

PRECAST CONCRETE LIFT STATIONS

ELEVATING WASTEWATER CONTROL TO A NEW LEVEL

Whenever possible, wastewater systems employ the force of gravity to transport waste from homes and businesses to centralized treatment facilities. But what happens when gravity decides to work against you? Lift stations or pump stations must be installed to “lift” wastewater to a higher elevation where it can continue to flow by gravity. Municipalities may have just a few lift stations or hundreds depending on population and elevation changes. Lift stations must be dependable and long-lasting because failures can lead to major problems for any collection system.

Lift stations are constantly subjected to a highly corrosive environment on both the interior and exterior. Steel lift stations usually can't handle such an environment, leading to a short service life. That makes precast concrete lift stations the superior choice.

Precast concrete lift stations vary in size from small single-home units to large master lift stations serving hundreds of homes. Their flexible modular design makes it possible to meet the needs of any wastewater project. Precast concrete lift stations are designed, fabricated and installed with the highest-quality materials and equipment. Pumps and monitoring equipment can all be installed and tested prior to delivery, making for a quick and easy on-site installation. After connecting the inlets and outlets, simply backfill and you are ready to start pumping. Stations are easily accessible from top hatches for quick and clean maintenance. Through a rail or chain-and-pulley system, pumps can be raised and cleaned without entering a dangerous confined space.

ASTM C 478, “Specification for Precast Reinforced Concrete Manhole Sections,” and ASTM C 913, “Specification for Precast Concrete Water and Wastewater Structures,” outline design and manufacturing requirements for consistent quality and durability.

WHY PRECAST CONCRETE?

- Superior strength and durability
- High degree of quality control
- Availability and ease of installation
- Reduced weather dependency
- Environmentally friendly
- Resists buoyancy
- Corrosion resistant



QUALITY | VALUE | PERMANENCE

PRECAST CONCRETE LIFT STATIONS

Precast concrete lift stations have several advantages over competing materials.

SUPERIOR STRENGTH AND DURABILITY

The strength of precast concrete gradually increases over time. Other materials can deteriorate, experience greater creep and stress relaxation, lose strength and/or deflect over time. The load-carrying capacity of precast concrete is derived from its own structural qualities and does not rely on the strength or quality of the surrounding backfill materials.

QUALITY CONTROL

Because precast concrete products are manufactured in a controlled environment, they exhibit high quality and uniformity. Standard watertight sealants and gaskets are available that are specially designed for use with precast concrete, making watertight multiple-seam precast concrete lift stations easy to construct.

AVAILABILITY AND EASE OF INSTALLATION

Because precast concrete lift stations are manufactured well in advance of installation, they are ready for transportation to the job site at a moment's notice. Trained technicians are capable of installing and testing pumps and monitoring equipment in a controlled environment before the lift station ever reaches the job site. Once on site, the modular components are quickly set with a crane and a small crew. Backfilling can begin immediately after inlet and outlet pipe connections are made. Also, in contrast to other materials, precast concrete is less susceptible to vibratory damage while the surrounding soil is backfilled and compacted.



REDUCED WEATHER DEPENDENCY

Precast concrete increases efficiency because weather will not delay the manufacturing process in the precast plant. By installing pumps and monitoring equipment in the plant, weather conditions at the job site do not significantly affect the schedule.

ENVIRONMENTALLY FRIENDLY

Precast concrete is nontoxic, environmentally safe and made from all-natural materials, making it ideal for use below grade. Concrete has no proven ill effects on groundwater and surface water quality. Because precast concrete lift stations are watertight, there is no risk of wastewater contaminating the surrounding soil or ground water.

RESISTS BUOYANCY

With a specific gravity of 2.40, precast concrete structures resist the buoyant forces associated with below-grade construction. When required, collars can also be incorporated into the modular design of precast concrete lift stations. In comparison, fiberglass has a specific gravity of 1.86 and high-density polyethylene (HDPE) has a specific gravity of 0.97, requiring the use of tie downs and ultimately increasing project costs.

CORROSION RESISTANT

Precast concrete is resistant to most substances. While no material is completely immune to chemical attack, the mix designs used to produce precast concrete can be adjusted to help withstand anticipated corrosive agents. Materials such as steel and other metals quickly deteriorate in the presence of corrosive agents, some in the presence of water alone.

Versatile modular designs incorporated with superior watertight connectors and rubber gaskets make precast concrete lift stations a key component of any wastewater collection system.

For more information on precast concrete lift stations, please contact:



NPCA

Precast ... The Concrete Solution