Kozell Engineering Company
Engineering Section, Inc., P.C.
2404 State Highway 248, Suite 4
Branson, Missouri 65616

City Clerk's Office
City of Branson
110 W. Maddux St., Suite 20
Branson, MO 65616

RFP 2493-25
Official Closing Date: Jun
Official Closing Time: 3:00

ROZELL ENGINEERING CO.
ENGINEERING SECTION, INC. P.C.
Wayne Diebold, P.E.
Consulting Engineer
2404 STATE HIGHWAY 248 SUITE 4 - BRANSON, MISSOURI 65616 - TELEPHONE (417) 334-4141 - FAX (417) 334-4181

June 25, 2019

Mr. David D. Rockhill, C.P.M.
City of Branson
Purchasing Office
110 West Maddux St., Suite 200
Branson, Missouri 65616

Re: Proposal for Engineering and Design Services
Proposal Number 2493-25
Branson, Missouri

Dear Mr. Rockhill:

Thank you for the opportunity to submit a proposal for the engineering and design services project here in Branson. We are very familiar with the City of Branson water and sewer system and service area since we have completed numerous water and sewer projects here in the City. In addition, we have provided surveying and engineering over the last twenty years on many of the developments surrounding the project. Also, the project site is located five miles from our office. We have visited the project site during the preparation of this proposal and are excited at the possibility of working with the City on this project.

We believe our firm has the capability of partnering with the City of Branson to complete this project successfully. Our close proximity to the project site will help us provide the City of Branson the best possible service to meet your goals in a timely manner.

Please find enclosed two paper copies of our proposal and one digital copy in PDF format on USB drive. If you have any questions or need additional information, please do not hesitate to contact our office.

Sincerely,

Eric Hodge

Eric Hodge, P.E.
Office Manager

Encl: As stated

EXPERIENCE IN THE TYPE OF WORK:

Rozell Engineering Company currently has two Professional Engineers on staff. Mr. Wayne Diebold, P.E., President of Rozell Engineering Company and a licensed engineer in the State of Missouri, as well as five other jurisdictions, with 36 years of water and sewer system design and construction experience, will act as project manager. Mr. Eric Hodge, P.E., a licensed engineer in the State of Missouri with 23 years of water and sewer system design and construction experience, will serve as the project engineer. Mr. Diebold and Mr. Hodge will be responsible for the design, coordination with City personnel, correspondence, report preparation, cost estimates and supervision of drafting and preparation of the construction plans. Surveying and engineering staff members will be available to assist the project team as needed throughout the various phases of work.

Five similar projects we completed are highlighted below to demonstrate our ability to address a wide range of variables which may be encountered. **These example projects were specifically chosen to demonstrate our experience with City of Branson projects.**

City of Branson Lift Station No. 43 and Collection System Improvements:

The Branson R-IV School District purchased 55 acres located north of the City of Branson for the purpose of constructing a new high school campus. The property was located within the 1,100 acres known as Branson Hills Development. The Branson Hills drainage basin was originally intended to be served by a lift station and force main. The original lift station was partially completed by private developers and abandoned when the initial development of Branson Hills was put on hold several years earlier. The City of Branson and the school reached an agreement to construct sanitary sewer improvements which would allow the school campus to connect to the existing City of Branson wastewater collection system. **Rozell Engineering Company** was retained to design a gravity sanitary sewer trunk line which commenced at the existing partially constructed lift station located near the southeast corner of Branson Hills and extended north over 8,250 lineal feet to the proposed high school campus located at the north end of Branson Hills. The project included converting the existing tanks into a working lift station capable of providing service for not only the proposed high school campus, but also future development within the Branson Hills drainage basin.

Rozell Engineering Company designed two 88 HP submersible pumps capable of pumping 900 gpm at a TDH of 210 feet to be installed in the existing wet well tank. The existing valve box which was too small, was replaced with a new structure designed to house the valves and equipment necessary for the lift station. An existing 10,000 gallon overflow storage tank constructed in the original project was incorporated into the design of the new lift station to provide additional emergency storage in case of pump failure. **Since the existing force main connected to a portion of the existing wastewater collection system which did not have capacity to receive flow from the new lift station, plans were developed to reroute a portion of the existing force main to connect at a different location which was capable of accepting the discharge from the new lift station. In lieu of constructing a complete new force main, Rozell Engineering Company was able to utilize a portion of the existing 10" diameter force main resulting in a cost savings for the client.**

The gravity sewer is still in operation today. The lift station successfully operated until eventually being taken out of service by the Bee Creek Watershed Sewer project.

Proposal Number 2493-25

City of Branson Branson North Water System Improvements:

The City of Branson water system consisted of various zones which were served by different wells and water towers resulting in some zones having higher pressures than others. A large medical clinic was planned for construction on Highway 248 within the northern zone of the City distribution system. This facility would be connecting to an area within the system which lacked sufficient pressure and volume to properly serve the development. In anticipation of this planned development, the City of Branson desired to extend a water main from Stockstill Park, across Roark Creek, across Skaggs Medical Clinic property, through Cahill Residential Subdivision, through Branson North Residential Subdivision and terminating at Highway 248. This water main extension would improve pressure and flows and provide redundancy.

The existing water distribution system was also split into separate zones within Cantwell Subdivision, Hideaway Hills and Roark Valley Road with no connectivity. Water main extensions were desired to connect these three separate zones to provide redundancy and improve pressures and flows.

Rozell Engineering Company was retained to provide all surveying and engineering design services from planning through construction. Multiple routes were evaluated to determine the best option for the proposed water mains. Routes were walked and marked in the field by engineering personnel to avoid damaging mature timber in wooded areas along the route. As the route entered developed residential subdivisions, routes were hand picked in the field by engineering personnel to minimize disturbance to established yards avoiding trees, flower beds, mail boxes and existing utilities present on the developed lots. Existing water services were disconnected from the existing lines within the subdivisions and connected to the new water main. The locations of existing fire hydrants were evaluated and new fire hydrants were added as needed to provide adequate fire protection within the subdivisions. As the route passed through developed subdivisions, much coordination was required to maintain access to all properties throughout construction. Public road right-of-way and existing easements were utilized as much as possible to minimize the number of new easement required to construct the water mains. Rozell Engineering Company personnel met with individual property owners to negotiate the easements required for the water main to cross private property. Detailed survey information on existing utilities was collected and careful planning was necessary to ensure no conflicts were created with existing utilities. Routes of the proposed water mains were modified to avoid conflicts which could result in costly reconstruction of existing utilities and interruption of existing utility service to residents.

The final design consisted of 8,079 LF of 12" diameter water main, 1,187 LF of 8" diameter water main and 37 LF of 6" diameter water main connecting multiple zones within the distribution system and providing service to four different residential subdivisions.

City of Branson Animal Safari Sewer Main Extension:

New areas within the City of Branson wastewater service area were developing and in need of municipal sanitary sewer service. Specifically, two residential developments adjacent to Table Rock Lake – Whisper Cove and Estates at Majestic Pointe were planned for development. Since no City of Branson gravity sanitary service was readily available the developments would have to be served by a temporary holding tank which would be maintained by the City of Branson. The holding tank was planned to be upgraded to a lift station once the City of Branson

gravity sanitary sewer collection system was extended close enough for connection. Rozell Engineering Company provided all surveying and engineering services for the design for both residential developments. Rozell Engineering Company was also retained to plan and design the temporary holding tank which could be upgraded to a lift station at some point in the future. The project also included a force main which would be constructed, but left unused until the City of Branson gravity collection system was extended to the top of the ridge at Highway 265.

Once constructed and operational, the holding tank was pumped periodically as needed. As development occurred within the two subdivisions, the frequency of pumping increased. In addition to increased pumping costs, the access road which served the holding tank was very long and steep and was occasionally not accessible during winter storm events. In anticipation of the conversion from temporary holding tank to lift station, the City of Branson retained Rozell Engineering Company to plan and design the Animal Safari Road gravity sanitary sewer main extension project. Once constructed, this main extension provided for a connection point for the force main constructed with the temporary holding tank. Once the force main was connected to gravity sanitary sewer, the temporary holding tank could be upgraded to a lift station.

The proposed gravity sanitary sewer main extension would begin in the valley at the Fall Creek Trunk sewer and continue up the hill crossing multiple private properties, Missouri Department of Transportation right-of-way for the future extension of Route 465, Highway 265 and ultimately terminating at the top of the ridge. As the private properties were largely undeveloped, the primary design considerations included the most efficient design which involved the least number of properties and required easements while taking into consideration construction costs. The topography was extremely steep and encountering solid rock was inevitable. In addition, the Missouri Department of Transportation would not allow manholes within Route 465 right-of-way and the sewer line had to be cased in steel pipe across the full width of the right-of-way. **Consequently, an alignment study was preformed in which five different options were evaluated taking into consideration items such as total length, difficulty of terrain, length of casing pipe across Route 465 right-of-way, construction costs, number of easements required and future accessibility for maintenance purposes.** This study was presented to the City for review. Ultimately, a preferred route was chosen, a topographic survey was performed including property boundaries for easement preparation. This survey information was then used to design and prepare construction plans for 3,311 LF of 8" diameter gravity sewer main.

City of Branson Lift Station No. 19 Decommissioning and Gravity Sewer Main Extension:

The City of Branson Lift Station 19 was originally constructed to serve new development located outside the area served by the City of Branson wastewater collection system. Over the years, the City collection system was expanded and eventually the Roark Valley Trunk sewer was constructed to serve the Roark Valley watershed. The construction of this trunk sewer made it possible to replace Lift Station 19 with a gravity sanitary sewer main connection to the trunk sewer. Rozell Engineering Company was retained to plan and design the decommissioning of the lift station and the required gravity sanitary sewer main extension. Although a relatively short gravity main extension would be required, the project was complicated by existing conditions which would have to be taken into consideration. The lift station site was constructed on fill resulting in steep fill slopes that the new sewer main would have to cross; an existing steel casing pipe under Shepherd of The Hills Expressway was planned to be utilized for the sewer main to reduce construction costs; an existing billboard structure was located in the planned

route for the sewer main; the route followed a natural drainage way which required careful manhole placement to prevent continual inundation of the manholes; an existing natural gas facility was located near the termination point of the sewer main. **Rozell Engineering Company personnel spent considerable time in the field carefully choosing a route to avoid conflicts with the above described obstacles. Stakes marking proposed manhole locations were set by engineering personnel to communicate to surveying personnel the selected route for surveying.** Rozell Engineering Company coordinated with the Corps of Engineers to ensure compliance with all federal regulations concerning construction in natural drainage ways. The topographic and boundary survey was used to create plans for the 1,467 LF of 8" diameter gravity sewer main extension. **This project highlighted the importance of field investigations to identify obstacles during the design phase to avoid conflicts during construction which could result in costly change orders and delays.**

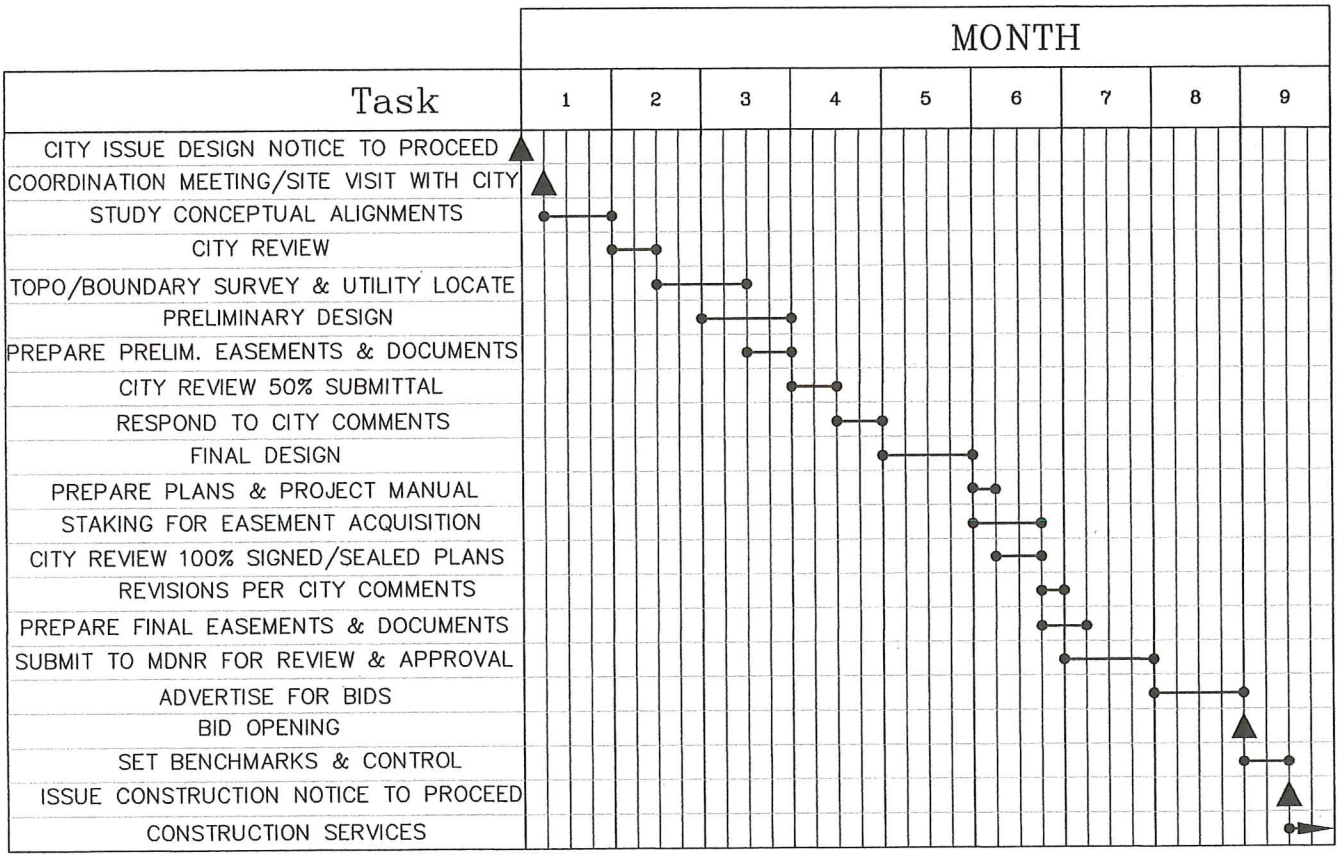
City of Branson Lift Station No. 46 and Force Main Improvements:

As previously described in the City of Branson Animal Safari Sewer Main Extension project profile, Rozell Engineering Company was retained by the City of Branson to plan and design the upgrade the temporary holding tank to a fully operational municipal lift station. Since the City of Branson had extensive experience operating numerous lift stations within their wastewater collection system, the City had gained valuable insight and wisdom concerning the construction and operation of a lift station. Consequently, **the Lift Station 46 project became an opportunity for the City to incorporate all of this insight and wisdom into the proposed lift station design. Much coordination occurred between the City and Rozell Engineering Company to ensure all of the items were properly incorporated. Additional research was involved to address items which had caused problems on other lift stations in the past. Ultimately, design plans were completed and approved by the City for what could serve as a prototype for future lift stations.** The project will be scheduled for construction as soon as the necessary funds are available.

This project illustrated that extra communication, research and patience on the part of both the City and Rozell Engineering Company could result in a project that incorporated years of collective wisdom and experience which will benefit the City for many years in the future.

DESIGN COMPLETION ON SCHEDULE:

The schedule identifies specific tasks with multiple opportunities for the City to review the construction documents at milestones in the project development. Adequate time has been provided for each City review with additional time for our team to respond. Through coordination we plan to minimize review times and review comments; thereby, reducing the overall project duration. Staff is available to begin work on the project as soon as the notice-to-proceed is issued. We are prepared to dedicate the staff necessary to complete the scope of services in a timely manner consistent with the project schedule. Please refer to the below schedule.



The schedule includes a project kick-off coordination meeting with City staff. This will ensure we have a clear understanding of the City's goals and intentions for the project before we begin work. This will help us stay focused on the project goals and eliminate time wasted due to mis-communication at the beginning of the project. The schedule provides an opportunity for the City to review the construction documents at the 50% complete stage to ensure the design is consistent with the City's goals and intentions. The schedule provides another opportunity for the City staff to review construction documents before the plans are submitted to the Missouri Department of Natural Resources for review. It is important for the City to have this review time to help reduce changes during construction which could result in schedule delays and costly change orders. Time has been provided in the schedule for our firm to respond to the review comments ensuring all review comments are properly incorporated into the final design and project bid documents. Through regular communication and coordination with City staff members throughout the project timeline, we plan to minimize review times and review comments; thereby, reducing the overall project duration.

The timeline does include ample time to provide field surveying services for the options which include multiple proposed gravity sanitary sewer mains serving the Spring Creek residential area – both in road right-of-way and along rear lot lines. If an option is chosen which includes only sewer mains in the road right-of-way, then the timeline for the survey task could be reduced.

PAST PROJECTS ON BUDGET:

Rozell Engineering Company has considerable experience in the design of lift stations, force mains, water system improvements and gravity sanitary sewer system improvements for

municipalities and private developers in the Branson area. As a result, we have developed a history of projects which have been successfully completed for clients under budget. Our long-time presence in this region has allowed us to develop a close working relationship with personnel of the local municipalities, governing review agencies such as the Missouri Department of Natural Resources and Corps of Engineers, and utility companies. The knowledge of local ordinances and regulations in conjunction with the working relationships described above expedite the design and review process which, in turn, results in a reduction of costs for the client. As a result, our firm has gained a respected position in the community for the design of such projects. This experience will be a tremendous asset on this project.

Please see below for cost data on similar projects which Rozell Engineering Company completed for the City of Branson.

City of Branson Lift Station No. 43 and Collection System Improvements:
Engineer's Opinion of Construction Cost = $700,000
Awarded Bid = $663,304.50

City of Branson Branson North Water System Improvements:
Engineer's Opinion of Construction Cost = $1,448,591
Awarded Bid = $1,310,599

City of Branson Animal Safari Sewer Main Extension:
Engineer's Opinion of Construction Cost = $438,073
Awarded Bid = $374,616.60

City of Branson Lift Station No. 19 Decommissioning and Gravity Sewer Main Extension:
Engineer's Opinion of Construction Cost = $273,817
Awarded Bid = $246,109.53

City of Branson Lift Station No. 46:
Engineer's Opinion of Construction Cost = $437,268
Awarded Bid = TBD

In all instances, the awarded bids were less than the Engineer's Opinion of Construction Cost. Quality Assurance/Quality Control practices help keep change orders to a minimum. Quality construction documents which are accurate and easily readable along with close monitoring of the contractor during construction also help control change orders. Another project Rozell Engineering Company completed for the City of Branson was the Pointe Royale Wastewater Treatment Facility conversion to a lift station. This project was completed with changes orders totaling less than 0.5% of the total construction cost. The success of this project was a testament to the extensive coordination between our firm and City personnel.

QUALITY ASSURANCE/QUALITY CONTROL:

Quality assurance/control measures are in place from the start to the completion of a project. An in-house system of checks and balances results in errors and omissions being caught quickly during the design process. This reduces mistakes which arise during construction which saves the City time and money.

Rozell Engineering Company standard quality assurance/control measures include:

- Engineering staff members visit the project site to observe field conditions in person.
- Engineering staff members coordinate with survey personnel to ensure all information necessary for design is collected during the field survey.
- Engineering staff members coordinate with local utility companies to ensure communication between agencies to prevent conflicts with utilities during construction.
- Topographic survey information is used to verify proposed improvements match existing conditions where appropriate.
- Design calculations performed by engineering staff members are double-checked for accuracy by supervising engineering staff members.
- Plans are checked to ensure design intent has been effectively conveyed on the drawings.
- Construction drawings and specifications are reviewed to ensure all City review comments have been incorporated.
- Periodic site visits are made during construction to ensure the proposed improvements are built in general conformance with the plans and specifications.

Rozell Survey Company standard quality assurance/control measures include:

- USGS or Missouri Department of Natural Resources benchmarks are tied in to establish horizontal coordinates and a datum elevation.
- Prior to the field crew starting a job, all the office research is completed and that information is reviewed with the field crew. Our crews have all worked in the area for years, so they are very familiar with the Branson area. If specific features or items are needed for a particular job an engineer will accompany the field crew on the first site visit.
- Control points are set in field to ensure data gathered during multiple trips to the site are always on the same horizontal coordinates and datum elevations.
- Field data is checked when downloaded in office to ensure conformity with control.
- Drawings are field verified to ensure accurate representation of field conditions.
- Rozell Survey Company has direct access to one of the local title company's title plant in addition to online access to the Taney County Recorder's Office. This, in part, is due to the fact that our firm at one time was the only surveying and engineering firm actually located in the City of Branson and has always maintained an office here in Branson. Our firm has established a trust with the local firms and they know the type of work that this firm has always strived to deliver. This access allows our company to research properties ahead of time which prevents wasted time in the field and improves the quality of surveys.
- As-built surveys are performed to verify proposed improvements are constructed per plan.

Standard quality assurance/control measures between team members include:

- Regular communication between team members will be maintained to coordinate information.
- Progress plans will be reviewed to ensure all aspects of the design are fully coordinated.
- All team members will be active throughout all phases of the project to ensure the design intent is followed from conceptual design through construction.

PROJECT MANAGEMENT/COMPLETION:

Project Research:
Rozell Engineering Company personnel spoke Mr. Matt Filice, P.E. of the City of Branson Engineering Department to gain a more thorough understanding of the project. Rozell personnel then made a site visit to evaluate the project areas first hand. It became apparent that although the project scope is relatively straight forward, there are several factors which will need to be given careful consideration during planning, design and construction.

The Lift Station 17 force main relocation route passes across or along several public streets, through a busy timeshare development with immaculate landscaping, through areas with exposed rock shear cuts and along utility easements which are filled with existing utilities including a natural gas main. The route chosen ideally should minimize construction costs and interruptions to traffic and land owners, while providing for an accessible route which can be properly maintained in the future.

The Spring Creek residential area includes very narrow unimproved gravel roads which experience significant erosion issues during rain events. Solid rock and mature trees are present in the area which will increase the difficulty of constructing the water and sewer improvements while maintaining road access to the residences. Significant differences in elevation of the residences on each side of the street will make it challenging to provide gravity service to all residences.

Preliminary Design:
Rozell Engineering Company personnel will perform a site visit with City of Branson Engineering Department and Utilities Department personnel to evaluate the project and discuss possible issues to address during the design of the proposed improvements. Rozell Engineering Company personnel will walk the preliminary routes in an effort to identify any potential conflicts. Walking the routes will allow our staff to identify and eliminate potential conflicts which would increase project costs. Multiple routes may be selected which offer various advantages and disadvantages. The selected routes will be presented to the City for review. Once the preferred route is chosen, Rozell Survey Company field crews will then perform a topographic survey of the selected route identifying all topographic features such as curbs, ditches, sidewalks, pavement, signs, fences, structures, trees, natural drainage channels, etc. Missouri One Call will be contacted to locate the existing utilities on and adjacent to the route. All above ground indications of utilities will be identified on the topographic survey. In addition to topographic information, property boundary information including road right-of-ways will be collected to be used for preparation of temporary and permanent easement documents.

Rozell Engineering Company personnel will meet with property owners whose property will be crossed by the relocated force main and the proposed water and gravity sewer main extensions. Cooperation with property owners during the initial phase of the project will help easement negotiation during later phases.

Rozell Engineering Company staff will field verify the utility locate data to help prevent conflicts with existing utilities. This will result in saving time and money later in the project. The topographic survey data will then be used to prepare preliminary design drawings depicting the route selected for the relocated force main and the proposed water and gravity sewer main improvements. These plans will be used to prepare preliminary cost estimates.

Preliminary Easement Descriptions and Documents:
Rozell Engineering Company will identify necessary permanent easements and temporary construction easements required for the relocated force main and proposed water and gravity sewer mains on the 50% preliminary plans submitted to the City of Branson for review. Rozell Survey Company will prepare preliminary easement descriptions and documents for the proposed permanent easements and temporary construction easements as part of the 50% submittal for review by the City of Branson and affected property owners.

Final Design:
After approval of the preliminary design, Rozell Engineering Company will complete the final design of the relocated force main and proposed water and gravity sewer main improvements. This will include coordination and plan preparation as required for the relocation of any existing utilities which may conflict with the proposed improvements. A final cost estimate will be prepared based on the completed final design. Rozell Engineering Company will prepare the project manual utilizing "front-end" documents provided by the City. This information will be submitted to the City for review and approval. As soon as the documents are approved by the City, submittal to the Missouri Department of Natural Resources will be made for review and the issuance of a construction permit.

Final Easement Descriptions and Documents for Easement Acquisition:
Rozell Survey Company will address any City of Branson review comments pertaining to the preliminary easement descriptions and documents submitted for review. Final easement descriptions and documents will be prepared for submittal to the City. Proposed permanent easements and temporary construction easements shall be staked in the field for review by City of Branson and property owners during the easement acquisition process.

Bidding Services:
Rozell Engineering Company will act as a source for bid documents to all interested bidders. A wet sealed paper copy of the plans and project manual will be provided to the City. A PDF file will be provided for posting on the City website to allow viewing by potential bidders and a Word file of the specifications will also be provided to the City. Rozell Engineering Company will be available to answer any questions from the prospective bidders. After the advertising period, Rozell Engineering Company will attend the bid opening with City personnel. Within three business days after the bid opening, Rozell Engineering Company will review and tabulate all bids, and then, recommend the lowest responsible bidder to the City.

Construction Services:
Rozell Engineering Company will be available to provide technical support throughout the construction of the project which includes answering questions, reviewing shop drawings, and being available for meetings on-site including at equipment startup and testing. Periodic site visits will be made to observe the work in progress. Services will also include a final punch-list walk through to ensure all work is constructed in substantial conformance with construction documents. **Since the project sites are located within five miles from Rozell's office, personnel will be available on short notice to visit the project sites.**

Rozell Engineering Company understands the importance of maintaining continuous flow through the existing system throughout the duration of the project. Rozell Engineering Company will coordinate with the contractor and the City to ensure tie-ins of new components are scheduled at off-peak times to minimize disruptions to the existing services.

As-built plans will be supplied to the City in paper, DWG and pdf format upon completion.

REFERENCE CHECK /RECOMMENDATIONS:

See attached at end of proposal.

VALUE ENGINEERING PROCEDURES:

Value engineering practices will be studied. Factors such as up-front capital costs will be weighed against long term operation and maintenance costs and other requirements to determine the most cost effective solution. **We believe an ounce of prevention is worth a pound of cure.**

Value engineering principles are inherent in our design philosophy beginning in the conceptual phase, continuing through the preliminary phase and to the final design phase including detailed plan preparation. It doesn't stop there, though. Often during the construction phase opportunities are discovered while working on-site that may provide an opportunity to modify the design to better match unforeseen conditions discovered on-site resulting in cost savings.

Value engineering in the conceptual phase of a project involves the study of alternate routes for the force main relocation. Each option studied will include advantages and disadvantages that will need to be fully evaluated to determine the best option to be studied further during the preliminary phases and ultimately carried through the final design phase. Costly hurdles can be avoided at this stage of a project through a careful examination of the sites and routes chosen. For example, when utility routes are studied, careful attention should be given to the number of easement required from different property owners. Often, it is possible to adjust the horizontal alignment such that the number of easements is reduced resulting in lower easement acquisition costs and reducing the time required for easement acquisition. Various options for the vertical alignment of the gravity sewer main extensions will be studied to evaluate the best solution for providing service to the existing homes in Spring Creek. Grinder pumps versus gravity service to homes which are especially low in elevation may be compared to evaluate the impact on the gravity main depth and subsequent construction cost. Or, if gravity service is mandatory to all homes, then it may be possible to construct multiple shallow gravity sewer mains - one in the road to pick up the uphill lots and another main below the lower lots versus one deep main down the road. Deep mains can be more expensive due to rock excavation, require more time to construct, cause more interruptions to traffic, be difficult to maintain in the future and cause more inconvenience for adjacent property owners due to traffic delays and damage to property during construction.

Value engineering in the preliminary and final design phases includes evaluating specific material types, products, and methods typically employed during construction to identify items that could result in potential project savings. A recent City of Branson lift station project we designed required a minimum three inch diameter ductile iron pipe in the valve vault. We researched ductile iron pipe prices through local suppliers and discovered that since three inch pipe was a special order item, four inch diameter pipe was actually less expensive. So we specified four inch diameter pipe. **Not only did the City of Branson gain hydraulic capacity in the piping, but the City of Branson saved money.**

The construction phase may also present opportunities for value engineering to reduce project costs. It is not uncommon for slight adjustments to be made during construction that potentially result in a significant reduction in project costs. Recently, we were notified by a contractor on a utility project in the City of Ozark that solid rock was unexpectedly encountered while excavating a utility trench. Chipping out the solid rock was causing delays in construction and sky rocketing construction costs. After digging several more test pits, it became evident constructing the utility line in accordance with the original design would not meet the project schedule or budget. We studied the rock test pit data and redesigned the utility line to minimize rock excavation. **The new design, approved by the City, allowed the contractor to get back on schedule and help reduce what would have been significant overruns in the project budget.**

OTHER INFORMATION:

Rozell Engineering Company has designed numerous lift station and force main improvement projects - both large and small. **We have learned that each and every project is unique and requires special attention to the smallest details and issues specific to that project.** Our experience provides insight which will help address challenges encountered on new projects in the future. Please refer to the following partial list of relevant lift station improvement projects.

Talon Ridge: 770 gpm L.S., 2,444 LF 10" F.M. and a 37 gpm L.S., 2,469 LF 2" F.M.
Big Cedar Wilderness Retreat: 530 gpm lift station and 1,838 LF 8" force main
Emerald Point: 500 gpm L.S., 2,203 LF 10" F.M. and a 500 gpm L.S., 6,327 LF 10" F.M.
The Meadows: 335 gpm L.S., 2,188 LF 6" force main and a 54 gpm L.S.,243 LF 3" F.M.
Leabrooke Subdivision - Phase I: 280 gpm lift station and 211 LF 6" force main
Fremont Hills: 280 gpm lift station and 30 LF 4" force main
The Rivers – Phase II: 257 gpm lift station and 1,500 LF 6" force main
Mapledale: 200 gpm lift station and 2,300 LF 6" force main
Fremont Hills Towne Centre: 195 gpm lift station and 1,265 LF 6" force main
Branson View Estates: 135 gpm lift station and 827 LF 4"force main
NW Ozark Sewer Ext.: 130 gpm L.S., 1,097 LF 4" F.M., 85 gpm L.S.,1,003 LF 4" F.M.
Summer Place on The Lake Condos: 100 gpm lift station and 743 LF 4" force main
Country Farm Estates: 57 gpm lift station and 658 LF 3" force main
Fall Creek: 33 gpm lift station and 408 LF 2" force main
Branson School District R-IV Cedar Ridge Campus: 24 gpm L.S.,1,372 LF 2" F.M.

While working on numerous water system and sanitary sewer system improvement projects here in Branson, Rozell Engineering Company personnel have become very familiar with the existing systems, City of Branson personnel, and the challenges associated with the various portions of the systems. This familiarity will not only provide helpful insight for the design of the proposed water and sewer improvements, but also will also help expedite the project which will result in saving the City of Branson time and money. Please refer to the following partial list of relevant water and sewer improvement projects completed here in Branson.

City of Branson Water Main Extensions serving:

Highway 376 Development: 2,402 LF 12 inch water
Falls Village Resort: 2,297 LF 8 inch water
Starlite Theater: 351 LF 8 inch water
Lost Treasure Golf: 859 LF 8 inch water
Cedar Ridge at the Woods: 1,061 LF 8 inch water

Grandvista at the Woods: 1,758 LF 8 inch water
Office Max: 676 LF 12 inch and 153 LF 6 inch water
French Quarter Condominium: 2,262 LF 8 inch water
Grandvista Mall Shopping Center: 626 LF 8 inch water
Cabins at Grand Mountain: 1,996 LF 8 inch water
Roy Rogers Museum: 1,151 LF 8 inch water
Dick Clark Theater/Museum: 689 LF 8 inch water
Canyon Springs Gas Station: 840 LF 16 inch water
Palace View South Condos: 1,804 LF 8 inch water
Legacy at Thousand Hills: 1,002 LF 8 inch water
First Baptist Church: 548 LF 8 inch water

City of Branson Gravity Sewer Extensions serving:

Branson Commerce Park: 32,650 LF 8 – 12 inch sewer
Valley Ridge Residences: 1,576 LF 8 inch sewer
Rock Ridge Villas: 2,049 LF 8 inch sewer
Turtle Creek Apartments: 1,366 LF 8 inch sewer
Country Ridge Residences: 849 LF 8 inch sewer
248 Commercial Park: 830 LF 8 inch sewer
Branson Hills Apts: 1,800 LF 8 inch sewer
Falls Village Resort: 826 LF 8 inch sewer
Legacy at Thousand Hills: 912 LF 8 inch sewer
Grandvista at the Woods: 1,758 LF 8 inch sewer
French Quarter Condominium: 912 LF 8 inch sewer
Fairfield at the Welk Resort: 2,823 LF 8 inch sewer
Cabins at Grand Mountain: 1,130 LF 8 inch sewer
Summerwood Estates: 1,543 LF 8 inch sewer
Branson Meadows Craft Mill: 962 LF 8 inch sewer
Branson High School: 2,475 LF of 8 inch sewer
Treasure Lake Resort: 3,904 LF of 8 inch sewer
Fairfield at Mountain Vista: 1,331 LF 8 inch sewer

LOCATION OF PRINCIPAL OFFICES:

Rozell Engineering Company has been located in Branson, Missouri since the conception of the company in 1972. **Our office is located within five miles of the project sites.** Therefore, we are able to be on the project sites within a matter of minutes. This short travel time is invaluable during all phases of a project. The preliminary design phase requires site visits by both engineering and surveying personnel. Many times during final design, it becomes evident that additional information is necessary to fine tune the design or consider other value engineering alternatives. When the project site is only minutes from the office, it is a very simple and quick process to send a survey field crew or engineering staff member to the site to collect the additional information. Consequently, questionable items can be addressed during the final design stage prior to construction. As thorough as we strive to be during the design process, invariably, unknown conditions on the job site result in issues during construction. Usually, a quick meeting on-site between the engineer and contractor can resolve most issues. If necessary, a survey field crew can be sent to the site to quickly verify as-built conditions that are in question. The close proximity to the project site allows our personnel to be on-site almost immediately if any conflicts or questions arise. Our ability to access the site quickly will save the City of Branson time and money.

REFERENCE CHECK /RECOMMENDATIONS:

Below is a list of private developers, owners, and municipalities we have worked with to successfully complete projects. Please feel free to contact any of the persons listed to obtain information relating to our expertise, responsiveness, availability, ethics, fees and timely completion of projects. **The references below were taken from projects which required extra coordination between team members and the owner to effectively ensure all aspects of the project were covered. Also, the projects were chosen due to their complexity which required multiple options to be carefully studied to determine the best option which incorporated the owner's wishes while taking into consideration items such as site conditions and construction costs. The Pearman Storage project referenced below included relocating a portion of the L.S. 17 force main which crossed the project to avoid conflicts with proposed structures.**

City of Branson Water and Sanitary Sewer Improvement Projects:
Matt Filice, P.E., Asst. City Engineer - City of Branson
110 W. Maddux Street, Suite 310, Branson, MO 65616
(417) 243-2734 mfilice@bransonmo.gov

Pearman Storage including Relocating Portion of LS 17 Force Main – Branson, Missouri:
Mark Pearman, Owner - Pearman Craft Mall and Pearman Storage
694 State Hwy 165, Branson, MO 65616
(417) 294-0060 markbcm2@gmail.com

Morningside Development – Blue Eye, Missouri:
Jerry Crawford, Owner - Western Construction
180 Grace Chapel Rd., Suite D, Blue Eye, MO 65611
(417) 334-6625 debbiestockton@totalhighspeed.com

Branson Coaster – Branson, Missouri:
Charlie Engram, Project Manager
7804 Cozy Cove Rd., Branson, MO 65616
(417) 230-4234 charlie@midwesternunlimited.com

Veterans Administration Outpatient Clinic – Springfield, Missouri:
Jenny Oakley, Sr. Project Manager - Carnegie Management and Development Corp.
27500 Detroit Road, Suite 300, Westlake, OH 44145
(440) 892-6800 ext. 323 joakley@carnegiecorp.com

Emerald Point Subdivision – Taney County, Missouri:
Bruce Menke, COO - Emerald Pointe Utility Company, Inc.
P.O. Box 616, Branson, MO 65616
(417) 294-0366 bmenke@snadonproperties.com