



**Y GRIFFIN**

GROUNDWATER CONTROL EXPERTS SINCE 1934

# CONSTRUCTION DEWATERING. DEEP EXPERTISE.

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**GET CONFIDENCE.**  
**GET GRIFFIN.**







# THE EASIEST DECISION YOU'LL EVER MAKE.

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You are planning a major construction project. Geotechnical analysis tells you that groundwater intrusion threatens the stability of your excavations. Engineering recommends installing a dewatering system for groundwater control. Now it's decision time. Consider the risk and cost of falling behind schedule. Time to bring in a dewatering expert with the know-how and resources to get it right.

But getting it right is complicated. You have to consider soil types and permeability, excavation depth and shape, construction methods, points of discharge, and proximity to existing structures. Contractors who attempt dewatering on their own assume significant risks to assets and personnel. It doesn't take much to put a project off schedule and over budget, which can also jeopardize project financing.



## A TRUSTED PARTNER FOR MORE THAN 80 YEARS.

## ONE-STOP FOR GROUNDWATER CONTROL.

We've manufactured equipment and designed solutions for some of the most complex groundwater challenges in the construction industry. From your first day of excavation to treatment of discharge, we have the expertise to fully support your project.

### Construction Dewatering

#### DEEP WELL SYSTEMS

When you're working in highly permeable soil and need to pump large volumes of groundwater, this solution is ideal. Deep well installations extend to depths greater than 100 feet and consist of one or more individual wells, each with its own submersible pump. Griffin turnkey services include engineering, design, drilling, supplying all pumps and equipment, installation and removal.



#### WELLPOINT SYSTEMS

Our most versatile pre-drainage solution features wellpoints spaced around an excavation. These are connected to a common header, which is attached to one or more pumps. Suitable for shallow aquifers, wellpoint systems allow you to pump anything from a few GPM in fine sandy silts to thousands of GPM in coarse sands and gravels.



#### EDUCTOR SYSTEMS

Especially suited for deep excavations and stratified soils, eductor wells are an extremely low-maintenance, cost-effective solution. Featuring a series of wells and a central pumping station, this method is frequently used with low-permeability soils, generally pumping less than 200 GPM.



#### SUMP PUMPING

Our simplest and most economical approach allows groundwater to seep into an excavation, where it's collected in sumps and pumped away. Sump pumping is most effective for soils with low permeability and a shallow aquifer below subgrade. Remember, depending on soil type, there may be issues with instability, settlement, or disposal.

## Hydrology, Engineering & Design

Every construction project is unique—just like the ground beneath it. In order to give you the most cost-effective groundwater solution possible, it's crucial to involve Griffin engineering early on. We'll gather and thoroughly evaluate local hydrogeology, working closely with architects and project engineers to develop the best solution for your goals and constraints.



### PERMANENT AND TEMPORARY DEWATERING SYSTEM DESIGN

Dewatering isn't just a construction issue. You need a plan to control groundwater throughout the life of the building to maintain long-term integrity. Using analytical models, Griffin will design the right temporary and permanent dewatering solutions.

### RECHARGE WELL DESIGN

A recharge well can help you avoid potential side effects of dewatering, including ground settlement. By pumping the same water back into the ground, you may eliminate the need for a discharge treatment system.

### AQUIFER TESTING

Before designing a dewatering installation, engineers and contractors need to understand a site's hydrogeology. That's why Griffin will conduct tests to determine aquifer characteristics like conductivity, transmissivity, and storativity.

### UPLIFT PRESSURE CALCULATION / ARTESIAN REDUCTION SYSTEM / RELIEF WELL DESIGN

An impermeable layer between the bottom of your excavation and a deep aquifer can cause soil to weaken and fail. Griffin designs depressurizing or relief-well systems to ensure that these problems do not occur, in compliance with jobsite safety requirements.

### GROUNDWATER MODELING SYSTEM (GMS)

Pulling data from geotechnical reports and borehole samples, Griffin engineers use GMS to create models of your site aquifer and soil stratigraphy. These include 2D seepage analyses, 3D simulations, and transient models. Insights from these analyses help determine the right requirements for pump horsepower, discharge-pump size, and treatment-system capacity.

## Water Treatment & Filtration

No other company offers both dewatering and water treatment solutions for such a wide range of applications. We address general issues such as total suspended solids, iron, hardness, pH, as well as highly specialized problems such as hydrogen sulfide, arsenic, other heavy metals, radium, radon, and VOC contamination. We'll design our own system or implement yours. Either way, you'll have one point of contact to minimize environmental risk.





## THE FUNDAMENTALS OF DEWATERING.

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Every major construction project begins with excavation. Beneath the surface, the hydrogeology may be infinitely complicated. Any excavation will eventually fill with groundwater. How much and how fast depends on the soil type and the height of the water table.



Dewatering removes groundwater from a construction site, usually via pumps. Griffin has a variety of systems, from simple sump pumps to deep wells. The best solution depends on factors that are unique to every site—everything from soil permeability to stratification.

### **Not a do-it-yourself endeavor.**

It's important to remember that when you remove groundwater, you change the makeup of the soil. This can cause geological instability. Improperly designed dewatering solutions can result in unwanted subsidence, erosion, or flooding.

### **Poor planning can quickly put you in the hole.**

It's all too easy to get out of your depth. During system installation, you may encounter conditions that will force you to change your engineering designs. Then there's the question of what to do with the water you remove. The presence of natural or man-made contaminants, such as arsenic or toxic metals, may demand a discharge treatment solution to comply with federal, state, and local statutory requirements.

Soil type and permeability, groundwater and excavation depth, contamination risks—any miscalculation on these variables can quickly cascade into bigger problems, putting your project severely behind schedule and over budget.

### **Nothing's more cost-effective than doing it right the first time.**

Don't risk putting your project—or your company—in jeopardy. Whatever your project or budget parameters, Griffin has the expertise and the solutions to meet your needs.



## EXAMPLE A: WELLPOINT SYSTEM

### 1. JET/DRILL THE BOREHOLES AT THE SPACING DESIGNED FOR THE EXCAVATION

- Install the wellpoints in the boreholes
- Place the designed filter pack in the boreholes

### 2. SET THE HEADER PIPE

### 3. CONNECT THE WELLPOINTS TO THE HEADER PIPE WITH SWING JOINTS

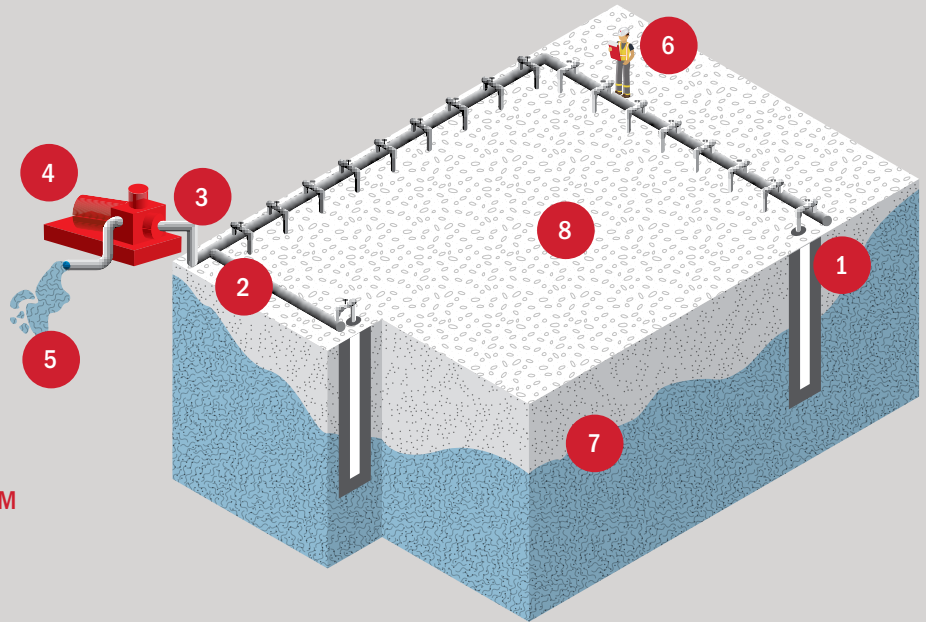
### 4. SET THE WELLPOINT PUMP

### 5. START PUMPING

### 6. OPTIMIZE, MONITOR AND ADJUST THE SYSTEM

### 7. LOWER THE WATER TABLE

### 8. EXCAVATE



## EXAMPLE B: DEEP WELL SYSTEM

### 1. DRILL THE BOREHOLE FOR DEEP WELL INSTALLATION

- Install the deep well's casing and designed screen in the borehole
- Place the well pack designed for the formation
- Select a pump designed for the expected flowrate and discharge pressure and install the pump in the well

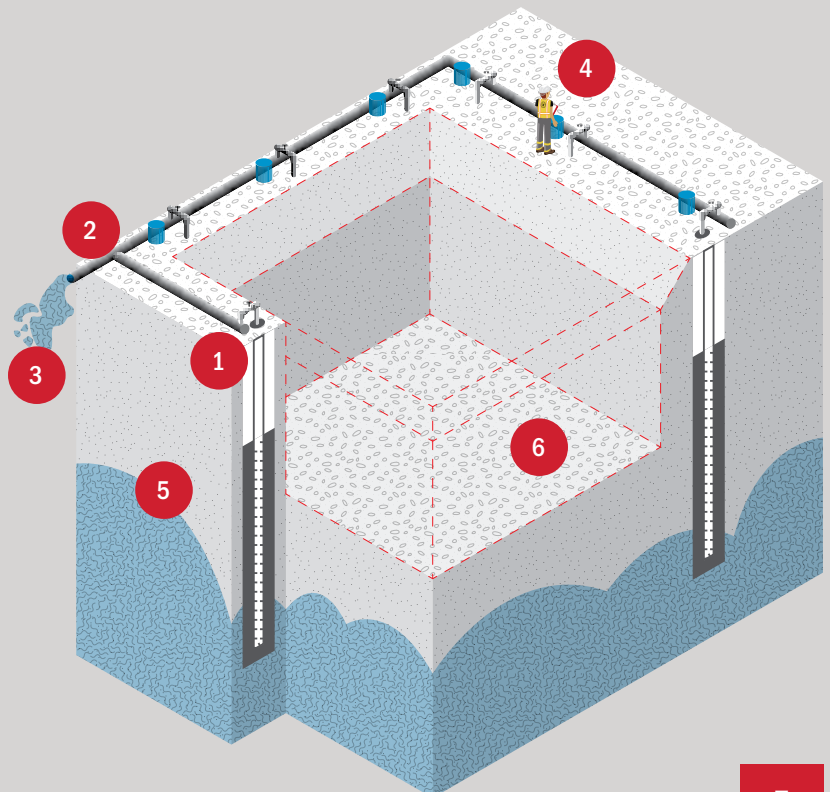
### 2. SET THE HEADER PIPE

### 3. START PUMPING

### 4. OPTIMIZE, MONITOR AND ADJUST THE SYSTEM

### 5. LOWER THE WATER TABLE

### 6. EXCAVATE







## OUR SUCCESS IS LONGEVITY.

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Since 1934, Griffin has provided equipment and services for groundwater pumping nationwide. We've encountered every imaginable dewatering challenge. Our specialized equipment and methods are built on an exceptionally deep base of expertise. Through experience and uncommon commitment, we've earned our customers' enduring respect.



**80+ YEARS**

**KEEPING PROJECTS ON TRACK**

**10+ NUCLEAR PLANTS**

**20,000+ EXCAVATIONS**

**100+  
LEVEES, DAMS  
AND TUNNELS**

**100+ HIGH RISE BUILDINGS**

**10+  
PRO STADIUMS  
AND ARENAS**

**100+ POWER PLANTS**

**50+ MAJOR UNIVERSITIES**

**Y GRIFFIN**





## FORGED FROM FIELD EXPERIENCE.

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At Griffin, we're experts in dewatering—and have been since 1934. From manufacturing quality equipment to providing effective solutions, our hydrology and engineering teams have done it all. Most importantly, we've earned a reputation for keeping construction projects safe and on-schedule, minimizing risk while maximizing peace of mind.



## EQUIPMENT MANUFACTURING, RENTAL AND SALES

Griffin's history has been one of continuous innovation. We began manufacturing equipment as a direct result of field experience, working closely with our customers to solve real-world problems. Along the way, we've set the standards for dewatering technologies such as wellpoints, jetting, and eductor systems. Whether you're buying, renting, or servicing existing equipment, our sales team is ready to support you, 24/7.



### WELLPOINT PUMPS

Designed for high volumes of air and water (up to 3,500 GPM), our vacuum-assisted wellpoint pumps are available in diesel and electric models.



### NON-CLOG PUMPS

These variable-use, vacuum-assisted pumps are fully automatic, dry-priming, and dry-running. They operate efficiently under continuous or intermittent flows.



### JET PUMPS

Self-contained and portable, our high-pressure pumps deliver a flow of up to 1,350 GPM. They're ideal for field installation of wellpoints or well casings without drilling.





### SILENT PAC PUMPS

Designed for quiet operation, these durable pumps are known for ease of operation and maintenance. They're ideal for bypass, wellpoint systems, and sumping.



### HYDRAULIC SUBMERSIBLE PUMPS

Available in trash, axial-flow, and materials-handling models, Griffin hydraulic submersible pumps are designed to handle up to 20,000 GPM and head conditions of up to 140 feet. This makes them ideal for river bypass or dam repairs.



### ELECTRIC SUBMERSIBLE PUMPS

We offer a complete line of self-priming electric pumps for clean water, gray water, or trash-laden effluent in a wide range of flow conditions.



### WELLPOINTS AND ACCESSORIES

Wellpoints, butterfly swingjoints, header pipe systems, grommets, and pipe pullers—Griffin provides everything you need for your wellpoint system.



### TRASH PUMPS

Our self-priming pumps handle high flows and head rates, operating efficiently under intermittent conditions.



### BYPASS PUMPING SYSTEMS/ SOLUTIONS

We have solutions for nearly any bypass application—from above-ground, non-clog diesel to hydraulic-driven submersible. If we don't have what you need in our standard line, we'll build it.

## SAFETY AND INTEGRITY. REINFORCED.

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Safety is fundamental to everything we do. From day one, we insist on best-practice procedures supported by first-hand training and extensive field experience. Just as groundwater control is essential to the integrity of any construction project, our commitment to doing it right is essential to the company we've built.











# **GET CONFIDENCE. GET GRIFFIN.**

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Keep your construction project on time and on budget with the right dewatering solution. With offices throughout the country, we're here to help, 24/7.

**[www.GriffinDewatering.com](http://www.GriffinDewatering.com) | 1-800-431-1510**