PONTOONS

Port Construction
Port Expansion
Offshore Storage
Offshore Drilling Support
Marine Offloading Facilities
Breakwaters

www.truenorthservicesllc.com
Our team is dedicated to providing environmentally responsible, cost effective, innovative and forward thinking solutions to complex logistical and operational problems.

We acquire assets and technology for deployment worldwide to facilitate project operations & cargo delivery.

**Products and services we provide include the following:**

- Port Construction
- Port Expansion
- Offshore Storage
- Offshore Drilling Support
- Marine Offloading Facilities
- Breakwaters
To meet increasing demands worldwide for rapid deployment of marine operation facilities, True North has acquired an inventory of floating bridge pontoons. **These pontoons are US built and therefore qualify for US Export Import Bank project financing.** The pontoons can be retrofit to meet operational and capability needs prior to deployment.
True North Floating Pontoon Solutions
General Advantages

- Millions of Dollars saved in capital costs
- Can be engineered to meet project specifications
- Can be rapidly mobilized
- Simple in Structure
- Heavy lifting capacity
- Reuseable

- Rapid assembly and disassembly
- Modular hybrid pier
- Easy installation
Pontoon Piers:
• Can provide berthing for vessels up to Panamax size
• Can accommodate pedestrian and vehicle traffic

Pontoon Breakwaters:
• Provide substantial wave attenuation
• Are especially well suited for deep water breakwater locations
• Are environmentally friendly - flushing bays (as opposed to rip rap breakwaters which create stagnant bays)
• Rise and fall with the tide (as opposed to breakwaters which inhibit views at low tide)

Pontoon Floating Platforms:
• Can handle significant loads such as heavy equipment and buildings
• Can be resurfaced to meet clients’ needs
• Can be ballasted to achieve the required freeboard and draft
• Can be structurally enhanced, as necessary, to carry additional deck loads
• Can be secured by anchors and/or piles
The following slides show actual current pontoon usage worldwide as well as conceptualized applications envisioned by major design and construction companies around the world.
Our staff has had experience in projects such as the Melville Island Supply Base which utilized decommissioned bridge pontoons from the Hood Canal Bridge in Washington State.

The Melville Supply Base offers laydown area, fuel, accommodations, and resupply to vessels operating in the Oil & Gas Industry. The port operates heavy lift cranes and has RORO capacity. These services were all made possible by the affordable option of the floating refurbished bridge pontoons.
The bridge pontoons were refurbished in Vancouver, Canada.
The refurbished pontoons were loaded on a semi submersible barge and transported from Puget Sound (Washington State) to Northern Australia and then towed by tug to the final destination at Tiwi Island.
The bridge pontoons were quickly transformed into a floating deep water pier secured by pilings and able to transition with the changing tides.
Within six weeks the pontoons were ready to use and incoming vessels were offloading.
BergerABAM

Floating concrete container wharf to overcome potential liquefaction and unstable sea floor soils present in a high seismic area.

The modular/on-site assembly concept used in the design substantially reduced the overall construction at this site, which is typically burdened by heavy snowstorms and 6.7 meter (22 foot) daily tidal variation conditions.

To meet the project schedule required, the floating elements and access ramps for the project were constructed off site in an industrialized location in Tacoma, Washington and wet towed to the final deployment site in Valdez for installation. (1980-1983)
BergerABAM

A double-decked prestressed marine concrete floating pier, also referred to as the modular hybrid pier, with a maintenance-free service life of 100 years and flexible in both function and location.

This flexibility allows the capability to berth a range of Navy surface combatants with differing utility and access demands, and enables the Navy to move or reconfigure a pier as a naval base mission changes.

Additionally, the pier’s mobility, unique to the floating concept, allows off-site pier construction, lowering the costs by accessing a larger, less geographically constrained construction market and minimizing the construction disruptions to naval station operations.
PND Engineers / BergerABAM

Two concrete pontoons were completed in February 2016 for installation as cruise ship berths in Juneau, Alaska. The pontoons are 122 and 92 meters (400 and 300 feet) long and each 15 meters (50 feet) wide. They will be moored using only vertical pile dolphins in water up to 29 meters (95 feet) deep. Vehicle bridges will connect the floats to shore.

As Alaska’s busiest cruise port, Juneau’s new versatile berths will accommodate two different large cruise ships each day for the entire summer cruise season.
BergerABAM

Floating concrete liquefied petroleum gas (LPG) terminal saved the client millions of dollars in capital costs while providing a facility that is much more serviceable and cost-effective than traditional bulk liquid terminal construction.

Although floating terminals are not an uncommon solution to LPG production in remote areas, the unique pre-stressed marine concrete construction means that the ARCO facility can remain on station in continuous operation to produce continuous cash flow over the life of the project.

The periodic removal from service for dry docking for hull maintenance, typical for traditional steel hulls, is not required.
A floating concrete pier was built to accommodate the largest cruise ships operating. The pier consisted of two concrete pontoons that created a structure 106 meters (350 feet) long, 15 meters (50 feet) wide and 6 meters (20 feet) deep, moored to a number of pilings.

A new pedestrian bridge from the pier to a new bulkhead was constructed to move passengers from the float to land.
Dutch Docklands

Scarless development that moves the context of a static city to one that is dynamic, environmentally friendly and recyclable.

Many Floating structures have already been constructed in the Netherlands.
**Scapa Flow, Scotland (design by Napier University)**

Floating container storage and transshipment terminal

- **Concept 1** Narrow Bridge
- **Concept 2** Panamax Conversion

The system makes the assumption that high capacity, deep draft port facilities are not available due to hostile action, natural disaster, or lack of shore-based infrastructure.

The FCSTT would be located offshore or some distance from hazardous areas.
The following slides show the True North Bridge Pontoons
Many of the pontoon sections are ready for immediate use as floating roadways. They include the following additional assets which make them perfect for a “plug-and-play” scenario in the field:

**Exterior**
- Paved roadway rated for heavy loads
- Barriers & walkways along external edge
- Drainage
- Storm Water Runoff

**Interior**
- Segregated, dry ballastable sections
- Access to each pontoon section
- Wired for electrical
- Hydraulic systems
True North Bridge Pontoons
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Watertight compartments
True North Bridge Pontoons
Specifications

TOP SLAB LEVEL
14'9" @ ctr 4495.8mm
14'6" @ sides 4419.6mm
14'9" @ ctr 4495.8mm
14'6" @ sides 4419.6mm

BTM SLAB LEVEL

60'
18288mm

360'
109728mm
True North Bridge Pontoons
Specifications

**Typical Pontoon Section**

360' LONG x 60' WIDE x +15' DEEP
109.73 X 18.288 X 4.572 meter
True North Bridge Pontoons

Stability

Pontoon Stability:
The pontoons are extremely stable due to their weight and draft.
Each 109.73 meter x 18.29 meter (360 ft x 60 ft) pontoon in present application (with bridge superstructure) has a draft of 2.13 meters (7.0 ft) and a displacement of 4,128 MT (4,550 tons).

Additional Stability & Draft Measurements for the 109.73 meter x 18.29 meter (360 ft x 60 ft) pontoons:

Area of Pontoon: 2,007 square meters / 21,600 square feet
Weight of Pontoon: ± 4,128 MT / ± 4,550 tons
Light Draft in Fresh Water: 2.0 - 2.13 meters / 6.5 - 7.0 feet
Immersion in Fresh Water: ± 2,007 MT per meter draft / ± 675 tons per foot draft
Light Draft in Salt Water: ± 1.93 meters / ± 6.33 feet
Immersion in Salt Water: ± 2,060 MT per meter draft / ± 692 tons per foot draft

Stability will be influenced by the center of gravity and location of the load or equipment on top of the pontoon.
True North Bridge Pontoons
Concept - Drill Rig Support Platform

(3) 360' x 60' PONTOONS – SIDE x SIDE
360' x 182' MARINE PLATFORM

True North Services
True North Bridge Pontoons
Concept - Offloading Platform

OPTION 3 – 4 POINT ANCHOR SPREAD MOORING

TMOF = FLOATING PLATFORM
CONCRETE PONTOONS, 720' x 120' FLOATING PLATFORM
Frequently Asked Questions

Are the pontoons available for sale or lease?
• Sale and Lease opportunities are currently available, but will be dependent upon future availability and project duration.
• Lease-to-Purchase options are also available to qualified buyers.

Are there financing options available for the pontoons?
• Yes. Because the pontoons are USA built, US Export Import Bank financing options may be available to the purchaser/lessee.
• Because the pontoons are considered “green” in their reuse and application, other financing and grant options may be available to purchaser/lessee.

What are the delivery times for the Pontoons?
• Pontoons are available for 2016 projects (and beyond) based on availability.
• Delivery times are dependent upon location of deployment.

What is the estimated installation time frame?
• 1 week to 2 months, depending on application.

How are the Pontoons Installed?
• End to end, side by side, and “T” configurations can be designed to suit needs.
Frequently Asked Questions

What are the pontoons Maximum Loads?
• Pontoons can be structurally enhanced to meet client loading needs.

What is the Pontoon stability?
• The pontoons are extremely stable due to their weight and draft.
• *(For stability details, please see page 30 of this presentation.)*

What is required to maintain the Pontoons during operations?
• As the pontoons are reinforced cured concrete, maintenance is minimal.
• Fendering should be employed if landing vessels alongside.
• If pontoons are grounded, the bottom should be sandy and groomed.

What equipment is required to install the Pontoons?
• Prior projects have required:
  • small tugs for handling
  • ballast pumps/hoses (to aid connection line-up)
  • power-pack + tools / accessories
  • portable gen set
  • lighting
  • small fork lift

What are the survey requirements for the Pontoons regarding vessel class/registration?
• Pontoons are not vessels and as such there are no vessel regulatory or manning requirements.
True North Services LLC

EXPERIENCE | KNOWLEDGE | EXPERTISE

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