls Shipbuilding Division/Litton Industries, Inc.

The Ingalls Shipbuilding Division of Litton Industries, Inc., is located on the Gulf of Mexico in Pascagoula, MS. Ingalls is a diversified shipbuilding facility experienced in the construction, modernization, conversion, and overhaul of Navy warships and auxiliaries. Since 1975, Ingalls designed, built and delivered to the Navy 53 major surface combatant ships.

As of October 1, 1989, the company held orders for seven Aegis cruisers -- the last of which is scheduled for delivery in 1994. Also on order were four (including the lead ship) Ingalls-designed multi-purpose amphibious assault ships (LHDs) for the Navy as well as three new DDG-51 class guided missile destroyers. Ingalls also has a regular workload of Navy overhauls and repairs.

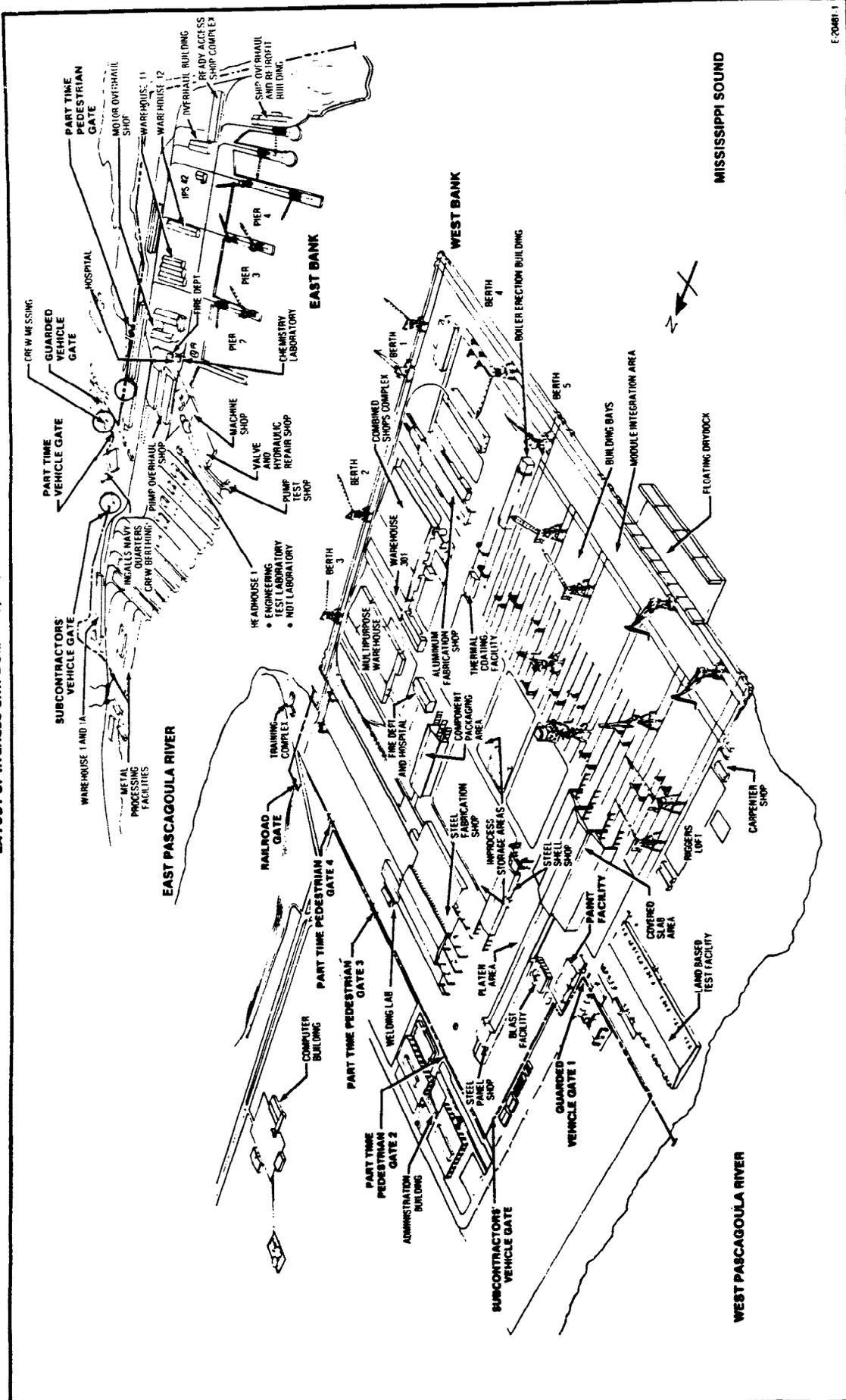
Ingalls 600-acre West Bank facility, completed in 1970, does not have conventional inclined shipbuilding ways but is geared to assembly-line construction. Fabricated steel and subassemblies are brought from the various shops to the subassembly area where they are erected and preoutfitted; then moved to the module assembly area. These areas are divided into five bays, each of which can produce 5,447 metric ton modules. After modules are completed (including outfitting), they are moved to the integration area where they are erected into a complete ship and then moved to a floating drydock (resting on a submerged grid) which is subsequently floated and moved to a deep-water area where it is ballasted and the ship launched. The drydock can launch or recover a maximum ship size of 850 feet by 173 feet (259 m by 53 m). Approximately 4,400 feet (1,341 m) of berthing space, serviced by cranes up to 182 metric tons are available for outfitting. In August 1988, about 180,000 square feet (16,722 square meters) of the shipyard's slab area was brought under roof to increase the amount of early outfitting performed. In addition, improved pipe production facilities, a machinery packaging facility, and a new blast and paint station in the steel fabrication complex have been added.

Ingalls's older East Bank facility has been in operation since 1938, engaged primarily in the construction of commercial cargo ships and tankers. Although there are six inclined shipways and a graving dock at East Bank, they were all taken out of service in 1989. Refurbishment of these facilities is anticipated to take at least six months. However, a wharf and four piers provide a total of 3,000 feet (915 m) of berthing space serviced by cranes with up to 54 metric ton capacity for outfitting and topside repair.

Ingalls Shipbuilding Division of Litton Industries at mid-1989 employed a total labor force of 10,500, down from 11,650 a year earlier.

Exhibit 6 is the current general arrangement plan of Ingalls' East Bank and West Bank facilities.

LAYOUT OF INGALLS SHIPBUILDING, INC.



E-20481.1

7. Marinette Marine Corporation

Marinette Marine Corporation is a privately-owned Great Lakes shipbuilding company founded during the early months of World War II and located in northeast Wisconsin. During the past 47 years, the yard has built nearly 1,300 vessels, including harbor tugs, research vessels, torpedo weapon retrievers, and yard patrol craft.

As of October 1, 1989, Marinette Marine was engaged in the construction of three mine countermeasure (MCM) vessels for the Navy -- the last of which is expected to be delivered in June 1991.

The shipyard covers 57 acres and has over 134,146 square meters of enclosed workspace permitting year-round, uninterrupted construction of vessels up to 400 feet (122 m) in length overall with a width of up to 65 feet (20 m). Large fabrication shops and erection areas, a 220 metric ton shiplift, three launchways, and numerous berthing spaces along the 2,200 foot (671 m) dockwall provide the facilities needed to construct multiple ships in assembly line fashion.

Marinette Marine's module construction method is complemented by separate cutting, fabricating, assembly, and trade shops allowing smooth and efficient movement of material and prefabricated components through the construction process. Many of the shops are equipped with overhead bridge cranes of up to 45 metric ton capacity; and multiple crawler cranes service the outdoor erection areas. Large modules and completed vessels are transferred and erected using a Dual Walking Beam ship transfer system.

Total employment at the yard in mid-1989 was 425, compared to 635 in mid-1988.

Exhibit 7 is a current plot plan of Marinette Marine's facilities.

8. Moss Point Marine, Inc.

Moss Point Marine, Inc., is a subsidiary of the Trinity Marine Group and is located in Escatawpa, MS, along the east bank of the Pascagoula River just north of the city of Moss Point. This modern and well-equipped yard covers 50 acres and was commissioned in 1980. The yard has been a leader in developing cost-efficient modular construction techniques, having constructed over 85 vessels, 37 of which were constructed for the U.S. Government.

During the first three quarters of 1989, Moss Point Marine completed the construction of three tugs and an excursion boat. As of October 1, 1989, the yard had on order for construction one tug, one fireboat, and 32 landing crafts (utility) [LCUs] for the U.S. Army.

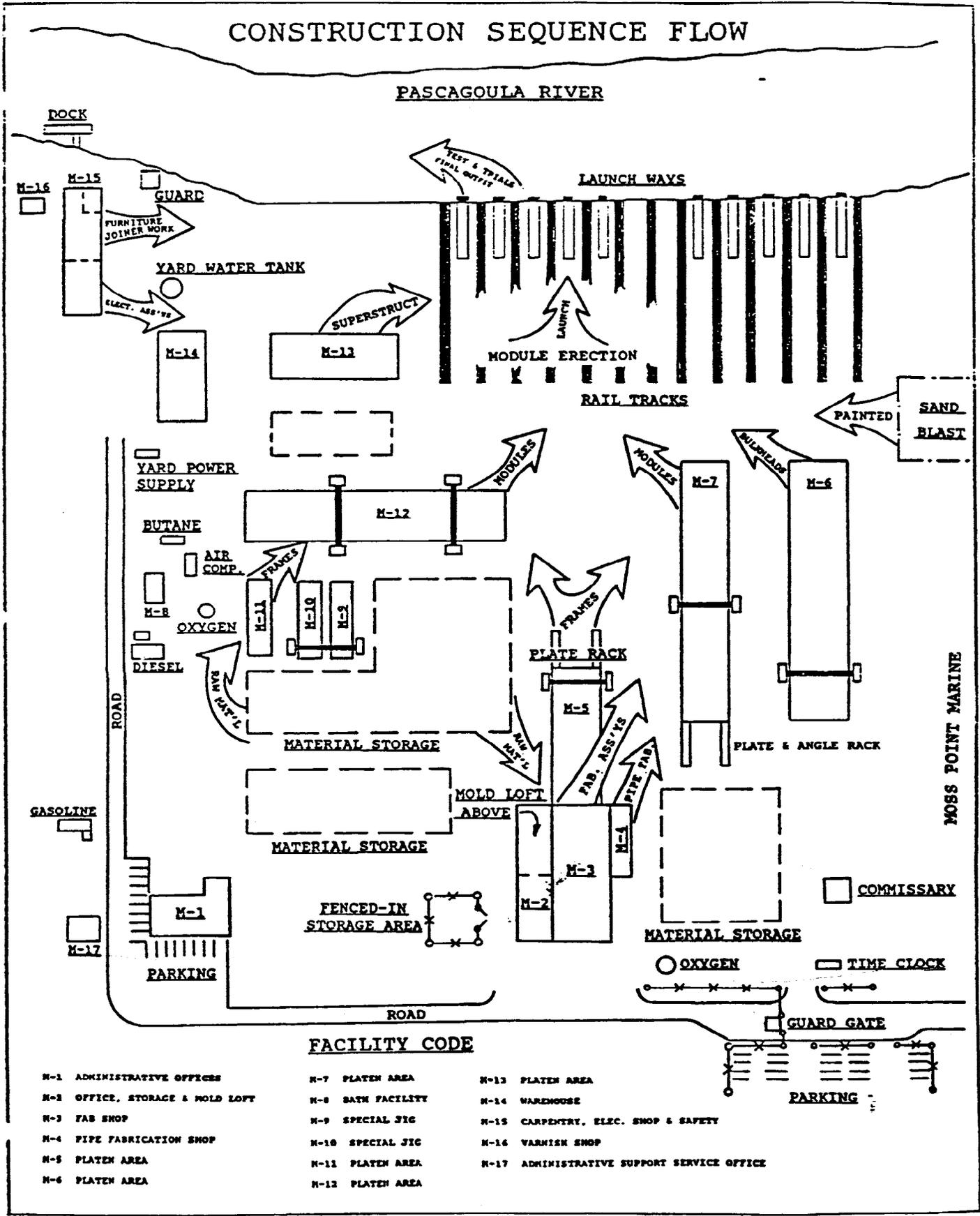
Moss Point Marine's facilities include a side-launch shipway capable of launching a vessel up to 450 feet (137 m) in length with a beam of up to 82 feet (25 m). Over 1,150 feet (351 m) of pier space is available served by two 159 metric ton crawler cranes and complete underground services. The yard also has a drydock for repair of smaller vessels.

The modular construction method used at Moss Point Marine allows assemblies and modules to be pre-outfitted with major piping, ventilation ductwork, cableways, machinery and equipment units while in the open and accessible configuration.

As of June 1989 employment at Moss Point Marine totaled approximately 400, up from 170 a year ago.

Exhibit 8 is a current general arrangement plan of Trinity Marine Group's Moss Point facility.

CONSTRUCTION SEQUENCE FLOW



FACILITY CODE

- | | | |
|---------------------------------|-------------------|--|
| M-1 ADMINISTRATIVE OFFICES | M-7 PLATEN AREA | M-13 PLATEN AREA |
| M-2 OFFICE, STORAGE & MOLD LOFT | M-8 BATH FACILITY | M-14 WAREHOUSE |
| M-3 FAB SHOP | M-9 SPECIAL JIG | M-15 CARPENTRY, ELEC. SHOP & SAFETY |
| M-4 PIPE FABRICATION SHOP | M-10 SPECIAL JIG | M-16 VARNISH SHOP |
| M-5 PLATEN AREA | M-11 PLATEN AREA | M-17 ADMINISTRATIVE SUPPORT SERVICE OFFICE |
| M-6 PLATEN AREA | M-12 PLATEN AREA | |

9. National Steel and Shipbuilding Company

National Steel and Shipbuilding Company (NASSCO), the largest shipbuilder on the West Coast, participates in the U.S. Navy shipbuilding, repair, and conversion markets. In the marine business since 1945, the company has expanded several times to occupy 145 acres on the harbor in San Diego, CA. In the past, NASSCO has constructed OBO carriers, tankers up to 209,000 dwt, product carriers, destroyer tenders, a large cable repair ship, special purpose ships and a variety of Navy vessels. In 1989, NASSCO became an employee-owned company.

During the 1980's, projects completed by NASSCO included the construction of two 209,000 dwt crude oil carriers for Exxon Shipping Company, the conversion of two 90,000 dwt tankers to 1,000-bed hospital ships (T-AH), and the reconstruction of three former Sea-Land SL-7 containerships to fast sealift ships (T-AKR), for the Navy.

In January 1987, NASSCO was awarded a contract to design and construct the lead vessel for the AOE 6 class fast combat ship. The option for the second ship was exercised in 1988 with options for an additional two ships. Construction of the first vessel commenced in 1988 and delivery is scheduled for July 1991. Repair and overhaul work during the past few years consisted principally of Navy contracts. As of October 1, 1989, NASSCO was performing overhaul and repair work on three Navy vessels. Also in 1989, NASSCO was awarded a contract for the repair and refurbishing of the VLCC, EXXON VALDEZ.

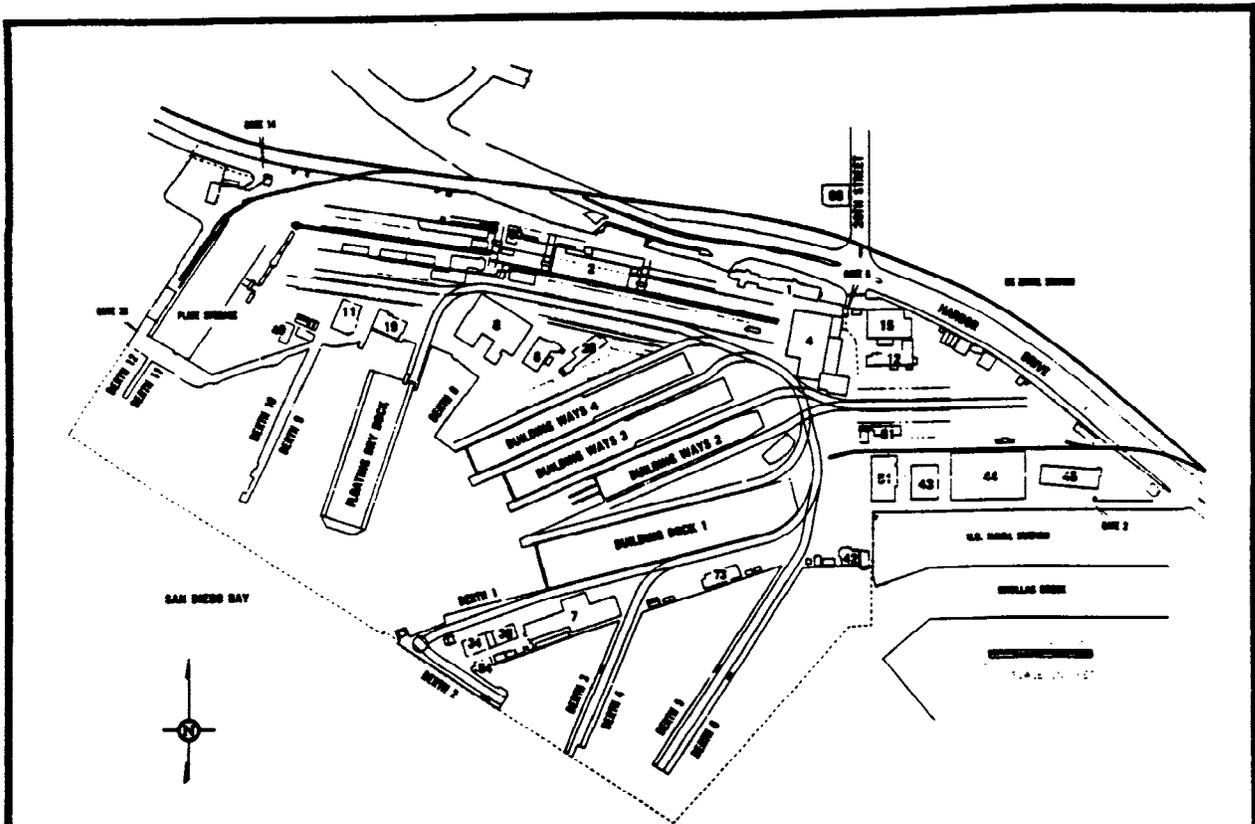
NASSCO's facilities include a building dock in which ships up to 980 feet by 170 feet (299 m by 52 m) can be constructed. In addition, the company operates three inclined building ways. Two of these can accommodate a maximum size ship of 900 feet by 106 feet (274 m by 32 m) and one a ship size of 690 feet by 90 feet (210 m by 27 m). Cranes are available that can provide lifts up to 159 metric tons. Berthing is available at 10 full-service berths that can accommodate ships with drafts up to 35 feet (10.6 m) and lengths up to 1,000 feet (305 m).

NASSCO also operates a 25,400 metric ton floating drydock. The yard's features include a full service machine shop, carpenter shop, sheetmetal shop and pipe shop with an automated pipe silo. The company's steel fabrication and assembly facilities have approximately 1,816 metric ton per week capacity. An automated steel plate and shape, blast and prime line provide pre-construction corrosion control capability for the steel yard. In 1987, NASSCO acquired two new burning machines, Engineering CAD equipment, an LSA computer system, a valve test stand, and a living barge. An automated tool inventory control system, turning jig for curved steel blocks, and an enhanced pin jig area with two bridge cranes were placed in service in 1988.

As of mid-1989, the total labor force was 2,015, down from 2,145 in mid-1987.

Exhibit 9 is a current NASSCO plot plan.

NASSCO SHIPYARD LAYOUT



BLDG. NO.

- 1 ADMINISTRATION BUILDING
- 2 PLATE SHOP
- 4 PIPE SHOP
- 6 INSTRUMENT SHOP/MOTOR SHOP/REPAIR
- 7 SHEETMETAL SHOP/NEW CONSTRUCTION ELECTRICAL SHOP
- 8 MACHINE SHOP/REPAIR DEPARTMENT/ REPAIR PRODUCTION MANAGEMENT
- 11 REPAIR SHOP
- 12 MAINTENANCE/FACILITIES
- 15 ADMINISTRATION ANNEX
- 19 TOOL ROOM
- 28 PLATEN OFFICE

BLDG. NO.

- 34 GOVERNMENT TECHNICAL REPRESENTATIVE
- 38 SHIPS FORCE WORK AND STORAGE SUPPORT
- 40 COMBAT SYSTEMS SHOP
- 42 YARD CONFERENCE ROOM/SAFETY
- 43 WAREHOUSE
- 44 WAREHOUSE
- 45 WAREHOUSE
- 51 ENGINEERING
- 54 QUALITY ASSURANCE
- 60 CM-80
- 61 PAINT OFFICE
- 66 INFORMATION SYSTEMS
- 73 CARPENTER SHOP

DOCKS AND WAYS

- | | |
|---------------------------------|-----------------------------------|
| BUILDING DOCK 1
1000' x 178' | BUILDING WAYS 4
908' x 118' |
| BUILDING WAYS 2
675' x 98' | FLOATING DRY DOCK
585' x 170' |
| BUILDING WAYS 3
908' x 118' | (140' CLEAN
BETWEEN WINGWALLS) |

BERTHS

- | | |
|----------------------------|-----------------------------|
| BERTH 1
600' x 30' Deep | BERTH 6
1000' x 35' Deep |
| BERTH 2
900' x 30' Deep | BERTH 7
150' x 23' Deep |
| BERTH 3
560' x 30' Deep | BERTH 8
300' x 23' Deep |
| BERTH 4
625' x 30' Deep | BERTH 9
700' x 28' Deep |
| BERTH 5
950' x 35' Deep | BERTH 10
630' x 28' Deep |

10. Newport News Shipbuilding

Newport News Shipbuilding, located at the Port of Hampton Roads in Newport News, VA, is the largest shipbuilding complex in the United States. The company, founded in 1886, is a subsidiary of Tenneco, Inc. Newport News has built 24 aircraft carriers, 41 nuclear-powered submarines, and over 120 other surface ships for the U.S. Navy. Commercial vessels delivered by the yard include 71 cargo ships, 85 tankers, 61 passenger ships (most notably the famed superliner UNITED STATES), and more than 50 other self-propelled vessels. Newport News was a pioneer in the field of jumboizing ships, and since 1957 has completed 34 such operations. The last commercial vessel built in the yard was delivered in September 1983.

Newport News is the Nation's foremost builder of Navy nuclear warships. The yard as of October 1, 1989, was at work on three Nimitz class aircraft carriers and 12 attack submarines. Overhaul and repair of nuclear-powered submarines and surface ships for the Navy are also a principal activity at Newport News.

Included in Newport News major facilities are the following:

Docks and Shipways - There are eight separate docking facilities. Shipway 12, the largest building basin in the nation, is 1,613 feet (492 m) long, 250 feet (76 m) wide, and 33 feet (10 m) deep. Three positions for the intermediate gate expand the multi-ship construction capability of this dock, permitting simultaneous ship construction and repair. A 900 metric ton gantry crane, one of the largest in the world, can handle completely outfitted assemblies. This crane has a height of 234 feet (71 m) overall, a girder clearance of 200 feet (61 m) and a span between rail centers of 540 feet (165 m). Shipways 10 and 11 are used for construction work as well as overhaul and repair, and are serviced by a 315 metric ton gantry crane. The other four graving docks (Dry Docks 1-4) are used mainly for ship repair and overhaul work. The floating drydock which is 640 feet by 140 feet (195 m by 43 m) is primarily used as a part of the submarine land level facility.

Inclined Shipways - There are two inclined shipbuilding ways; the larger of these can accommodate vessels as large as 668 feet by 93 feet (204 m by 28 m).

Vessel Berthing - Newport News has two outfitting berths totaling 2,620 feet (799 m) each serviced by 30 metric ton cranes as well as seven piers totaling 12,000 linear feet (3658 m) serviced by cranes with capacities of up to 45 metric tons in addition to the two small piers included with the submarine land level facility.

Submarine Construction and Repair Complex - This land level facility is currently being used for construction of nuclear attack submarines. It includes a modular outfitting facility (MOF), outboard ways, two small piers, a transporter and transfer system, and a floating drydock.

The labor force at Newport News in mid-1989 was estimated at 26,000.

Exhibit 10 is a current general arrangement drawing showing major facilities at Newport News.

11. Peterson Builders Incorporated

Peterson Builders, Inc. (PBI), of Sturgeon Bay, WI, established in 1933, is a privately owned, full service, construction and repair shipyard which serves the government, commercial, and service industries with its construction capabilities in wood, steel, fiberglass and aluminum, as well as its design and production expertise. Their continuing backlog of ship construction, complemented by conversion, repair, and special projects of unique assembly fabrications, enables PBI to maintain a skilled labor force and to keep pace with the latest technologies and developments in the industry.

The main yard with seven acres of buildings provides inside construction and production facilities; total area is 13 acres. Extensive waterfront facilities provide berthing for vessels up to 900 feet (274 m) in length. PBI operates two side launching shipways; one can accommodate a maximum ship length of 500 feet (152 m) and the other 225 feet (69 m). Also, inside ship construction capabilities for vessels up to 230 feet by 60 feet (70 m by 18 m) are available. PBI's floating drydock has the capacity to accommodate a vessel up to 360 feet by 40 feet (110 m by 12 m) and is Navy-certified for 1,118 metric tons with current plans for recertification to 1,322 metric tons.

Current construction contracts underway at PBI include eight steel MK II Dive Boats with diving system modules and five wooden 224 feet (68 m) Mine Countermeasure Ships (MCMs) for the U.S. Navy. Two, MCMs were delivered to the U.S. Navy in 1989. As part of the Navy's mine warfare renewal program, these MCMs will replace ships in service since the early 1950's. PBI has been a leader in mine craft construction since that time; longer than any other shipyard in the world. This new generation of wooden ships being built at PBI are not the only "first of a kind" contracts awarded to the yard. Other "new class of ship" construction contracts completed for the U.S. Navy are four steel 255-foot (78 m) ARS Auxiliary Rescue/Salvage ships and seven wooden 108 foot (33 m) YP Yard Patrol craft. PBI also maintains a long-standing history for commercial vessel construction ranging from super tuna seiners, research ships, large passenger/car ferries, and a range of tugs.

Also, during 1989, a 100 foot (30.5 m) steel passenger/car ferry was delivered to the Washington Island Ferry Lines, as well as a 43 foot (13.1 m) aluminum survey boat to the Milwaukee Metro Sewerage District, and 85 aluminum Harbor Security boats to the U.S. Navy.

At mid-1989 the company's average total employment was about 775, compared to 850 in 1988.

Exhibit 11 is the current general plot plan of the Peterson Builders main yard in Sturgeon Bay, WI.

12. Portland Ship Repair Yard

The Portland Ship Repair Yard is part of the Municipal Corporation of the Port of Portland. The 125-acre shipbuilding and ship repair facility is located in Portland, OR, on the Willamette River. The Portland Ship Repair Yard was developed from the World War II Swan Island Shipbuilding facilities which delivered 1,076 oceangoing ships.

During 1989, projects undertaken by contracted users of Portland Ship Repair Yard included the drydock and overhaul of five large cruise ships, hull and tank coating repair of several crude oil tankers, engine automation retrofit of two large tankers, complete renovation of a luxury cruise ship and conversion of a large fish processing ship.

The shipbuilding assets of the Portland Ship Repair Yard are augmented by the individual facility users' assets. Northwest Marine Iron Works, Cascade General, Inc., and West State, Inc., are contracted users of the facility.

The shipbuilding facilities at the Portland Ship Repair Yard are capable of producing modular type units from 1,525 to 5,084 metric tons, which are transported by rubber-tired vehicles, crawler or walker, via launching bridge to two locations. At one ship construction location, a vessel 475 feet by 100 feet (145 m by 30 m) can be constructed using the No. 3 drydock for launching. At the other location, a vessel up to 810 feet by 108 feet (247 m by 33 m) can be constructed using the No. 3 and No. 4 drydocks for launching.

Portland Ship Repair Yard operates three drydocks. The largest two (No. 3 and No. 4) can accommodate vessels up to 810 feet by 108 feet (247 m by 33 m), and 1150 feet by 181 feet (351 m by 55 m), respectively. A total of 10,100 feet (3,078 m) of fully serviced pier space with 16 whirley type cranes are employed for outfitting. In 1986, a new layberth facility (Berth 315) was added which can accommodate two 1,100-foot (335 m) VLCCs in lay-up status.

The Portland Ship Repair Yard has 500,000 square feet (46,450 square meters) of fully-enclosed service shops and warehouse space. The 11 module assembly bays are 323 feet (98 m) long, 70 feet (21m) wide (clear), 60 feet (18 m) high (clear).

The Portland Ship Repair Yard is preparing to expand its modular construction capability by an additional 35 acres, located in the Swan Island Basin. This facility will be suitable for constructing ship modules.

As of mid-1989 the shipyard employed about 2,015 persons, up from 1,370 in 1988.

Exhibit 12 is a current general arrangement plan of the Portland Ship Repair Yard facility and ship repair assets.

13. Robert E. Derecktor of Rhode Island, Inc.

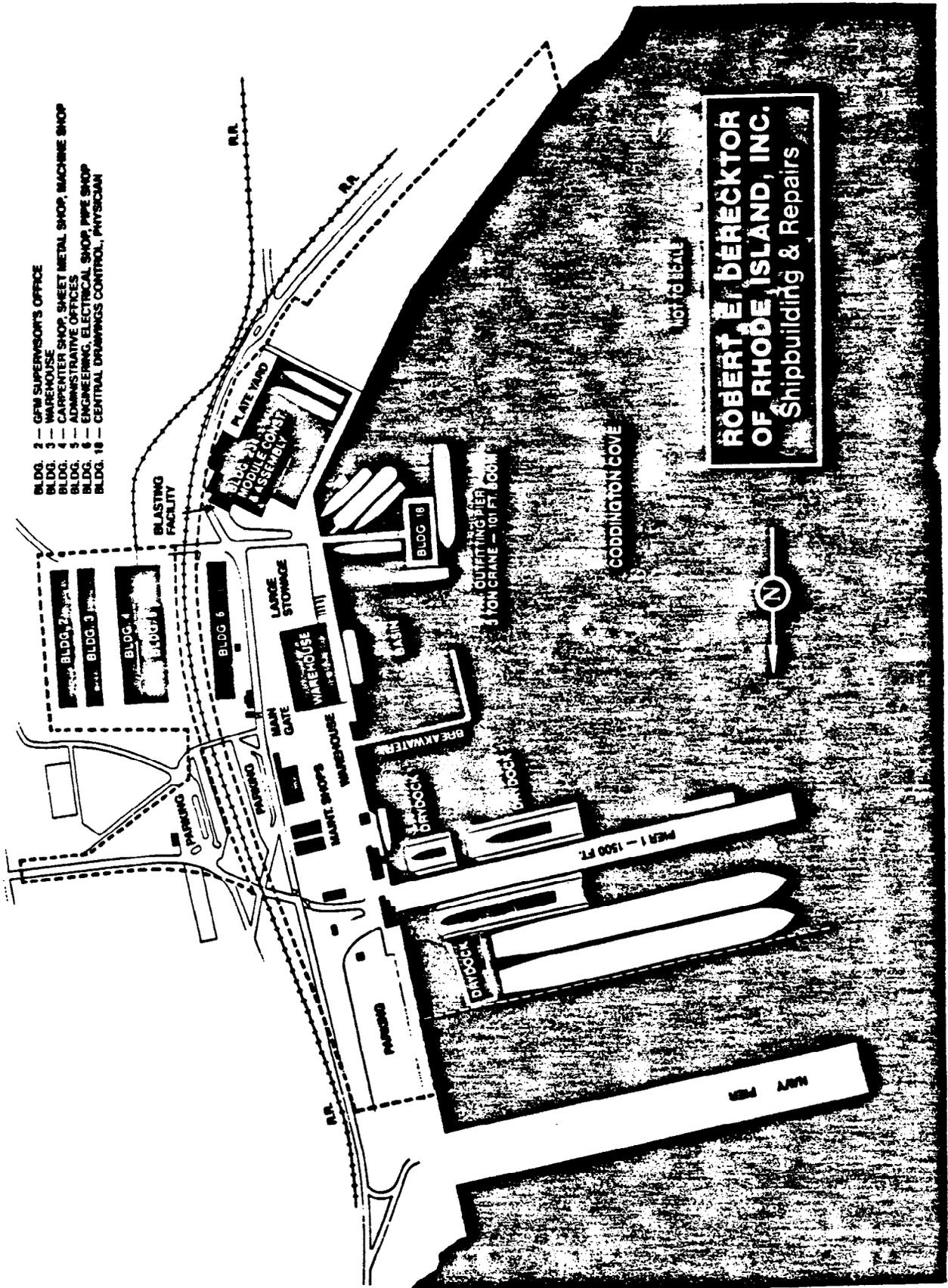
Robert E. Derecktor of Rhode Island, Inc., founded in 1979, is located in Middletown, RI. This Derecktor Shipyard comprises over 44 acres of land situated on Coddington Cove in Narragansett Bay. The facility is approximately 6.5 nautical miles from Brenton Reef Tower (2.5 nautical miles northeast of the Newport Bridge) giving access to any size vessel. In 1975, Derecktor began to develop the 44 acres of waterfront property after the Navy abruptly deactivated most of its Rhode Island (Newport Naval Base) facilities in 1974. In 1979, negotiations with the Navy and the Rhode Island Department of Economic Development were concluded and the yard was officially opened. The first vessels built at the Rhode Island yard were 80-foot (24 m) fishing vessels. Over the years major conversion and repair work performed at the facility include: work on Navy and Coast Guard vessels, LNG tankers, floating drydocks, ferry boats, fire boats, barges, tugs, fishing trawlers, and miscellaneous private craft.

In January 1981, the Rhode Island yard was awarded a significant contract to design and construct nine 270-foot (90 m) medium endurance cutters (WMECs) for the United States Coast Guard. Work commenced on the project in June 1981. Seven WMECs have been delivered. The last vessel is scheduled for delivery in February 1990. As of October 1, 1989, the yard had contracts for the construction of seven 128 foot (39 m) tugboats for the U.S. Army, with the options for three additional tugs. Other contracts included construction of a motoryacht and overhaul of the frigate, CONNOLE. The yard also launched a yacht during 1989.

The Rhode Island facility is one of the most modern and complete in the northeast. This Derecktor yard utilizes a 153,000 square foot (14,213 square meter) fabrication and assembly building, several inside shops, warehouses, engineering, design and office buildings, a 272 metric ton crawler crane, a 1,500-foot (457 m) deep water pier, and 6,500 feet (1,982 m) of accessible and usable waterfront. In addition, the shipyard operates two floating drydocks which are joinable and thus capable of accommodating a vessel up to 725 feet by 90 feet (221 m by 27 m). For building vessels up to 500 feet (152 m) in length, modules are constructed in the fabrication building, with final erection and launching accomplished at the floating drydocks. Fully equipped machine, piping, hydraulic, electrical, painting, carpentry and engine overhaul shops, and tank cleaning/storage capabilities enable all work to be done in-house. Over the past five years, extensive machinery and equipment have been put into place. Also, in January 1988 the shipyard acquired a floating drydock capable of accommodating a vessel up to 650 feet by 106 feet (198 m by 32 m).

As of mid-1989, Derecktor's Rhode Island yard workforce totaled 575.

Exhibit 13 is a current general arrangement of Derecktor's shipbuilding and repair facilities in Rhode Island.



**ROBERT E. BER ECKTOR
OF RHODE ISLAND, INC.**
Shipbuilding & Repairs

14. Tacoma Boatbuilding Company

In operation since 1926 in Tacoma, WA, this shipyard has designed, constructed, and repaired vessels for commercial customers, the Navy and Coast Guard, and foreign governments. Tacoma Boat's overall facilities consist of two yards covering over 30 acres of company-owned or leased property located adjacent to the Commencement Bay industrial complex.

Tacoma Boat (originally a builder of fishing vessels) has grown continuously through the years, producing a diversified construction pattern including a variety of standard-class tuna purseiners, a semisubmersible offshore oil-drilling rig, barges and tug/supply vessels for the offshore oil industry, WYTM icebreaking tugs and WMEC cutters 270-foot (75 m) long for the Coast Guard, revolutionary-design tractor tugs, and high-speed patrol ships, gunboats, and minesweepers for the Navy and/or foreign governments. The company also helped design and build an 80-knot surface effect ship (SES).

During the 1984 to mid-1989 period, Tacoma delivered 11 ocean surveillance ships (T-AGOS) to the Navy. This T-AGOS contract was a focal point for zone outfitting in which various portions or "zones" of a ship were built separately as virtually complete units and then assembled at the launchway.

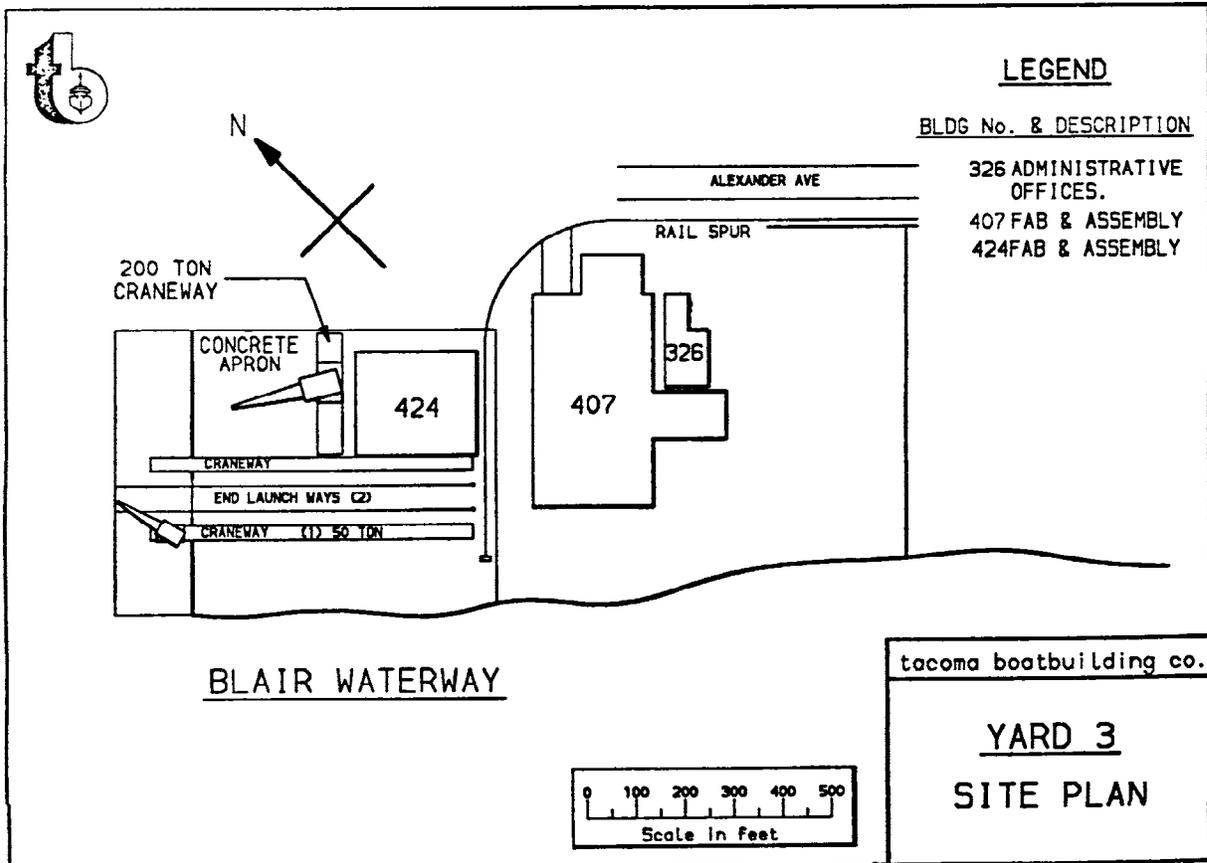
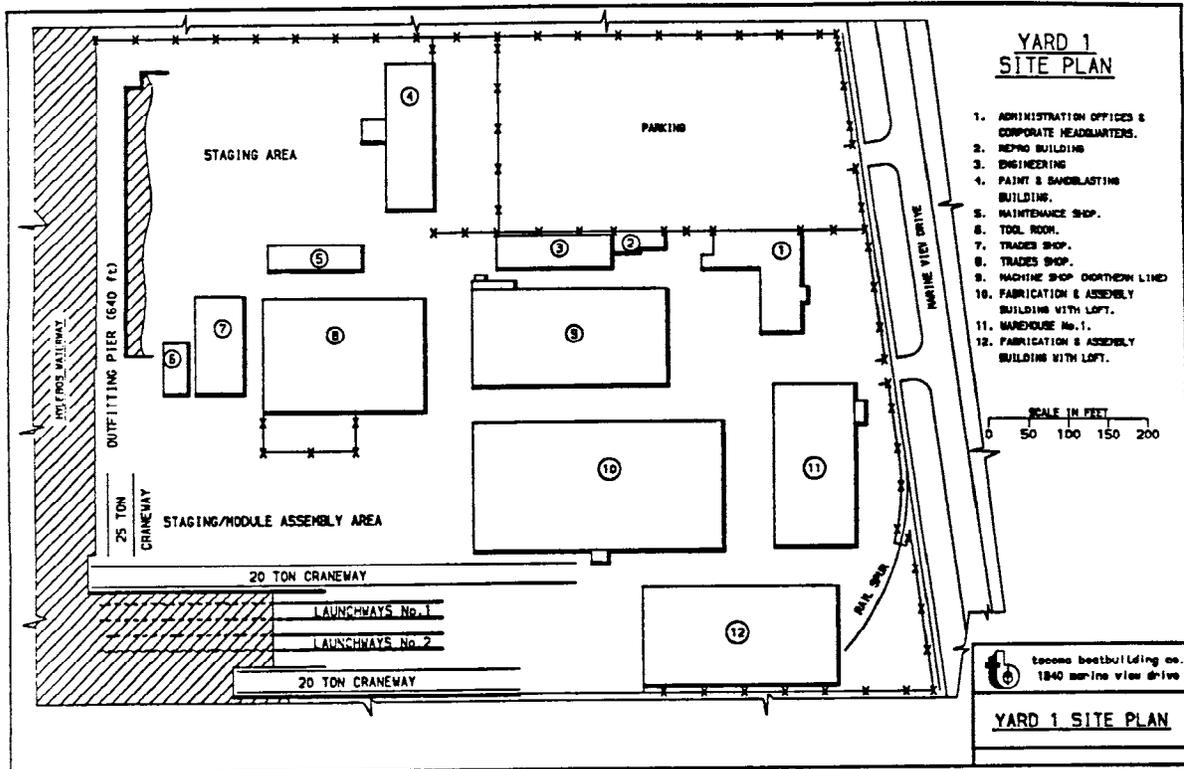
As of October 1, 1989, work underway at Tacoma Boat for the Navy included completion of construction of the last of 12 T-AGOS ships as well as conversion of the HAYES (T-AGOR-16) to a T-AG, and maintenance repairs on the aircraft carrier, NIMITZ. Other work at the yard included construction of a motor yacht, 11 fishing yachts, and conversion of three trawlers.

Tacoma Boat's facilities include four end-launch construction ways the largest of which can construct vessels up to 430 feet (131 m) by 50 feet (15 m). Available for outfitting and repair work is 1,350 feet (411 m) of berthing space. In addition, a 200-foot by 60-foot (91 m by 18 m) maximum ship capacity marine railway was placed in operation in October 1986.

In early 1989, Tacoma Boatbuilding established a 90 percent owned subsidiary, United Shipbuilders of America, Inc. (USA), in order to facilitate entering the luxury yacht market. In April 1989, USA acquired the Burger Boat Companies and Striker Yachts located in Washington, Wisconsin, and Florida.

The total work force at Tacoma Boat at mid-1989 was 430, down from 470 in mid-1988.

Exhibit 14 is current general arrangement drawings of the company's two yards.



15. Tampa Shipyards, Incorporated

Founded in 1948, Tampa Shipyards, Inc., (formerly Tampa Ship Repair and Drydock Co.) is a full-service yard which was purchased by The American Ship Building Company in 1972 and is located on the recently deepened 43-foot (13 m) Sparkman Channel in Tampa, FL.

During World War II, the company built Navy auxiliary vessels and C2 cargo ships for the Maritime Commission. Since World War II, Tampa Ship has been a major Gulf Coast repair yard. During the 1980's significant projects completed by Tampa Ship included the conversion of four Moore-McCormack C4 cargo ships to larger self-sustaining breakbulk/container vessels and the construction of five 30,000 dwt clean-product, ice-strengthened tankers for charter to the Military Sealift Command.

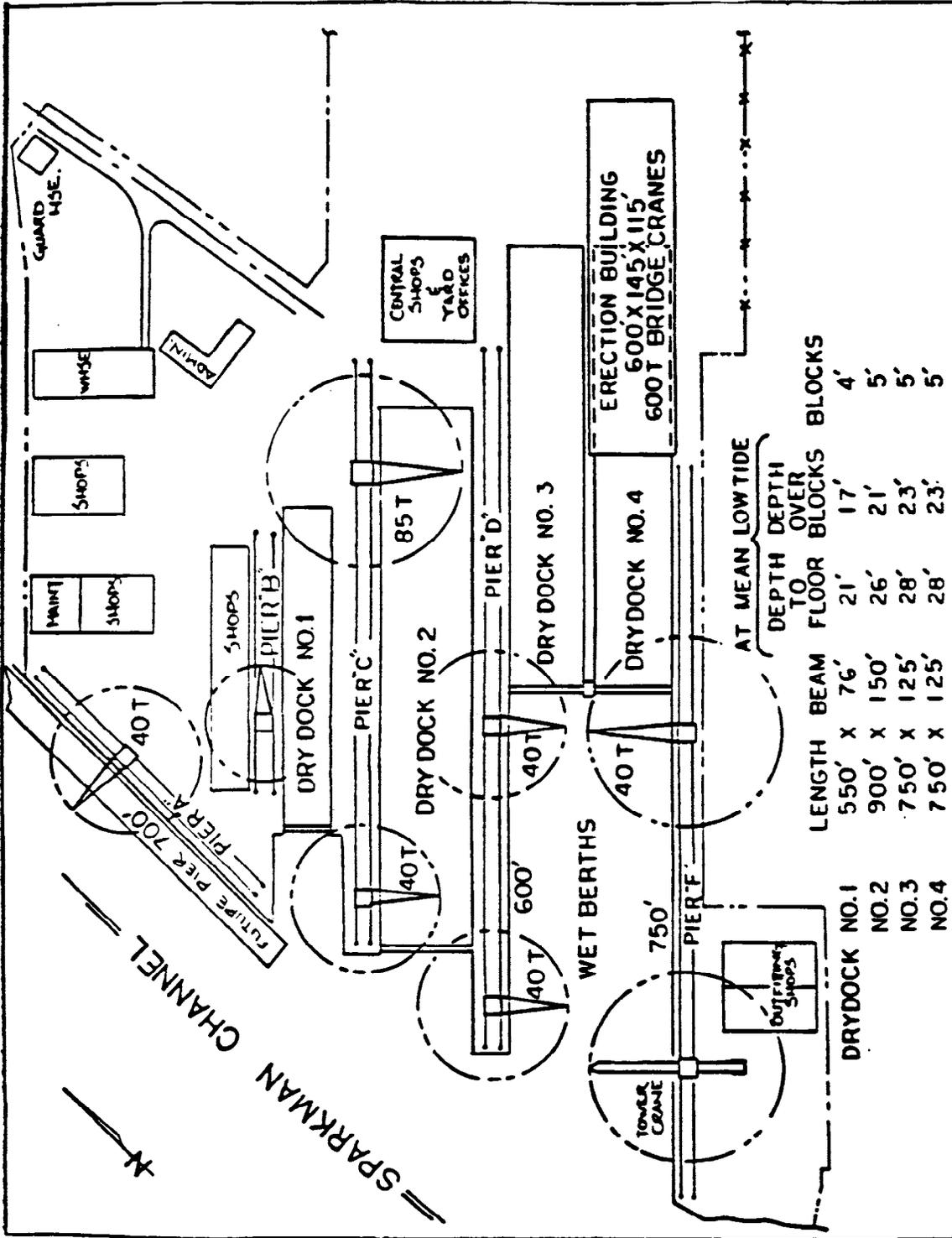
During 1989, Tampa Shipyards completed the conversion of two freighters to auxiliary crane ships, T-ACS 7 and 8, for the U.S. Navy. In late 1989, the Navy awarded Tampa a contract to complete construction of two T-AO fleet oilers, BENJAMIN ISHERWOOD and HENRY ECKFORD, which were originally ordered from Pennsylvania Shipbuilding Company in 1985. Delivery dates for these T-AOs have yet to be determined.

Major facility installations were integrated into Tampa's ship construction program in 1984. The additions include: a concrete pier, two graving docks, two wet berths, additional shops, and an erection/assembly building. The erection/assembly building is 600 feet by 145 feet by 115 feet (183 m by 44 m by 35 m), and is serviced by three overhead bridge cranes with a combined lifting capacity of 800 metric tons. About 350 feet (107 m) of this building straddles one of the graving docks, allowing pre-assembled units weighing in excess of 608 metric tons to be erected in a totally enclosed environment. The company currently has four graving docks operational. The largest can handle ships up to 896 feet by 146 feet (273 m by 45 m). Two of the drydocks can accommodate a vessel as large as 746 feet by 121 feet (227 m by 37 m).

To provide additional fabricating capability, Tampa Ship has acquired a long-term lease on the Westinghouse heavy steel fabricating facility on Tampa's Westshore. This facility provides 11 acres of covered fabrication floor, bridge cranes up to 635 metric ton capacity, and barge loading facilities. The building is two hours by tow from Tampa Ship. Also, Tampa Ship currently leases two wet berths north of the main yard at South Slip. These wet berths are 840 feet (256 m) and 700 feet (213 m) long.

As of mid-1989, 715 people were on the Tampa payroll compared to 900 in mid-1988.

Exhibit 15 is a general plan of Tampa Ship's main yard. Neither the South Slip nor the Westinghouse facility is shown.



Hookers Point Yard

TAMPA SHIPYARDS INCORPORATED

16. Todd Pacific Shipyards Corporation - Seattle Division

Todd's Seattle Division is located at the northwest corner of Harbor Island in Elliot Bay, less than 10 minutes from downtown Seattle, WA. From 1898 until 1916, when the William H. Todd Company of New York bought the shipyard from the Seattle Construction and Drydock Company, a variety of vessels were produced, including the world's finest six-masted barkentine and (at that time) the world's fastest single-screw steamer. This 52-acre yard has been a prime supplier of fighting ships for the Navy. During World War II, Todd-Seattle constructed over 125 ships and repaired and serviced some 2,700 deep draft vessels of all sizes, types, and flags. Since 1952, the yard has built 80 vessels of 20 different types.

As of October 1, 1989, work in the yard included the modernization of eight Hamilton class Coast Guard cutters with the last scheduled for redelivery in April 1992. This yard has an active ship repair and overhaul operation that annually works on a large number of commercial and naval vessels.

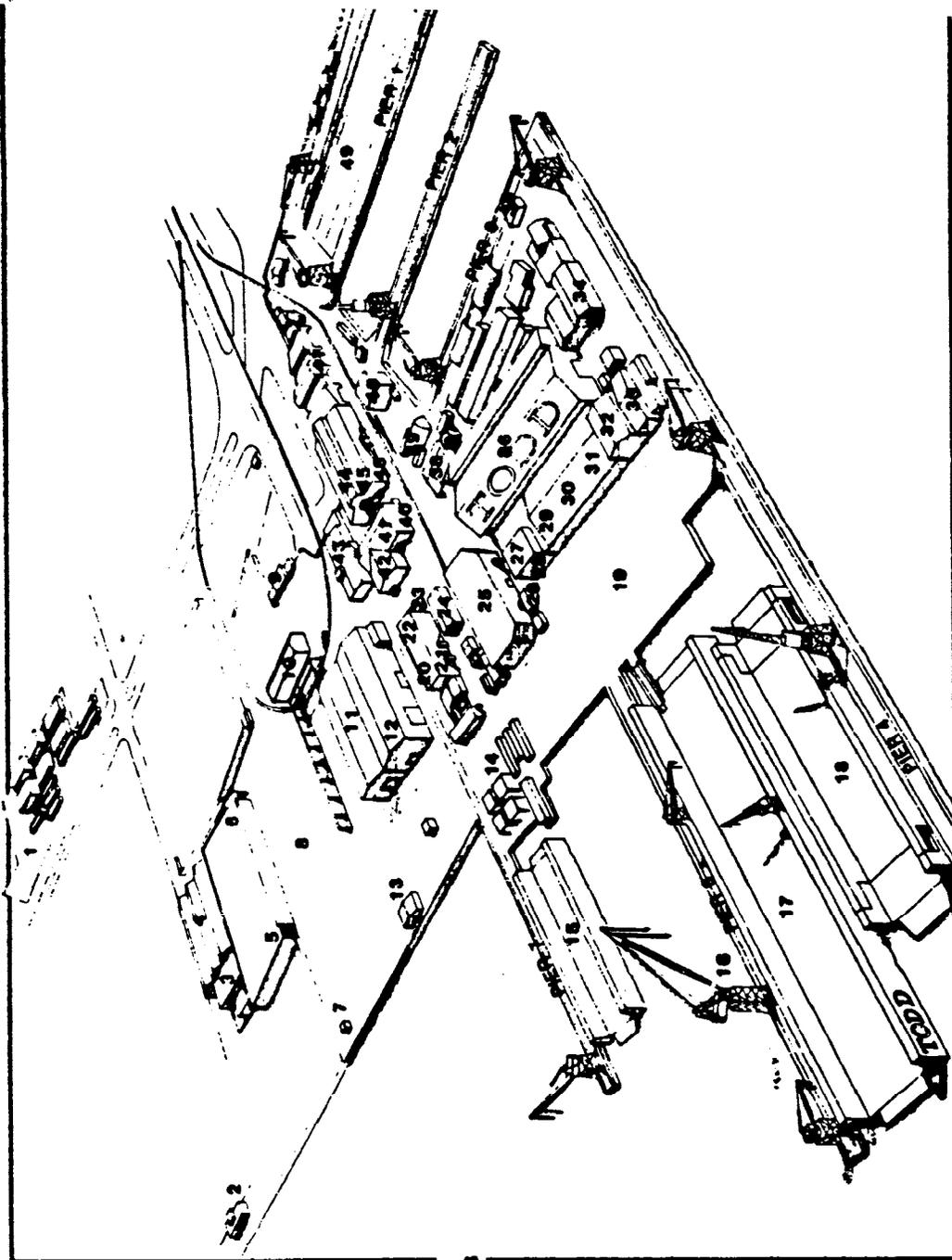
The largest building way at Todd-Seattle can handle a ship up to 600 feet by 96 feet (183 m by 29 m). It can also be used as a dual launchway for simultaneous construction of two ships with beams of 50 feet (15 m) or less. A small side-launch building way is also available. In addition to the 40,000 metric ton drydock, there are two other floating drydocks, the larger of which can accommodate ships up to 650 feet by 84 feet (198 m by 26 m).

In July 1982, the company transferred a 40,000 metric ton floating drydock from its San Francisco Division to Seattle. A new 137 metric ton traveling whirley crane on the adjacent 1,000-foot (305 m) concrete pier serves the floating drydock and the adjacent berths. A second pier was rebuilt in concrete and lengthened to give the yard a 1,000-foot (305 m) berth with a 40-foot (12.2 m) water depth.

Two wharves and five piers provide a total of 6,017 feet (1,834 m) of berthing space for outfitting and repair. The yard is serviced by 16 whirley traveling cranes, with lifting capacities ranging from 23 metric tons to 136 metric tons.

In June 1989, total employment at the Seattle plant was 1,670.

Exhibit 16 is a current plot plan of Todd-Seattle's facilities.



1. CREW'S BERTHING
2. MESSING FACILITY
3. SHIPPING/RECEIVING
4. WAREHOUSE
5. DATA PROCESSING
6. PURCHASING
7. SMALL BOAT COVERED WORK AREA
8. STEEL STORAGE AREA
9. MAIN GATE/SECURITY
10. SHOT BLAST FACILITY
11. ALUMINUM FABRICATION
12. AUTOMATED BURNING EQUIPMENT
13. ACID BATH CLEANING
14. SITE OF SHIP'S OFFICE AND DUTY BERTHING
15. DRYDOCK NO. 2
16. 150 TON WHIRLEY CRANE
17. DRYDOCK NO. 3 "EMERALD SEA"
18. DRYDOCK NO. 1
19. STAGING AREA
20. PRODUCTION PLANNING
21. CAFETERIA
22. NEW CONSTRUCTION SHIP SUPERINTENDENTS
23. COMBAT SYSTEMS DEPARTMENT
24. OUTSIDE MACHINE SHOP
25. INSIDE MACHINE SHOP
26. PORT ENGINEERS OFFICE
27. REPAIR SUPERINTENDENTS
28. YARD OFFICE
29. PIPE SHOP
30. CENTRAL TOOL ROOM
31. CARPENTER SHOP
32. ELECTRIC SHOP
33. RIGGING LOFT
34. SHEET METAL
35. QUALITY ASSURANCE
36. MAIN STEEL SHOP
37. MARINE CHEMIST/FIRE DEPT.
38. PUMP, MOTOR & VALVE SHORTEST FACILI
39. PAINT SHOP
40. DISPENSARY/CLAIMS DEPT.
41. ENGINEERING
42. NAVY PROGRAM OFFICE
43. ADMINISTRATION OFFICES
44. TECHNICAL LIBRARY DRAWING CONTROL
45. TEST & TRIAL OFFICE
46. GENERAL SUPERINTENDENTS
47. SOUTH STEEL SHOP
48. MISSILE LAUNCHER ASSEMBLY BUILDING
49. CONSTRUCTION WAYS



PACIFIC SHIPYARDS CORPORATION

SEATTLE DIVISION

17. The Toledo Shipyard

In January 1985, the Toledo-Lucas County Port Authority purchased this shipyard from The American Ship Building Company which owned the yard since 1947 and closed it in 1982. In September 1985, the yard was re-opened when Merce Industries, Inc., a 25-year old topside repair firm, entered into an agreement with the Port Authority to operate the shipyard for 25 years. The Toledo Shipyard is a complete, full-service shipyard, equipped for new construction, conversion, repair, and propeller repair.

Since Merce Industries, Inc., began operating the yard, they have made extensive repairs, and they have upgraded, and renovated the facility, including the leveling of the old fit-out building adjacent to one of the drydocks, which improved access to the pier area between the graving docks and the wet slip area. Merce Industries elected not to lease the buildings immediately adjacent to the yard as the firm had existing facilities that were superior and in the nearby area. These existing facilities include a 4645 square meter fabricating/propeller repair facility and a 1115 square meter machining and pressure vessel shop.

Complete facilities for propeller repair services in all alloys is available through the American Propeller Division.

The company maintains two graving docks. One can accommodate vessels up to 680 feet by 78 feet (207 m by 24 m), and the other, vessels as large as 540 feet by 68 feet (165 m by 21 m). Usable berthing space totals about 1,600 feet (488 m).

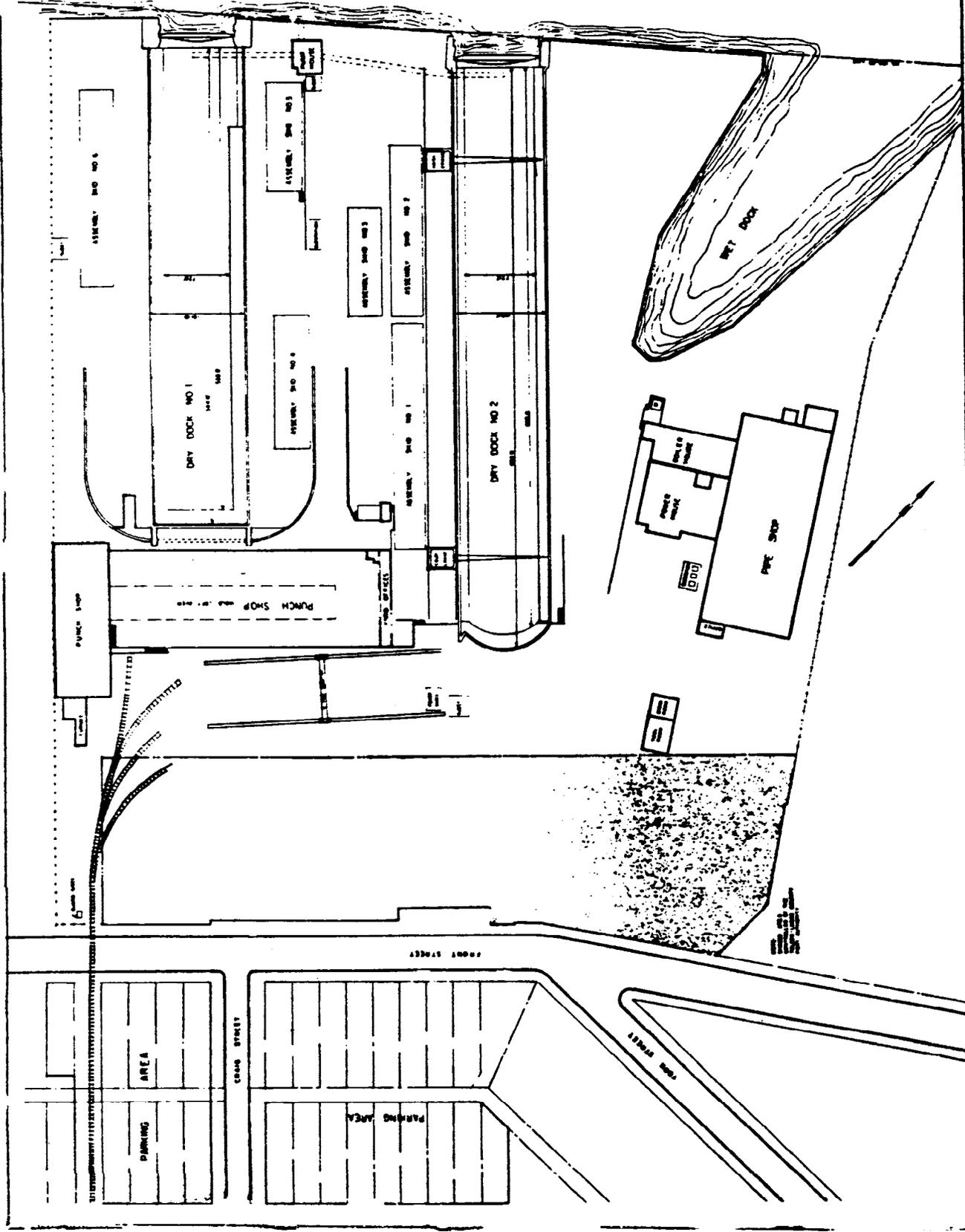
On December 17, 1986, Toledo Shipyard filed for protection under Chapter 11 of the U.S. bankruptcy code. In June 1988, the court approved a reorganization plan allowing a five-year repayment period.

Work at the yard during the first three quarters of 1989 included repair of commercial vessels and drydocking, sandblasting and repainting of a dredge for the U.S. Army, as well as overhaul of a Coast Guard cutter.

As of June 1989, employment at the shipyard totaled 100. Employment increases during the winter months as repair activity on the Great Lakes increases.

Exhibit 17 is a current lay-out of The Toledo Shipyard operated by Merce Industries, Inc.

MAUMEE RIVER



THE TOLEDO SHIPYARD

GENERAL ARRANGEMENT

MERCE INDUSTRIES
1140 FRONT ST. TOLEDO, OHIO

DATE: 10-13-58

18. Trinity Industries, Inc. - Beaumont Yard

This shipyard, located on the Neches River in Beaumont, TX, was established in 1917 by Beaumont Shipbuilding and Drydock Company, which built C1-A cargo ships and Navy minesweepers during World War II. In 1947 the yard was acquired by Bethlehem Steel Corporation which pioneered the design and production of mobile offshore drilling rigs, drill ships, offshore oil and gas facilities and barges. After closure in mid-1988, the yard was acquired and reopened in mid-1989 by Trinity Industries, Inc., of Dallas, Texas.

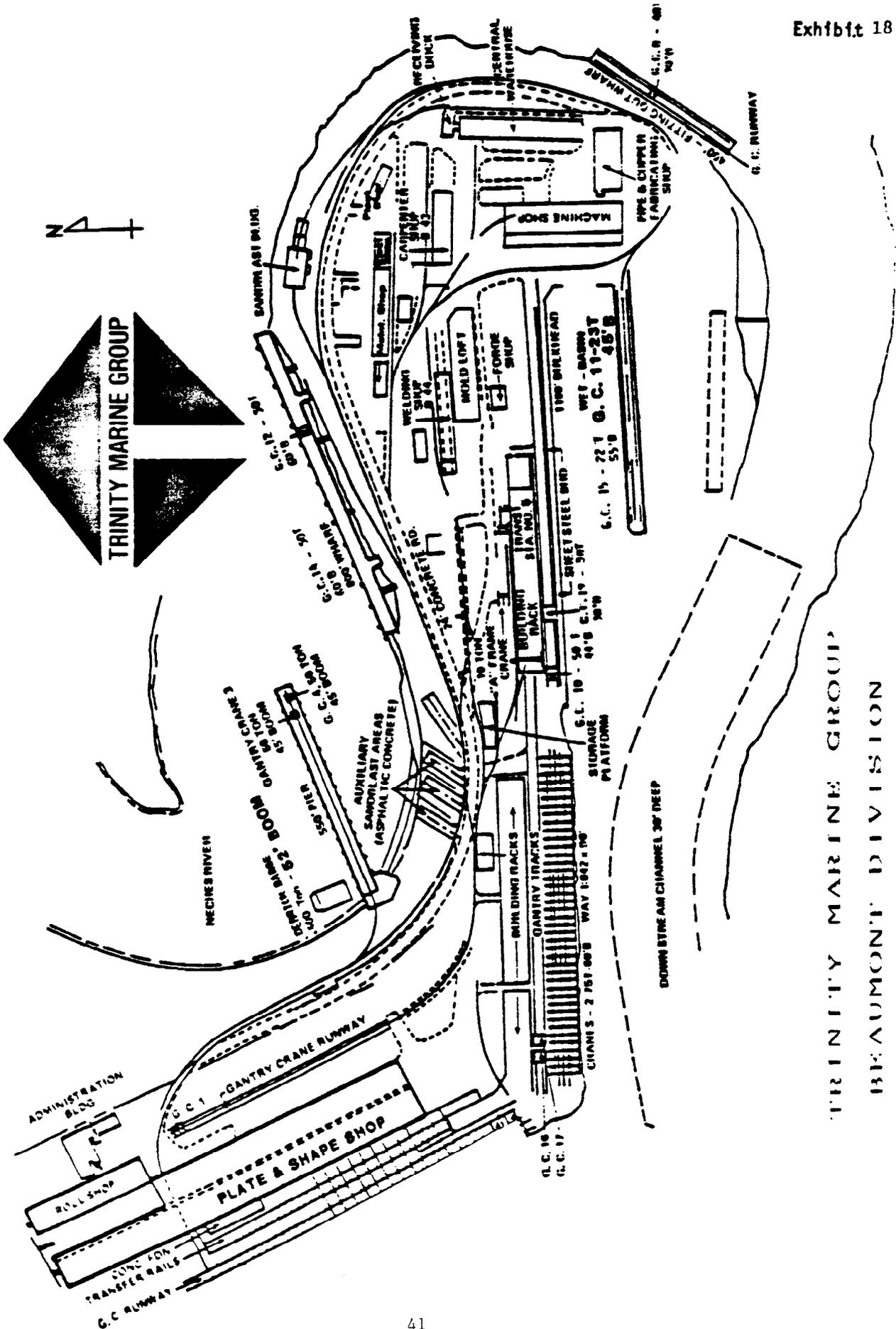
Trinity's Beaumont yard is highly mechanized. In the early 1970s, a multimillion-dollar panel line and material handling facilities were installed. In recent years, capital improvements included installation of a CNC plasma burning machine, larger plate bending rolls, larger overhead bridge cranes, pipe burning and bending equipment, a pipe fabrication shop, improved welding equipment, mobile cranes, and improved building platens.

Trinity-Beaumont has one side-launching way that can accommodate ships up to approximately 950 feet by 105 feet (293 m by 32 m). Also, the yard is currently in final negotiations to acquire a floating drydock (AFDM-2) from the Navy. This drydock which can accommodate a vessel up to 650 feet (198 m) in length with a beam of 95 feet (28 m), is expected to be in operation by June 1990.

There are 4,600 feet (1402 m) of fully-serviced piers and wharves and mobile equipment for servicing ships or other vessels at pierside or anchorage. With a 500-ton (508 metric ton) lift capacity, the company's barge-mounted "Big Bessie" is the largest floating derrick between Houston and New Orleans.

Employment at Trinity's Beaumont facility was at a very low level as of mid-1989 because of the recent acquisition. While awaiting a major marine construction contract, Trinity is utilizing the yard's flexibility by repairing and servicing railcars, heat exchangers and other steel fabricated products.

Exhibit 18 is a current layout of Trinity's Beaumont plant and facilities.



Employment

Total employment trends over the past seven years in privately owned U.S. shipbuilding and ship repair yards (Bureau of Labor Statistics-SIC 3731-figures) are illustrated in the following table:

1981 Average	186,700
1982 Average	171,600
1983 Average	147,300
1984 Average	155,900
1985 Average	145,100
1986 Average	136,500
1987 Average	126,500
1988 Average	127,100
1989 January	126,900
1989 February	126,200
1989 March	121,400
1989 April	120,100
1989 May	120,800
1989 June	120,300
1989 July	120,800
1989 August	120,100
1989 September (Prelim.)	121,200

The Bureau of Labor Statistics (BLS) conducts a random sampling of employment in SIC 3731 (shipbuilding and ship repair) industry establishments. From this sample, employment data extrapolations are made and published monthly. It should be noted that the 1989 projections are preliminary and may be subject to extensive revision by BLS.

Ship Repair Industry

While over 200 privately owned firms of varying capabilities are involved in repairing ships in the United States, only 49 yards are capable of drydocking vessels 400 feet in length and over. For ships this size, the U.S. shipbuilding and repair industry is currently operating a total of 53 floating drydocks, 29 graving docks, and 5 marine railways. However, some of these graving docks are committed to new construction. The large organizations which have drydocks generally have extensive waterfront acreage and are capable of all types of ship repair and maintenance. Major shipyards usually combine repair, overhaul, and conversion with shipbuilding capabilities, and employment usually numbers in the thousands. It is difficult to draw a sharp line between shipbuilding yards and ship repair yards, as many of the two engage in both types of work.

Despite the downtrend in orders for new merchant vessels, several shipyards have in recent years expanded or upgraded ship repair, overhaul, and conversion facilities to improve their efficiency and competitive posture. Examples of recent, current, and planned plant expansion and modernization programs are:

o National Steel and Shipbuilding Company (NASSCO)

In 1987, NASSCO acquired two new burning machines, engineering CAD equipment, an LSA computer system, a valve test stand, and a living barge. An automated tool inventory control system, turning jig for curved steel blocks, and an enhanced pin jig area with two bridge cranes were placed in service in 1988.

o Bethlehem Steel Corporation

In August 1987 the Sparrows Point yard installed a 44,735 metric ton floating drydock. This drydock can accommodate vessels up to 900 feet (274 m) in length. The entry channel to the facility has been dredged to a depth of 30 feet (9 m).

o Portland Ship Repair Yard (PSRY)

The PSRY is preparing to expand its modular construction capability by an additional 35 acres, located in the Swan Island Basin. This facility will be suitable for constructing ship modules to 5,000 tons (5,084 metric tons) which can be crawler transported, barge loaded, and joined and launched on its No. 4 drydock.

o Ingalls Shipbuilding Division/Litton Systems, Inc.

A major productivity improvement program was completed in August 1988 which enhanced the proven success of modular shipbuilding. About 180,000 square feet (16,722 square meters) of the shipyard's slab area was brought under roof to increase the amount of early outfitting performed. In addition to the covered work area, improved pipe production facilities, a machinery packaging facility, and a new blast and paint station in the steel fabrication shop have been added.

o Bath Iron Works

A new pre-outfit building of 200 feet by 410 feet (60 m by 125 m) was opened in 1987 at BIW. This building has 18 work stations for 219 metric ton erection units. BIW also added in 1987 a new 220 metric ton capacity revolver crane to serve the third shipway. The shipway can accommodate a ship 650 feet by 88 feet (198 m by 27 m).

o Robert E. Derecktor

In January 1988, this shipyard acquired a 600 foot by 135 foot (183 m by 41 m) floating drydock capable of drydocking vessels 650 feet by 106 feet (198 m by 32 m).

Ship repair is considered within the industry as generally more profitable than ship construction, and it is also seen as a means to maintain a skilled labor force. The repair yard often commands excellent prices for urgently needed repairs and can control its overhead closely. Ship repair yards over the last few years also have been actively soliciting non-ship industrial work requiring skills such as steel fabrication, welding, boiler repairs, and engine overhauls, typical in ship repair.

Repair of naval ships has become a matter of vital importance requiring the highest skill and dedication; and as the complexity and sophistication of warships grow, so must the capabilities of U.S. repair yards. This country's privately owned ship repair industry is an essential national resource in the planning and execution of the maintenance and upkeep of these complex naval ships. Private U.S. shipyards are continuing to receive at least 30 percent of the funds available each year for repairs, overhaul, and conversion of Navy vessels. Projected ship alteration and repair programs essential to maintain these ships at a high level of material readiness are expected to result in a nominal future workload increase for both naval and private shipyards. However, the large size and complexity of Navy combatant ships restricts participation in this type of Navy work to a limited number of private yards despite the current emphasis on public/private shipyard competition in the repair sector.

Although several firms in the industry are readying their yards for greater future participation in the Navy repair and overhaul market, private ship repair capacity in many areas of the Nation continues to be underutilized.

Repair (with Drydocking) Facilities

Major drydocking facilities are defined in this report as those yards having at least one drydocking facility that can accommodate vessels 400 feet (122 m) in length and over, provided that water depth in the channel to the shipyard itself is at least 12 feet. These facilities may also be capable of constructing a vessel less than 400 feet (122 m) length overall.

Appendix B tabulates information updated through 1989 on 37 of these repair yards by geographical location. Additional information is available in the Office of Ship Construction.

Major Topside Repair Facilities

Major topside repair facilities are those that have sufficient berth/pier space for topside repair of ships 400 feet (122 m) in length and over, provided that water depth in the channel to the facility itself is at least 12 feet. These facilities may also have drydocks and/or construction capability for vessels less than 400 feet (122 m) in length. Services rendered by these firms vary from a simple repair job to a major topside overhaul, particularly when the work on oceangoing ships can be accomplished without taking the ships out of the water. It is common practice for a shipyard to send its personnel and equipment to provide voyage repairs while the ship is at anchor or working cargo at a commercial marine terminal. There is an increasing trend worldwide to send ship repairers to the ship rather than to bring the ship to the shipyard, thus calling for greater mobility of ship repair personnel. This trend creates a particular demand for highly skilled technicians versus the hull trades.

Appendix B also tabulates information through 1989 on the 54 topside repair yards' facilities (berth/pier space). The yards' building ways, drydocks, marine railways, etc., are not addressed herein as they cannot accommodate vessels 400 feet (122 m) in length and over. However, detailed data for these facilities were obtained during the MARAD annual shipyard survey and are available in the Office of Ship Construction.

Active Shipbuilding Base

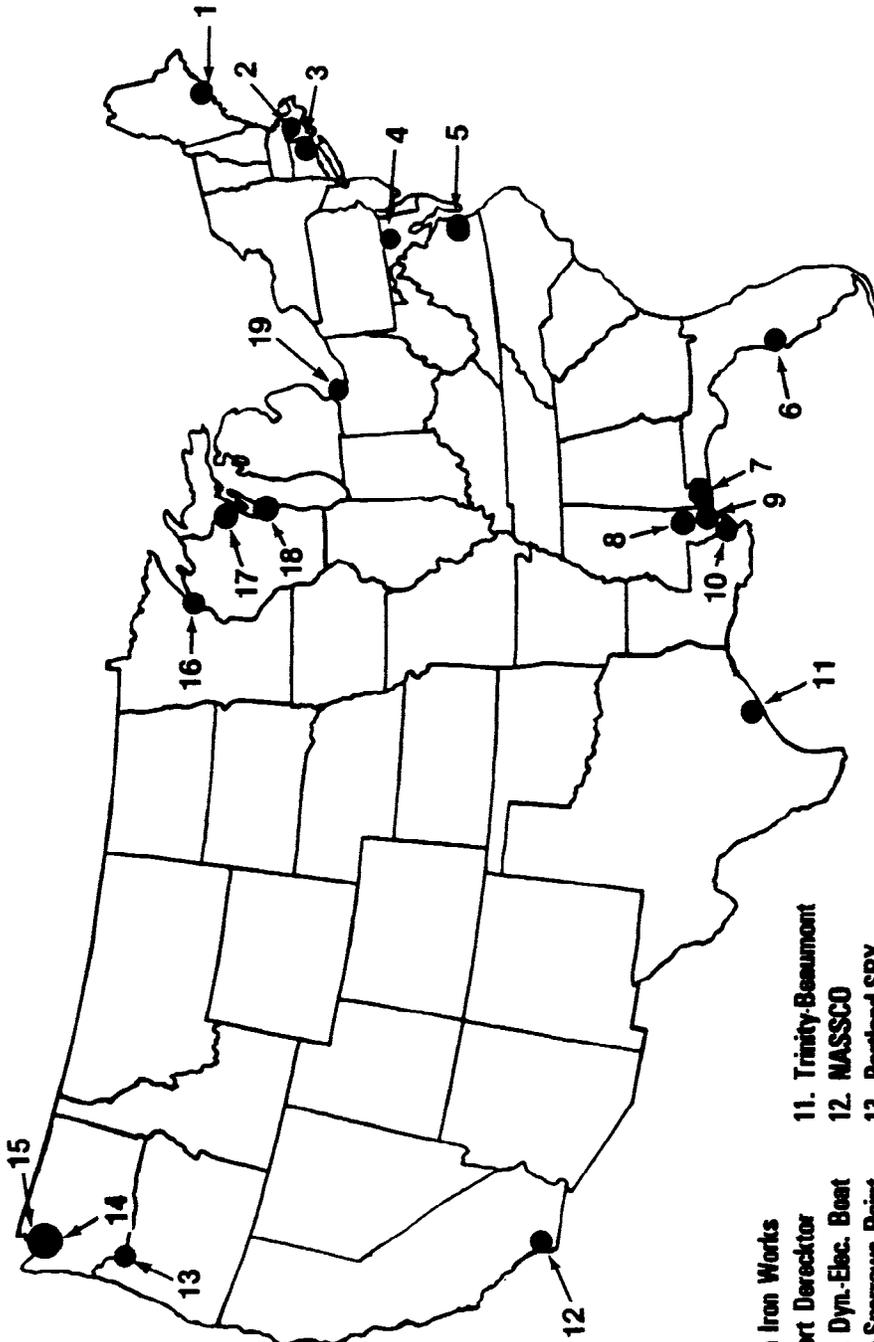
The Active Shipbuilding Base, as identified by the Navy and MARAD, is comprised of 16 privately owned U.S. shipyards which are open and currently engaged in or seeking contracts for the construction of major oceangoing or Great Lakes ships 1,000 gross tons or over. Exhibit 22 of this report identifies and geographically locates these 16 yards.

During 1989, the number of yards in the Active Shipbuilding Base was decreased from 19 to 16 as a result of the closure of Pennsylvania Shipbuilding Company and Todd Shipyard Corporation's Los Angeles Division, and cessation of Todd Shipyard Corporation's Galveston Division as a new construction facility. As of September 1989, these 16 yards employed roughly 75 percent of the U.S. shipbuilding and repair industry's total work force, as reported by the Bureau of Labor Statistics under SIC 3731. At that same time, 92 percent of the production workers in these 16 shipyards were engaged in Navy or Coast Guard ship construction and repair work.

As of year end, eight of the 16 shipyards were engaged in construction and/or conversion of major combatant ships for the Navy. Four of the yards were engaged primarily in ship construction and conversion work provided by the Navy's T-Ship program. Four of the yards had only repair and overhaul work, smaller Navy vessel orders, and non-ship construction work.

Employment projections for production workers is shown by Exhibit 23 of this report. This data is generated by overlaying Navy projected five-year shipbuilding and conversion programs onto the estimated work force required to complete the current firm orderbook.

SHIPBUILDING INDUSTRY IN THE UNITED STATES



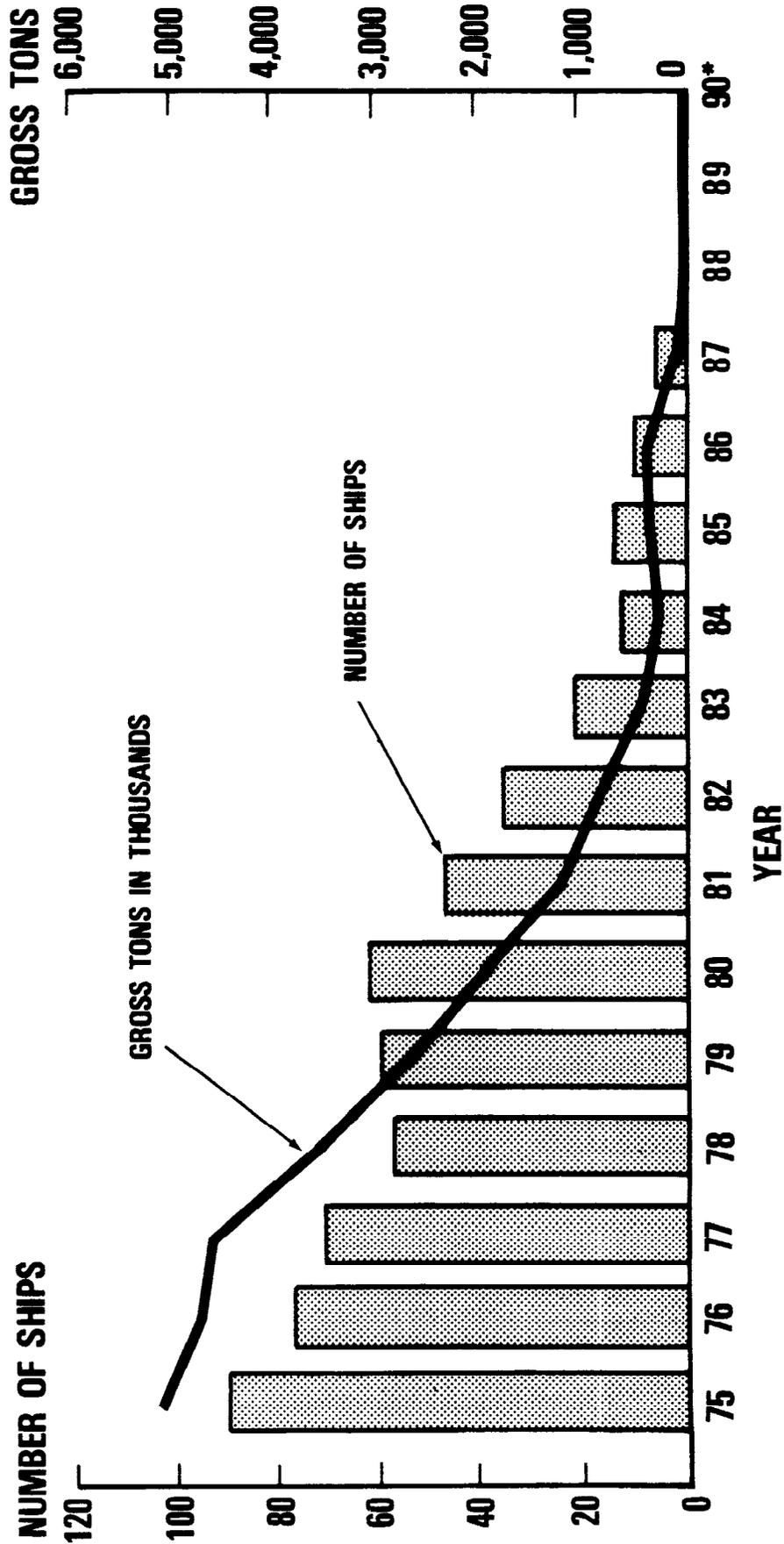
- | | |
|-------------------------|-----------------------|
| 1. Bath Iron Works | 11. Trinity-Beeumont |
| 2. Robert Dereeckor | 12. MASSCO |
| 3. Gen. Dyn.-Elec. Boat | 13. Portland-SRY |
| 4. Beth-Sparrows Point | 14. Tacoma Boat |
| 5. Newport News SB | 15. Todd-Seattle |
| 6. Tampa Shipyards | 16. Fraser Shipyards |
| 7. Alabama Shipyard | 17. Marinette Marine |
| 8. Moss Point Marine | 18. Peterson Builders |
| 9. Ingalls/Litton | 19. Toledo Shipyard |
| 10. Avondale Shipyards | |

U.S. SHIPBUILDING FACILITIES

1989

MERCHANT VESSELS BUILDING OR ON ORDER (AS OF JANUARY 1)

SHIPS OF 1,000 GROSS TONS AND OVER

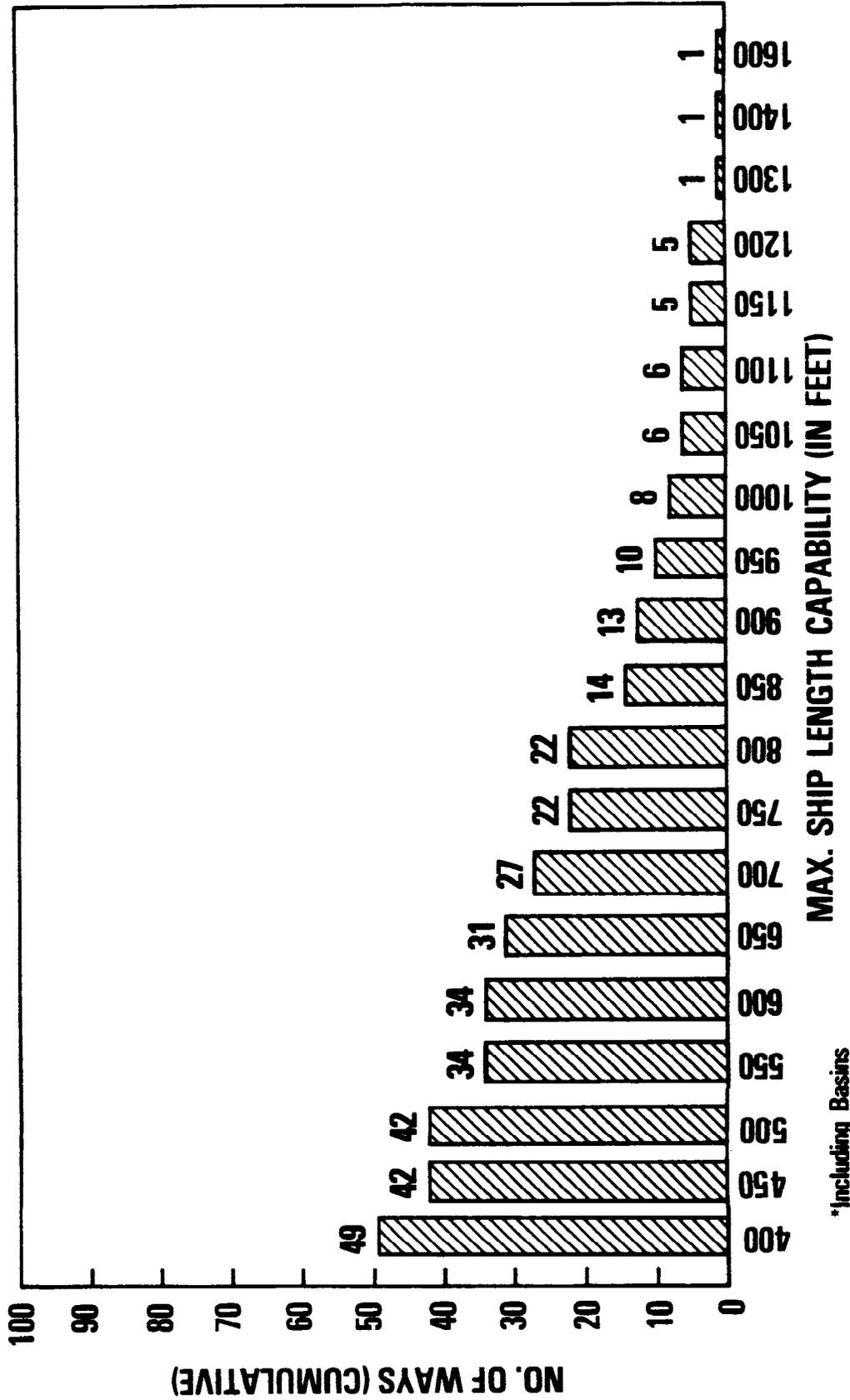


SOURCE: MARITIME ADMINISTRATION

*FORECAST

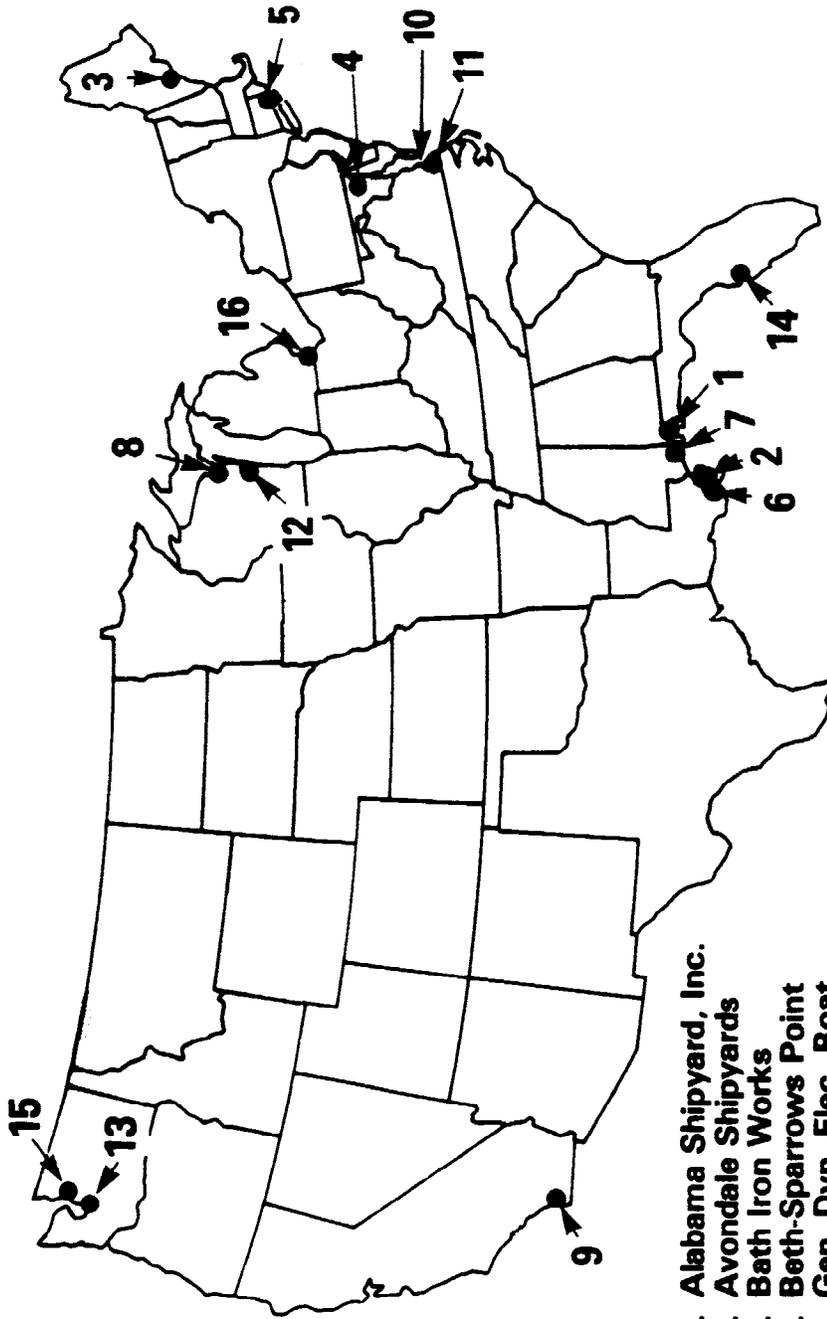
MAJOR U.S. SHIPBUILDING FACILITIES

*NUMBER OF SHIPWAYS BY MAXIMUM LENGTH CAPABILITY
(OCTOBER 1, 1989)



*Including Basins

ACTIVE U.S. SHIPBUILDING BASE

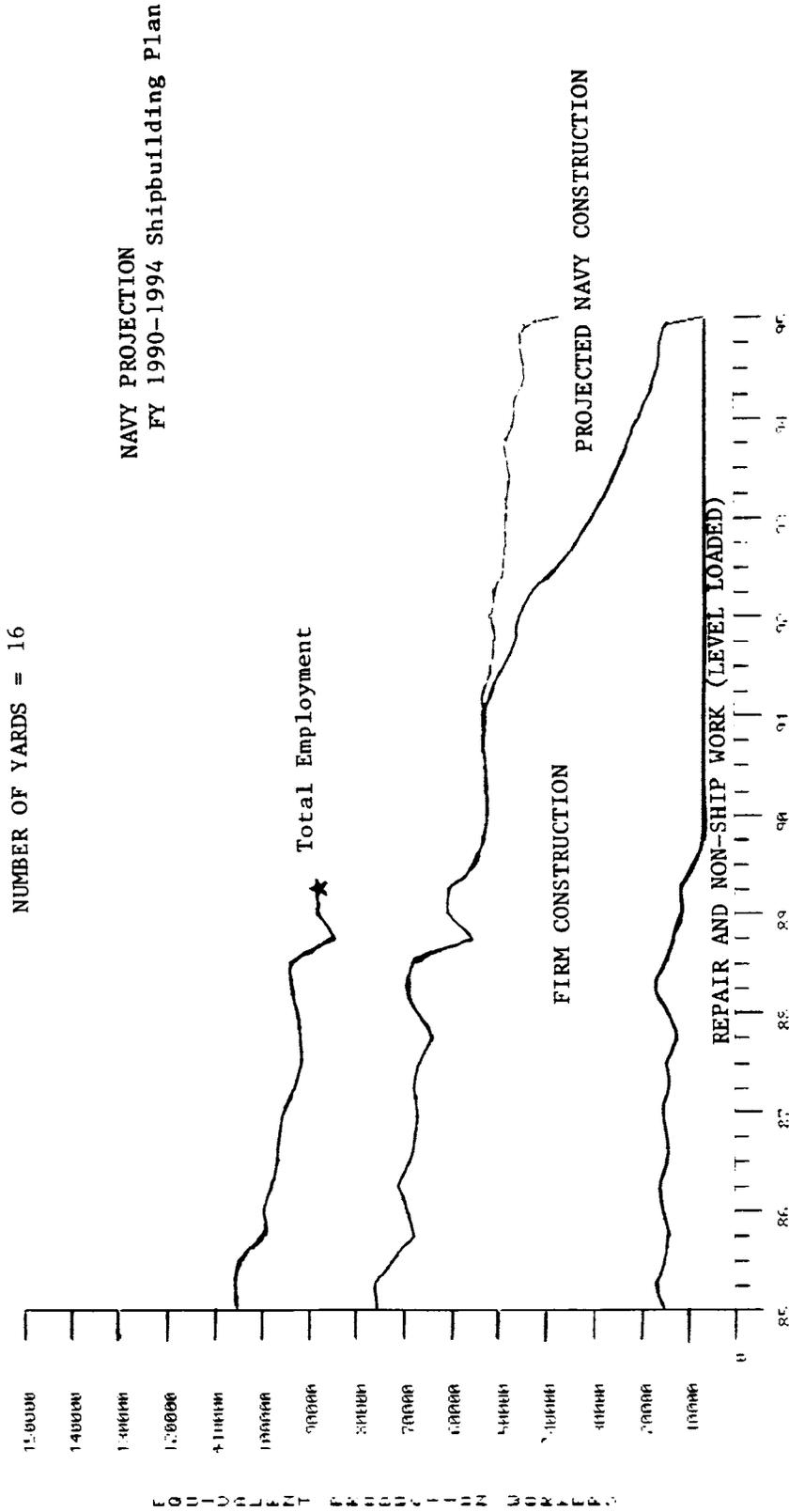


- 1. Alabama Shipyard, Inc.
- 2. Avondale Shipyards
- 3. Bath Iron Works
- 4. Beth-Sparrows Point
- 5. Gen. Dyn.-Elec. Boat
- 6. Halter Marine-Equitable
- 7. Litton/Ingalls
- 8. Marinette
- 9. NASSCO
- 10. Newport News
- 11. Norfolk SB & DD
- 12. Peterson
- 13. Tacoma Boat
- 14. Tampa Ship
- 15. Todd-Seattle
- 16. Toledo Shipyard

1989

Shipbuilding Industry Workload Projection

Active Shipbuilding Base Summation



SOURCE: Shipyard Data from form MA-832 when provided.
OFFICE OF SHIP CONSTRUCTION, MARITIME ADMINISTRATION

October 1989

TABLE 1

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

1/ LEGEND

Maximum Ship Size
(LOA X Beam)

- SW = Shipway
- GD = Graving Dock
- FD = Floating Drydock
- MR = Marine Railway
- LL = Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	General Cargo							Dry Bulk		
		Gen. Cargo 475 X 68	Mob. Cargo 724 X 105	Container 610 X 90	RO/RO 684 X 102	LASH 893 X 100	Container 947 X 105	21,300 570 X 75	51,000 600 X 105	100,000 900 X 105	
<u>EAST COAST</u>											
Bath Iron Works	650 X 88SW	1	0	1	0	0	0	1	0	0	
	(2) 700 X 130SW	2	0	2	2	0	0	2	2	0	
		3	0	3	2	0	0	3	2	0	
Bethlehem Steel, Baltimore Marine Div.	(2) 800 X 106SW	2	2	3	2	0	0	2	2	0	
	1200 X 192GD	4	1	3	2	1	1	4	2	1	
		6	3	5	4	1	1	6	4	1	
Newport News	668 X 93SW	1	0	1	0	0	0	1	0	0	
	958 X 124GD	2	1	2	1	1	1	2	1	1	
	1100 X 130GD	2	1	2	1	1	1	2	2	1	
	1609 X 246GD	9	4	5	4	2	2	6	4	1	
		14	6	10	6	4	4	11	7	3	

1/ LEGEND

Maximum Ship Size
(LOA X Beam)

SW = Shipway
GD = Graving Dock
FD = Floating Drydock
MR = Marine Railway
LL = Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	General Cargo							Dry Bulk		
		Gen. Cargo 475 X 68	Mob. Cargo 724 X 105	Container 610 X 90	RO/RO 684 X 102	LASH 893 X 100	Container 947 X 105	21,300 570 X 75	51,000 600 X 105	100,000 900 X 105	
Robert Detektor	500 X 90LL	1 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	
<u>GULF COAST</u>											
Alabama Shipyard	(4) 523 X 90SW	4 4	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	
Avondale	(2) 1020 X 175LL (3) 1200 X 126LL	8 6 14	2 4 6	3 5 8	3 4 7	2 4 6	2 3 5	6 6 12	3 5 8	2 3 5	
Littons/Ingalls	(5) 844 X 260LL * 1540 X 180LL *	25 3 28	11 2 13	13 2 15	11 2 13	0 0 0	0 0 0	16 2 18	11 2 13	0 0 0	

* Ship size constrained by maximum launching capability of 850' X 173'.

1/ LEGEND

Maximum Ship Size
(LOA X Beam)
SW - Shipway
GD - Graving Dock
PD - Floating Drydock
MR - Marine Railway
LL - Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	General Cargo										Dry Bulk		
		Gen. Cargo 475 X 68	Mob. Cargo 724 X 105	Container 610 X 90	RO/RO 684 X 102	LASH 893 X 100	Container 947 X 105	21,300 570 X 75	51,000 600 X 105	100,000 900 X 105				
Tampa Shipyards	(2) 746 X 121GD	2/2	2/2	2/2	2/2	0/0	0/0	2/2	2/2	2/2	2/2	2/2	2/2	0/0
Trinity-Beaumont	960 X 105SW	1/1	1/1	1/1	1/1	1/1	0/0	1/1	1/1	1/1	1/1	1/1	1/1	1/1
<u>WEST COAST</u>														
National Steel & Shipbuilding Co.	690 X 90SW	1	0	1	0	0	0	1	0	0	1	0	0	0
	(2) 900 X 106SW	2	2	2	2	2	2	2	2	0	2	2	2	2
	980 X 170GD	4	1	1	1	1	1	2	1	1	2	1	1	1
		7	3	4	3	3	3	5	3	1	5	3	3	3
Portland SRY	475 X 100LL	1	0	0	0	0	0	0	0	0	0	0	0	0
	810 X 108LL	1	1	1	1	0	1	1	1	0	1	1	1	0
		2	1	1	1	0	1	1	1	0	1	1	1	0
Todd-Seattle	600 X 96SW	1	0	0	0	0	0	0	0	0	1	0	0	0

1/ LEGEND

- Maximum Ship Size
(LOA X Beam)
 SW - Shipway
 GD - Graving Dock
 FD - Floating Drydock
 MR - Marine Railway
 LL - Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	General Cargo										Dry Bulk		
		Gen. Cargo 475 X 68	Mob. Cargo 724 X 105	Container 610 X 90	RO/RO 684 X 102	LASH 893 X 100	Container 947 X 105	21,300 570 X 75	51,000 600 X 105	100,000 900 X 105				
<u>GREAT LAKES</u> *														
Fraser Shipyards	825 X 82GD	1 1	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	1 1	0 0	0 0	
The Toledo Shipyard	540 X 68GD 680 X 78GD	0 1 1	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	

* (NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 730' X 78'.)

1/ LEGEND

Maximum Ship Size
(LOA X Beam)
SW - Shipway
GD - Graving Dock
FD - Floating Drydock
MR - Marine Railway
LL - Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	Tankers										ORO		
		25,000 620 X 75	38,000 688 X 90	89,000 894 X 105	120,000 920 X 138	125,000 Cu.m. 932 X 140	225,000 1100 X 140	265,000 1100 X 178	80,000 886 X 105	160,000 998 X 143				
<u>EAST COAST</u>														
Bath Iron Works	650 X 88SW (2) 700 X 130SW	1 2 3	0 2 2	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0	
Bethlehem Steel, Baltimore Marine Div.	(2) 800 X 106SW 1200 X 192GD	2 3 5	2 2 4	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	0 1 1	
Newport News	668 X 93SW 958 X 124GD 1100 X 130GD 1609 X 246GD	1 1 1 6 9	1 1 1 4 7	0 1 1 2 4	0 0 0 1 1	0 0 0 1 1	0 0 0 1 1	0 0 0 1 1	0 0 0 1 1	0 0 0 1 1	0 0 0 1 1	0 0 0 2 4	0 0 0 1 1	0 0 0 1 1

1/ LEGEND

Maximum Ship Size
(LOA X Beam)
SW - Shipway
GD - Graving Dock
FD - Floating Drydock
MR - Marine Railway
LL - Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	BUILDING POSITION (Number)	Tankers										OBO		
		25,000 620 X 75	38,000 894 X 90	89,000 894 X 105	120,000 920 X 138	125,000 Cu.m. 932 X 140	225,000 1100 X 140	265,000 1100 X 178	80,000 886 X 105	160,000 998 X 143				
Robert Derektor	500 X 90LL	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
<u>GULF COAST</u>														
Alabama Shipyard	(4) 523 X 90SW	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Avondale	(2)1020 X 175LL (3)1200 X 126LL	3/5/8	3/4/7	2/4/6	2/0/2	2/0/2	1/0/1	1/0/1	2/0/2	1/0/1	1/0/1	2/4/6	1/3/4	0/0/0
Litton/Ingalls	(5) 844 X 260LL * 1540 X 180LL *	16/2/18	13/2/15	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0	0/0/0

* Ship size constrained by maximum launching capability of 850' X 173' vessels.

1/ LEGEND

Maximum Ship Size
(LOA X Beam)
SW - Shipway
GD - Graving Dock
FD - Floating Drydock
MR - Marine Railway
LL - Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

		Tankers										OBO
SHIPYARD	BUILDING POSITION (Number)	25,000 620 X 75	38,000 688 X 90	89,000 894 X 105	120,000 920 X 138	125,000 Cu.m. 932 X 140	225,000 1100 X 140	265,000 1100 X 178	80,000 886 X 105	160,000 998 X 143		
Taspe Shipyards	(2) 746 X 121GD	2/2	2/2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Trinity-Beaumont	960 X 105SW	1/1	1/1	1/1	0/0	0/0	0/0	0/0	1/1	0/0	1/1	0/0
<u>WEST COAST</u>												
National Steel & Shipbuilding Co.	690 X 90SW (2) 900 X 106SW 980 X 170GD	1/2 2/5	1/2 1/4	0/2 1/3	0/1 1/1	0/1 1/1	0/0 0/0	0/0 0/0	0/0 0/1	0/0 0/1	0/0 1/1	0/0 0/0
Portland SKY	475 X 100LL 810 X 108LL	0/1	0/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Todd-Seattle	600 X 96SW	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0

1/ LEGEND

Maximum Ship Size
(LOA X Beam)

- SW = Shipway
- GD = Graving Dock
- FD = Floating Drydock
- MR = Marine Railway
- LL = Land Level Position

SHIP CONSTRUCTION CAPABILITY

BY

SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SHIPYARD	Tankers										ORO
	BUILDING POSITION (Number)	25,000 620 X 75	38,000 688 X 90	89,000 894 X 105	120,000 920 X 138	125,000 Cl.m. 932 X 140	225,000 1100 X 140	265,000 1100 X 178	80,000 886 X 105	160,000 998 X 143	
<u>GREAT LAKES *</u>											
Fraser Shipyards	825 X 82GD	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
The Toledo Shipyard	540 X 68GD 680 X 78GD	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0

* (NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 730' X 78'.)

SHIP CONSTRUCTION CAPABILITY BY SHIP TYPES HISTORICALLY DELIVERED TO COMMERCIAL SERVICE

SUMMARY

REGION	General Cargo							Dry Bulk		
	Gen. Cargo 475 X 68	Mob. Cargo 724 X 105	Container 610 X 90	RO/RO 684 X 102	LASH 893 X 100	Container 947 X 105	21,300 570 X 75	51,000 600 X 105	100,000 900 X 105	
EAST COAST	24	9	18	12	5	5	20	13	4	
GULF COAST	49	22	26	23	7	5	33	24	6	
WEST COAST	10	4	5	4	3	1	7	4	3	
GREAT LAKES *	2	0	0	0	0	0	1	0	0	
TOTAL POSITIONS - ALL YARDS	85	35	49	39	15	11	61	41	13	

REGION	Tankers					ORO			
	25,000 620 X 75	38,000 688 X 90	89,000 894 X 105	120,000 920 X 138	125,000 Cu.m. 932 X 140	225,000 1100 X 140	265,000 1100 X 178	80,000 886 X 105	160,000 998 X 143
EAST COAST	17	13	5	2	2	2	2	5	2
GULF COAST	29	25	7	2	2	1	1	7	4
WEST COAST	6	5	3	1	1	0	0	1	0
GREAT LAKES *	1	0	0	0	0	0	0	0	0
TOTAL POSITIONS - ALL YARDS	53	43	15	5	5	3	3	13	6

* (NOTE: Maximum size ship that can exit the St. Lawrence Seaway is 730' X 78'.)

TABLE 2

NUMBER OF SHIPBUILDING WAYS BY LENGTH
(MAXIMUM SHIP SIZE)

NUMBER OF BUILDING WAYS BY LENGTH (MAXIMUM SHIP SIZE) *

Length OA (In Feet):	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1300	1400	1600	
<u>WEST COAST</u>																					
National Steel & SB	4	4	4	4	4	4	3	3	3	3	3	1									
Portland Ship Repair	2	2	2	1	1	1	1	1	1												
Tacoma Boat	4																				
Todd-Seattle	1	1	1	1	1																
TOTAL	(11)	(7)	(7)	(6)	(6)	(5)	(4)	(4)	(4)	(3)	(3)	(1)									
<u>GREAT LAKES **</u>																					
Framer Shipyards	2	2	2	2	2	1	1														
Marquette Marine	1																				
Peterson Builders	1																				
Toledo Shipyard	2	2	2	1	1	1															
TOTAL	(6)	(4)	(4)	(3)	(3)	(2)	(1)														
GRAND TOTAL ALL COASTS AND GREAT LAKES	(49)	(42)	(42)	(34)	(34)	(31)	(27)	(22)	(22)	(14)	(13)	(11)	(8)	(6)	(6)	(5)	(5)	(1)	(1)	(1)	

* Including Basins.
 ** Maximum size ship that can exit St. Lawrence Seaway Locks is 730' X 78'.

NUMBER OF BUILDING WAYS BY LENGTH (MAXIMUM SHIP SIZE) *

Length OA (In Feet):	400	450	500	550	600	650	700	750	800	850	900	950	1000	1050	1100	1150	1200	1300	1400	1600	
<u>EAST COAST</u>																					
Bath Iron Works			3	3	3	3	3	2													
Beth-Baltimore Marine Division	3	3	3	3	3	3	3	3	3	1	1	1	1	1	1	1	1				
General Dynamics, E. Boat **																					
Newport News SB & DD	5	5	5	5	5	4	3	3	3	3	3	3	2	2	2	1	1	1	1	1	
Robert Darricktor	1	1	1																		
TOTAL	(12)	(12)	(12)	(11)	(11)	(10)	(8)	(6)	(6)	(4)	(4)	(4)	(3)	(3)	(3)	(2)	(2)	(1)	(1)	(1)	

<u>GULF COAST</u>																					
Alabama Shipyards	4	4	4																		
Avondale Shipyards	6	6	6	5	5	5	5	5	5	5	5	5	5	3	3	3	3				
Ingalls	6	6	6	6	6	6	6	6	6	1											
Moss Point Marine	1																				
Tampa Shipyards	2	2	2	2	2	2	2	2													
Trinity Industries	1	1	1	1	1	1	1	1	1	1	1	1	1								
TOTAL	(20)	(19)	(19)	(14)	(14)	(14)	(14)	(12)	(12)	(7)	(6)	(6)	(5)	(3)	(3)	(3)	(3)				

* Including Basins.

** Engaged exclusively in U.S. Navy submarine construction.

APPENDIX A

STANDARD FORM 17

FACILITIES AVAILABLE FOR THE CONSTRUCTION
OR REPAIR OF SHIPS

SHIPS' BERTHS (PIERS, WHARVES, BULKHEADS, MOORING DOLPHINS (M.L.W.))

NO.	TYPE	LENGTH (Actual and usable)	WATER DEPTH		HEIGHT OF DOCK	USE REPAIR AND/OR OUTFITTING	SERVICE AVAILABLE (Use abbreviations of services and units of measure notated under legend)	CRANES SERVING BERTHS, ETC.	
			Inboard	Outboard				No.	Type (Hook height, above M.L.W.)
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach
		Act. Use.							Lift Reach

DRYDOCKS (mean HIGH water) (List building docks under building ways)

DOCK NO.	MATERIAL CONSD. OF—TYPE Floating—(FD); Graving—(GD); Marine Railway—(MR)	LENGTH		CLEAR WIDTH		DEPTH/DRAFT		LIFTING CAPACITY (Ton 2,240 lbs.)	
		Overall	At coping (GD); on pontoons (FD)	At keel blocks; on cradle (MR)	At top; cradle (MR)	At keel blocks	Over all (GD)		Over floor

Legend: (Abbreviations of Services)
 Fresh water F.W.—G.P.M.—P.S.I.
 Salt water S.W.—G.P.M.—P.S.I.
 Steam S—P/MR—P.S.I.
 Air A—C.F.M.—P.S.I.
 Electric power E—V—AC—AMP
 Electric power E—V—DC—AMP
 Fire protection Fire protection
 Sanitary sewer Sanitary sewer
 FP—G.P.M.—P.S.I.
 SS—Yes or No
 Sheet 2 of 6

MAJOR ITEMS OF MACHINE TOOLS AND EQUIPMENT (List briefly such of the large items as will indicate the capacities of all important shops in maximum work piece size, e.g., 30" plate bending rolls, 10' plate shears, 400 ton Hyd. press, 30" plate furnace, engine lathe 36" x 20", b.c., etc.)

STORAGE SPACE (Sq. ft.) FOR COMPONENTS AND MATERIALS (Less boat storage) (List dimensions for each area, plus type material stored)

RAW STEEL STORAGE (Sq. ft.)		WELDING AND ASSEMBLY (Sq. ft.)
ACREAGE LEGALLY CONTROLLED		
IN USE	DEVELOPED (including in use)	TOTAL (including undeveloped)
EXISTING LOCAL ORDINANCES LIMITING PRODUCTIVE USE		
LIMITATIONS IMPOSED BY PROPERTY ZONING CLASSIFICATION		
YARD LAYOUT—PLEASE FURNISH A PLOT PLAN OF YARD OR PLANT, IF AVAILABLE		

EMPLOYMENT	CURRENT	CURRENT NO. SHIFTS	MOBILIZATION—SHIFTS
Management, administration			
Professional, engineering			
Professional, technical (All others)			
Production, skilled			
Production, semiskilled			
Production, unskilled			
Nonproduction			
Total		x x x x x x	x x x x

NUMBER OF PRODUCTION PERSONNEL PRESENTLY ENGAGED IN SHIP AND/OR BOAT IN SHIP OR BOAT REPAIR CONSTRUCTION

APPROXIMATE TOTAL EMPLOYMENT OF ALL AFFILIATED CONCERNS ONLY LISTED IN ITEM 8. OF STD. FORM 129 (NOTE—An affiliate is a concern that directly, or indirectly through one or more intermediaries, controls, or is controlled by, or is under common control with, the reporting firm. Common ownership of stock by individuals does not in itself, constitute affiliation.)

DESCRIPTION OF TYPES OF WORK NORMALLY SUBCONTRACTED

DISTANCE TO NEAREST RAILROAD CONNECTION DISTANCE TO NEAREST AIRPORT—IDENTIFY

LARGEST CONVEYANCE AVAILABLE AND MAXIMUM DIMENSIONS OF LOAD, FOR OVERLAND TRANSPORTATION OF FINISHED PRODUCTS (Not to exceed limitations imposed by local ordinances)

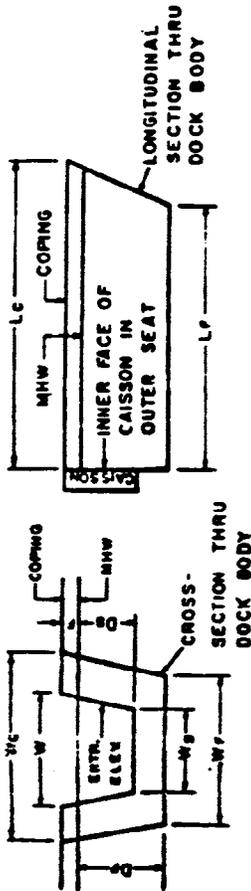
MINIMUM CHANNEL TO TIDEWATER NAVIGATIONAL RESTRICTIONS (INDICATE ALL AT M.L.W.)
 MINIMUM HORIZONTAL AND VERTICAL BRIDGE CLEARANCES TO TIDEWATER (Identify structures)

LIMITING LOCK DIMENSIONS TO TIDEWATER (Identify locks)

PRODUCTION EXPERIENCE (List at least three of the largest and the most complex ships or boats constructed, indicating (1) date completed, (2) hull length, beam, and molded depth, (3) type propulsion unit (fully described), (4) horsepower, (5) electrical and/or electronic installation, (6) special piping features, (7) size and tensile strength of plates, if steel, or type hull material, if other than steel, (8) special annealing, heat treating, or stress relieving problems encountered, if steel, plus (9) any other important problems resolved). (NOTE.—If no previous construction experience give detailed description of major conversion or industrial manufacturing work considered comparable to ship or boat construction.)

GRAVING DRYDOCK CHARACTERISTICS SUMMARY

GRAVING DRYDOCK NOMENCLATURE



- KEY**
 MHW - Mean High Water
 DF - Depth of Dock from MHW to Floor
 DS - Depth of Dock from MHW to sill
 LC - Length of Dock at coping
 LF - Length of Dock at Floor
 W - Width of Dock at top of entrance
 WC - Width of Dock at coping or maximum clear width above Dock Floor
 WF - Width at Dock Floor
 WS - Width of Dock at entrance (sill)
 F - Freeboard. Distance from MHW to top of coping. Indicate if part of F may be superflooded.

DRY DOCK NUMBER	LENGTH		ENTRANCE DIMENSIONS			DOCK BODY DIMENSIONS			SUPERFLOODING	REMARKS
	FLOOR	COPIING	WIDTH	COPIING	DEPTH	WIDTH	FLOOR	DEPTH		
	L _F	L _C	W _S	W	D _S	W _F	W _C	D _F	F	
										(e-g. indicate dimensions of pits in dock floor)

FLOATING DRYDOCK CHARACTERISTICS SUMMARY

FLOATING DRYDOCK	MAXIMUM LENGTH OF PUNTOON	MAXIMUM DEPTH OVER BLOCKS	CLEAR WIDTH BETWEEN WINGWALLS	LIFT CAPACITY (TONS)	NORMAL KEEL BLOCK HEIGHT	A.C. AMPHERES (60HZ-30)			REMARKS (Indicate existence of hauling blocks, if end selection can be lowered, and max. length of ship DD can accomodate).
						480V MAX. HOTEL (Indus.)	2400V ALT. HOTEL	13.2KV TEST/ CHECK	

APPENDIX B

MAJOR U.S. SHIPBUILDING, REPAIR (WITH
DRYDOCKING), AND TOPSIDE REPAIR FACILITIES

MAJOR U.S. SHIPBUILDING, REPAIR (WITH
DRYDOCKING), AND TOPSIDE REPAIR FACILITIES

CLASSIFICATION DEFINITIONS

- **Shipbuilding**: Facilities that are open, having at least one shipbuilding position, either an inclined way, a side-launching platform, or a building basin capable of accommodating a minimum ship size of 400' in length. With few exceptions, these shipbuilding facilities are also major repair facilities with drydocking capability.
- **Repair (With Drydocking)**: Drydocking facilities for ships 400' in length and over. These facilities may also be capable of constructing vessels less than 400' in length.
- **Topside Repair**: Facilities with sufficient berth/pier space for topside repair of ships 400' in length and over. These facilities may also be capable of constructing and/or drydocking vessels less than 400' in length.

GENERAL REQUIREMENTS

The shipyard must own or have in place a long term lease (1 year or more) on the facility in which they intend to accomplish the work.

There must be no dimensional obstructions in the waterway leading to open ocean (i.e., locks, bridges).

Water depth in the channel to the facility must be a minimum of 12 feet.

NOTE

The following criteria were developed to establish the maximum ship size that could be accommodated in each drydock:

For floating drydocks, the maximum ship length is as given by the shipyards. The maximum beam was determined by allowing a two-foot (.6 m) clearance at each side between the ship and wing wall.

For graving docks, the maximum ship length was determined by allowing a two-foot (.6 m) clearance at each end between the ship and the inside of the dock at the floor. The maximum beam was determined by allowing a two-foot (.6 m) clearance on each side between the ship and each side of the dock entrance at the sill, unless the shipyard indicated more clearance is required.

There are several types of floating drydocks and graving docks, and under certain circumstances additional clearance would be necessary between the ship and the dock body. Permissible ship sizes requiring additional clearance may be determined by simple calculation from the above criteria.

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
EAST COAST			
Shipbuilding Yards			
Bath Iron Works 700 Washington Street Bath, ME 04530	650 X 88 SW (2) 700 X 130 SW	<u>850</u> 2150	1/ Construction, conversion and repairs - all types of vessels. 2/ 9,600
Bethlehem Steel Corp. Baltimore Marine Division Sparrows Point, MD 21219	(2) 800 X 106 SW 1200 X 192 GD 900 X 136 FD	<u>1260</u> 2300	1/ Construction, conversion and repairs of marine vessels. 2/ 1,252
General Dynamics Electric Boat Division Eastern Point Road Groton, CT 06340		<u>750</u> 3506	1/ Engaged exclusively in construction of submarines for the U.S. Navy. 2/ 21,827
Newport News Shipbuilding & Drydock Company 4101 Washington Avenue Newport News, VA 23607	447 X 93 SW 668 X 93 SW 958 X 124 GD * 1100 X 130 GD * 646 X 88 GD ** 858 X 102 GD ** 455 X 68 GD ** 521 X 68 GD ** 1609 X 246 GD * 640 X 136 FD	<u>1670</u> 12000	1/ Construction, conversion and repairs - all types of vessels. 2/ 26,000 * Used for construction. ** Used for repair and overhaul.
Robert E. Derecktor of Rhode Island, Inc. Coddington Cove Middleton, RI 02840	650 X 100 FD 725 X 90 FD 500 X 90 LL	<u>1525</u> 6500	1/ Construction of Coast Guard ships and vessel repairs. 2/ 575

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>EAST COAST</u>			
Repair Yards with Drydock Facilities			
Atlantic Drydock Corp. P.O. Box 138 Fort George Island, FL 32226	500 X 90 MR	<u>585</u> 1440	1/ Construction of small vessels. Repair and overhaul of small and medium size vessels. 2/ 870 * * Includes Atlantic Marine's Fort George Island employees.
Bath Iron Works Corp. 40 Commercial St. Portland, ME 04101	844 X 136 FD	<u>1000</u> 1600	1/ Ship repairs and conversion. 2/ 1,770
Boston Graving Dock Corp. 256 Marginal Street East Boston, MA 02128	690 X 92 FD	<u>1020</u> 3111	1/ General ship repair. 2/ 85
Boston Marine Industrial Park (E.D.I.C.) 38 Chauncy Street Boston, MA 02211	1150 X 120 GD	<u>900</u> 1600	1/ Leases public drydock in former Boston Naval Annex to local ship repair companies. 2/ N/A
Caddell Drydock & Repair Company P.O. Box 327 Staten Island, NY 10310	450 X 70 FD	<u>820</u> 1900	1/ General ship repair. 2/ 150
Colonna's Shipyard, Inc. 400 E. Indian River Rd. Norfolk, VA 23523	(2) 420 X 70 MR 650 X 84 FD	<u>900</u> 2675	1/ General ship repairs. 2/ 785

MAJOR U. S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA--Beam)	Berths/Piers Usable Length	Remarks
	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	in feet <u>Longest</u> Total linear feet	
<u>EAST COAST</u> Repair Yards with Drydock Facilities			
Detyens Shipyard Rt. 2, Box 180 Mt. Pleasant, SC 29464	500 X 85 FD	<u>510</u> 1022	<u>1/</u> General ship repair and conversion. <u>2/</u> 378
G. Marine Diesel of New York P.O. Box 050221 Brooklyn, NY 11205	(2) 1082 X 141 GD	<u>1000</u> 1800	<u>1/</u> General ship repair. <u>2/</u> 138
General Ship Corp. 400 Border Street East Boston, MA 02128	678 X 90 GD *	<u>900</u> 2530	<u>1/</u> Ship repairs, overhauls and modernizations. <u>2/</u> 264 * GD is long-term leased from Boston Marine Industrial Park in the former Boston Naval Annex.
Intermarine, USA 301 North Lathrop Avenue P.O. Box 3045 Savannah, GA 31402	536 X 69 GD	<u>400</u> * 400	<u>1/</u> LCAC construction. <u>2/</u> 429 * Needs dredging.
Jacksonville Shipyards Bellinger Division 13911 Atlantic Blvd. Jacksonville, FL 32211	400 X 53 FD	<u>600</u> 1822	<u>1/</u> Ship repair and conversion. <u>2/</u> 124
Jacksonville Shipyards Commercial Division P.O. Box 2347 Jacksonville, FL 32203	900 X 140 FD 745 X 127 FD	<u>800</u> 6084	<u>1/</u> Ship repair and conversion. <u>2/</u> 1,000

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
EAST COAST			
Repair Yards with Drydock Facilities			
Metro Machine Corp. P.O. Box 1860 Norfolk, VA 23501	675 X 96 FD	<u>785</u> 2030	1/ Ship repairs and conversion. 2/ 625
New York Shipyard Corp. One Beard St. Brooklyn, NY 14231	686 X 86 GD 710 X 105 FD 475 X 76 FD 600 X 106 FD	<u>1152</u> 4047	1/ General ship repairs. 2/ 194
Norfolk Shipbuilding & Drydock Corporation P.O. Box 2100 Foot of Liberty Street Norfolk, VA 23501	750 X 96 FD 950 X 154 FD	<u>1030</u> 12170	1/ Ship conversion and repairs - all types of vessels. 2/ 1,986
Norfolk Shipbuilding & Drydock Corporation Brambleton Division Norfolk, VA 23501	460 X 70 MR		1/ Ship conversion and repairs - all types of vessels. 2/ 397
North Florida Shipyards P.O. Box 3255 Jacksonville, FL 32206	500 X 66 FD	<u>950</u> 3240	1/ Ship repairs and conversion. 2/ 445

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA—Beam)	Usable Length	
	SW—Shipway	in feet	<u>1/</u> Type of work usually engaged in
	GD—Graving Drydock		
	FD—Floating Drydock	<u>Longest</u>	<u>2/</u> Employment - Mid-1989
	MR—Marine Railway	Total linear	
	LL—Land Level Position	feet	
	SL—Syncrolift		
<hr/>			
<u>EAST COAST</u>			
Topside Repair Yards			
<hr/>			
Associated Naval Architects 3400 Shipwright Street Portsmouth, VA 23703		<u>400</u> <u>1390</u>	<u>1/</u> General ship repair and overhaul. <u>2/</u> 95
<hr/>			
Braswell Shipyards 60 Braswell St. Charleston, SC 29405		<u>720</u> <u>1080</u>	<u>1/</u> Ship repairs and conversion. <u>2/</u> 226
<hr/>			
Delta Marine, Inc. P.O. Box 2191 Wilmington, NC 28402		<u>900</u> <u>1650</u>	<u>1/</u> General ship repair. <u>2/</u> 71
<hr/>			
Eastern Technical Enterprises 2429 Ferry Rd. Virginia Beach, VA 23455		<u>600</u> <u>600</u>	<u>1/</u> Ship repair, overhaul, and modification. <u>2/</u> 69
<hr/>			
General Ship Repair Corp. 1449 Key Highway Baltimore, MD 21230		<u>435</u> <u>845</u>	<u>1/</u> General ship repair. <u>2/</u> 45
<hr/>			
Gowen, Inc. 72 Commercial Street Portland, ME 04104		<u>500</u> <u>1500</u>	<u>1/</u> General ship repair. <u>2/</u> 28
<hr/>			
JCMAR Corporation of Tidewater P.O. Box 5119 Suffock, VA 23435		<u>500</u> <u>500</u>	<u>1/</u> General ship repair. <u>2/</u> 80
<hr/>			

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>EAST COAST</u>			
Topside Repair Yards			
Jonathan Corporation Little Creek Shipyard Virginia Beach, VA 23455		558 1116	1/ General ship repair and overhaul. 2/ 418
Jonathan Corporation 701 Front Street Norfolk, VA 23510		700 1106	1/ Ship repair and overhaul. 2/ 416
Marine Hydraulics International, Inc. 800 East Indian River Rd. Norfolk, VA 23523		650 2150	1/ General ship repair. 2/ 230
Melville Marine Industries One Little Harbor Landing Portsmouth, RI 02871		1200 1200	1/ General ship repair. 2/ 150
Metal Trades, Inc. P.O. Box 129 Hollywood, SC 29449-0129		320 * 500	1/ General ship repair. 2/ 242 * Can do topside repair to vessel 400' in length.
Moon Engineering 545 Front Street Norfolk, VA 23510		550 550	1/ General ship repair, primarily for Navy. 2/ 110
Moon Engineering Two Harper Avenue Portsmouth, VA 23707		613 1226	1/ General ship repairs. 2/ 200

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway		<u>1/</u> Type of work usually engaged in
	GD—Graving Drydock		
	FD—Floating Drydock	Longest	<u>2/</u> Employment - Mid-1989
	MR—Marine Railway	Total linear	
	LL—Land Level Position	feet	
	SL—Syncrolift		
<u>EAST COAST</u>			
Topside Repair Yards			
M & W Marine Service, Inc. 601 Jefferson Ave. Newport News, VA 23607-6113		<u>600</u> 600	<u>1/</u> General ship repair. <u>2/</u> 57
Newport Offshore, Ltd. One Washington Street Newport, RI 02840		<u>2400 *</u> 5300	<u>1/</u> General ship repair. <u>2/</u> 85 * Includes Quonset Point facility.
Promet Marine Services Corp. 242 Allens Ave. Providence, RI 02905		<u>750</u> 2250	<u>1/</u> General ship repair. <u>2/</u> 30
Reynolds Shipyard Corp. 200 Edgewater Street Staten Island, NY 10305		<u>440</u> 440	<u>1/</u> General ship repairs. <u>2/</u> 18
RPM, Inc. 307 Campostella Rd. Norfolk, VA 23523		<u>500</u> 1000	<u>1/</u> General ship repair. <u>2/</u> 48
Steel Style, Inc. 401 South Water Street Newburgh, NY 12550		<u>500</u> 600	<u>1/</u> General ship repair. <u>2/</u> 27
Swygert Shipyard, Inc. P.O. Box 308 St. John's Island, SC 29455		<u>500</u> 1390	<u>1/</u> General ship repair. <u>2/</u> 175

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>GULF COAST</u>			
Shipbuilding Yards			
Alabama Shipyard, Inc. P.O. Box 3201 Mobile, AL 36652	(4) 523 X 90 SW	1100 3200	1/ Ship construction, conversion and repairs. 2/ 130
Avondale Industries, Inc. P.O. Box 50280 New Orleans, LA 70150-0280	(2) 1020 X 175 LL * 1000 X 216 FD * 750 X 110 FD ** (3) 1200 X 126 LL ** 450 X 90 SW ***	2300 6100	1/ Modular ship construction, conversion, and repairs - all types of vessels. 2/ 7,782 * Upper main yard. ** Lower main yard. *** Westwego Plant.
Litton/Ingalls Shipbuilding Division P.O. Box 149 Pascagoula, MS 39568-0149	850 X 173 FD * (5) 844 X 260 LL * 1540 X 180 LL *	2650 9850	1/ Construction, conversion, and repairs - all types of vessels. 2/ 10,500 * West Bank can only launch ships up to 850' X 173'. Land Level Positions constrained by launching capability. Note: The following East Bank facilities are currently out of service. Estimate 6 months to refurbish. 690 X 85 SW 550 X 80 SW (4) 650 X 90 SW 460 X 60 GD

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks
<u>GULF COAST</u>			
Shipbuilding Yards			
Moss Point Marine P.O. Box 1310 Escatawpa, MS 39552	450 X 82 SW	<u>1075</u> 1075	1/ Construction, conversion and repair of ships, boats, barges. 2/ 398
Tampa Shipyards, Inc. P.O. Box 1277 Tampa, FL 33601	542 X 72 GD* 896 X 146 GD* (2) 746 X 121 GD**	<u>845</u> 4370	1/ Ship construction, conversion and repairs. 2/ 714 * Used for ship repair. ** Used for ship construction.
Trinity Industries - Beaumont Division P.O. Box 3600 Beaumont, TX 77704	960 X 105 SW	<u>1100</u> 3450	1/ Ship construction, conversion and repair. 2/ 3 (Re-opened mid 1989)

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA--Beam)	Berths/Piers Usable Length in feet	Remarks
	SW--Shipway GD--Graving Drydock FD--Floating Drydock MR--Marine Railway LL--Land Level Position SL--Syncrolift	Longest Total linear feet	
GULF COAST			
Repair Yards with Drydock Facilities			
Atlantic Marine, Inc. - Mobile P.O. Box 3202 Mobile, AL 36652	620 X 84 FD	<u>1050</u> 4000	<u>1/</u> Ship repairs and overhaul. <u>2/</u> 200
Bender Shipbuilding & Repair Co., Inc. 265 South Water Street Mobile, AL 36601	660 X 92 FD 414 X 55 FD 414 X 45 FD	<u>617</u> 5000	<u>1/</u> Construction of vessels up to 300' in length. Also repairs and conversion. <u>2/</u> 600
Bethlehem Steel Corp. Sabine Yard P.O. Box 1448 Port Arthur, TX 77641	830 X 118 FD	<u>600</u> 600	<u>1/</u> Repair of ships and offshore oil rigs. <u>2/</u> 240
Bludworth Bond Shipyard P.O. Box 5065 Houston, TX 77262	435 X 80 FD *	<u>630</u> 1900	<u>1/</u> General ship repairs. <u>2/</u> 150 * Two drydocks are combined.
Gulf Coast Fabrication P.O. Box 529 Pass Christian, MS 39571	400 X 100 GD	<u>500</u> 4000	<u>1/</u> General ship repair. <u>2/</u> 202
Gulf Marine Repair 1200 Sertoma Drive Tampa, FL 36605	500 X 97 FD	<u>800</u> 1100	<u>1/</u> Ship repairs and overhaul. <u>2/</u> 150
Newpark Shipbuilding 8502 Cypress Houston, TX 77012	410 X 70 FD	<u>500</u> 1600	<u>1/</u> Small vessel construction and repairs. <u>2/</u> 247

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>GULF COAST</u>			
Repair Yards with Drydock Facilities			
Todd Shipyards Corp. Galveston Division P.O. Box 1550 Galveston, TX 77553	900 X 160 FD 600 X 118 FD	1086 6400	1/ Ship construction, repairs and conversion. 2/ 564

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>GULF COAST</u>			
Topside Repair Yards			
Allison/McDermid P.O. Box 3107 Brownsville, TX 78520		<u>400</u> 400	1/ General ship repair. 2/ 130
American Marine Corp. 3900 Jourdan Rd. New Orleans, LA 70182		<u>800</u> 800	1/ Construction of offshore oil vessels and barges. 2/ 216
Avondale Industries, Inc. Algiers Division 3103 Patterson Drive New Orleans, LA 70114		<u>1930</u> 3648	1/ Ship conversion, repair, and overhaul. 2/ 300
Boland Marine Manufacturing P.O. Box 53287 New Orleans, LA 70153		<u>1040</u> 1100	1/ General ship repairs. 2/ 90
Bollinger Machine Shop and Shipyard P.O. Box 250 Lockport, LA 70374		<u>5400</u> 12180	1/ Coast Guard vessel construction. 2/ 419 * Max ship capability = 400' LOA.
Buck Kreihls Co. P.O. Box 53305 2225 Tchoupitoulas St. New Orleans, LA 70153-3305		<u>1120</u> 1120	1/ Ship repairs and conversion. 2/ 95 * Max ship capability = 400 feet.

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>GULF COAST</u>			
Topside Repair Yards			
Coastal Iron Works P.O. Box 2548 1133 E. Port Ave. Corpus Christi, TX 78403		<u>487</u> 487	1/ General ship repair. 2/ 63
Coastal Marine Service of Texas 1051 Houston Avenue Port Arthur, TX 77640		<u>840</u> 1440	1/ General ship repair. 2/ 75 (subcontracted)
Dixie Machine Welding P.O. Box 53355 New Orleans, LA 70153		<u>1333</u> 1333	1/ General ship repairs. 2/ 273
Fredeman Shipyard P.O. Box 129 Sulphur, LA 70663		<u>450</u> 1700	1/ Construction and repair of offshore vessels. 2/ 108
Gulf Copper & Manufacturing Corp. 320 Houston Avenue Port Arthur, TX 77641		<u>2400</u> 2400	1/ General ship repair. 2/ 100
Halter Marine, Inc. Equitable Division P.O. Box 8001 New Orleans, LA 70182		<u>400</u> 1318	1/ Construction and repair of small vessels and barges. 2/ 201

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Usable Length in feet Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>GULF COAST</u>			
<u>Topside Repair Yards</u>			
Hendry Corp. P.O. Box 13288 5107 S. Westshore Blvd. Tampa, FL 33611		<u>1000</u> <u>1000</u>	<u>1/</u> General ship repairs. <u>2/</u> 110
Houston Ship Repair, Inc. 16201 Wood Drive Houston, TX 77530		<u>750</u> <u>750</u>	<u>1/</u> General ship repair and conversion. <u>2/</u> 363
International Ship Repair & Marine Service, Inc. 1616 Perry Street Tampa, FL 33605		<u>675</u> <u>675</u>	<u>1/</u> General ship repair. <u>2/</u> 105
McDermott Incorporated P.O. Box 188 Morgan City, LA 70381		<u>470</u> <u>1170</u>	<u>1/</u> Construction and repair of tugs, supply boats, barges, and drill rigs. <u>2/</u> 379
Textron Marine Systems 6800 Plaza Drive New Orleans, LA 70127-2956		<u>900</u> <u>1500</u>	<u>1/</u> LCAC construction. <u>2/</u> 774
Vessel Repair, Inc. P.O. Box 2207 Port Arthur, TX 77640		<u>1100</u> <u>2100</u>	<u>1/</u> General ship repair. <u>2/</u> 76
Violet Dock Port, Inc. P.O. Box 357 Violet, LA 70092		<u>1000</u> <u>4000</u>	<u>1/</u> General ship repair. <u>2/</u> 111

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA—Beam)	Usable Length	
	SW—Shipway	in feet	<u>1/</u> Type of work usually engaged in
	GD—Graving Drydock		<u>2/</u> Employment - Mid-1989
	FD—Floating Drydock	<u>Longest</u>	
	MR—Marine Railway	<u>Total linear</u>	
	LL—Land Level Position	feet	
	SL—Syncrolift		
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<u>WEST COAST</u>			
Shipbuilding Yards			
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National Steel & Shipbuilding Co. Harbor Drive & 28th St. P.O. Box 85278 San Diego, CA 92138	690 X 90 SW (2) 900 X 106 SW 980 X 170 GD 750 X 130 FD	<u>1000</u> <u>7250</u>	<u>1/</u> Construction, conversion, and repairs - all types of vessels. <u>2/</u> 2,650 Graving dock and piers at U.S. Naval Station also leased, as required.
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Portland Ship Repair Yard 5555 N. Channel Avenue P.O. Box 3529 Portland, OR 97208	475 X 100 LL 810 X 108 LL 650 X 84 FD 550 X 88 FD 810 X 108 FD	<u>1000</u> <u>10200</u>	<u>1/</u> Ship construction, repair and conversion - all types of vessels. <u>2/</u> 2,015
Facilities also leased by: 1. Cascade General, Inc. 2. Northwest Marine Iron 3. West State, Inc.	1150 X 181 FD		
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Tacoma Boatbuilding 1840 Marine View Drive Tacoma, WA 98422	(2) 425 X 45 SW * (2) 430 X 50 SW *	<u>680</u> <u>1350</u>	<u>1/</u> Ship construction, repairs, and conversion - all types of vessels. <u>2/</u> 426 * Vessel with beam up to 98 feet can be constructed by joining the two shipways.
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Todd Pacific Shipyards Seattle Division 1801-16th Avenue, S.W. Seattle, WA 98124	600 X 96 SW * 420 X 62 FD 650 X 84 FD 943 X 133 FD	<u>1400</u> <u>6017</u>	<u>1/</u> Ship construction, repairs, and conversion - all types of vessels. <u>2/</u> 1,670 * Max. ship size is 600' X 96' using two 450' X 50' SWS.

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam)	Berths/Piers Usable Length in feet	Remarks
	SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Longest Total linear feet	1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>WEST COAST</u>			
Repair Yards with Drydock Facilities			
AK-WA, Inc. 401 Alexander-Bldg. 588 P.O. Box 872 Tacoma, WA 98421	500 X 84 FD	$\frac{1000}{3200}$	1/ Ship repair and conversion. 2/ 198
Maritime Contractors, Inc. 201 Harris Avenue Bellingham, WA 98225	400 X 60 FD	$\frac{1350}{2200}$	1/ General ship repair. 2/ 101
Pacific Drydock & Repair Co. 321 & 1441 Embarcadero Oakland, CA 94606	400 X 52 FD	$\frac{600}{1155}$	1/ Ship and barge repairs. 2/ 73
Southern Oregon Marine P.O. Box 1220 Coos Bay, OR 97420	400 X 100 MR	$\frac{400}{400}$	1/ General ship repair and barge construction. 2/ 114 * Max ship capability = 400' LOA.

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA--Beam)	Usable Length	
	SW--Shipway	in feet	<u>1/</u> Type of work usually engaged in
	GD--Graving Drydock		<u>2/</u> Employment - Mid-1989
	FD--Floating Drydock	<u>Longest</u>	
	MR--Marine Railway	<u>Total linear</u>	
	LL--Land Level Position	feet	
	SL--Syncrolift		
<u>WEST COAST</u>			
Repair Yards with Drydock Facilities			
Southwest Marine, Inc. P.O. Box 13308 Foot of Sampson St. San Diego, CA 92113-0308	655 X 104 FD 418 X 58 FD	<u>700</u> <u>2972</u>	<u>1/</u> Ship repairs, overhaul, and conversion. <u>2/</u> 1,194 Graving dock at Naval Station can be leased as required.
Southwest Marine, Inc. San Pedro Division 985 S. Seaside Terminal Island, CA 90731-7331	720 X 93 FD 420 X 54 FD	<u>1796</u> <u>3692</u>	<u>1/</u> Ship repairs, overhaul, and conversion. <u>2/</u> 881
Southwest Marine of San Francisco P.O. Box 7644 San Francisco, CA 94120-7644	950 X 148 FD 700 X 97 FD	<u>800</u> <u>4885</u>	<u>1/</u> Ship repairs and overhaul. <u>2/</u> 456
United Marine Shipbuilding, Inc. 1441 N. Northlake Drive N. Seattle, WA 98103	400 X 60 FD	<u>360</u> <u>510</u>	<u>1/</u> General ship repairs. <u>2/</u> 230

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	<u>Maximum Ship Size</u> (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	<u>Berths/Piers</u> Usable Length in feet <u>Longest</u> Total linear feet	<u>Remarks</u> 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>WEST COAST</u>			
Topside Repair Yards			
Billfish, Inc. Berth 44, Outer Harbor San Pedro, CA 90731		$\frac{620}{620}$	1/ General ship repair. 2/ 70
Campbell Industries P.O. Box 1870 501 E. Harbor Drive San Diego, CA 92112		$\frac{640}{2185}$	1/ General ship repair and construction of vessels up to 300' in length. 2/ 860
Commercial Marine Service, Inc. 258 Cannery Street Terminal Island, CA 90731		$\frac{420}{840}$	1/ General ship repair. 2/ 15
Continental Maritime of San Diego 1995 Bay Front Street San Diego, CA 92113		$\frac{650}{4017}$	1/ General ship repair. 2/ 636
Continental Maritime of San Francisco, Inc. Pier 50-54 San Francisco, CA 94107		$\frac{1100}{4100}$ *	1/ Ship repair and conversion. 2/ 254 * Pier space long-term leased from San Francisco Port Commission.
Foss Shipyard 660 West Ewing Street Seattle, WA 98119		$\frac{460}{2575}$	1/ Vessel repair, alteration, and overhaul. 2/ 111

MAJOR U. S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>WEST COAST</u>			
Topside Repair Yards			
Lake Union Drydock 1515 Fairview Avenue East Seattle, WA 98102		<u>1000</u> 4235	1/ Ship repair and conversion. 2/ 95
Larson Boat Shop 1046 S. Seaside Ave. Terminal Island, CA 90731		<u>400</u> 600	1/ Ship and boat repair. 2/ 100
Pacific Fishermen, Inc. 5351 24th Avenue Seattle, WA 98107		<u>500</u> 1300	1/ Construction and repair of small vessels. Topside repair of large vessels. 2/ 63
Service Engineering Co. P.O. Box 7714 San Francisco, CA 94120		<u>800</u> 2650	1/ General ship repair and conversion. 2/ 299

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA—Beam)	Usable Length	
	SW—Shipway	in feet	<u>1/</u> Type of work usually engaged in
	GD—Graving Drydock		
	FD—Floating Drydock	<u>Longest</u>	<u>2/</u> Employment - Mid-1989
	MR—Marine Railway	Total linear	
	LL—Land Level Position	feet	
	SL—Syncrolift		

GREAT LAKES

Maximum ship size that can exit the St. Lawrence Seaway locks is 730' X 78'.)

Shipbuilding Yards

Fraser Shipyards P.O. Box 997 Superior, WI 54880	825 X 82 GD 620 X 61 GD	<u>900</u> 4450	<u>1/</u> Ship construction, repairs, and conversion.
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2/ 61

Marinette Marine Corp. Foot of Ely Street Marinette, WI 54143	400 X 65 SW	<u>2136</u> 2136	<u>1/</u> Ship construction, repair, and conversion.
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2/ 425

Peterson Builders 101 Pennsylvania St. P.O. Box 650 Sturgeon Bay, WI 54235-0650	410 X 68 SW	<u>900</u> 2515	<u>1/</u> Ship construction, repair, and conversion.
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2/ 772

The Toledo Shipyard * 3135 Front Street Toledo, OH 43605	540 X 68 GD 680 X 78 GD	<u>800</u> 1610	<u>1/</u> Ship construction, repair, and conversion.
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2/ 100

* Leased by Merce Industries, Inc.

Repair Yards with Drydock Facilities

Bay Shipbuilding Corp. 605 North Third Ave. Sturgeon Bay, WI 54235	640 X 68 FD 1000 X 105 GD	<u>1000</u> 7095	<u>1/</u> Ship construction, repairs, and conversion.
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2/ 1,576

MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size	Berths/Piers	Remarks
	(LOA—Beam)	Usable Length	
	SW—Shipway	in feet	<u>1/</u> Type of work usually engaged in
	GD—Graving Drydock		
	FD—Floating Drydock	<u>Longest</u>	<u>2/</u> Employment - Mid-1989
	MR—Marine Railway	Total linear	
	LL—Land Level Position	feet	
	SL—Syncrolift		

GREAT LAKES

Maximum ship size that can exit the St. Lawrence Seaway locks is 730' X 78'.)

Topside Repair Yards

G & W Industries, Inc. 1898 Carter Road Cleveland, OH 44112	<u>650</u> 650	<u>1/</u> General ship repair. <u>2/</u> 36
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H. Hanson Industries 2824 Summit Street Toledo, OH 43611	<u>740</u> 1480	<u>1/</u> General ship repair. <u>2/</u> 47
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Nicholson Terminal & Dock Company P.O. Box 66 River Rouge, MI 48218	<u>2300</u> 3600	<u>1/</u> General ship repair. <u>2/</u> 125
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MAJOR U.S. SHIPBUILDING AND REPAIR FACILITIES
(Vessels 400' in Length and Over)

Name and Address	Maximum Ship Size (LOA—Beam) SW—Shipway GD—Graving Drydock FD—Floating Drydock MR—Marine Railway LL—Land Level Position SL—Syncrolift	Berths/Piers Usable Length in feet Longest Total linear feet	Remarks 1/ Type of work usually engaged in 2/ Employment - Mid-1989
<u>NON-CONUS</u>			
<u>Shipbuilding Yards</u>			
NONE			
<u>Repair Yards with Drydock Facilities</u>			
Ketchikan Shipyard, Inc. P.O. Box 5380 3801 Tongass Avenue Ketchikan, AK 99907	450 X 110 FD	$\frac{1000}{1000}$	1/ General ship repair. 2/ 35
Marisco, Ltd. 607 Ala Moana Blvd. Honolulu, HI 96813	520 X 74 FD	*	1/ General ship repair. 2/ 182 * Leased from Port Commission.
Puerto Rico Drydock & Marine Terminals P.O. Box 2209 San Juan, PR 00903	632 X 80 GD	$\frac{1000}{3300}$	1/ General ship repairs. 2/ 52
<u>Topside Repair Yards</u>			
Honolulu Shipyard, Inc. P.O. Box 30989 Honolulu, HI 96820		$\frac{645}{645}$	1/ General ship repair and overhaul. 2/ 221



