

# MATTER SOLUTIONS




**BG CONSULTANTS**  
ENGINEERS · ARCHITECTS · SURVEYORS

**YOUR VISION MATTERS.**

Manhattan  
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785.749.4474

Emporia  
620.343.7842



"Water is a valuable resource that has been taken for granted. Many communities have aging systems susceptible to failures and designed without fire protection. I want to help clients alleviate these problems while simplifying their maintenance requirements."

—Brian Foster, P.E.  
BG Consultants Principal,  
Water Resources Department





## Providing solutions for safe, reliable infrastructure

Water is the lifeblood of any community. Though we often take it for granted, growing demand, diminishing supply, and aging infrastructure make it increasingly difficult for water suppliers to provide quality, affordable water to their customers.

BG Consultants understands these challenges. Over the past 45 plus years, we have helped communities identify problems with their systems, prioritize rehabilitation efforts, meet drinking water regulations, and implement creative solutions to maintain sustainable water supplies. We have experience with every component of potable water systems, including distribution lines, storage systems, pumps, and meters, as well as increasingly complex treatment facilities.

Our experience has also taught us the importance of service beyond our technical abilities. Gathering public input and building consensus, navigating the regulatory environment, and identifying funding sources are all included in BG's commitment to you. Our goal is to not only meet your current needs, but to develop long-term relationships built on trust, transparency, and successful solutions.

### Signs It May Be Time To Consult An Engineer:

- Increased maintenance time and cost
- Major maintenance problems
- Complaints of dirty water
- Complaints of low or fluctuating pressure
- Poor fire flows

#### Left:

Public Wholesale Water  
Supply District #26  
Chase County, KS







## OUR SERVICES



### **WATER SUPPLY**

Groundwater & Surface Water Supply Sources;  
Water Treatment Facilities; Water Quality  
Management



### **WATER DISTRIBUTION**

System Evaluation; Pressure Zone Management;  
Pumping Facilities; Storage Analysis; Distribution  
Sizing



### **HYDRAULIC MODELING**

Hydraulic Modeling Software Standards;  
Disinfection Analysis; Expansion Analysis; Flow &  
Pressure Analysis



### **NEW SERVICE ANALYSIS**

Model New Service Impacts; Large Volume &  
Residential Users; System-Wide Service Evaluation



### **CONSTRUCTION ENGINEERING**

On-Site Construction Observation; Construction  
Contract Assistance; Supplemental Staff Assistance



### **CAPITAL IMPROVEMENTS ANALYSIS**

Identify & Prioritize System Improvements; Opinion  
of Probable Costs; Improvements Phasing; User Rate  
Impacts



### **FUNDING ASSISTANCE**

USDA-Rural Development (Loan & Grant Program);  
KDHE-SRF (Loan Program); KDOCH-CDBG (Grant  
Program)



### **PUBLIC RELATIONS**

Public Meeting Presentations; Availability for Patron  
Questions; RWD Board Presentations

## Local commitment meets professional expertise.

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### **Public Wholesale Water Supply District #26 Chase County, KS**

Three water suppliers were served by two aged water treatment facilities. Improvements to existing facilities were not feasible, so PWWSO #26 was formed to provide water to the regional entities with enhanced water quality and consolidation of water rights. BG designed the new 0.5 MGD treatment plant, which includes greensand plus pressure filtration followed by reverse osmosis filtration, and 0.5 million gallon storage tank.



### **Waterline Improvements Lawrence, KS**

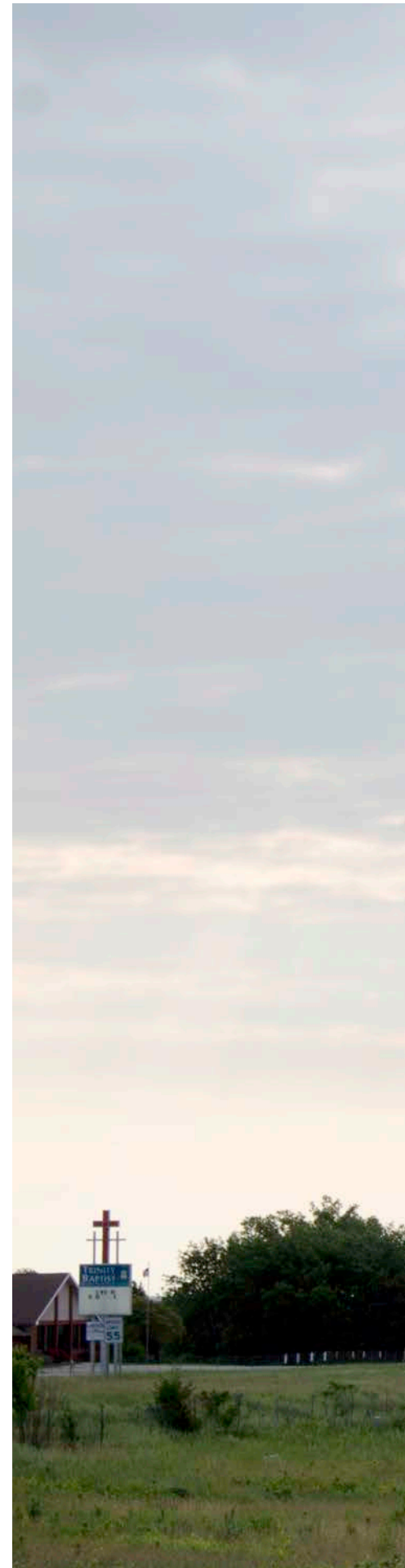
The waterlines on Kentucky Street, Tennessee Street and 9th Street in Lawrence were 75-125 years old calcified lines in need of replacement, so the City commissioned BG Consultants to design replacement waterlines. The project included 1,345 feet of 12" DIP, 5,583 feet of 8" PVC C-900, 31 gate valves and 14 fire hydrants. Connections were made to 27 existing water lines and to 455 services.



### **Water System Improvements Culver, KS**

The City of Culver selected BG Consultants to evaluate their municipal water system, identify deficiencies, and make recommendations for potential improvements.

In two phases, BG designed a new water treatment plant for the removal of iron and manganese, a new standpipe that provide higher service pressures to the community, and complete replacement of the existing distribution system.





The importance of having high quality water available to meet our basic needs cannot be understated. You may not think about it every day, but we do. Our team of engineers understand the best ways to plan and design the full range of water services for municipal, industrial and private clientele. With extensive experience in this region, our team will help you develop dependable, innovative and cost effective solutions for all your water needs.

**Working together, we can improve  
Kansas' water infrastructure.**



Chase County RWD #1 Water Mains  
Chase County, KS







### **Numerous Water System Improvements Manhattan, KS**

BG Consultants has served as an On-Call Engineer for water system improvements. We have completed projects including distribution mains, water modeling, booster stations, pressure zones and PRV valves. Other Watermain and related projects:

- Eureka Valley High Pressure Transmission Main
- 16 " at Heritage Square New Service Area
- Denison Ave. 12" Improvements
- New 12" at North Denison - NBAF Relocation
- 2005 Transmission and PRV Improvements
- 2012-13 Water and Sanitary Sewer Improvements
- Stagg Hill Booster Station Analysis



### **Numerous Water System Improvements Emporia, KS**

BG Consultants has completed numerous distribution projects city-wide over the last 10 years. The most complex and impactful to the city include:

- City-wide water model
- 1.0 MG Composite Elevated Water Tower
- 16" Transmission Main, Industrial Park III
- 20" Distribution Main , 12th Avenue
- 12" South Ave. Waterline
- 20" Raw Water Transmission Main
- Water Treatment Plan Evaluation
- 10" Downtown Commercial St. Replacement



### **Water System Improvements Phase 1 & 2 Howard, KS**

The Preliminary Engineering Report identified options and recommended Phase 1 and Phase 2 improvements to replace nearly the entire water distribution system. The preliminary design included approximately 54,700 feet of PVC C-900 waterline, 12,000 feet of HDPE Service Line, 350 Service assemblies, 140 gate valves, and 70 Fire hydrants.



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### **Water System Improvements Sedan, KS**

The City of Sedan contracted BG Consultants to develop a computer model of their municipal water system, identify deficiencies, and make recommendations for improvements. This led into a project including approx. 66,000 LF of waterline replacement, 61 fire hydrants, 13 flush hydrants, 118 gate valves and 694 new service assemblies.



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### **Water Treatment Improvements Hiawatha, KS**

Nitrate levels in the current water supply has increased to the point that they are not compliant with state and federal standards.

The existing system supply is from two separate well fields. A system-wide hydraulic model of the distribution system was used to evaluate the feasibility of blending two separate sources within the distribution system. A new Ion Exchange treatment plant was the recommended solution.



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### **Water Distribution & Treatment Improvements | Green, KS**

Green was experiencing excessive failures in the distribution system, so the City contracted with BG Consultants to identify available options. The first phase included complete replacement of the original distribution system. The second phase included a new centralized 40 GPM water treatment plant for nitrate removal, which incorporates all of the existing wells, and 4 Well Rehab & Reconnection Control Upgrades.







"Since my time in Hiawatha, BG Consultants, Inc. has provided the highest level of services I've seen in my government career. Their professionalism is reflected in every project from start to finish. BG's experience, guidance and insight is a must for any municipality. If you want a project done right and within budget from concept to construction, BG Consultants, Inc. is the right engineering firm."

—Mike Nichols  
City Administrator, City of Hiawatha

Our mission is to

**provide  
client-focused service  
through  
integrated design solutions.**

**About BG Consultants**

BG Consultants, Inc is a full-service E/A design firm providing services in planning; architecture; civil engineering; structural engineering; mechanical, electrical and plumbing engineering; and surveying. Our people are experts in their field, but above all, they're focused on our clients and helping them to realize their project vision.

For more information about BG Consultants and the services we provide, visit [www.bgcons.com](http://www.bgcons.com).

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