



# TOP Pre-engineered Fiberglass Pump Station

THE OPTIMUM PUMP STATION

**FLYGT**  
a xylem brand

# TOP Station Premium Pre-engineered Pump Station

The Flygt TOP fiberglass pump station from Xylem is a premium, pre-engineered and factory built packaged pump station that utilizes advanced features to provide customers with superior pump station performance.

The innovative, self-cleaning, TOP Station sump bottom directs the solids and debris normally found in wastewater to the inlet of the Flygt N-Pumps where they can be effectively pumped away.

The interior of the pump station has a smooth finish which helps inhibit the build-up of grease and sludge.

The outside diameter of the station is equipped with an integral anti-flotation ring utilized to secure the station.

The aluminum pump station lid utilizes an integral Safe-Hatch access cover that provides personnel fall-through protection when the aluminum access door is opened. The raised frame provides a kick plate surround eliminating the possibility of tools or debris rolling into the pump station.

During normal inspection, individual pumps can be raised and placed upon one of the closed Safe-Hatch grates and washed-down. The debris will fall back down into the sump resulting in a clean pump to check.

## Flygt Pump Station Controls



Xylem offers a fully engineered control panel solution. Our integrated, purposely designed control panels provide an intuitive user interface with the reliability you have come to expect from the leader in submersible pumping.

### Standard Control Features

- UL 508 listed
- NEMA 4X 304 Stainless Steel enclosure with aluminum dead front inner door
- Lockable enclosure
- Hand/Off/Auto Selector switches
- Full voltage across-the-line starting
- Main incoming power circuit breaker
- Individual pump circuit breakers
- NEMA rated motor starters w/overloads
- Mini-CAS II pump seal & motor thermal protection
- MultiSmart™ intelligent pump station controller
- Current transformers
- 24VDC power supply
- ENM-10 float regulators

### Available Options

- Generator receptacle and plug assembly with manual transfer switch
- Solid state reduced voltage starting
- LS-100 submersible pressure transducer
- MIO module and multi-sensor level probe
- Horn or bell audible alarm
- Anti-condensation heater and thermostat
- Back up floats (2 x ENM-10, when transducer or probe option is selected)
- Elapsed time meters for pumps
- TD-33 Telephone modem
- 12" x 10" space in panel reserved for future telemetry

# Features & Benefits

- Pre-engineered, factory built pump station
  - Available in 4-ft, 5-ft or 6-ft diameters
- Heavy-wall filament-wound fiberglass tank
- Exclusive self-cleaning TOP sump bottom
- Flygt heavy-duty submersible N-Pumps
  - Clog-free, innovative technology
  - 3-hp through 35-hp motors
  - Self-cleaning N-Impeller
  - Sustains high hydraulic efficiency
- Flygt mix-flush valve
  - Provides sump mixing
  - Re-suspends solids
- 2", 3", 4" or 6" diameter discharge pipe
  - PVC discharge pipe
  - Stainless steel discharge pipe
- Stainless steel guide bars
- Stainless steel upper guide bar bracket
- Stainless steel cable holder hooks
- Integral Safe-Hatch aluminum access cover
- Flygt Grip-eye easy lift pump retrieval system
- 4-in diameter PVC station vent pipe
- Pump station level control choices
  - Flygt ENM-10 ball float-type
  - Flygt LS-100 pressure transducer-type
  - Flygt probe-type
- Duplex Flygt pump station controls
  - NEMA-4 enclosure
  - Several enclosure material choices
  - UL listed control available
  - NEMA or IEC rated starters available
  - Standard and custom controls
- Single lift, easy station installation
- Single-source responsibility



Fully sealed station wall penetrations can be factory installed for the influent pipe, discharge pipes, and electrical connection points. Depending on pipe diameter, properly selected fiberglass hubs with link seals are utilized. Influent pipe wall penetration can be shop installed or field located.

# Flygt TOP Pre-engineered Pump Station

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Grip-eye lifting device

Safe-Hatch access cover

Flygt N-Pump

Flygt Mix-flush valve

4" station vent pipe

Stainless steel guide bars

Heavy-wall construction

Level control system

TOP self-cleaning basin



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Flygt is a brand of Xylem, whose 12,000 employees are addressing the most complex issues in the global water market.

[www.xylem.com](http://www.xylem.com)

***Appendix G – Pump Station Planner***

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**PLANNER**

**Pump Stations**



Turn-key package or with pre-assembled components including pumps, piping, wiring, and controls



**Rounded Corner Pump Stations  
with Integral Valve Vault**

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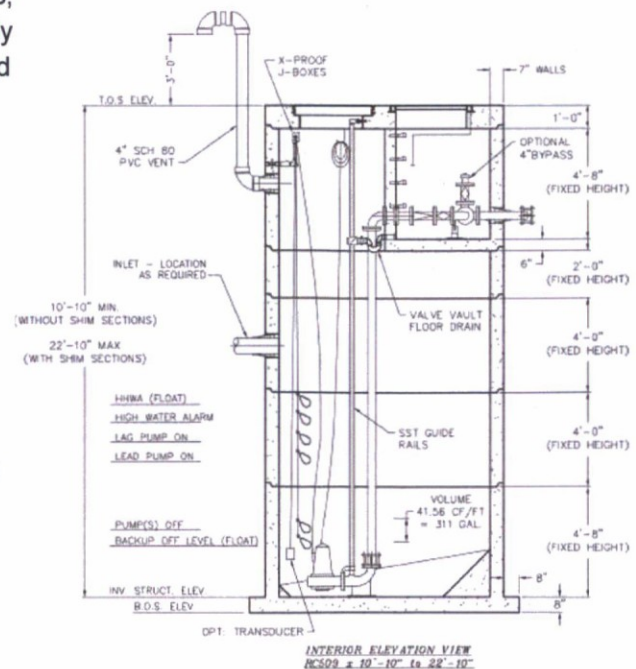
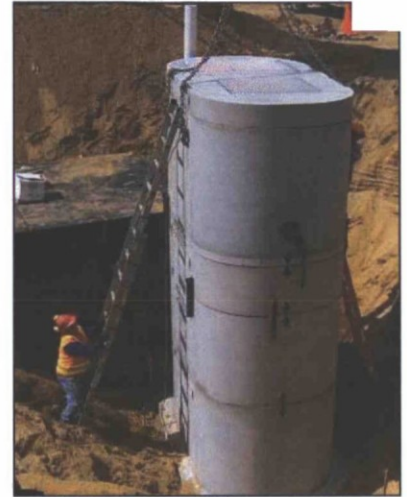
# Product Overview

The RC509/611 pump station product is designed as a “stockable” structure with a unique oval shape and integral valve vault. It offers standard mechanical equipment, select options, and repeatable design. This product design has proven to be a cost-effective method of providing a high-quality product to the customer with rapid and reliable delivery.

## Advantages

The RC509/611 pump station, with integral valve vault, is designed and produced specifically to provide the following advantages:

- Single structure, with integral valve vault.
  - Valve vault cast within the structure; in normally unused area.
  - Single structure means no differential settlement.
  - Small footprint for tight sites.
- Standard and stockable structural sections; base, shims, valve vault and covers.
  - Available as standard stock for quick delivery.
- Standard structural design (PE stamped), with standard components.
  - Speedy budget estimates and quotations.
  - Fast and accurate submittals.
- Select options to meet a majority of your project needs – see listings to follow in this brochure.
- Factory pre-assembled.
  - All piping, valves, accessories and options are pre-assembled in our factory to ensure all piping, valves, accessories, and options are alignment and fit. Only vertical piping that crosses precast joints is removed for shipment.
- Quick site installation and cost savings.
  - One small excavation to a single structural base elevation.
  - Because of the factory pre-assembly, most structural installations are performed in only a couple of hours.
  - Minimizes excavation open time and costly de-watering.
- Proven quality and repeatable design.
  - Ready for your project without the need for design or re-design.
  - Rapid project cycle.
  - Consistent high level of quality derived from repeatable production.
- Comparable cost to the conventional 2-structure custom designed and built stations.





## Budget Savings

### ***Proven Design Means Project Cost Savings***

Oldcastle Precast has designed and refined this standard "stockable" pump station product, with integral valve vault, since 2006. We provide a quality pump station solution that is well accepted as a turn-key component for government, municipal, and private projects. Oldcastle Precast's standard pump station vault has proven to save on design/engineering costs, product submittal/approval costs, site installation time/costs, as well as product purchase costs.



### **Eliminate Extras During On-site Construction**

Oldcastle Precast provides the RC509/611 package pump station pre-assembled from the factory, to eliminate costly site labor and time-consuming site alterations. The pump station is installed in a matter of hours and backfilling usually occurs the same day. When de-watering is a site issue, this costly and tedious operation can be considerably lessened because the excavation open time is reduced.

### **Site Safety**

The rapid installation of the pre-assembled RC509/611 package pump station also reduces the risk of on site injury by minimizing the amount of time that the hazardous excavation is open, which in most cases is a fraction of a day. In addition, the interior pre-assembled components package eliminates most of the confined space structure entry that would come from site-constructed products.

### **Schedule Savings**

The RC509/611 standard pump station product is designed to save schedule time as follows:

- standard budget and quote pricing,
- standard drawings and cut sheets,
- "stockable" structural and mechanical components, and
- quicker manufacturing assembly due to product repetition.

This Oldcastle Precast product model has proven to save significant scheduling time on projects compared to conventional custom pump stations. In most cases weeks or even months can be saved.

### **Site Constraints and Excavation Savings**

The RC509/611 pump station has an inherently smaller footprint when tight-site conditions are encountered. The unique single structure design also eliminates added costs for larger and step-elevation excavations.

# When You Select An Oldcastle Precast Concrete Pump Station

- *You reduce the project schedule time line.*
- *You prevent scheduling conflicts.*
- *You save cost on product and installation.*
- *You receive a proven quality product.*
- *You save space on your project site.*
- *You reduce the time of open excavation and de-watering.*
- *You receive turn-key system responsibility.*
- *You can count on the quality and reputation of Oldcastle Precast.*



## Turnkey Solution

Oldcastle Precast is long-known for its Turnkey solution products. This standard pump station is no exception. When the RC509/611 station is required on your project, you can rest assured that the pump station will be supplied with all of the equipment and services that you have come to depend on from Oldcastle Precast. Industry leading engineering, design assistance, budgeting, factory assembly, site services and product warranty are all part of our turnkey solution.

Oldcastle Precast's reputation and company values have been built on a strong foundation, and they will be there for you in the future.

## Product Warranty

Warranty on all components is Standard 1-year warranty from site start-up or 15-months from factory completion, whichever occurs first.

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## Add the Value of Oldcastle Precast

For over 60 years, Oldcastle Precast has provided first-quality, high-performance, cost-effective products and service to the water and wastewater industry.

When you choose Oldcastle Precast you can be sure of continuous, dependable service from a global leader.

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## Safe and Sure Delivery

To ensure that your Pump Station arrives on schedule, our transportation department carefully reviews each state's weight and dimensional restrictions, along with permit requirements. Each Pump Station also includes cast-in-place lifting points to facilitate off-loading and positioning.



## STRUCTURAL

### Standard Structural Design Requirements

- Structural design calculations for the RC509/611 Pump Station with Integral Valve Vault will be prepared and stamped by a registered professional engineer in the project state, and will be submitted for approval prior to fabrication or for record purposes as project time allows.
- Precast concrete sections will conform to the latest requirements of ACI 350.
- The structural design will take into account discontinuities in the structure produced by the openings.
- The precast pump station with integral valve vault has been designed to support its own weight as well as the minimum superimposed loads tabulated below. All additional equipment will be accounted for in the design of the elements.
  - o Pump Station with Integral Valve Vault.
    - (i) Top Slab,  
Live Load – AASHTO HS20,
    - (ii) Floor Slab (valve vault & base),  
Live Load – 200 psf,
    - (iii) Exterior Walls.

All exterior walls below finished grade shall be designed for an equivalent fluid pressure of 90 psf per foot of depth caused by saturated earth pressure. The top of the pressure diagram is assumed to originate at finished grade. In addition to the soil pressure, a 2'-0" Live Load Surcharge shall be applied to a depth of 8'-0".

### 300# Pedestrian or H20 Cover Loading

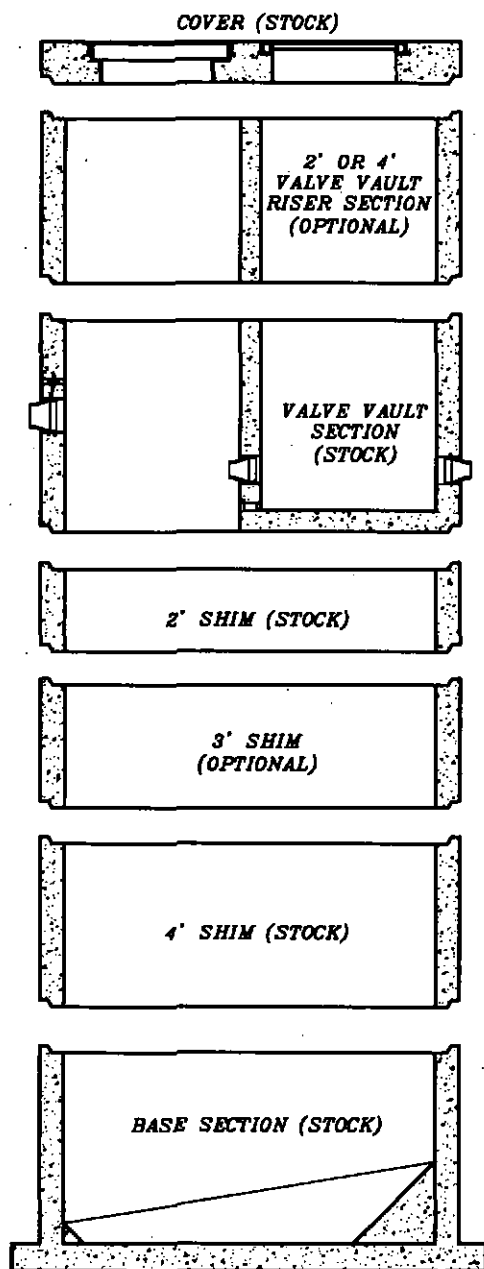
As stated above; although all precast structural covers are designed for AASHTO HS20 Live Loading, hatches and subsequent hatch frame support must be selected for 300# loading or H20 occasional vehicle loading.

### Buoyancy Footing Sizing

The structures have been designed to prevent flotation without requiring surface resistance or the weight of mechanical equipment, when the ground water level is at finished ground surface. The factor of safety against uplift calculated as a ratio of the total resisting force (excluding skin friction and the weight of the equipment) to the total hydrostatic uplift force, shall be at least 1.15. The net uplift force shall be transferred to the anti-buoyancy collar.



# Product Component Information & Options



## Stock Structural Components (standards)

Oldcastle Precast has pre-designed and manufactured standard structural components for the RC509/611 product line. The station base, 2' & 4' riser shims, integral valve vault section, and 300#/H20 covers with hatches are all stock components that are inventoried at our facility for ultimate cost savings and reduction in product assembly time. The use of stock structural components reduces the time frame required for project submittals. All stock structural components are designed and PE stamped for local final installation.

## Optional Structural Components (non-stock)

Oldcastle Precast offers the following non-stock optional structural components, when special circumstances require. The following components, when used in the package, may increase the product delivery time by 2 to 3 weeks.

- 2' & 4' Integral valve vault extensions
- 3' Wet well shim

## Joint Treatment and Sealing

The precast components will be fabricated on steel forms, with machined rings to form accurate bell and spigot joint surfaces, to ensure water-tightness. All horizontal joints between precast sections will be sealed with a vulcanized butyl rubber joint material conforming to AASHTO M-198. The joint material will be "Conseal CS-102" as manufactured by Concrete Sealants.

## Optional Concrete Additives for Harsh Environments

A Crystalline Waterproofing Additive can be supplied when selected as a product option. The system shall cause the concrete to become sealed against the penetration of liquids from any direction and will protect the concrete, surface to surface, from deterioration due to harsh environmental conditions. The Waterproofing Additive offered is Xypex Admix C-100, as manufactured by XYPEX Chemical Corporation, Richmond, B.C., Canada. (Alternate product suppliers may be used at the manufacturers discretion)

## Optional Exterior Waterproofing Coating

Although the RC509/611 pump station is warranted for water-tightness without exterior coatings or additives, Oldcastle Precast can offer the following damp proofing option (factory installed on all vertical below grade surfaces):

Karnak #83AF Fibered Damp proofing asphalt compound, applied at the rate of 25 sf/gal. (Alternate product suppliers may be used at the manufacturers discretions)

## Cored Opening with MH Boots for Pipe Penetrations

All pipe penetrations, for the RC509/611 product line, utilize cored openings with flexible manhole boots and stainless strap anchors. Pipe penetrations include: inlet(s), discharge piping from pumps and common discharge, exiting the station and station venting.

## ACCESS EQUIPMENT

### Aluminum Access Hatches

Pre-determined aluminum hatch sizes have been selected for the RC509/611 product line, and all precast covers with hatch embeds have been structurally designed for these sizes. The sizes have been selected for the maximum equipment expectations, and the factory should be consulted if any clearance questions arise. Hatch loading designations can be ordered for 300# pedestrian loading or H20 for occasional vehicle wheel loading. H20 aluminum hatches offered are not designed for continuous traffic loading. The hatches offered are equipped with the following features:

- The wet well side of the pump station is equipped with an angle frame and skit to full precast cover height, tar coated where aluminum comes in contact with precast, slam lock and removable key operator, recessed padlock hasp, lift assist, and OSHA safety grate that is permanently attached to the hatchway inner frame, hinged and lockable. Wet well nominal hatch opening sizes are:
  - o 30" x 48" (RC509)
  - o 36" x 54" (RC611)
- The valve vault side of the pump station is equipped with channel frame and skit to full precast cover height, tar coated where aluminum comes in contact with precast, slam lock and removable key operator, recessed padlock hasp and lift assist. The Valve Vault nominal hatch opening is as follows:
  - o 30" x 36" (RC509 & RC611)



### Aluminum Wall Mounted Valve Vault Access Ladder

The valve vault access ladder supplied, with the RC509/611 product line, is aluminum, wall-mounted and is properly sized to meet OSHA Standard 1910.27.

- Optional -An aluminum ladder-up, access-assist assembly can be supplied when selected.

## DISCHARGE PIPING & RELATED OPTIONS

### Piping and Valves

The RC509/611 product allows for a variety of piping, valve sizing and materials. The RC509 product can house piping and valve sizing up to 4 inches and the RC611 product can house piping valve sizing up to 6 inches.

Piping, valve sizing and material varieties are as follows:

- 2" PVC piping & valves to 2" PVC common force main (FM) discharge.
- 3" PVC piping & valves to 3" PVC common FM discharge.
- 3" DI discharge piping and valves to 3" DI common FM discharge.
- 4" DI discharge piping and valves to 4" DI common FM discharge.
- 6" DI discharge piping and valves to 6" DI common FM discharge. (only for RC611)



### Galvanized Floor-Mounted Adjustable Pipe Supports in Valve Vault

Adjustable, floor-mount, galvanized pipe stands are supplied with the RC509/611 product line and will support piping in the middle of the vault. Standard aluminum wall mount support brackets with stainless U-bolts are supplied in 3 locations where piping penetrations enter and exit the vault area.

- Optional - Stainless floor mounted supports can be supplied when selected.

### Stainless Wet Well Pipe Supports

Vertical discharge piping, from the pump base elbows, will be additionally supported to the wet well structure in intermediate locations utilizing stainless structural angles and stainless U-bolts where standard station heights exceed 15'-10".

### Flange Gaskets and Stainless Hardware

Oldcastle Precast utilizes Toruseal -- ribbed, full faced black rubber flange gaskets for a drip-tight pressurized flange seal. Toruseal gaskets meet the "specially designed" gasket designation found in AWWA sections C110, C11 and C15. All flange bolting hardware throughout the pump station and valve vault shall be supplied 18-8 stainless steel.



### Bypass Piping and Valve Options

The bypass piping and valve option can be utilized when it is foreseeable that both pump station submersible pumps may be out of commission at the same time and temporary portable bypass piping equipment would be employed to collect from the pump station working volume area and discharge into the dedicated bypass force main option provided. This scenario, although unlikely, may also be required by the local municipal authority for back-up emergencies.

Bypass piping size and material options are as follows:

- 2" PVC & 3" PVC
- 3" & 4" DI

Note: Bypass piping option not available for 3" DIP in discharge position #2 only

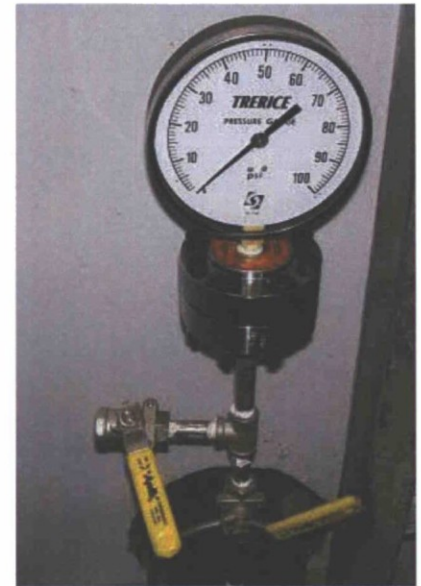
## Stainless Pump Removal Guide Rail Assembly (standard)

All RC509/611 pump stations are supplied with stainless pump removal guide rail systems. The guide rails, appropriately sized for the pumps (3/4" -2" dia.), extend from the pump base elbows to the stainless upper guide brackets in the hatchway area. The guide rails will be of the material: 304 stainless, Sch40 and will be supported at intermediate locations with stainless brackets, as dictated by the pump manufacturer.

The pump guide rail system is designed to easily allow the submersible pumps to be removed from the pump station via a lifting chain, or cable at grade elevation, and allow all pump service to be performed from outside of the station.

## Discharge Gauge Assembly Option

This option can be selected for factory installation of a pressure discharge gauge and related accessories on each pump discharge line as it enters the valve vault (set of 2 gauges total). The discharge pressure gauges will allow the owner to accurately assess down-stream force main pressure conditions and test pumping conditions with select discharge isolation valves. The discharge gauge assembly components consist of: discharge pipe saddle, 1/2" brass piping and isolation/ bleed-off ball valves, gauge seal fitting and liquid filled pressure gauge with 0-30, 60, 100psi gauge range readout as best meets pump and system requirements.



## Standard CI Flanged Plug Valves- 3", 4" & 6"

Oldcastle Precast stocks and supplies: 3", 4" and 6" pump isolation plug valves with non-lubricated eccentric type plugs and provides a minimum port opening of 80% in order to assure minimum turbulence and minimum pressure drop. Valves are rated for 175psi working pressure and cast of ASTM A126 Class B cast iron. Valve flanges meet ANSI B16.1, Class 125 flange specifications. Valves will have a balanced plug, coated with Buna-N (Neoprene) resilient seating surfaces to mate with the body seat. All plug valves will be supplied with lever operators and shall be epoxy coated, with standard color and materials as supplied by the valve manufacturer.



## Standard L&W Flanged Check Valves- 3", 4" & 6"

Oldcastle Precast stocks and supplies: 3", 4" and 6" system check valves that are full opening swing type, all iron body, bronze seat and have a resilient disc. The check valve complies with AWWA Standard C-508 latest revision and flanges meet ANSI B16.1, Class 125 flange specifications. The stock check valve is supplied with adjustable outside lever and weight (L&W), and is epoxy coated, with standard color and materials as supplied by the valve manufacturer.

- Optional - lever and air cushion check valves with L&W can be supplied when selected.

## DI Pipe and Fittings- 3", 4" & 6"

Piping and fittings supplied with the RC509/611 pump station will be ductile iron class 53 of sizes as shown. The standard pipe and fittings will be cement lined to the thickness as specified ANSI A26.51 and ANSI A21.4 and shall be interior /exterior asphalt seal coated by the pipe manufacturer.

- Optional – the piping and fittings can be factory Coal-tar epoxy coated when selected.
- Optional – the piping and fittings can be factory epoxy Hi-Build Epoxoline (Tnemec N-69)coated when selected (Standard available color determined by owner or engineer).

## Station Wet Well 4" Passive Vent

The RC509/611 product line offers a standard 4 inch passive wet well vent assembly fashioned from Sch80 PVC piping and fittings. The standard vent will end with a goose-neck downward tuning outlet and stainless steel insect screen, approximately 3 feet above the TOS elevation. Standard venting offered will be factory assembled and side mounted to the exterior of the station then removed and shipped loose to the job site for field installation.

Should vent piping run underground elsewhere on the site, a cored opening with manhole boot will be supplied below grade for customer use when site-venting is installed by others.

- Optional – 4"Carbon canister with carbon refill can be offered (vs. gooseneck and insect screen) when selected.
- Optional – opening and MH boot only below grade (no venting materials supplied), for vent piping by others.



## Junction Boxes and Control Panel Placement (options)

**Interior Junction Boxes (when selected):** The standard RC509/611 is most often supplied with interior junction boxes for the pump power/control cable(s) and the level control float cables (when used). In these cases the control panel is typically remote-mounted elsewhere; adjacent to the station or within a nearby weatherproof structure/facility. The conduits and conductors between the pump control panel and the junction boxes inside the station are to be field supplied and installed by others. The standard pump power/control cable junction box is Nema 7 explosion-proof, and the float cable box (when used) is Polypropylene (intrinsically safe). Interior: junction boxes, RGS conduit, and stainless supports are supplied with this offering. Final wiring and exterior conduit and seal fittings by others.

When a level transducer is used, the cable is to run uncut to the control panel, and as such no junction box is required.

**Exterior Junction Box (when selected):** The standard RC509/611 can be offered with an exterior Nema 4X junction box with divided interior for power and control voltages. In this case, the junction box is mounted to the exterior of the station approx. 2' above TOS. The conduits and conductors between the pump control panel and the exterior junction box are to be field supplied and installed by others. Exterior: junction box, RGS conduit & seal-offs between j-box and station, and stainless supports are supplied with this offering. Final wiring and filling of conduit seals by others. When level transducer is used, the cable is to run uncut to the control panel, and as such will not be routed through the exterior junction box.





## Junction Boxes and Control Panel Placement (options) *continued*

**Float Junction Box only (when selected):** It may be determined as a matter of preference that pump junction boxes are not required, and pump cables will be run uncut to the control panel, no matter the location of the PCP. In these cases float j-boxes are usually required alone. Interior: intrinsically safe float junction box, RGS conduit, and stainless supports are supplied with this offering. Final wiring and exterior conduit and seal fittings done by others.

**Control Panel Factory Mounted to Pump Station (when selected):** with this option the pump control panel can be mounted to the exterior of the station approx. 2'-6" above TOS. The connecting RGS conduit, external seal-off fittings and stainless unistrut framework support between the control panel and the pump station are all included.

With this option selected, the following equipment and tasks shall be clarified:

- o After factory mounting and conduit work; the control panel/supports and conduit shall be disassembled at the conduit unions and at the support-mounting locations to allow control panel to be shipped separately (due to trucking height restrictions). Minimal reassembly effort will be required on site by others.
- o Final wiring and filling of conduit seals: pumps to control panel & level devices to control panel by others.
- o All interior junction boxes, RGS conduit, seal-offs and supports are not required or offered with this option.

## Level Control Devices (supplied with pump control panel)

The pump control panel will be supplied with floats, or submersible transducer, or a combination of both. The level control devices and operation is usually dictated by the owner/engineer or the local municipality. When multiple floats for primary operation are required (4-5 floats), Oldcastle Precast will provide a stainless chain tree and weight assembly for standard float positioning. The stainless chain and weight assembly with attached floats will hang from a support in the hatchway for easy access and removal for adjustment outside of the station.

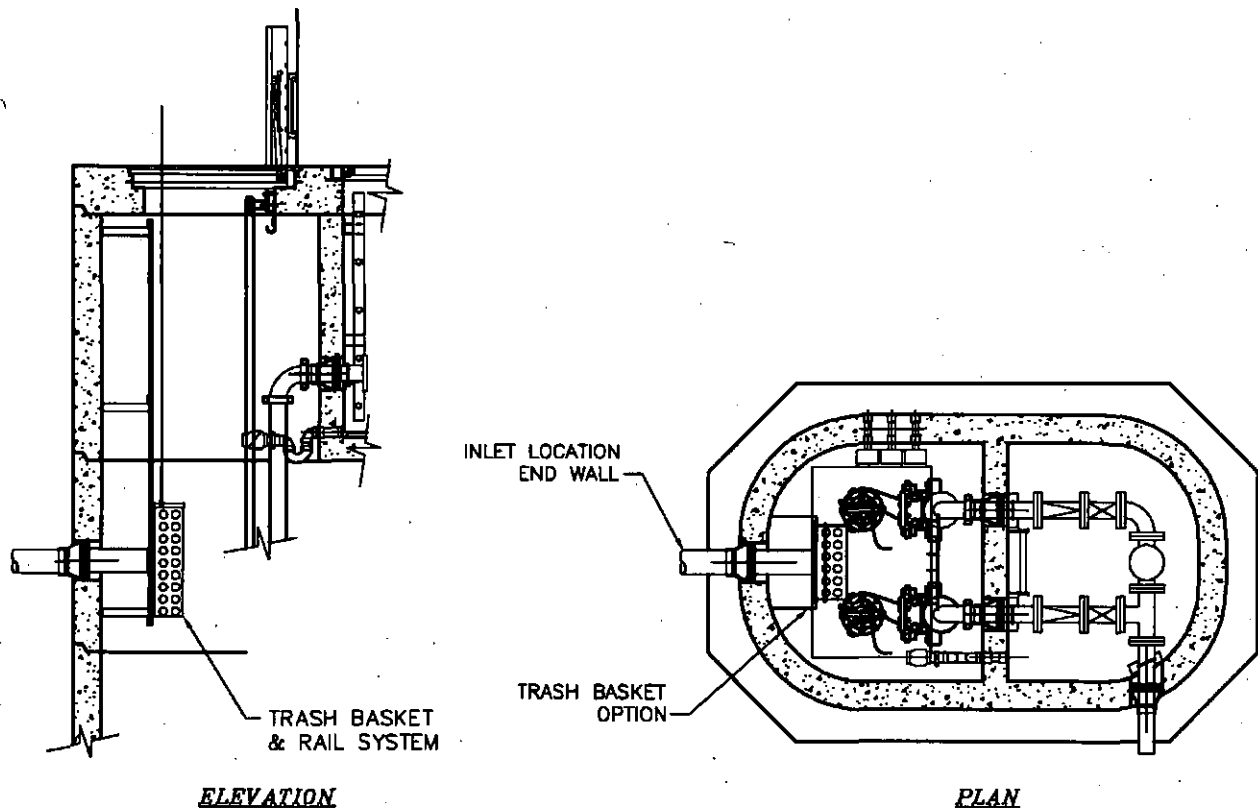
When a transducer is required (primary control), with only 2 floats for emergency conditions; then the transducer cable and each float cable are suspended individually from supports inside the hatchway for easy access.

- Standard – 4 or 5 float primary operation with stainless chain tree and weight assembly
- Optional – Primary level transducer with 2 float emergency back-up
- Optional - Primary level transducer with 4 or 5 float secondary operation (or visa-versa)
  - o Note: floats and transducers are supplied with the pump control panel, and as such; site mounting and wiring is expected to be performed by others, unless specifically arranged otherwise.

## Removable Aluminum Trash Basket and Rail Assembly – Option

The RC509/611 pump station can be supplied with a trash basket straining system mounted on an aluminum rail guide system for easy extraction from grade elevation; similar to the pumps. Because the wet well hatch is set in size and location, there should be circumstances to consider with this option:

1. The inlet pipe to the station should come in the end-wall, perpendicular and in the center; this will position the interior basket centralized to the wet well hatch above.
2. It should be noted that based on the pumping equipment size, the basket sitting above the pumps may interfere with the pump removal when required, and as such the basket may have to be removed first, prior to any pump removal.
  - Basket construction: the trash basket can be offered with a low-flow, light-weight, thinner profile and perforated holes, or with higher flow, larger profile, heavy-duty bar screen construction.
  - Optional – Stainless construction. The trash basket and rail system can be offered with stainless steel materials when selected.



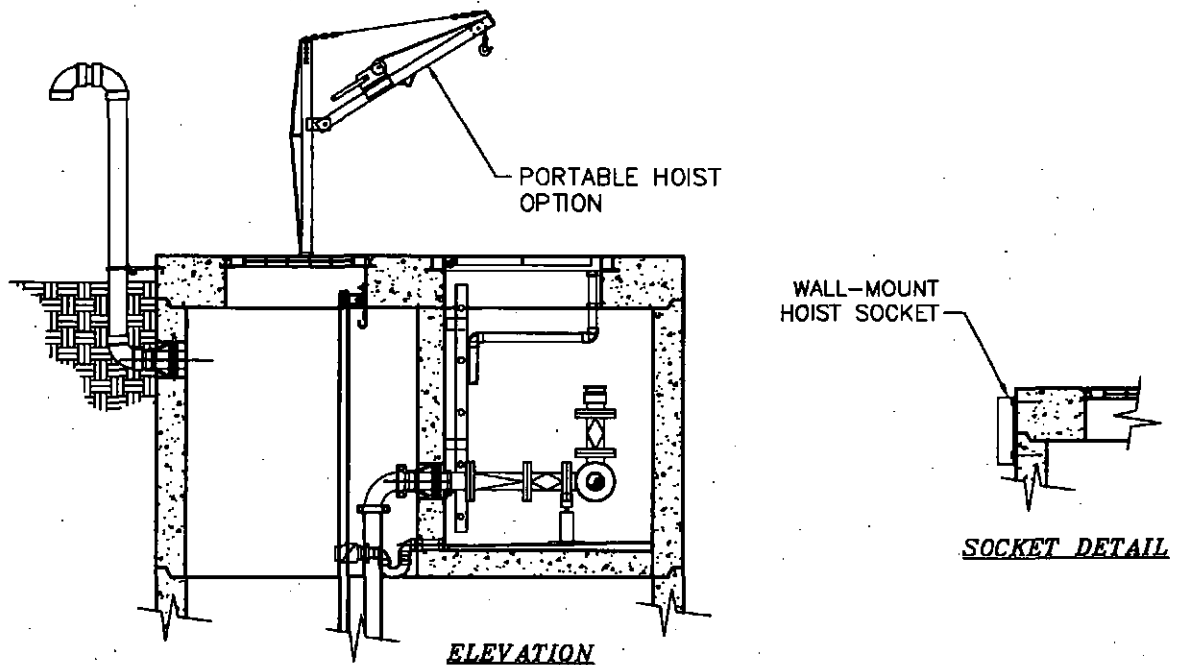
## Portable Hoisting Equipment for Pump Removal – Optional

The RC509/611 pump station can be supplied with portable hoisting equipment for pump and trash basket removal. The hoisting equipment will utilize exterior wall mounted sockets which are permanently mounted to the pump station structure. The hoist and wall mounts are constructed of 304 stainless steel. The winch is hand operated and the hoist reach is adjustable from 24" – 36".

When a portable hoist option is selected; dedicated lifting cables will be provided for each pump and trash basket option (if selected). The dedicated lifting cable is designed to mesh with the winching equipment provided and is expected to be coiled and stored in the hatchway when not in use.

Hoisting capacity options are:

- 300# lifting capacity
- 1000# lifting capacity



# Product Delivery

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## **1. Transportation**

The RC509/611 pump stations have been designed with narrow dimensions to transport them, without the need for wide load permits. Devoid of permit restrictions; site delivery schedules can usually be met without compromise.

Once the station is complete and ready for shipment, an Oldcastle Precast representative will contact the site contractor with specific questions and details to make delivery and site access as seamless as possible. In most cases Oldcastle Precast trucking can be scheduled for early morning delivery times, and must be coordinated with the setting crane equipment through the site contractor.

All RC509/611 factory installed equipment, unless otherwise noted, will remain in the precast sections for transport to the site. All Oldcastle Precast transportation equipment and operators fully comply with insurance institute and on-site safety guidelines.

Maximum standard transportation width is 8'-8"W, and maximum transportation height (on the trailer) is 11'-3"H.

## **2. Off-loading**

By design, Oldcastle Precast RC509/611 pump stations feature a four-point lifting configuration which utilizes (4) 8 ton Burke clamshell lifting toggles. Oldcastle Precast will provide the lifting toggles with the Oldcastle Precast truck driver, who is responsible to return the loaned lifting equipment to the Oldcastle Precast facility after the final piece is set that day. The setting equipment company (as arranged by the site contractor) is responsible for providing (1) 4 hook lifting cable x 20' long, rated for a minimum picking weight of 17 tons. Oldcastle Precast pump station structural weights will range from 17 tons (base or vault/cover sections) to 2.5 tons (smallest station riser section).

It is anticipated that the pump station sections will be off-loaded from the delivery truck and into the final excavation. Specialty lifting equipment cannot be left on site for future product placement, unless prior arrangements are made with Oldcastle Precast.

## **3. Site Access**

To ensure a successful delivery, attention must be given to narrow roads, bridge restrictions, small site entries, inadequate turnarounds, steep inclines, soft surfaces, overhead obstructions (cables, trees, bridges), and crane accessibility.

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## **Before You Begin**

Three issues must be addressed to ensure the successful, cost effective delivery of your prefabricated Pump Station.

1. Transportation
  2. Off-loading
  3. Site Access
-

## About Your Company

Company Name: \_\_\_\_\_

Street Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Your Name: \_\_\_\_\_ Title: \_\_\_\_\_

Business Telephone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

Cell Phone Number: ( ) \_\_\_\_\_ E-mail: \_\_\_\_\_

Technical Contact for Your Company: \_\_\_\_\_

## About the End User (if applicable)

Customer Name: \_\_\_\_\_

Project Name: \_\_\_\_\_

Application: (sewage, drainage, water) \_\_\_\_\_

Site Street Address: \_\_\_\_\_

City, State, Zip Code: \_\_\_\_\_

Business Telephone: ( ) \_\_\_\_\_ Fax: ( ) \_\_\_\_\_

Cell Phone Number: ( ) \_\_\_\_\_ E-mail: \_\_\_\_\_

## Project Stage & Timeline

Planning       Design       Emergency Replacement

Approximate Design Deadline: Month/Year: \_\_\_\_\_

Approximate Bidding Date: Month/Year: \_\_\_\_\_

Approximate Installation Date: Month / Year: \_\_\_\_\_

## Please Read Before You Begin

Complete the information on this page about your company, the site(s) for which you are planning a Pump Station installation, and the individuals who should be contacted if additional technical information is required. Then, starting with Item 1 (Structural Options) on page 7, fill in the quantity for each item you need in your Pump Station design. Refer to Product Information Section 3 for product descriptions.

For a firm quotation, send digital copies of your completed worksheets and sketch to:

e-mail to: [ken.pasco@oldcastle.com](mailto:ken.pasco@oldcastle.com)

If you need assistance, call our product line staff at: (888) 965-3227

or visit : [www.oldcastleprecast.com/pumpstations/](http://www.oldcastleprecast.com/pumpstations/)

## Now You're Ready To Begin!

## Pumping System Design Form

Top of pump station structure elevation (TOS): \_\_\_\_\_ Ft

Grade elevation: \_\_\_\_\_ Ft

Inlet invert elevation(s): \_\_\_\_\_ Ft, Inlet size(s): \_\_\_\_\_ Inch

\_\_\_\_\_  
\_\_\_\_\_

Pump station discharge invert elevation (if critical) \_\_\_\_\_ Ft (standard 4' below grade min)

- **(Known Pumping Requirements)**

Required pump performance (if known): \_\_\_\_\_ GPM @ \_\_\_\_\_ Ft TDH

Pump power requirements \_\_\_\_\_ (volts, phase)

- **(Pump Sizing Information Requirements)**

Average daily flow \_\_\_\_\_ GPD

(ex: 200 Homes \* 3.5 people/home \* 100 gal per person per day = 70,000 gal per day)

Storage capacity (if required) \_\_\_\_\_ gal

(i.e. volume required between working volume and lowest inlet invert)

Force main length from pump station discharge to outflow \_\_\_\_\_ Ft

Force main difference in elevation from pump station discharge to outflow \_\_\_\_\_ Ft

Force main pipe: Size \_\_\_\_\_ inch, Material \_\_\_\_\_

(CI, DI, PVC Sch \_\_, SDR \_\_)

Force main outflow pressure(s) \_\_\_\_\_ psi, \_\_\_\_\_ psi, \_\_\_\_\_ psi

(ex: 0-psi if outflow drop in gravity MH)

Pump power requirements \_\_\_\_\_ (volts, phase)

## Pump Station Design and Option Selection Form

### Select Standard Pump Station Size

- RC509       RC611

### Select Standard Pump Station Height (stock components)

- 10'-10" (base, valve vault section and cover)  
 12'-10"  
 13'-10"  
 14'-10"  
 15'-10"  
 16'-10"  
 17'-10"  
 18'-10"  
 19'-10"  
 20'-10"  
 21'-10"  
 22'-10" ( Maximum Structural Height)

### Optional Structural Components

- 2' valve vault riser (non-stock) – overall interior VV height 6'-8"  
 4' valve vault riser (non-stock) – overall interior VV height 8'-8"  
 3' wet well riser (non-stock)

### Optional Concrete Treatments

- Concrete admixture for Hydrogen Sulfide protection  
 Exterior dampproofing treatment (vertical below grade surfaces)

### Hatch Load Rating

- 300# (pedestrian)       H20 (occasional vehicle wheel load)

### Optional Access Equipment

- Aluminum ladder-up

**Discharge Piping Material and Orientation**

- Discharge position #1     Discharge position #2     Discharge position #3  
 2" PVC piping & valves  
 3" PVC piping & valves  
 3" DI piping and CI valves  
 4" DI piping and CI valves  
 6" DI piping and CI valves (only in RC611 structure)

**DI Pipe & Fitting Coatings (PVC not coated)**

- Asphalt coated – manufacture supplied (standard)  
 Coal-tar epoxy finish coat  
 Tnemec N69 Hi-Build Epoxoline finish coat

**Optional Check Valve Selection**

- Check valve – air cushion (optional)

**Floor Stand Pipe Supports in Valve Vault**

- Galvanized (standard)                       Stainless (optional)

**Optional Bypass Connection (piping, isolation valve & quick connect)**

- 2" PVC Bypass  
 3" PVC Bypass  
 3" DI Bypass (not available with Position #2 discharge)  
 4" DI Bypass (Offered on 4" and 6" DIP)

**Optional Discharge Pressure Gauges**

- None required     0-15 psi     0-30 psi     0- 60psi     0- 100psi     Unknown

**Guide Rail Sizing for Pumps (if known)**

- 2"                       1 ½"                       1"                       ¾"                       Unknown size

**Passive Station Venting**

- 4" PVC Gooseneck with stainless insect screen attached to station (standard)  
 4" PVC with carbon odor control canister attached to station (optional)  
 Opening with manhole boot for site venting by others (optional)



## Description

Planner Form pg-4

**Control Panel Placement**

- Shipped loose (standard)     Mounted to station (optional)

**Junction Box Location (pumps and intrinsically safe float cable j-boxes)**

- All interior (X-proof Nema 7 pump j-boxes)     All exterior Nema 4X     Int. float j-box only  
 None (PCP mounted to station or otherwise)

**Level Control**

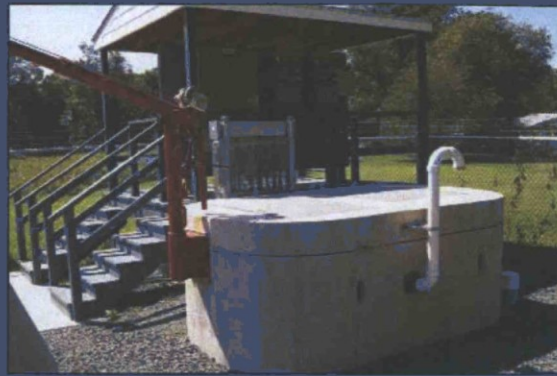
- Floats (standard)     Transducer w/emerg. Floats     Transducer w/back-up floats

**Trash Basket Option**

- Perforated screen     Bar rack  
Materials:     Aluminum     Stainless steel

**Stainless Portable Hoist Option**

- 300# (optional)     1000# (optional)



### ***Oldcastle Precast***

Oldcastle Precast is the leading manufacturer of precast concrete, polymer concrete, and plastic products in the United States. With a nationwide network of facilities, our products are always close at hand. Our employees are committed to upholding core values of reliability, quality, and service in revolutionary ways. Our attention to detail exceeds the expectations of customers from some of the largest companies in the U.S., across a spectrum of industries.

**Sales & Service**

**888-9 Oldcastle**

**(888-965-3227)**

[oldcastleprecast/pumpstation](http://oldcastleprecast/pumpstation)

All designs, specifications and availabilities of products and services presented in this bulletin are subject to change without notice.

**Precast Concrete Pump Stations**

**Appendix H– Opinion of Probable Cost (OPC)**

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# StoryRock Preliminary Engineering Report

**Kimley»Horn**



Project No : 191069013

Project Location : StoryRock Lift Station #1

Proj Manager : CAV-RANCH, LLC.

Project Description : Lift Station PER

BID ITEM NO.	ITEM DESCRIPTION	UNIT	Preliminary Engineering Report		
			DATE: 10/14/16		
			TOTAL QTY	UNIT PRICE	AMOUNT
1	Wet Well	EA	1	\$50,000.00	\$50,000.00
2	Valve Pit	EA	1	\$30,000.00	\$30,000.00
3	Flygt NP 3153-SH3-274 Pump	EA	2	\$30,000.00	\$60,000.00
4	3.5" DIP Pipe	LF	70	\$40.00	\$2,800.00
5	3.5" Plug Valve	EA	2	\$700.00	\$1,400.00
6	3.5" Check Valve	EA	2	\$500.00	\$1,000.00
7	Generac QT 15068KNAC Generator	EA	1	\$40,000.00	\$40,000.00
9	Square D 120/208 3Φ 4W Meter Section	EA	1	\$3,494.00	\$3,494.00
10	Square D 120/208 3Φ 4W EZ meter 400 Amp Terminal Box	EA	1	\$3,517.70	\$3,517.70
11	Generac HTS3R0200 (200 Amp 208V 3Φ 4-Pole) - Transfer Switch	EA	1	\$11,986.80	\$11,986.80
12	NEMA 3R Enclosure	EA	1	\$3,568.60	\$3,568.60
13	Panelboard Interior	EA	1	\$8,023.60	\$8,023.60
14	72"x72" 2 Door NEMA 4x Cabinet	EA	1	\$24,086.00	\$24,086.00
15	Square D 240V 7.5 HP Motor Starter	EA	2	\$9,040.00	\$18,080.00
16	IDEC 2 Pole Relay and Socket	EA	20	\$76.00	\$1,520.00
17	RACO Verbatim Autodialer	EA	1	\$6,680.00	\$6,680.00
18	Polysonics SX40 Flow Meter	EA	2	\$3,300.00	\$6,600.00
19	Siemens Hydro-ranger 200	EA	2	\$5,959.20	\$11,918.40
20	Door Contact - Cabinets	EA	2	\$330.00	\$660.00
21	Control Panel Fabrication Materials( Wire Duct, Panduit, Conductors)	EA	1	\$9,400.00	\$9,400.00
22	NEMA 4x Cabinet	EA	1	\$9,000.00	\$9,000.00
23	Associated Telemetry Equipment	EA	1	\$6,000.00	\$6,000.00
24	Panel Fabrication Materials( Wire Duct, Panduit, Conductors)	EA	1	\$17,000.00	\$17,000.00
25	1" Surface Mounted PVC Coated RMC for Lighting Design	LF	200	\$25.40	\$5,080.00
26	Junction Boxes	EA	8	\$330.00	\$2,640.00
27	#12 AWG Electrical Conductors	LF	675	\$3.24	\$2,187.00
28	#4/0 AWG Electrical Conductors	LF	250	\$10.40	\$2,600.00
29	Lighting Outdoor Rated Switch	EA	1	\$167.20	\$167.20
30	New APS Service	EA	1	\$20,000.00	\$20,000.00
31	Canopy Light	EA	3	\$660.00	\$1,980.00
32	Wall Pack Light	EA	4	\$810.00	\$3,240.00
33	3" Conduit Trench (Hand Dig)	LF	50	\$400.00	\$20,000.00
34	Install Service Entrance Panel	EA	1	\$840.00	\$840.00
35	Install Automatic Transfer Switch	EA	1	\$840.00	\$840.00
36	Install Pump Control Panel	EA	1	\$1,680.00	\$1,680.00
37	Commission and integrate PLC Panel	Hr	55	\$200.00	\$11,000.00
38	Install Distribution Panel	EA	1	\$840.00	\$840.00
39	Generator Install and Commissioning	EA	1	\$3,200.00	\$3,200.00
40	New Lighting System Startup Inspection	Hr	8	\$100.00	\$800.00
41	Slab on Grade with Housekeeping Pad	EA	1	\$2,100.00	\$2,100.00
42	Shade Structure	EA	1	\$6,160.00	\$6,160.00
43	Block Wall	LF	300	\$45.00	\$13,500.00

**StoryRock**  
**Preliminary Engineering Report**

BID ITEM NO.	ITEM DESCRIPTION	UNIT	Preliminary Engineering Report		
			DATE: 10/14/16		
			TOTAL QTY	UNIT PRICE	AMOUNT
44	Sliding Gate	EA	1	\$1,200.00	\$1,200.00
45	Site Grading	SY	711	\$20.00	\$14,222.22
46	48" Concrete Manhole	EA	2	\$6,000.00	\$12,000.00
47					
48					
49					
50					
51					
52					
					<b>\$454,000.00</b>